Potato Chips and Their Effects on the Well-being of Adolescent Girls

Yeshita Kothari[1], Sridevi Dasam[2], Thummaloor Sreevani[3], Vadapalli Lakshmi[4], Madhu Munagala[5]

10.18805/ajdfr.DR-2292

ABSTRACT

Background: This study investigates potato chip consumption patterns among young female adults (ages 17-22) in South India, examining factors influencing their choices and the associated impacts on health and social behavior.

Methods: A quantitative survey was conducted across 24 educational institutions in four South Indian states, with 1,127 participants. The research explored six dimensions: immediate pleasure, energy boost, social bonding, nutritional deficiency, mental health impact and unhealthy eating patterns. Statistical analyses assessed perceptions across age groups, living environments and states.

Result: Findings revealed a complex relationship between participants and potato chip consumption. While aware of nutritional deficiencies (mean score 3.42) and potential health risks, participants valued chips for immediate pleasure (3.03) and social bonding (3.14). Perceptions were generally consistent across age groups, except for perceived energy boost ($p=0.018$). Significant differences were observed across states in immediate pleasure ($p=0.019$), energy boost ($p=0.002$) and nutritional deficiency awareness ($p<0.001$), indicating regional influences on consumption patterns. The study highlights the need for targeted, culturally sensitive interventions to promote healthier snacking habits among young female adults in South India, balancing the social appeal of potato chips with long-term health considerations.

Key words: Adolescent eating habits, Nutritional awareness, Potato chip consumption, Social bonding.

INTRODUCTION

Potato chips, a ubiquitous snack worldwide, are a staple of snack culture due to their crispy texture and savoury flavour. Their sensory gratification makes them popular for quick munching, especially among all ages. Students often consume these snacks during busy study sessions or share with peers, fostering social bonding. Despite these appeals, potato chips pose risks, including nutritional deficiencies, mental health impacts and unhealthy eating patterns.

Although there is a growing body of research on unhealthy eating patterns, limited studies have specifically examined the consumption behaviours of adolescent girls in South India, particularly regarding their perceptions, social influences and awareness of health risks. This gap necessitates a focused exploration to inform culturally appropriate interventions. The findings will provide valuable insights for culturally tailored public health interventions targeting adolescent nutrition and well-being. Proper nutrition avoids many physical illnesses (Durgannavar and Vijayalakshmi, 2021). Research has shown that potato chips offer immediate pleasure and convenience as a snack choice, often linked to social gatherings and an energy boost (Salvador *et al.,* 2009; Nauman, 2023). These positive effects, driven by their palatability and ability to trigger the brain's reward system, make them a globally popular snack (Mudatsir *et al.,* 2023). Adolescents, in particular, find potato chips appealing due to their affordability and their role in enhancing social interactions (Nauman, 2023).

[1]Department of English, Koneru Lakshmaiah Education Foundation, Guntur-522 302, Andhra Pradesh, India.
[2]Department of English, Velagapudi Ramakrishna Siddhartha School of Engineering Siddhartha Academy of Higher Education Deemed-to-be-University, Vijayawada-520 001, Andhra Pradesh, India.
[3]Department of English, Vardhaman College of Engineering, Hyderabad-501 218, Telangana, India.
[4]Department of English, Anurag University, Venkatapur, Ghatkesar, Medchal-501 301, Telangana, India.
[5]Department of English, Koneru Lakshmaiah Education Foundation, Guntur-522 302, Andhra Pradesh, India.

Corresponding Author: Madhu Munagala, Department of English, Koneru Lakshmaiah Education Foundation, Guntur-522 302, Andhra Pradesh, India. Email: madhu.css@kluniversity.in
ORCIDs: https://orcid.org/0009-0004-4358-9393; https://orcid.org/0000-0001-9532-7281; https://orcid.org/0000-0002-0297-6707; https://orcid.org/0000-0002-0179-248X; https://orcid.org/0000-0002-0383-4866

How to cite this article: Yeshita, K., Sridevi, D., Sreevani, T., Lakshmi, V. and Madhu, M. (2025). Potato Chips and Their Effects on the Well-being of Adolescent Girls. Asian Journal of Dairy and Food Research. 44(3): 375-384. doi: 10.18805/ajdfr.DR-2292.

Submitted: 12-11-2024 **Accepted:** 04-02-2025 **Online:** 18-03-2025

Potato chips, while widely enjoyed for their taste and social appeal, pose significant health risks when consumed frequently. Studies suggest a strong association with weight gain, obesity and related health issues (Heidal *et al.,* 2012). Their high content of unhealthy fats, sodium

and calories, coupled with low levels of essential nutrients like fiber, contributes to poor dietary habits (Aya *et al.,* 2022). Chronic consumption of such nutrient-deficient foods can lead to fatigue, weakened immune function and impaired cognitive performance (Bein *et al*., 2022; Oxford, 2023). Additionally, Environmental Enteric Dysfunction (EED), a condition characterised by reduced nutrient absorption, has been linked to diets lacking in nutritional diversity, highlighting the adverse effects of frequent potato chip consumption (Bein *et al.,* 2022; Bein *et al.,* 2021). Beyond physical health, potato chips pose risks to mental well-being. Frequent consumption has been associated with an increased risk of depression and anxiety, particularly among younger individuals, due to lipid metabolism disturbances and neuroinflammation (Wang *et al.,* 2023; Khalid *et al.,* 2016).

Research further indicates that adolescents who consume chips frequently may exhibit personality traits like nervousness, aggressiveness and excitability (Mehta and Swinburn, 2001). These findings underscore the psychological impact of unhealthy dietary habits. The link between dietary patterns and mental health is well-documented. Studies show that unhealthy eating behaviours, including the regular consumption of processed snacks like potato chips, elevate the risk of developing common mental disorders (CMD) (de Macêdo *et al.,* 2023). In children and adolescents, unhealthy lifestyle behaviours (ULBs), influenced by peer pressure, parental habits, and emotional factors, contribute to emotional and behavioural problems (Zhang *et al.,* 2023). Divya and Garg (2024) opine that neglecting proper diet and lifestyle due to a lack of physical activity and increased consumption of fast food leads to various lifestyle-related disorders.

For Indian adolescents, these factors are further compounded by cultural and social dynamics, emphasising the need for targeted interventions to promote healthier food choices (Jena *et al*., 2023). Despite these concerns, potato chips remain a widely enjoyed snack due to their ability to provide immediate pleasure and foster social bonding. However, balancing these short-term benefits with the long-term risks of nutritional deficiencies, mental health issues and unhealthy eating patterns is crucial. These findings highlight the importance of public health initiatives focused on educating adolescents about balanced diets and encouraging healthier eating habits to mitigate the potential health impacts of potato chip consumption. Savita *et al.* (2024) recommend that snack producers and food technologists create healthier and more nutritious snacks while maintaining sensory appeal, addressing the need for healthier alternatives in the snack food industry.

MATERIALS AND METHODS

This study employs a quantitative research methodology, utilizing a survey approach to collect data from female adolescent students across various educational institutions in South India. The research was conducted from January 2024 to September 2024. The study included female young adult students aged 17-22 from 24 institutions (Aditya Engineering College, Alagappa Govt. Arts College Karaikudi, Andhra University, Anil Neerukonda Institution of Technology and Sciences, Anurag University, Bapatla Women's Engineering College, Bhavans Vivekananda Degree College, GMRIT Rajam, KKR and KSR Institute of Technology and Science, KL University, Malla Reddy University, Pb Siddhartha College of Arts and Sciences, Presidency University, PVKK Institute of Technology, RBVRR Women's College, RK College of Engineering, S.C.I.M Govt. Autonomous College Tanuku, Sri Durga Mallerswara Siddhartha Mahila Kalasala, Sri Vasavi Engineering College Tadepalligudem, SRKR Engineering College Bhimavaram, St. Ann's College for Women Mehdipatnam, VR Siddhartha Engineering College, Vidya Jyothi Institute of Technology, VKR VNB and AGK Engineering College, VNR Vignana Jyothi Institute of Engineering and Technology). Convenience sampling was used to recruit participants. A total of 1,127 students participated in the study, with the number of participants from each institution ranging from 6 to 139. A standardised questionnaire was developed and distributed *via.* Google Forms. The questionnaire consisted of demographic information and 24 statements on potato chip consumption (statements are included in the Results and Discussion section).

The study employed a 5-point Likert scale for Part B of the questionnaire, allowing participants to express their level of agreement with each statement. The scale ranged from 1 (Strongly disagree) to 5 (Strongly agree), with intermediate options of Disagree (2), Neutral (3) and Agree (4). The 24 statements in Part B were organised into six key dimensions to assess various aspects of potato chip consumption among adolescent girls. These dimensions included immediate pleasure (statements 1-4), energy boost (statements 5-8), social bonding (statements 9-12), nutritional deficiency (statements 13-16), negative impact on mental health (statements 17-20) and unhealthy eating patterns (statements 21-24). This structure comprehensively evaluated participants perceptions and behaviours related to potato chip consumption across multiple domains.

The research procedure for this study was carefully designed to ensure ethical standards and efficient data collection. Informed consent was incorporated into the Google Form questionnaire, ensuring that all participants provided their approval before responding. The questionnaire was then distributed to students at the participating institutions through their respective administrative channels, facilitating a broad reach across 24 educational institutions in South India.

RESULTS AND DISCUSSION

The bar chart (Fig 1) illustrates the age distribution of participants aged 17 to 22 years, with orange bars representing the ages (17, 18, 19, 20, 21, 22) and blue bars indicating the corresponding frequency of participants for each age. The highest frequency is observed at age 18, with 406 participants, followed by age 19, with 374

participants. Moderate frequencies are recorded for ages 17 and 20, at 66 and 170 participants, respectively, while the lowest frequencies are seen at ages 21 and 22, with 75 and 36 participants.

The bar chart (Fig 2) illustrates the distribution of participants based on their place of living across four categories: Rural, Semi-Rural, Semi-Urban and Urban. The Urban category, represented by the blue bar, has the highest

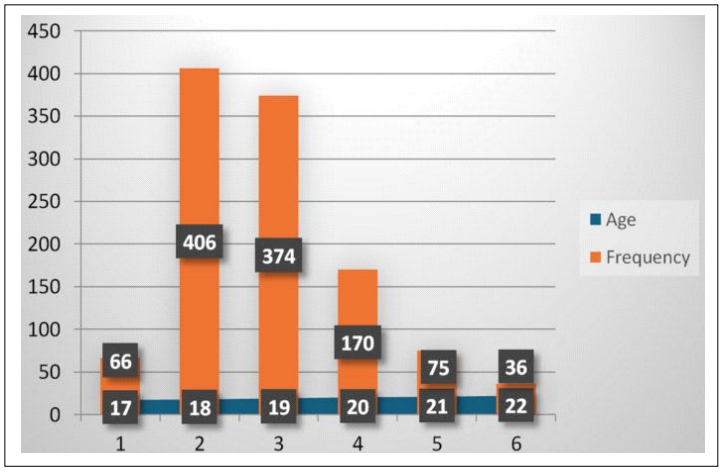


Fig 1: Participants age ranging from 17-22 years.

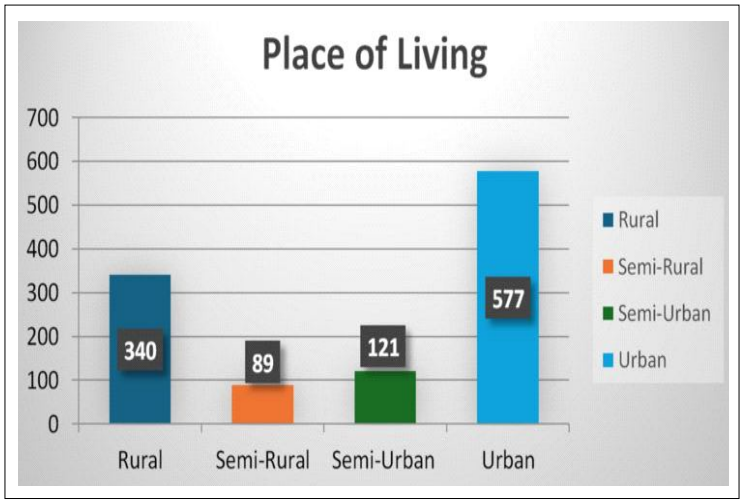


Fig 2: Participants place of living.

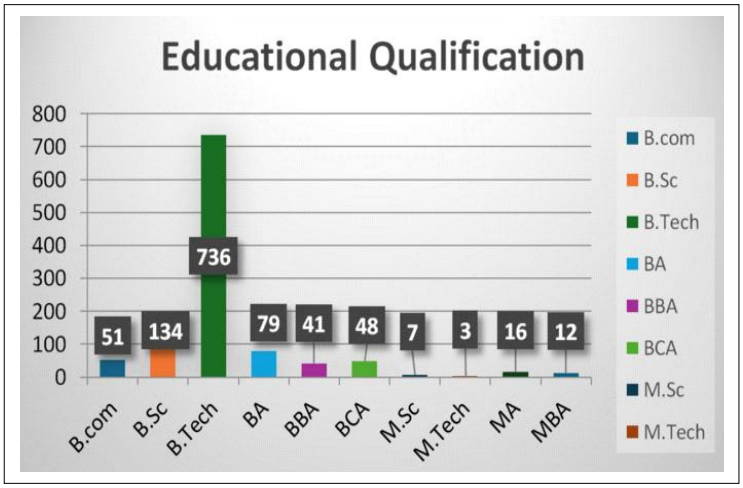


Fig 3: Educational qualification of the participants.

number of participants at 577, indicating a significant urban representation. In contrast, the Semi-Rural category, shown by the orange bar, has the lowest count at 89. The Rural category, depicted by the gray bar, has a moderately high number of participants at 340, while the Semi-Urban category, represented by the green bar, accounts for 121 participants. This data highlights a clear trend where urban areas have the most participants, followed by rural regions,

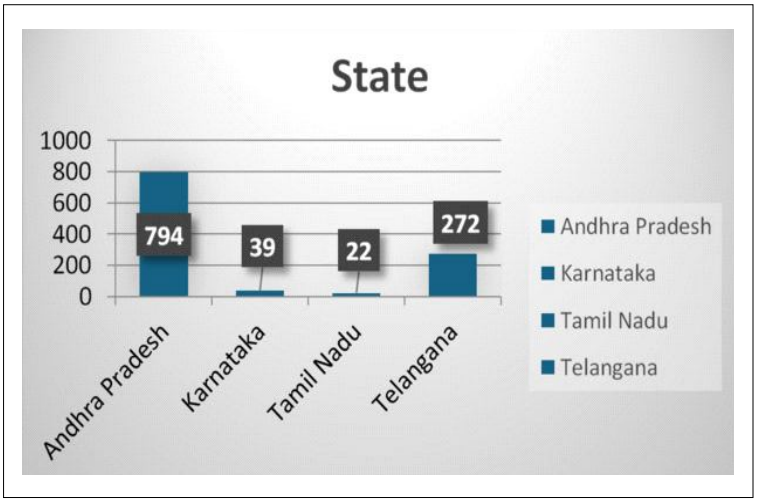


Fig 4: States to which participants belong.

Table 1: Mean value of statements.

S. no.	Statement	Mean
IP 1	When I eat potato chips, I experience feelings of pleasure and satisfaction.	3.54
IP 2	Potato chips are a source of enjoyment for me, providing a temporary mood boost.	3.41
IP 3	When I get compliments from my teachers/friends, I buy chips.	2.34
IP 4	Eating potato chips enhances my overall sense of well-being and happiness.	2.83
Immediate pleasure (IP)		3.03
EB 1	Potato chips help me stay alert and focused during long study sessions.	2.45
EB 2	I rely on potato chips to give me the energy to get through the day.	2.34
EB 3	Eating potato chips helps me reduce feelings of weakness and tiredness.	2.56
EB 4	I often consume potato chips to reload my energy levels when I feel low.	2.57
Energy boost (EB)		2.48
SB 1	I celebrate my happiness by offering potato chips to my friends.	2.79
SB 2	While spending time with my friends, I prefer to buy potato chips.	3.25
SB 3	Potato chips serve as a bonding experience when shared with friends or classmates.	3.16
SB 4	When I plan outings with my friends, I carry potato chips.	3.35
Social bonding (SB)		3.14
ND 1	I know potato chips contain unhealthy fats, sodium, and calories.	3.9
ND 2	Eating potato chips makes me feel tired and lacking in energy.	2.66
ND 3	I believe that frequent consumption of potato chips can lead to nutritional deficiencies.	3.49
ND 4	Potato chips do not provide the essential nutrients for a balanced diet.	3.62
Nutritional deficiency (ND)		3.42
NI 1	Eating potato chips can temporarily improve my mood and emotional well-being.	2.94
NI 2	I eat potato chips to reduce my stress, anxiety, or negative emotions.	2.66
NI 3	I feel irritated after consuming a lot of potato chips in a day.	2.98
NI 4	Consuming potato chips can affect my mental health.	2.87
Negative impact on mental health (NI)		2.86
UEP 1	I frequently want salty or high-fat foods like potato chips.	2.89
UEP 2	It is challenging for me to control my intake of potato chips.	2.84
UEP 3	Consuming potato chips influences my view of hunger and fullness indications.	2.93
UEP 4	Regular consumption of potato chips has changed my eating habits.	2.85
Unhealthy eating patterns (UEP)		2.88

with semi-rural and semi-urban areas having considerably smaller numbers.

The bar chart in (Fig 3) illustrates the educational qualifications of the participants. The colours represent different qualifications, with the green bar representing B.Tech, which has the highest number of participants at 736. Other qualifications show significantly lower counts, with B.Sc (orange) at 134, BA (blue) at 79 and B.Com (gray) at 51. The remaining categories, including BBA, BCA, M.Sc, M.Tech, MA and MBA, have relatively lower frequencies, ranging from 48 to 7 participants.

The bar graph illustrates the distribution of participants across four states (Fig 4). Andhra Pradesh has the highest representation, with 794 participants, followed by Telangana, with 272 participants. Karnataka and Tamil Nadu contribute significantly fewer participants, with 39 and 22, respectively. This indicates a predominant representation from Andhra Pradesh and Telangana.

The analysis (Table 1) explores apostrophe for individuals perceptions and behaviours regarding potato chip consumption across various variables, with responses rated on a scale where higher scores indicate stronger agreement. On average, individuals report moderate enjoyment and satisfaction from eating potato chips (mean score 3.03) and perceive them as moderately associated with social bonding (3.14), suggesting that they are somewhat valued for their immediate pleasure and as a social snack. Despite these positive associations, there is a notable awareness of the potential downsides. Individuals acknowledge potato chips' poor nutritional content (mean score 3.42), demonstrating moderate awareness of their unhealthy components. They also express moderate concern over the negative impact on mental health (2.86) and recognise their contribution to unhealthy eating patterns (2.88). The perception of potato chips as an energy source is rated lower at 2.48, indicating that few view them as particularly energizing. The table reveals a complex relationship with potato chips, balancing immediate pleasure and social connections with awareness of health risks and potential impacts on mental well-being.

Table 2 summarises individual perceptions of potato chip consumption, highlighting moderate responses across various aspects. The mean ratings for Immediate Pleasure and Energy Boost are both 3.03, showing that girls experience moderate enjoyment and perceive a slight energy boost from consuming potato chips. Both distributions are slightly negatively skewed, with mode and median values at 3, indicating a common tendency towards mid-level enjoyment and perceived energy gain. For Social Bonding the mean score is slightly higher at 3.14, suggesting that respondents view potato chips as somewhat enhancing social interactions. This rating also shows a negative skewness, with a median of 3.25, reflecting higher ratings by some individuals. In terms of health awareness, the mean rating for Nutritional Deficiency is 3.42, showing moderate recognition of nutritional drawbacks associated with potato chips. The distribution is negatively skewed, with a mode and median of 3.5. On the mental health front, the mean rating for Negative Impact on Mental Health is 2.86, with a slight positive skewness, suggesting moderate concern about mental health impacts. Lastly, 'Unhealthy Eating Patterns' has a mean of 2.88, indicating recognition of unhealthy habits linked to potato chip consumption.

Analysis of potato chip eating habits across age groups

Table 3 presents the one-way ANOVA analysis of eating habits across age groups:

1. No significant differences in most factors (Immediate Pleasure, Social Bonding, Nutritional Deficiency, Mental Health Impact, Unhealthy Eating Patterns) across age groups ($p>0.05$).
2. Significant difference in Energy Boost perception ($p= 0.018$).

Table 2: Descriptive statistical analysis of all variables.

Statistical tool	Immediate pleasure	Energy boost	Social bonding	Nutritional deficiency	Negative impact on mental health	Unhealthy eating patterns
Mean	3.03	3.03	3.14	3.42	2.86	2.88
Standard error	0.02	0.02	0.03	0.02	0.02	0.02
Median	3.00	3.00	3.25	3.50	3.00	3.00
Mode	3.00	3.00	4.00	3.50	3.00	3.00
Standard deviation	0.75	0.75	0.90	0.68	0.73	0.79
Sample variance	0.57	0.57	0.80	0.46	0.53	0.62
Kurtosis	-0.09	-0.09	-0.30	1.10	0.03	-0.17
Skewness	-0.27	-0.27	-0.34	-0.58	0.10	-0.11
Range	4.00	4.00	4.00	4.00	4.00	4.00
Minimum	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00
Sum	3413.75	3412.75	3535.75	3849.50	3226.00	3243.25
Count	1127.00	1127.00	1127.00	1127.00	1127.00	1127.00
Confidence level (95.0%)	0.04	0.04	0.05	0.04	0.04	0.05

- Mean scores range from 2.23 to 2.54 for ages 17-18.
- Indicates varied perceptions of dietary energy impact.

3. Nutritional Deficiency awareness:

- Mean scores range from 3.38 to 3.63 for ages 18-22.
- Suggests differing levels of concern about nutritional inadequacy.

These findings indicate that while most perceptions remain consistent across ages, energy boost perception and nutritional deficiency awareness vary significantly among young female adults.

Table 4 summarises the key findings from the one-way ANOVA analysis regarding potato chip eating habits across different age groups.

Analysis of potato chip eating habits across different places of living

Table 5 interprets the one-way ANOVA analysis and reveals statistically significant differences across multiple factors related to eating habits based on the place of living.

Immediate pleasure

Shows a significant difference with a p-value of 0.013, indicating that perceptions of pleasure from eating vary across different places of living.

Energy boost

Has a significant p-value of 0.006, showing notable group differences in how much individuals perceive energy benefits from food.

Nutritional deficiency

Also yields significant differences with a p-value of 0.03, suggesting varied awareness or concern regarding nutrient deficiencies.

Unhealthy eating patterns

Shows significant differences with a p-value of 0.017, indicating recognition of unhealthy eating practices varies across groups.

Table 3: One-way ANOVA results for potato chip eating habits across different age groups.

Factor	F	df1	df2	p
Immediate pleasure	1.701	5	197	0.136
Energy boost	2.806	5	199	0.018
Social bonding	1.672	5	196	0.143
Nutritional deficiency	1.258	5	199	0.284
Negative impact on mental health	0.722	5	203	0.607
Unhealthy eating patterns	1.638	5	199	0.152

Table 4: Summary of key findings from the One-Way ANOVA analysis of different age groups.

Factor	Significant differences ($p<0.05$)	Key findings
Immediate pleasure	No	Perceptions of immediate pleasure are similar across age groups.
Energy boost	Yes	Significant differences in perceived energy boost across age groups.
Social bonding	No	Perceptions of social bonding are similar across age groups.
Nutritional deficiency	No	Perceptions of nutritional deficiency are similar across age groups.
Negative impact on mental health	No	Perceptions of negative impact on mental health are similar across age groups.
Unhealthy eating patterns	No	Perceptions of unhealthy eating patterns are similar across age groups.

Table 5: One-way ANOVA results for potato chip eating habits across different places of living.

Factor	F	df1	df2	p
Immediate pleasure	3.63	3	276	0.013
Energy boost	4.18	3	277	0.006
Social bonding	2.39	3	274	0.069
Nutritional deficiency	3.03	3	277	0.03
Negative impact on mental health	4.95	3	274	0.002
Unhealthy eating patterns	3.46	3	275	0.017

Negative impact on mental health

Shows the most substantial significance with a p-value of 0.002, indicating strong group differences in awareness of potential mental health impacts from eating habits.

Social bonding

With a p-value of 0.069, it does not show a statistically significant difference, implying that foods role in social connections is viewed similarly across different living places.

Table 6 summarises the key findings from the One-Way ANOVA analysis regarding potato chip eating habits across different places of living.

Analysis of potato chip eating habits across four states in South India

Table 7 presents the one-way ANOVA analysis showing significant differences in perceptions of immediate pleasure, energy boost and nutritional deficiency from consuming potato chips across the four states, with p-values of 0.019, 0.002 and less than 0.001, respectively. This indicates that these factors vary significantly by state. However, social bonding and unhealthy eating patterns do not show significant differences (p-values of 0.201 and 0.26), suggesting consistent perceptions across states. The negative impact on mental health has a borderline significance (p-value of 0.051), indicating potential but not definitive differences in perceptions across states.

Group Descriptives

The Group Descriptives in Table 8 reveal notable variations in potato chip consumption perceptions across four South Indian states:

1. Immediate pleasure

Andhra Pradesh shows the highest mean (3.07), while Tamil Nadu has the lowest (2.64),indicating regional differences in enjoyment levels.

2. Energy boost

Andhra Pradesh again leads with a mean of 2.54, while Tamil Nadu has the lowest at 2.13, suggesting varied perceptions of potato chips as an energy source.

3. Social bonding

Andhra Pradesh (3.16) and Telangana (3.13) show higher means, contrasting with Tamil Nadu's lower score (2.68), implying different social roles of potato chips across states.

4. Nutritional deficiency

Telangana has the highest awareness (3.58), while Tamil Nadu shows the lowest (3.31), indicating varying levels of nutritional concern.

5. Negative impact on mental health

Andhra Pradesh and Telangana show slightly higher means (2.88 and 2.86) compared to Karnataka and Tamil Nadu, suggesting regional differences in perceived mental health effects.

Table 6: Summary of key findings from the One-Way ANOVA analysis of place of living.

Factor	Significant differences (p<0.05)	Key findings
Immediate pleasure	Yes	Significant differences in perceptions of pleasure from eating across places of living.
Energy boost	Yes	Significant differences in perceived energy benefits from food across places of living.
Social bonding	No	Perceptions of social bonding are similar across places of living.
Nutritional deficiency	Yes	Significant differences in awareness of nutritional deficiencies across places of living.
Negative impact on mental health	Yes	Strong differences in awareness of potential mental health impacts from eating habits.
Unhealthy eating patterns	Yes	Significant differences in recognition of unhealthy eating practices across places of living.

Table 7: One-way ANOVA results for potato chip eating habits across four states in South India.

Factor	F	df1	df2	p
Immediate pleasure	3.56	3	68.7	0.019
Energy boost	5.33	3	69.9	0.002
Social bonding	1.58	3	68.4	0.201
Nutritional deficiency	7.85	3	67.9	<0.001
Negative impact on mental health	2.73	3	69.7	0.051
Unhealthy eating patterns	1.37	3	69.7	0.26

6. Unhealthy eating patterns

Scores are relatively consistent across states, with Andhra Pradesh slightly higher (2.91) and Karnataka and Tamil Nadu lower (2.76).

These findings highlight regional variations in perceptions of potato chip consumption, with Andhra Pradesh generally showing higher scores across most dimensions, while Tamil Nadu often has lower scores.

Table 8: Summary of key findings from one-way ANOVA analysis of group descriptives.

State	N	Mean	SD	SE
Immediate pleasure				
Andhra Pradesh	794	3.07	0.75	0.027
Karnataka	39	2.87	0.74	0.119
Tamil Nadu	22	2.64	0.82	0.174
Telangana	272	2.97	0.75	0.045
Social bonding				
Andhra Pradesh	794	3.16	0.9	0.032
Karnataka	39	3.03	0.89	0.142
Tamil Nadu	22	2.68	1.1	0.234
Telangana	272	3.13	0.86	0.052
Negative impact on mental health				
Andhra Pradesh	794	2.88	0.75	0.027
Karnataka	39	2.67	0.76	0.122
Tamil Nadu	22	2.57	0.6	0.128
Telangana	272	2.86	0.66	0.04
Energy boost				
Andhra Pradesh	794	2.54	0.87	0.031
Karnataka	39	2.31	0.83	0.133
Tamil Nadu	22	2.13	0.71	0.152
Telangana	272	2.36	0.82	0.05
Nutritional deficiency				
Andhra Pradesh	794	3.37	0.68	0.024
Karnataka	39	3.37	0.88	0.14
Tamil Nadu	22	3.31	0.81	0.173
Telangana	272	3.58	0.6	0.036
Unhealthy eating patterns				
Andhra Pradesh	794	2.91	0.79	0.028
Karnataka	39	2.76	0.92	0.147
Tamil Nadu	22	2.76	0.6	0.128
Telangana	272	2.82	0.77	0.047

Table 9: Summary of key findings from one-way ANOVA analysis of four states in south India.

Factor	Significant differences ($p<0.05$)	Key findings
Immediate pleasure	Yes	Significant differences in perceptions of pleasure from eating across states.
Energy boost	Yes	Significant differences in perceived energy benefits from food across states.
Social bonding	No	Perceptions of social bonding are similar across states.
Nutritional deficiency	Yes	Significant differences in awareness of nutritional deficiencies across states.
Negative impact on mental health	Borderline	Potential differences in perceptions of mental health impacts across states.
Unhealthy eating patterns	No	Perceptions of unhealthy eating patterns are similar across states.

This suggests that cultural, social or environmental factors may influence attitudes towards potato chip consumption in different South Indian states.

Table 9 summarises the key findings from the one-way ANOVA analysis regarding potato chip eating habits across four states of south India.

CONCLUSION

This study provides valuable insights into potato chip consumption among adolescent girls in South India, revealing a complex relationship between awareness and behaviour. Despite recognising the nutritional deficiencies and potential health risks associated with potato chips, participants continue to consume them, driven by immediate pleasure and social factors. The research highlights physical effects, such as tiredness and lack of energy, as well as moderate mental impacts, including irritability and stress from excessive intake. Notably, potato chips play a significant role in social bonding during gatherings. Regional variations in consumption patterns underscore the influence of local cultural and environmental factors. Potato chips duality as both a source of short-term enjoyment and long-term health concern emphasises the need for culturally tailored interventions that address health risks while considering adolescents sensory and social preferences.

The study's limitations include convenience sampling, self-reported data and a narrow demographic focus, suggest areas for future research. Expanding to diverse populations, incorporating objective measures and adopting longitudinal designs could provide more comprehensive insights. Ultimately, developing healthier, appealing snack alternatives that respect adolescents preferences while mitigating health risks emerges as a key recommendation from this research.

ACKNOWLEDGEMENT

The present study does not receive any support.

Disclaimers

The views and conclusions expressed in this article are solely those of the authors and do not necessarily represent the views of their affiliated institutions. The authors are responsible for the accuracy and completeness of the information provided but do not accept any liability for any direct or indirect losses resulting from using this content.

Informed consent

The consent was obtained from participants who responded to the questionnaire.

Conflict of interest

The authors declare that there are no conflicts of interest regarding the publication of this article. No funding or sponsorship influenced the design of the study, data collection, analysis, decision to publish or preparation of the manuscript.

REFERENCES

Aya, M.S., Othman, A.A., Karim, K.H.S.H., Saeed, M. and Awlqadr, F.H. (2022). Detection of physiochemical and some heavy metals in potato and corn chips products in iraqi markets with their daily intake. Diyala Agricultural Sciences Journal. 14(2): 52-61. doi: 10.52951/dasj.22140206.

Bein, A., Fadel, C.W., Swenor, B., Cao, W., Powers, R.K., Camacho, D.M., *et al*. (2022). Nutritional deficiency in an intestine-on-a-chip recapitulates injury hallmarks associated with environmental enteric dysfunction. Nature Biomedical Engineering. 6(11): 1236-1247. https://doi.org/10.1038/s41551-022-00899-x.

Bein, A., Fadel, C.W., Swenor, B., Cao, W., Powers, R.K., Camacho, D.M., Naziripour, A., *et al*. (2021). Nutritional deficiency recapitulates intestinal injury associated with environmental enteric dysfunction in patient-derived Organ Chips. BioRxiv. https://doi.org/10.1101/2021.10.11.21264722.

De Macêdo, K., Frota, G., de Almeida, P.C., Viola, F., Sousa, P.V.L. and de Carvalho, C.A. (2023). Unhealthy dietary pattern associated with common mental disorders in adults and older adults: A population- based study. Current Nutrition and Food Science. https://doi.org/10.2174/1573401319666230503155748.

Divya and Garg, G.P. (2024). Millets and its importance: A review. Bhartiya Krishi Anusandhan Patrika. 39(1): 56-60. https://doi.org/10.18805/BKAP688.

Durgannavar, A.N. and Vijayalakshmi, D. (2021). Assessment of breakfast consumption on nutritional adequacy among school-going children in India. Asian Journal of Dairy and Food Research. 40(1): 112-117. https://doi.org/10.18805/ajdfr.DR-1589.

Heidal, K.B. Sarah, E.C. Ginger, T.M. Numari, K.S. Bertrand, B. and Gross, K.H. (2012). Cost and calorie analysis of fast food consumption in college students. Food and Nutrition Science. Retrieved from http://www.scirp.org/journal/fns.

Jena, S. Parida, J. Panda, A. Behera, S. Pradhan, A. Patra, P.K. Pati, S. Kaur, H. and Acharya, S.K. (2023). Knowledge, practices and influencing factors defining unhealthy food behavior among adolescents in India: A scoping review. Frontiers in Psychology: 14. https://doi.org/10.3389/fpsyg.2023.1161319.

Khalid, S., Williams, C.M. and Reynolds, S.A. (2016). Is there an association between diet and depression in children and adolescents? A systematic review. British Journal of Nutrition. 116(12): 2097-2108.

Mehta, U. and Swinburn, B. (2001). A review of factors affecting fat absorption in hot chips. Critical Reviews in Food Science and Nutrition. 41(2): 133-154. https://doi.org/10.1080/20014091091788.

Mudatsir, Z.A., Jasman, J. and Sulaiman. (2023). Functional food based on potato. Foods. 12(11): 2145. doi: 10.3390/foods12112145.

Nauman, K. (2023). Selection of processed and packaged potato-based snacks among university students: A cross-sectional study regarding food environment and dietary behavior. Arab Gulf Journal of Scientific Research. doi: 10.1108/agjsr-11-2022-0258.

Oxford, R.L. (2023). Nutritional deficiencies and their impact on health. Preprint. https://doi.org/10.31219/osf.io/3h2k6.

Salvador, A., Varela, P., Sanz, T. and Fiszman, S.M. (2009). Understanding potato chips crispy texture by simultaneous fracture and acoustic measurements and sensory analysis. LWT - Food Science and Technology. 42(3): https://doi.org/10.1016/j.lwt.2008.09.016.

Savita, B. Beniwal, A. Sangwan, V. and Kawatra, A. (2024). Development, nutritional and storage analysis of pearl millet value-added traditional snacks (Namakpara, Mathri) enriched with jamun seed powder. Bhartiya Krishi Anusandhan Patrika. 39(2): 168-174. https://doi.org/10.18805/BKAP724.

Wang, A., Wan, X., Zhuang, P., Jia, W., Ao, Y., Liu, X., Tian, Y., Zhu, L., *et al*. (2023). High fried food consumption impacts anxiety and depression due to lipid metabolism disturbance and neuroinflammation. Proceedings of the National Academy of Sciences. 120(18): e2221097120. https://doi.org/10.1073/pnas.2221097120.

Zhang, Y., Wang, Q., Zhu, Z., Zong, Q., Wu, X. and Tao, F. (2023). The link between unhealthy lifestyle behaviors and emotional and behavioral problems in children and adolescents: A latent class analysis. Psychology Health and Medicine. 1-16. https://doi.org/10.1080/13548506.2023.2229979.