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Knowledge, Attitude & Practices on Advancing our Understanding of the Role of Breakfast in Promoting Health and Well-Being in College Going Students

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Abstract:- Breakfast, often deemed the most important meal of the day, has garnered significant attention in scientific research for its potential implications on health and well-being. The recent advancements garner in understanding the multifaceted role of breakfast in promoting overall health. Evidence suggests that consuming a balanced breakfast, rich in nutrients, can positively influence metabolism, cognition, and long-term dietary behaviors. However, challenges such as variability in study methodologies and socioeconomic factors influencing breakfast habits underscore the need for further interdisciplinary research and tailored interventions. By advancing our understanding of breakfast's role, we can inform strategies to promote healthier dietary habits and improve public health outcomes. The study in question aimed to explore the intricate relationship between nutrition-related knowledge, attitudes, and practices, and how these factors influence the breakfast consumption habits of college-going females aged 18-23. Utilizing a validated questionnaire, the research categorized participants based on their responses into low, moderate, and high knowledge, attitude, and practice groups. This approach provided a nuanced understanding of the factors contributing to breakfast skipping, a significant concern for public health among young adults. The findings related to knowledge, attitude and practices revealed that the majority of them fall in the category of adequate. Significant correlation was found between knowledge, attitude and practices among college going students.

Keywords*:* Knowledge, attitude, practice, breakfast, consumers and skippers.

1. Introduction

The correlation between the health of a nation's citizens and its overall well-being is a critical aspect of public health policy. The investment in the health of college students is not merely a matter of individual well-being but is indeed an investment in the nation's future (Martin et al 2024). A focus on healthy diets for young adults (18-23years) is essential, as this group often falls into a gap in health and nutrition education, which typically focuses on either children or older adults. The consequences of neglecting this demographic are significant, as evidenced by research indicating that India may face a surge in illnesses related to nutritional deficiencies (Jeneta, 2016).

A balanced diet plays a pivotal role in maintaining both physical and mental health. It is the cornerstone of a healthy lifestyle, providing the necessary energy and influencing overall well-being. Among the various meals, breakfast is often highlighted as the most important (Uzhova et al 2017). It sets the tone for the day, providing essential nutrients that are crucial for cognitive functions and physical energy. The absence of a proper breakfast can lead to a host of negative effects, ranging from mood fluctuations to an increased risk of metabolic syndrome later in life (Nicklas et al, 2004).

The patterns established in adolescence regarding breakfast consumption can persist into adulthood, underscoring the importance of establishing healthy habits early on. Unfortunately, studies have shown that breakfast is the most frequently skipped meal among young adults, which can have detrimental long-term effects on health. This trend is alarming and calls for a concerted effort to educate and encourage better dietary practices among the youth (Al Bashtawy, 2015).

By addressing the dietary habits of young adults, particularly the importance of a nutritious breakfast, we can work towards a healthier population that is capable of contributing positively to the nation's growth (Fugas et al 2013). It is imperative that health policies and educational programs are designed to bridge the gap in nutrition education for this age group, ensuring that they receive the guidance needed to make informed choices about their diet and health (Rani et al 2021).

The transition from adolescence to adulthood is a critical period, especially for college-going girls who are stepping into a new phase of independence and self-reliance. This significant change includes the adoption of individual food habits that align with their new lifestyle. Research indicates that this demographic is prone to adopting poor eating behaviors, which could be attributed to the newfound autonomy combined with a lack of proper nutritional guidance (Taha et al 2017). The importance of breakfast consumption cannot be overstated, as it has been consistently linked to healthier eating patterns, including higher intake of dietary fiber, thiamine, and folate, as well as lower fat consumption. However, the hectic life of a university student often leads to skipping this crucial meal due to time constraints, lack of appetite, or misconceptions about weight management (Bang et al 2006).

The role of nutrition knowledge in shaping eating habits is well-documented, with studies showing that a higher level of understanding leads to healthier food choices, such as increased consumption of fruits, vegetables, and essential micronutrients, while reducing fat intake (Arshad et al 2014). This suggests that educational interventions focusing on nutritional awareness could be beneficial in guiding young adults towards better eating habits. It is imperative that universities and health professionals work together to create programs and resources that can address these issues, providing students with the knowledge and tools they need to make informed decisions about their diet and health (Olsta, 2013). Such initiatives could include nutrition workshops, accessible healthy food options on campus, and campaigns to raise awareness about the importance of meals like breakfast. By fostering an environment that supports healthy eating behaviors, we can help ensure that the transition to independent living is accompanied by a strong foundation of nutritional well-being. This holistic approach to student health can contribute significantly to their academic success and overall quality of life Ozdogan et al 2010).

The interplay between knowledge, attitudes, and practices (KAP) is a cornerstone in the domain of public health, particularly in the context of nutrition. The intricate relationship between these elements forms the bedrock of health-seeking behaviors and dietary choices within a community. In-depth KAP surveys serve as a mirror, reflecting the collective consciousness of a population regarding nutrition and health, revealing not only the level of awareness but also the prevailing beliefs and the extent to which these are translated into daily practices (Bauer et al 2020).

The significance of KAP extends beyond individual health, touching upon broader issues of food security and societal well-being. By assessing and improving the collective understanding and attitudes towards nutrition, communities can make strides towards better health outcomes. This is particularly relevant in a diverse and populous country like India, where regional variations in diet and culture add layers of complexity to the challenge of ensuring nutritional security.

Education indeed plays a pivotal role in shaping the dietary habits and health consciousness of young adults. By integrating nutrition education into college curricula, students can be equipped with the knowledge to make informed choices about their diets. Understanding the importance of a balanced diet and the risks associated with skipping meals, such as breakfast, is essential. Educational initiatives can focus on the long-term benefits of healthy eating practices, which not only improve physical health but also enhance academic performance and

overall well-being. Tailored programs that address the specific needs and challenges faced by college students can foster a more health-conscious generation (Woo et al 2015).

2. Materials and Methods

The survey conducted among college-going girls in Tirupati district is a commendable effort to understand the dietary habits and nutritional awareness of young women in the region. The use of a structured questionnaire to assess knowledge, attitudes, and practices (KAP) regarding dietary practices, with a focus on breakfast consumption, is a robust approach to gather meaningful data. The purposive sampling technique ensures that the participants are representative of the target population, which is crucial for the validity of the study.

The inclusion of socio-demographic variables such as age, religion, caste, marital status, family type, average family income, and area of residence provides a comprehensive background against which the KAP can be analyzed. This allows for a nuanced understanding of how these factors may influence dietary choices and nutritional knowledge. The scoring system used to evaluate nutritional knowledge, with a range from inadequate to adequate, offers a clear metric to gauge the level of understanding among the participants (Yu et al 2003).

Similarly, the use of a five-point Likert scale to assess attitudes towards dietary practices is an effective method to quantify the perceptions and beliefs of the respondents. The classification of attitudes into unfavourable, moderately favourable, and favourable based on the total score is a straightforward way to interpret the data. The practice questionnaire further complements this by providing insight into the actual dietary habits, particularly breakfast consumption, which is often an overlooked but significant aspect of nutrition (Lakmali et al 2022).

The statistical analysis, including mean, standard deviation, and percentage calculations, provides a solid foundation for interpreting the KAP scores. The use of Pearson correlation to explore the relationships between these variables is a sophisticated analytical choice that can reveal important patterns and associations. The decision to set the significance level at $p<0.05$ is in line with standard research practices and lends credibility to the findings (Ferrer et al 2011).

Overall, the study's methodology appears to be well-constructed and thorough, promising valuable insights into the dietary practices and nutritional knowledge of college girls in Tirupati. Such research is essential for informing public health initiatives and educational programs aimed at improving the nutritional status and health outcomes of young women in the region. The emphasis on breakfast consumption is particularly noteworthy, as it highlights an area of daily routine that has significant implications for overall health and well-being. The results of this survey could potentially guide future interventions to promote healthier eating habits among the youth.

3. Results

3.1. Socio-demographic profile

In the study, 860 college students aged between 18-23years participated. The mean age of the subjects was 20.90±1.601 years. Most of the students were from under graduation courses (83%). The distribution reveals that 51% were from Nutrition department, 23 % were from Biotechnology, 10% were from chemistry and 16% were from engineering department. A majority of them were Hindus (88%) while Muslims and Christians constituted for 12% of the sample respectively. According to study, 64% of them were from the households where income was below 30,000rupees.

3.2. Breakfast pattern

Out of the sample (n-860), 76% (n=654) the students are the breakfast consumers and 26% (n=206) are breakfast skippers. In which 87% were non-vegetarians and 13% were vegetarians.

The dietary patterns and breakfast consumption habits of Indian college students present a fascinating case for nutritional and behavioral studies. The prevalence of vegetarianism, ova-vegetarianism, and non-vegetarianism among the subjects reflects the diverse dietary choices prevalent in the region. The cited studies reveal a

significant variance in breakfast consumption rates, which could be attributed to cultural, socioeconomic, or individual lifestyle factors. The global comparison further underscores the variability in eating habits among university students worldwide. The figure shows that 75.6% (n=650) regularly had breakfast without skipping. 24.4% (n=210) fall under the category of either skipping the breakfast for 1-2days, 3-4 days, 5-6 days and 1.2% fall under never taking the breakfast.

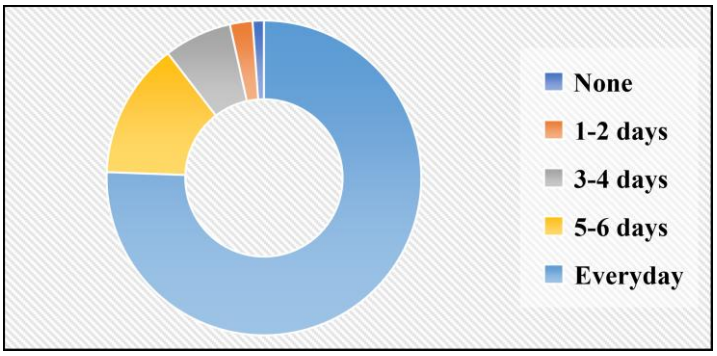

Figure 1: Breakfast Pattern of Students

3.3. Foods included in the breakfast

Selecting a variety of food groups for breakfast is crucial for covering the nutritional spectrum needed to kickstart the day. A balanced breakfast should ideally include items from at least three of the five food groups: fruits, vegetables, grains, protein, and dairy. This diversity ensures intake of essential vitamins, minerals, and fiber, contributing to overall dietary quality and nutrient density. For instance, incorporating whole grains can provide sustained energy, while proteins can help in maintaining muscle health. It's also advisable to limit intake of saturated fats, added sugars, and salt to maintain a healthy diet. By choosing a mix of food groups, one can enjoy a nutritious breakfast that supports physical health and cognitive function throughout the day.

Table 1- Percentage of knowledge, attitude and practice of taking breakfast

Variable	Number	Percentage
Breakfast taken by students in a week		
None	10	1.2
1-2 days	20	2.3
3-4 days	60	6.9
5-6 days	120	13.9
Everyday	650	75.5
Total	**860**	**100**
Foods including in the breakfast		
Cereals/ Grains	368	42.7
Dairy Prodcucts	70	8.1
Fruits	60	6.9
Vegetables	120	13.9
Proteins sources	150	17.4
Nuts	32	3.7
Others	60	6.9
Total	**860**	**100**
Time taken for consuming Breakfast		
< 5min	40	4.6

Variable	Number	Percentage
5-10min	140	16.2
10-20min	340	39.5
20-30min	240	27.9
> 30min	100	11.6
Total	**860**	**100**
Reasons for Skipping Breakfast		
Not hungry in the morning	190	22.1
No time	520	60.4
Weight loss	170	19.7
Not interested to eat	170	19.7
Others	150	17.4
Total	**860**	**100**
Breakfast taken with		
Alone	260	30.2
With family	300	34.8
With friends	280	32.5
With colleagues	20	2.3
Others	0	0
Total	**860**	**100**

The figure 2 reveals that 42.7% (n=368) students included the cereals and whole grains in their breakfast. Dairy products were taken by 8.1% (n=70), Fruits were taken by 6.9% (n=60), vegetables were taken by 13.9% (n=120), Protein sources like pulses, panner, egg were included by 17.4% (n-150) and the remaining students were taking nuts and others like processed foods, ready to eat foods etc.

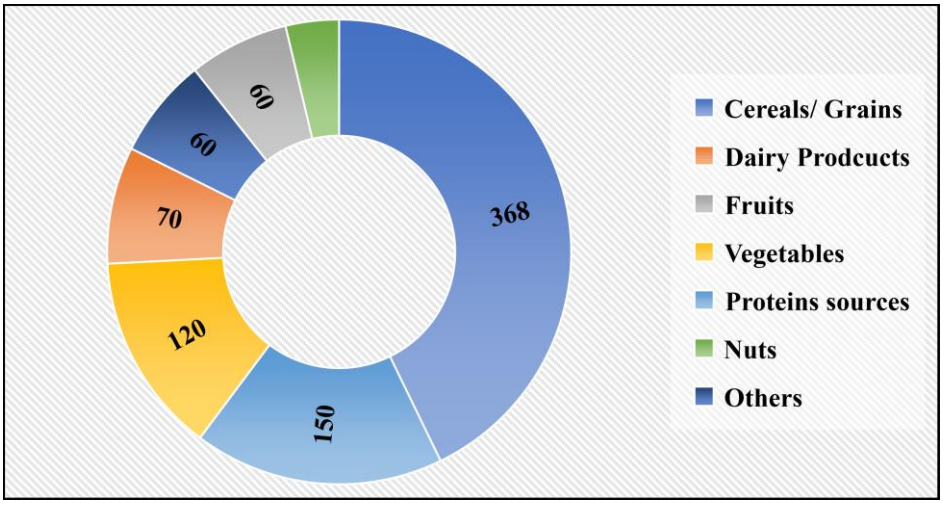

Figure 2- Time taken for consuming Breakfast

Taking the time to eat breakfast can have a multitude of benefits for health and well-being. A morning meal can jumpstart your metabolism, helping to burn calories throughout the day. It also supplies energy, aiding in maintaining high levels of physical activity in the morning (Ackuaku. Consuming breakfast has been linked to improved memory and concentration, potentially enhancing productivity and cognitive performance. Therefore,

spending some time in breakfast is crucial. In the figure 3 less than 5min is taken to eat by 4.6% (n=40) students. 5-10min of time is taken by 16.2% (n=140), 10-20min is taken by 39.5% (n-340), 20-30min was taken by 27.9% (n=240) and more than 30min was taken by 11.6% (n=100) students

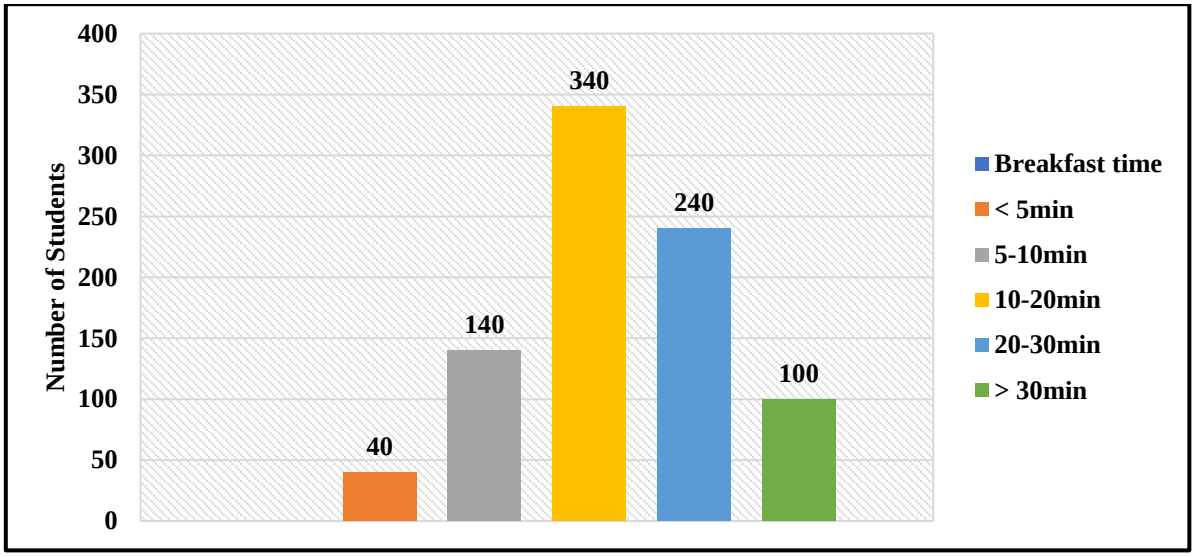

Figure 3- Time taken for consuming Breakfast

3.4. Reasons for skipping breakfast

Young adults often skip breakfast due to a variety of reasons. Time constraints are a common issue, with many feeling that they don't have enough time in the morning or preferring to spend extra time in bed. Weight management concerns also led some to forgo breakfast, while others may not feel hungry upon waking or are too tired to eat (Affinita et al 2013). A lack of variety in breakfast options can result in boredom with the meal, and financial constraints or not having breakfast foods readily available at home are also contributing factors. Additionally, changes in dietary habits and increased snacking may reduce the regularity of breakfast consumption (Widenhorn et al 2008). Understanding these reasons is crucial for developing strategies to encourage more consistent and healthy breakfast habits among young adults. The below graph was the reasons stated by the students when they do not have breakfast. Many a time the students prefer to eat breakfast with friends, classmates, many a times alone, with family etc.

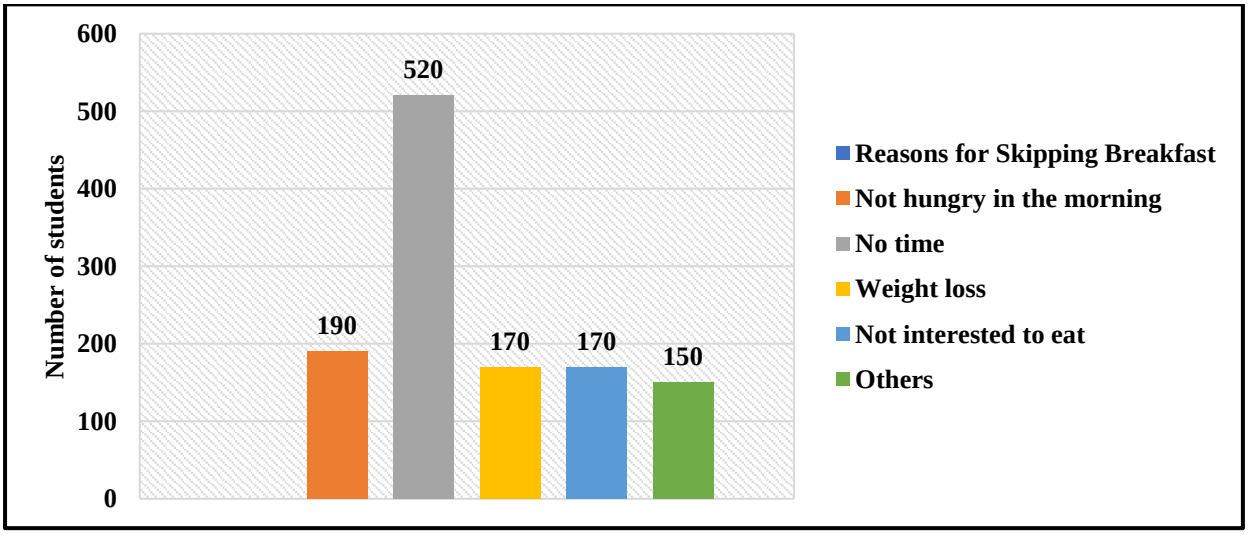

Figure 4- Reasons for Skipping Breakfast

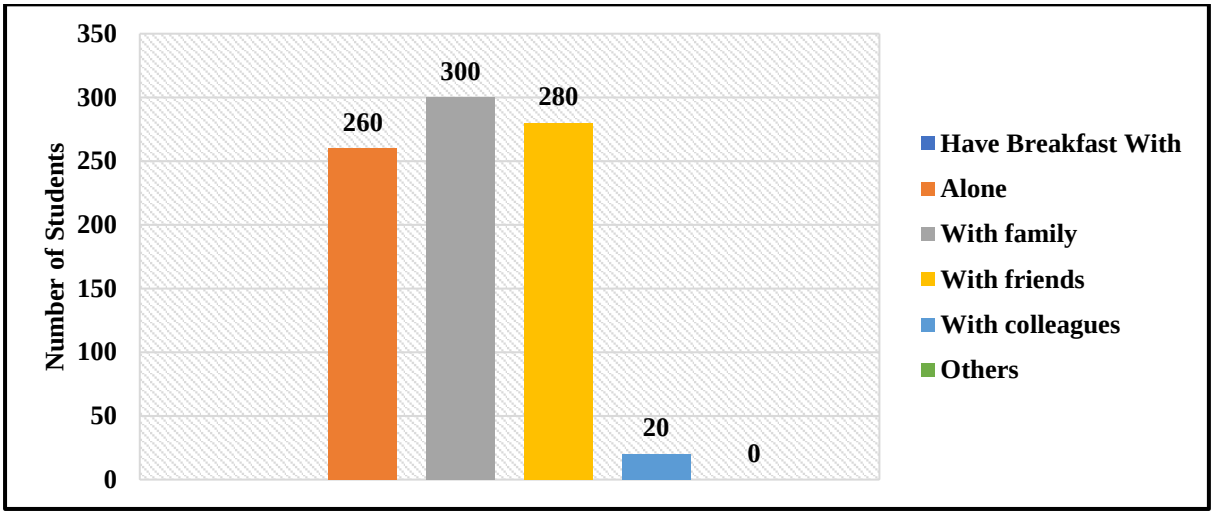

Figure 5- Students having Breakfast Alone, with family, friends, colleagues

The detailed breakdown of breakfast timing among the subjects provides insight into their daily routines and how these may influence their overall dietary patterns. The concept of "eating jet lag" is particularly noteworthy, as it highlights the potential consequences of irregular meal timings on metabolic processes (Ozkececi et al 2021). The association between delayed meal times and weight gain emphasizes the importance of maintaining a consistent eating schedule. Educating students about the importance of regular meal times could be instrumental in promoting better health outcomes (Sweeney et al 2005).

The synchronization of meal times with the body's internal clock is crucial for metabolic health. Irregular eating patterns can disrupt the body's circadian rhythms, leading to adverse effects on body weight regulation. The studies referenced suggest a need for increased awareness and education on the impact of meal timing on health. As the research indicates, consistent meal times align with the body's natural rhythms, potentially aiding in the prevention of weight gain and the promotion of metabolic balance (Chen et al 2002).

3.5. Distribution based on Knowledge on Nutrition

The finding related to basic nutritional knowledge level revealed that majority 75.6% (n=651) of the subjects had adequate knowledge, 2.75% (n=23) had inadequate knowledge and the remaining 21.65% (n=186) had moderately adequate knowledge. The mean scores of knowledge was 4.47±0.80 for total population and there was a significant difference in the scores of breakfast consumers and breakfast skippers $p<0.05$.

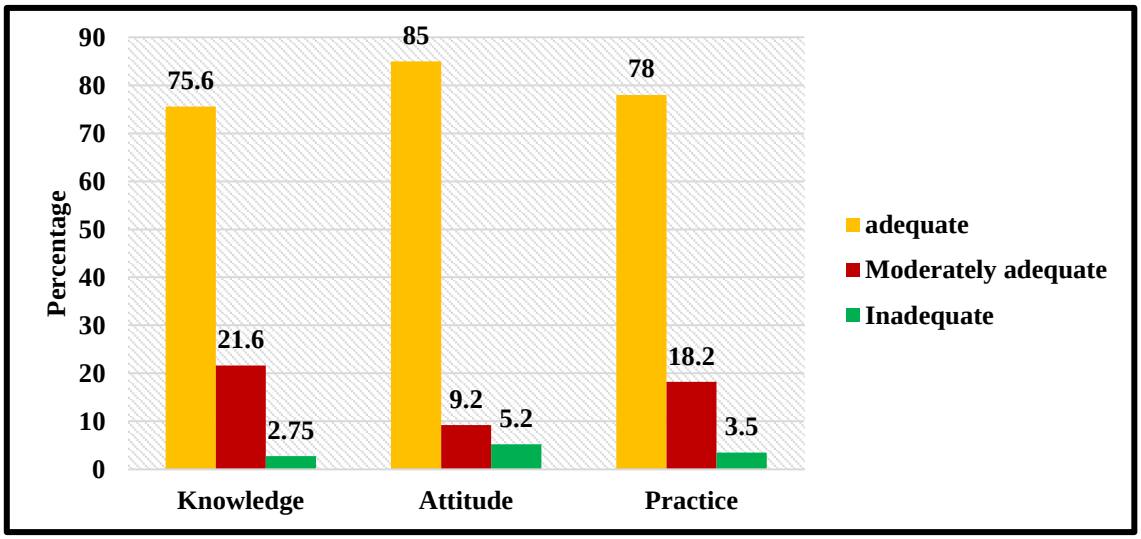

Figure 6– Distribution of students based on Knowledge, Attitude and Practices

3.6. Distribution based on Attitude on Nutrition

The finding related to basic attitude towards breakfast consumption 5.2% (n=45) showed inadequate attitude, 85% (n=731) had favourable attitude and 9.2% (n=84) had moderate amount of attitude. The mean scores of attitude was 22.11±0.89 for total population and there was a significant difference in the scores of breakfast consumers and breakfast skippers $p<0.05$.

3.7. Distribution based on Practices on Nutrition

The findings related to the breakfast consumption practices of 860 students going to college revealed that merely 3.8%(n=33) were having inadequate practices, 78% (n=671) had good adequate practices and 18.2% (n=156) had moderate practices regarding the breakfast consumption. Moreover the significant difference was reported between breakfast consumers and breakfast skippers had significant difference at $p<0.05$.

3.8. Correlation between Knowledge, attitude and practice on Nutrition

Correlations between students KAP responses were measured using the Pearson correlation coefficient ®, which calculates the linear relationship between the two variables. Statistical significance was set as $p<0.05$. the results of Pearson correlation indicated that there is a significant positive relationship between knowledge and attitude[$r(860)= 0.616$, $p<0.05$], knowledge and practice [$r(860)= 0.063$, $p<0.05$], attitude and practice [$r(860)= 0.713$, $p<0.05$].

Table 2– Correlation between KAP variables

Variables	Pearson correlation coefficient (r)	p
Knowledge vs. Attitude	+0.616	<0.05
Knowledge vs. Practice	+0.063	<0.05
Practice vs. Attitude	+0.713	<0.05

4. Discussion

The patterns observed in the dietary habits of Indian college students, particularly in terms of breakfast consumption and timing, offer valuable insights for public health initiatives. The integration of these findings into educational programs could foster healthier eating behaviors and better health outcomes for college students (Emilien et al 2017).

Breakfast, often hailed as the most important meal of the day, has been a subject of scientific inquiry for decades. Its significance in promoting health and well-being has been explored from various angles, ranging from its impact on metabolism and weight management to cognitive function and overall dietary patterns. Despite the longstanding interest in breakfast, ongoing research continues to uncover nuances in its role, shedding light on its implications for diverse populations and health outcomes (Cueto, 2001).

4.1. Metabolic Impact of Breakfast-

One of the primary areas of research regarding breakfast's role in health focuses on its metabolic effects. Studies have shown that consuming a balanced breakfast, particularly one rich in protein and fiber, can have a positive impact on metabolism (Unal et al 2017). Breakfast jumpstarts the metabolism, helping regulate blood sugar levels and energy expenditure throughout the day. Moreover, skipping breakfast has been associated with an increased risk of obesity and metabolic disorders, underscoring the importance of this meal in maintaining metabolic health (Chapman et al 2008).

4.2. Cognitive Function and Breakfast

Beyond its metabolic effects, breakfast also influences cognitive function, particularly in children and adolescents. Research suggests that eating breakfast is associated with improved memory, attention, and academic performance (Chitra et al 2007). A nutritious breakfast provides essential nutrients that support brain function, including carbohydrates for energy, protein for neurotransmitter synthesis, and micronutrients like

vitamins and minerals. Consequently, interventions promoting breakfast consumption in schools have shown promising results in enhancing cognitive abilities and educational outcomes among students (Chung et al 2001).

4.3. Breakfast and Dietary Patterns

The role of breakfast extends beyond its immediate effects on metabolism and cognition; it also influences overall dietary patterns. Individuals who regularly consume breakfast tend to have healthier eating habits throughout the day, including higher intake of fruits, vegetables, and whole grains. On the contrary, skipping breakfast has been linked to erratic eating patterns, increased snacking, and a higher likelihood of consuming calorie-dense, nutrient-poor foods later in the day. Understanding these dietary patterns is crucial for developing effective strategies to promote healthy eating behaviors and prevent diet-related diseases (Murphy, 2007).

4.4. Breakfast and Mental Health

According to Emerging research has begun to explore the link between breakfast consumption and mental health outcomes. Preliminary evidence suggests that skipping breakfast may be associated with an increased risk of depression and anxiety, although further studies are needed to elucidate the underlying mechanisms. Nutritional psychiatry, a growing field, emphasizes the role of diet in mental health, highlighting the potential importance of breakfast in promoting psychological well-being (Quigley et al 2007).

4.5. Challenges and Future Directions

While research on breakfast and health has made significant strides, several challenges and unanswered questions remain. Variability in study designs, dietary assessment methods, and participant characteristics contribute to inconsistencies in findings across studies (Butcher et al 2003). Moreover, the cultural and socioeconomic factors influencing breakfast habits underscore the need for tailored interventions to address diverse populations' needs. Future research should adopt interdisciplinary approaches, integrating nutritional science, psychology, and public health to gain a comprehensive understanding of breakfast's role in promoting health and well-being.

5. Conclusion

Breakfast plays a pivotal role in promoting health and well-being across the lifespan. From its metabolic benefits to its influence on cognitive function, dietary patterns, and mental health, breakfast encompasses a myriad of effects that warrant further exploration. As research continues to advance, efforts to promote breakfast consumption and develop evidence-based interventions are essential for improving public health outcomes and fostering healthier communities. By deepening our understanding of breakfast's multifaceted role, we can empower individuals to make informed dietary choices and cultivate habits that support their overall well-being.

Conflict of Interest

There is no Conflict of Interest

Acknowledgement

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