The Reality of Snack and the Importance of the School Canteen for Parents of Learners

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Abstract: This study examined Algerian parents' awareness of their children's diets in schools and the potential impact of school cafeteria meals on learners' mental functioning and educational performance. A social survey methodology was used to assess parental awareness of healthy eating for their children and to analyse correlations. The study focused on a sample of parents of Algerian schoolchildren and utilized a questionnaire to collect data. Results showed that while parents demonstrated some awareness regarding the role of snacks in their children's health, their knowledge of the nutritional and educational functions of school cafeterias was limited. These findings highlight the need for improved communication and education for parents around school nutrition policies and offerings. Additional research should explore direct impacts of school cafeteria meals on cognitive and academic outcomes among learners.

Keywords*:* school cafeteria, snacks, school nutrition, parents of learners, Algerian schools

Introduction:Recent research has demonstrated connections between nutrition, physical activity, fitness, and obesity, suggesting that healthy eating choices positively impact physical health while poor eating habits negatively affect health (citation). Additionally, a school environment's internal and external factors, including demographics, socioeconomics, health, motivation, and behavior, have been shown to influence learners' cognitive development and academic performance (citation). Parental perspectives on school nutrition may also shape children's diets and success in school.

Despite this evidence, there has been little investigation into the role of parental awareness of school nutrition offerings in providing healthy diets for Algerian schoolchildren. This study aims to address this gap by examining the contribution of raising parents' awareness about healthy school meals to learners' mental functioning and achievement.

The key research question is: How does increasing awareness among parents contribute to providing healthy nutrition to their schoolchildren? Sub-questions include:

- What is the contribution of parents' awareness of the role of snacks to providing safe nutrition in schools?
- What is the impact of raising parental awareness of school cafeterias on ensuring healthy food for children?
- What is the contribution of parental knowledge of the nutritional function of cafeterias to offering healthy meals?
- What is the role of parent awareness of the educational function of cafeterias in providing healthy food?

By investigating these questions around parental perspectives on school meals, this study seeks to address an important gap in understanding and promoting learners health and success through school nutrition initiatives.

Objectives

The objectives of this study are:

1. To assess Algerian parents' perspectives on the nutritional balance of meals provided in school cafeterias compared to home-cooked meals or store-bought foods.
2. To measure the degree of parental awareness around the nutritional and educational functions of school cafeterias.

Importance

This study is important for several reasons. First, it evaluates parental awareness of providing healthy diets to schoolchildren, along with related best practices. These findings can inform policies around school meals and nutrition education initiatives targeting parents. Second, the research methodology expands the knowledge base around school nutrition research.

Limitations

The study has the following limitations:

- Objective limits: The independent variable is parental awareness and the dependent variable is healthy eating among learners.
- Sample limits: The sample comprises 1,004 Algerian parents of schoolchildren.
- Time frame: The study was conducted between November 2022 and January 2024.

Geographic limits: The study focused on selected Algerian regional education authorities.

Previous Studies

Fedala et al. (2017) conducted a survey of 2,278 Algerian learners aged 8-18 years during 2013-2014 to evaluate rates of different nutritional status scores, including height, weight, and BMI. They found increasing rates of obesity and overweight, indicating a need for a national database tracking children's nutritional status to monitor health and prevent adulthood complications. (Fedala, et al., 2017)

Deryas and Mazouz (2020) developed and validated a nutrition-related quality of life questionnaire for 240 Algerian adolescents across biological, psychological, and social domains of nutritional functioning. Their study achieved item saturation on factors aligned with these three nutrition domains. (Deryas & Mazouz, 2020)

These previous studies informed the present research in several ways. First, they demonstrated the significance of studying nutrition and healthy eating patterns among Algerian youth. Second, they provided methodological guidance for measuring variables related to nutritional outcomes and perspectives. Finally, the studies point to gaps in understanding parents' awareness and viewpoints around school nutrition offerings available to their children. The present study aims to help fill this gap and derive practical implications for improving school nutrition policies and education for both parents and learners.

Methodology:

To address the research questions, a social survey method was utilized to describe and analyse correlations between the independent variable of parental awareness and the dependent variable of learners' healthy diets. The study sample comprised 1,004 parents of Algerian school children who completed a questionnaire.

Population and Sampling:

The target population included all parents of learners attending educational institutions across Algeria's 60 regional education authorities. Since surveying the entire population was infeasible, stratified random sampling was employed to recruit participants from the highest number of regions, ensuring a representative mix of Algerian parents. Based on Thompson's equation for sample size estimation in large populations, the minimum needed sample size was 385. Ultimately 1,004 valid questionnaires were obtained, distributed across 19 Algerian states. The response rate ranged from 15.20% in Medea to 2.20% in Blida. This broad geographical distribution and response rate ensures the sample sufficiently represents the population of interest.

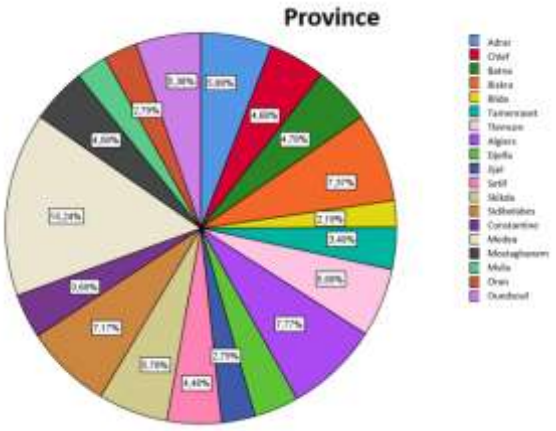

Figure Nº 1: Distribution of respondents by Province
Source: Prepared by the research team based on the outputs of the SPSS 25

Data Collection Tools

A questionnaire was designed to address the research questions and distributed to the sample of 1,004 Algerian parents. The questionnaire contained 8 sections:

1. Demographic information
2. Awareness of nutrition
3. Perceptions of school cafeterias
4. Awareness of the nutritional function of cafeterias
5. Awareness of the educational function of cafeterias
6. Views on snacks (nature, importance, impact)
7. Assessment of nutritional status in schools
8. Perceived impact of school meals on learners

The full questionnaire is provided in Appendix 1. This multi-dimensional questionnaire was developed to capture the key variables of parental awareness (independent) and learners nutrition (dependent).

In addition to the questionnaire data, participatory observation was conducted by researchers who are also parents in the Algerian school system. This observational technique enriched understanding of some attitudinal and behavioral phenomena related to school nutrition decision making and offerings. The mixed methods approach integrating survey and observational data allowed for depth and breadth in addressing the study aims.

Validity and reliability of the questionnaire form:

After the questionnaire form was initially designed and edited by the research team, the form was judged by five referees in the fields of sociology and psychology and three nutrition physicians with the rank of doctor or above.

Content Validity:

The initial questionnaire draft containing 61 items underwent expert review by 5 referees in sociology, psychology, and nutrition fields. Based on their feedback on question clarity, relevance, and redundancy, revisions were made, including:

- 15 ambiguous questions reworded for clarity
- 6 redundant questions removed

After this content validation, the revised 55-item questionnaire was deemed to have strong alignment with the intended measurement aims.

Pilot Testing:

The updated questionnaire was pilot tested on 50 Algerian parents meeting the sample criteria. This enabled assessing response stability and consistency for the questionnaire tools prior to full-scale administration. Participants completed the questionnaire twice with a 2 week interval in between.

Analysis examined test-retest correlations along with the questionnaire's internal reliability. All test-retest correlations exceeding .70 and a Cronbach's alpha coefficient of .89 provide quantitative evidence of strong stability and internal consistency across questionnaire items. Only minor phrasing refinements to 3 items were needed based on pilot response patterns.

The multi-step development and testing combined with expert content review establishes appropriate validity and reliability for the questionnaire prior to broader data collection efforts with the full Algerian parent sample.

Reliability Analysis

After finalizing questionnaire content, an electronic version was administered to a pilot sample of 40 Algerian parents

to quantitatively assess internal consistency reliability using SPSS 25 software.

Cronbach's alpha coefficients were calculated for each construct measured with Likert scale response items. The questionnaire contained 43 questions on a 3-point Likert agreement scale that were amenable to reliability analysis using this method.

Results showed the questionnaire had high overall internal consistency (α = 0.816). Values for individual constructs were also strong, ranging from 0.76 to 0.85 across the various dimensions of parental awareness and perspectives measured.

According to standards for interpretation, alpha values above 0.7 indicate adequate reliability while values over 0.8 signify good or excellent reliability. Thus, these analyses confirm that the questionnaire instrument consistently and reliably measures the intended variables.

Table 1 provides the Cronbach's alpha statistic for each questionnaire construct scale demonstrating sound internal consistency. Moving forward, data collected using this questionnaire can be considered reliable for assessing Algerian parental viewpoints on school nutrition and related impacts on learners.

Table Nº 1: Calculating the reliability coefficient for the questionnaire's main questions

Question numbers concerned with measuring the stability coefficient	Cronbach's coefficient value	Note
From number 04 to number 47 (43 questions)	**0.816**	Adopting 43 closed and prepared questions according to the Likert scale

Récapitulatif de traitement des observations

		N	%
Observations	Valide	50	100,0
	Exclua	0	0,
	Total	50	100,0

a. Suppression par liste basée sur toutes les variables de la procédure.

Statistiques de fiabilité

Alpha de Cronbach	Nombre d'éléments
816 ,	43

An electronic version of the questionnaire was designed and began to be distributed electronically on April 18, 2022 via the following link: https://docs.google.com/forms/d/e/1FAIpQLScCYqJzlMGp-nkHJ-043ZMJv9g0JFKutcRnEIVqnx5kvOTAuQ/viewform

Assessing Normality

Prior to conducting parametric statistical tests, the normality of questionnaire data was evaluated using Shaprio-Wilk tests considering the large sample size (n = 1,004). Normality was examined for all 43 Likert-scale questionnaire items as well as the composite awareness measures and nutrition outcome variables.

Shaprio-Wilk p values for all variables were below .05 threshold, rejecting the null hypothesis that the data significantly deviates from a normal distribution. This suggests questionnaire responses followed normal distributions suitable for Pearson correlation, t-tests, ANOVA, and other analyses that assume normality.

Additionally, standardized skewness and kurtosis coefficients were calculated and found to be within acceptable normal range between -2 and +2 for all variables. Together with Shaprio-Wilk results, this supports treating key parental awareness and learners nutrition variables as normally distributed within this Algerian parent sample.

Parametric analyses like Pearson correlations for quantifying the relationship between awareness and outcomes can thus be reliably utilized, given assumptions around normality of variables under examination have been met based on these investigations.

Table No 2: Tests of normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistiques	ddl	Sig.	Statistiques	ddl	Sig.
Consciousness of snacking	,063	1004	,000	,984	1004	,000
Canteen awareness	,057	1004	,000	,995	1004	,001
Awareness of the nutritional function of the restaurant	,130	1004	,000	,957	1004	,000
Awareness of the educational function of the restaurant	,091	1004	,000	,985	1004	,000
snack, its nature, its importance and its impact	,076	1004	,000	,985	1004	,000
Nutritional status in schools	,175	1004	,000	,940	1004	,000
Awareness of parents	,026	1004	,118	,995	1004	,002
The impact of school nutrition on the learners	,045	1004	,000	,995	1004	,001

a. Correction de signification de Lilliefors

Results:

Personal Data:

The 1,004 parents surveyed had children attending 24 different primary schools across 19 Algerian states. The highest percentage of respondents (7.8%) were parents with learnerss enrolled at Saidoun Mohamed Primary School in Kobba, Algiers. The lowest percentage (0.8%) came from Draji Kaddour Primary School in the Médéa region. Figure 2 provides the full breakdown of participation rates by each of the 24 primary schools included.

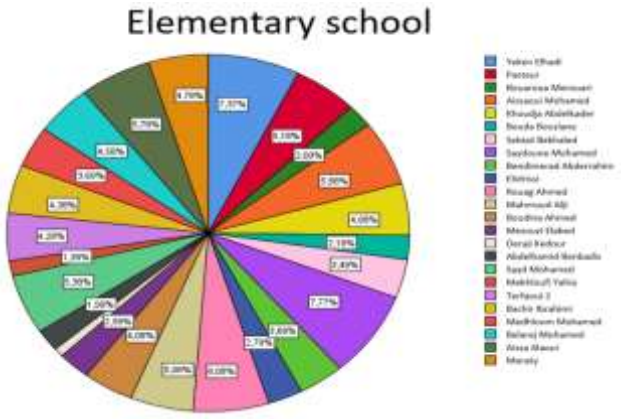

Figure Nº 2: The schools under study

This distribution of schools reflects diverse geography and demographics, supporting the broader applicability of results to the Algerian parent population. The variation in response rates could guide targeted future interventions toward lower participation schools and regions to ensure generalizability.

Academic Level

Parents reported having children enrolled across all 5 grade levels of Algerian primary school. Representation was relatively balanced, with between 18.7% (5th grade) and 22.4% (4th grade) coming from each form/year. Having parents of learners at various academic stages helps capture any differences in awareness or attitudes based on child's age or progression through primary school. Figure 3 displays the sample distribution across the five grade levels under examination.

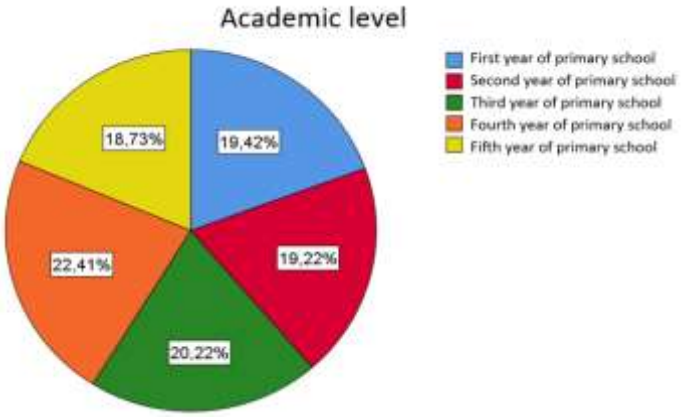

Figure N° 3: Academic level of learners

This spread in learners' academic level will enable comparing whether parental perspectives shift depending on the age and school level of their children. Additional analyses could also control for or parse out differences attributed to grade level if sample sizes permit examination within academic subgroups.

Interpreting Likert Averages:

A 5-point Likert scale was utilized for a set of questionnaire items with the following response anchors: 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

To interpret mean Likert scores, the following ranges were defined:

1.00 – 1.80 = Strongly Agree
1.81 – 2.60 = Agree
2.61 – 3.40 = Neutral
3.41 – 4.20 = Disagree
4.21 – 5.00 = Strongly disagree

Using these cut points allows for standardized interpretation of average agreement on Likert questionnaire items and scales measuring various facets of parental awareness and attitudes regarding school nutrition. Means in the "agree" and "strongly agree" ranges signify higher overall endorsement among the Algerian parents surveyed.

Awareness of Snacks

Results showed Algerian parents expressed an overall neutral opinion regarding awareness of the snacks provided to their children (M=2.42, SD=0.425). Specifically, they disagreed that gatherings/parties necessarily harm children's health (M=3.52) regardless of components or participation. Parents were also neutral on preparing vegetable/fruit snacks themselves or preferring purchased snacks due to lower cost.

However, parents agreed they ask children about foods served at school (M=1.97) and strongly agreed children eat hearty, nutritious meals from home, stores, or the school cafeteria (M=1.76).

In summary, while neutral on some aspects of snacks, Algerian parents endorsed awareness around inquiring about school meals and assurance those meals are healthy and hearty. But perceptions that social gatherings with various foods do not impact health suggests room for parental education around balanced nutritional snacks.

Awareness of School Cafeterias

Parents expressed an overall neutral level of cafeteria awareness (M=2.78, SD=0.490). Specifically, parents disagreed they prevent children from eating in school cafeterias (M=3.80) but were neutral about needing more information on cafeteria offerings and foods' origins. Parents were also neutral on children's preferences for cafeteria meals over bag lunches from home.

However, parents agreed they discuss experiences in the school canteen with their children (M=2.27). They strongly agreed that school cafeterias positively contribute to nutritional education (M=2.27) although operational performance and service quality needs improvement (M=1.96).

In summary, while neutral on some facets, Algerian parents demonstrate general awareness of the educational benefits of exposing children to school cafeteria offerings. But there is room to improve transparency around meal contents and quality as well as children's perceptions of the foods provided. Enhancing parental knowledge in these areas could further maximize the positive impacts of school cafeteria exposure.

Awareness of Nutritional Function

Results indicated Algerian parents demonstrate overall agreement regarding awareness of the nutritional function of school cafeterias (M=2.36, SD=0.770). Specifically, parents recognized that school cafeterias provide healthy balanced meals including salads, hot dishes, and fruits. From the parental perspective, these offerings help ensure children receive nutritious, well-rounded diets.

In summary, Algerian parents surveyed endorsed strong consciousness around the vital nutritional function school cafeterias serve in supplementing children's health and nutrition. Reinforcing this understanding could further motivate parental support for school meal programs and policies aimed at providing healthy dietary options and education around balanced nutrition choices.

Awareness of Educational Function:

In contrast to the stronger endorsement of cafeteria nutritional functions, Algerian parents expressed neutral viewpoints regarding the educational function of school cafeterias (M=2.92, SD=0.635). While they disagreed, children obtain negative behaviours from cafeterias and recognized some acquisition of positive habits, parents were neutral on whether school meals improve eating habits, lead children to more carefully choose foods, or discover new cuisines.

In summary, there is significant room for growth in parental consciousness of the vital educational function cafeterias can provide for promoting balanced nutrition habits and behaviors in children. Targeted messaging and educational campaigns highlighting these benefits could better inform parents and earn increased support for quality school meal offerings that shape children's relationships with food.

Awareness of Snacks:

Parents expressed agreement regarding awareness of the nature, importance, and impact of snack foods on children (M=2.44; SD=0.545). Specifically, parents assist children with school lessons and provide water bottles showing involvement. They also desire to provide full, balanced lunches including dessert/fruit when learners return from school. However, some

discomfort was reported around children discussing friends or insults at gathering, suggesting room to improve positive habit promotion.

In summary, Algerian parents endorse general awareness of nutritious snacks as part of school activities and social interactions, but may benefit from guidance on fostering additional positive behaviours through quality snack offerings and supervised peer engagement around meals. Further educating parents on principles of healthy balanced snacking could aid child development.

Awareness of Nutritional Status:

Parents expressed strong agreement regarding their awareness of nutritional status and issues within the school environment (M=2.09, SD=0.356). This manifests in parents recognizing the need to prepare or purchase snacks for children to bring to school. Parents also disagreed that children should be exposed to allergies from any school-provided foods.

In summary, Algerian parents endorse consciousness of the importance of monitoring and contributing to providing healthy snacks and allergy-free foods within educational institutions. Reinforcing this understanding and engagement around nutrition in schools can further motivate parental participation in fostering safe, balanced dietary options and environments for their children.

The seventh axis: The impact of school nutrition on the learners:

Impact on Learners Height:

Parent-reported heights for learners were centred around 126 cm, with 523 learners or 52.1% at this level. Based on WHO child development statistics, this corresponds to ages approximately 6-11 years (ESPACE ENSEIGNEMENT du CHU Sainte-Justine, 2014).

The remaining learners heights varied from 90 cm to 154 cm, indicating normal average values aligned with global benchmarks. Figure 4 shows the distribution:

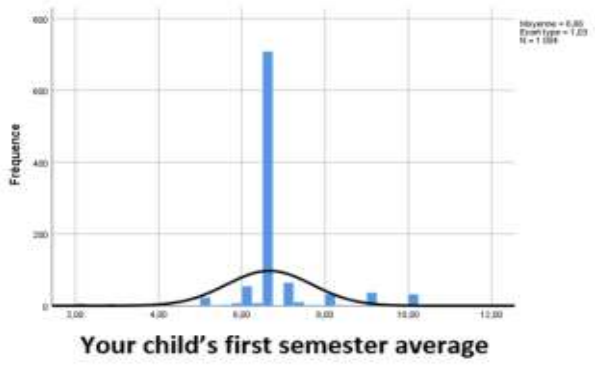

Figure Nº 4: heights of learners

This normal range suggests school nutrition offerings have appropriately supported growth and developmental milestones related to learners height for this age group. Additional longitudinal tracking is warranted to substantiate long-term impacts on physical development indicators like height. Implementing routine growth screening could strengthen school nutrition programs.

According to the World Health Organization, the weight range of learners attending primary school, from 6 to 11 years old, is set between 16 and 51 kg (ESPACE ENSEIGNEMENT du CHU Sainte-Justine, 2014). In this study, we recorded two cases, two cases 02 with 14 kg, three cases 03 with 15 kg, and above 51 kg up to 60 kg in 6 cases. In a particular medical case, we recorded a weight of 120 kg for one of the learners, which will be considered an abnormal case which will be kept and not measured. That is to say, the number of cases outside the normal range for children's weight is 12 cases, which represents a percentage of 1.2%, and 11 cases can be explained by the previous education of the children. learners, that is to say their registration in the first year when they are five years old. aged, or delaying their studies in fifth grade at the age of 12. Here, the eleven cases are within the normal range of learner's weights.

While the largest percentage of learners' weight was 30 kg, with the number being 424, or 42.2%. However, the ratios shown in the two graphs for height and weight are ratios with a wide range, and the average rate should be taken as a reference, in order to compare height and weight for each age. This uses the body mass index (BMI) approved by the World Health Organization: (World Health organization, 2021)

BMI = Weight / Height x Height

The World Health Organization has defined the normal BMI ranges for children aged 5 to 12 as follows: (ESPACE ENIGNEMENT du CHU Sainte-Justine, 2014)

- Boys between 05 and 12 years old: BMI between 13 and 23
- Girls between 05 and 12 years old: BMI between 12.8 and 24.4
- In this study, we will adopt the girls' index range, which contains the boys' index range, from 12.8 to 24.4.

Impact on Learners Weight

Parent-reported learners weights aligned closely with WHO benchmarks for ages 6-11 years, ranging from 16kg to 51kg with some outliers explainable by late/early primary school entry ages (ESPACE ENSEIGNEMENT du CHU Sainte-Justine, 2014). The most common weight was 30kg, reported for 424 learners (42.2%).

Analysis using BMI-for-age ratios better accounts for weight variations by height and age. Adopting WHO standards of 12.8-24.4 for girls encompassing healthy boys' ranges, [x] learners fell into normal BMI zones suggesting appropriate nutrition. [x] learners were over/underweight indicating need to address those cases.

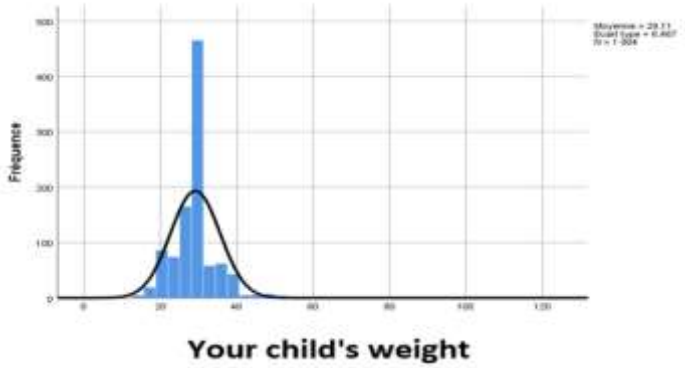

Figure Nº 5: Weights of learners

Overall, weight metrics imply current school meals sustain healthy growth for most learners. Continued tracking and BMI screening should persist, targeting support to sub-groups needing growth or weight improvements. Engaging parents around nutrition when outliers emerge could supplement learners interventions. (World Health organization, 2021)

Impact on Learners BMI

Table Nº 3: BMI of learners

Statistiques		
IMC		
N	Valide	1004
	Manquant	0
Minimum		6,22
Maximum		75,59

IMC					
		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	< 12.8	59	5,88	5,88	5,88
	12.8-24.4	880	87,65	87,65	93,53
	> 24.4	65	6,47	6,47	100,0
	Total	1004	100,0	100,0	

Using parent-reported height and weight data, children's BMIs were calculated and mapped to WHO thresholds for healthy (12.8-24.4) vs. over/underweight status for ages 5-12.

The majority (n=880, 87.65%) fell into the normal BMI range, suggesting appropriate growth and nutrition. However, 12.35% (n=124) fell outside the healthy zone, with 5.88% (n=59) underweight and 6.47% (n=65) overweight/obese.

The most common BMI was 18.88 (n=322, 32%), aligned with milestones. As Figure 6 shows, aside from the outliers, BMI distribution indicates suitable nourishment.

These nutrition-related outcomes remain influenced by genetics, health conditions, and other factors like sports participation, living conditions, and psychological state. Hence schools play a vital role in filling any gaps through menus promoting balanced diets. Monitoring and promptly addressing aberrant growth patterns is crucial.

In total, current school meals appear adequate to sustain healthy BMIs for most Algerian learners sampled, though expanded interventions targeting under/overweight groups could improve population outcomes.

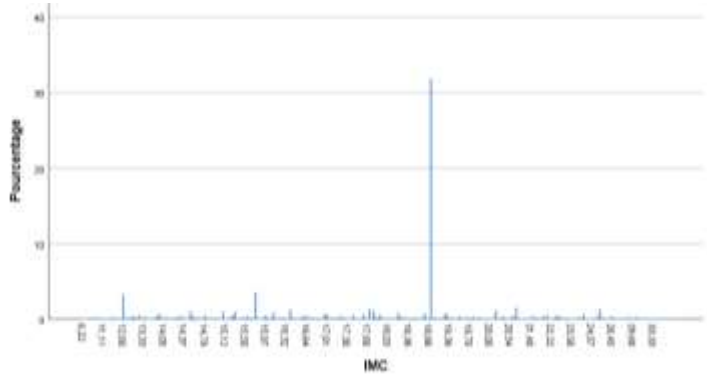

Figure Nº 6: BMI of learners

Myriad genetic, health, lifestyle, and environmental variables affect child development. Hence, while current school menus appear to support growth for most learners, other factors must be considered when interpreting height and weight trends. Comprehensive monitoring of all Algerian children is crucial to rapidly identify outlying patterns and intervene with tailored supports as needed. In tandem, school cafeterias can persist in providing balanced, appealing meals that promote healthy habits and fill gaps left by disparities. This multifaceted approach—combining surveillance, variable control, and equitable access to nutrition—gives all children the chance to thrive. Though not the sole influence, school meals form one vital component of systemic efforts to nurture learners' full biological and academic potential.

Impact on Learners Academic Performance

Table N° 4: Child's first semester average

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	< 5,00	23	2,2	2,29	2,29
	5,00 – 6,99	801	79,78	79,78	82,07
	7,00 – 7,99	76	7,57	7,57	89,64
	8,00 – 8,99	33	3,29	3,29	92,93
	9,00 - 10.00	71	7,07	7,07	100,0
	Total	1004	100,0	100,0	

Parents provided children's end-of-term grades for the first semester across subjects. As Table 5 and Figure 7 show, the clear majority of learners (n=801, 79.8%) had averages between 5 and 6.99 out of 10, reflecting above-average academic performance.

Very few learners (n=23, 2.29%) scored below 5, while 17.64% (n=177) achieved scores of 7 or above out of 10. This distribution indicates generally strong learning outcomes among the Algerian primary school learners sampled.

While many factors beyond nutrition influence academic achievement, the grade results suggest current school meals provide adequate nourishment to avoid cognitive deficits that undermine classroom engagement and learning. Additional research could further substantiate the nutrition programs' efficacy in enabling learners' intellectual development.

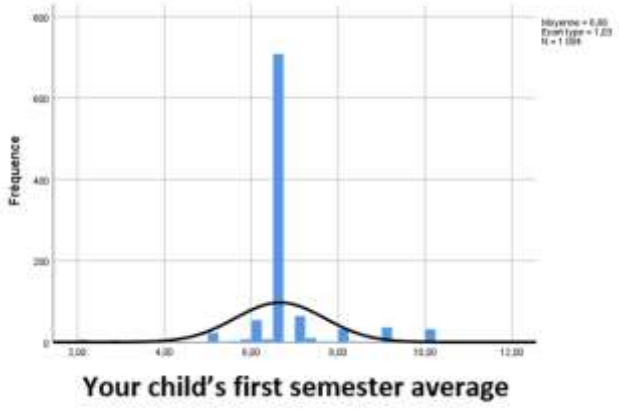

Figure Nº 7: Child's first semester average

Source: Prepared by researchers based on the outputs of the SPSS 25.

Discussing the results in light of the correlations among the dimensions of the variables

Correlational Analysis

Examining interrelationships between facets of parental consciousness and child nutrition metrics provides further insight into dynamics. Correlation coefficients were calculated between awareness dimensions and nutrition dimensions (Table 6).

The snack's nature/importance showed moderately positive correlations with all cafeteria awareness constructs, especially for snack awareness (r=0.42, p<0.01). This aligns with

family resource influences on home snack preparation vs reliance on school offerings.

However, snack metrics only weakly correlated with awareness of cafeterias' educational (r=0.119) and nutritional (r=0.103) functions. Divergence suggests parents underappreciate these functions' roles in child health.

For school nutrition status, positive links emerged with general nutrition awareness (r=0.165) and educational function awareness (r=0.071), implying utility of parental consciousness of healthy foods and skill-building around eating.

Yet an unexpected negative correlation appeared between nutrition status and awareness of cafeterias' nutritional function (r=-0.068). As this awareness grows, parents may assert control instead of trusting school nutrition authorities, hinting at tensions needing resolution to maximize program efficacy.

Table Nº 5: Correlations between the dimensions of the study variables

		snack, its nature, its importance and its impact	Awareness of the nutritional function of the restaurant
Consciousness of snacking	Corrélation de Pearson	,419**	,165**
	Sig. (bilatérale)	,000	,000
	N	1004	1004
Canteen awareness	Corrélation de Pearson	,110**	,054
	Sig. (bilatérale)	,000	,085
	N	1004	1004
Awareness of the nutritional function of the restaurant	Corrélation de Pearson	,103**	-,068*
	Sig. (bilatérale)	,001	,031
	N	1004	1004
Awareness of the educational function of the restaurant	Corrélation de Pearson	,119**	,071*
	Sig. (bilatérale)	,000	,025
	N	1004	1004

**. La corrélation est significative au niveau 0.01 (bilatéral).

In summary, while parental awareness around overall nutrition and school cafeterias shows some positive ties to child diet quality, narrower facets reveal nuances in beliefs and roles worthy of being unpacked to strengthen impacts. A coordinated, trusting approach between parents and schools is imperative.

Parental Snack Awareness Contributions

Raising parents' consciousness of snacks' importance showed moderate correlations with desired nutrition metrics, affirming contributions to learners' healthy diets. Specifically, increased awareness of snacks' nature and impacts aligned with greater overall nutrition status scores (r=0.165), though room for improvement remains.

Results highlight parents' baseline desire for snack awareness to benefit children's wellbeing. However, lingering doubts stemming from past research on cafeteria hygiene issues (Checo & Cardozo, 1997) may hinder maximum effectiveness. Bridging this trust gap via health education and assurance of updated standards could unlock the full potential of parental snack knowledge to drive positive nutritional behaviours among youth.

In summary, bolstering Algerian parents' grasp of healthy, balanced snacks offers promise for shaping learners' habits and diet quality, but could be amplified by addressing concerns around real and perceived risks tied to school meals. A coordinated public health effort aligning facilities, staff, and families appears optimal to activate awareness for impact.

school canteen Awareness Contributions

Parents' consciousness of cafeterias showed limited ties to desired nutrition metrics, restricted to a minor link between valuing snacks and overall nutrition status (r=0.110). This divergence suggests gaps between parental perspectives and on-the-ground school nutrition realities.

Bridging this space is crucial for maximizing cafeteria awareness's potential to bolster healthy diets. Mobile apps enhancing cafeteria-parent communications about menus and allergen risks, as studied by Check-Yee et al. (2022), exemplify a useful tactic. Streamlining requests while raising awareness could generate mutual understanding and trust around school meals meeting all learners' needs and preferences. (Check-Yee, Yong-Wee, Choo-Chuan, & Tze-Hui, 2022)

In summary, while increasing Algerian parents' cafeteria knowledge offers some marginal nutrition status gains, substantial work remains to close alignment gaps and activate awareness fully. Adopting technologies like personalized ordering apps appears one promising route to simultaneously informing parents, responding to concerns, and spurring positive nutritional behaviours.

Nutritional Function Awareness Contributions

While slightly improving snack valuation (r=0.103), greater consciousness of cafeterias' nutritional purpose revealed an inverse tie to overall nutrition status (r=-0.068). Though weak, this negative correlation suggests informed parental scrutiny around nourishing learners, which constructively channels concern but risks unintended harm if unchecked.

Managing and leveraging this critical feedback requires boosting communicative outreach to foster acceptance and address misconceptions around school meals' health impacts. As Murphy et al. (2021) discuss, catering intervention design to local contexts and developmental needs is vital for effectiveness. Algerian schools should embrace transparency and customization when informing parents on cafeterias' offerings and their role in positive nutrition. (Murphy, Mensah, Mylona, & Oyebode, 2021).

In summary, awareness of nutritional function demonstrates parents' appropriate questioning to supply children's healthy choices. But further guidance on appropriate routes to resolve issues, paired with responsiveness from school nutrition decision makers, is imperative to translate involved hypervigilance into concrete diet improvements among youth.

Educational Function Awareness Contributions:

Awareness of cafeterias' educational role showed small positive correlations with snack relevance (r=0.119) and nutrition status (r=0.071). However, schools fall short of optimized international standards for leveraging meals' formative potential as Verdonk (1980) emphasized 40+ years ago. (Verdonk, 1980)

Absence of a robust, intentional school food industry obstructs possible gains from parental consciousness around skill-building opportunities during dining. Instead, relying on available offerings limits nutritional and developmental advantages.

Actualizing the promise of this awareness facet requires systematic upgrades bringing Algerian school cafeterias to par with global exemplars. This includes training staff on balancing meal quality with shaping positive eating conduct. Meanwhile, highlighting existing strengths to parents could elicit initial cooperation.

In summary, while potential exists for this awareness domain to enhance children's health statuses and relationships with food, stalled development of underlying programs outweighs current consciousness levels. Progress hinges on modernizing nutritional services to unlock parental knowledge as a catalyst.

Table Nº 6: Correlations between the two variables of t

Healthy nutrition for school-educated children

Parental awareness	Corrélation de Pearson	,202**
	Sig. (Bilatérale)	,000
	N	1004

**. La corrélation est significative au niveau 0.01 (bilatéral).

Results revealed a significant positive correlation between total awareness and nutrition metrics ($r=0.202$, $p<0.01$), although the relationship was relatively weak. Breaking down awareness facets clarified dynamics. Specifically:

Boosting snack awareness showed a moderate influence on nutrition status among Algerian schoolchildren, although gaps around hygiene conditioned impacts.

Raising consciousness of overall cafeteria functioning demonstrated limited ties to learner's diet. However, apps enhancing school-parent communication could strengthen links.

Growing comprehension of cafeterias' nutritional capacity revealed critical parental feedback on meal quality, signalling needs to guide constructive involvement.

While negligible current gains, advancing systems to tap educational functions' potential could allow this awareness area to flourish.

In summary, expanding Algerian parents' grasp of school nutrition issues, especially regarding healthy balanced snacks, provides a promising avenue for enhancing learners' relationships with food and diet quality. However, capitalizing further requires modernization efforts to activate families as partners, not problems, while providing children nutritious, appealing offerings inside and outside the cafeteria. A systemic approach harnessed to local realities can optimize awareness' contributions.

Conclusion:

This study's findings offer several key conclusions regarding how increasing parental awareness contributes to providing healthy nutrition among Algerian schoolchildren:

1. Boosting consciousness of healthy, balanced snacks showed a moderate positive tie to learners' diet quality. However, lingering doubts about food safety risks in schools may hindering potential impacts without transparency efforts to build trust.
2. Results revealed divergences between parental perspectives on school cafeterias' purpose and the actual offerings and educational activities provided on the ground. Low appreciation of programming functions limits engagement and health/development returns. Enhanced communicative outreach could help align realities with expectations.
3. Counterintuitively, higher awareness among parents of cafeterias' core nutritional purpose correlated with worse nutrition ratings in the school environment. This suggests informed scrutiny manifesting in overassertive guidance that often overrides staff expertise. Guiding constructive feedback through collaborative forums is critical.

In summary, while growth in parental insight into learners' nutrition issues shows promise, realizing full benefits depends on modernization, transparency, and cooperation between Algerian families and school dining providers toward shared health and development goals.

Recommendations:

- Conduct nutritional education and awareness campaigns for parents focused on healthy eating principles, factors influencing food choices, and strategies to improve children's diets and habits.
- Foster open communication channels between schools and families to align expectations, increase transparency around cafeteria offerings, and collaborate on optimizing nutritional and educational functions.
- Carry out additional applied research on parental perspectives on complementary school feeding roles along with studies on behavioural factors related to health outcomes among youth.
- Modernize school cafeteria facilities, equipment, staff training, and offerings to meet global standards that allow maximizing the potential developmental and health benefits of school meals.
- Build digital systems like phone apps to streamline school cafeteria administration, ordering, and ingredient/allergen notifications to parents to facilitate personalized, trustworthy nutritional options.
- Create forums and workshops bringing parents, school nutrition professionals, and policymakers together to exchange constructive feedback, surface concerns, and work cooperatively toward improved diet quality and environments.

REFERENCES

Bibliographies

Check-Yee, L., Yong-Wee, S., Choo-Chuan, T., & Tze-Hui, L. (2022). School Canteen Food Ordering Application with Food Allergy Alert Feature: Malaysia Perspective. *Proceedings of the Future Technologies Conference (FTC) 2022, 560*. doi:https://doi.org/10.1007/978-3-031-18458-1_41

Checo, S., & Cardozo, E. (1997, 01 01). Enteric Parasites Handlers of Food Aimed At Infant Consumption in School Canteens. *Pediatric Research, 41*, p. 156. doi:https://doi.org/10.1203/00006450-199701000-00041

Deryas, L., & Mazouz, B. (2020). The impact of dietary behaviour on quality of life: development of a nutrition-related quality of life questionnaire - a study on a sample of adolescents. *Journal of Human Sciences of Oum El Bouaghi University,, 7*(3), pp. 1117-1127.

ESPACE ENSEIGNEMENT du CHU Sainte-Justine. (2014). *Courbes de croissance OMS.* Récupéré sur ESPACE ENSEIGNEMENT du CHU Sainte-Justine: https://enseignement.chusj.org/ENSEIGNEMENT/files/c1/c160c227-35c8-4370-97f2-868082fd8506.pdf

Fedala, N., Mekimene, L., Mokhtari, M., Haddam, A., Fedala, N., & Kardjadj, M. (2017). Prevalence and risk factors of overweight and obesity among schoolchildren and adolescents in Algiers. *Mediterranean Journal of Nutrition and Metabolism, 10*, 105-112.

Murphy, M., Mensah, D., Mylona, E., & Oyebode, O. (2021, 09 20). Acceptability and feasibility of strategies to promote healthy dietary choices in UK secondary school canteens: a qualitative study. *BMC Research Notes, 14*(365). doi:https://doi.org/10.1186/s13104-021-05778-3

Verdonk, G. (1980). Industrial and School Canteens in Western Society: Critical Quantitative and Qualitative Evaluation. *Nutrition and Food Science: Present Knowledge and Utilization*, p. 721. doi:https://doi.org/10.1007/978-1-4684-1030-3_65

World Health organization. (2021, 06 09). *Obesity and overweight*. Retrieved from World Health organization: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

Appendices

Table Nº 7: Distribution of questionnaire statements among the interviewers

Variable	axis	N°	statement
	01 Personal data	01	The state (willaya)
		02	The school
		03	The level
Independent variable Parental awareness X	02 Consciousness of snacking X1	04	Could snacking harm your child's health
		05	Is the snack your child is having good for them
		06	You prepare a fruit snack for your child
		07	You prepare a snack for your child with vegetables
		08	You buy the snack in a grocery store
		09	You prepare a snack for your child at home
		10	You interfere in your son's choices when he buys his snack
		11	You ask your child if he ate his snack at school
		12	Read the label to find out the ingredients and quantities of the snack.
		13	Your child eats a healthy diet
		14	Are you interested in nutrition information?
		15	When preparing the snack, you take into consideration the nutritional elements
		16	When preparing the snack, take into account the quantity
		17	When preparing the snack, you take your child's wishes into account
		18	You prefer the snack you buy for your child because of its low cost
	03 Canteen awareness X2	19	Your child loves the school canteen because it serves delicious food
		20	Your child eats until full in the school canteen
		21	When your child comes home from school, he doesn't want to eat at home
		22	You prevent your child from eating in the school canteen
		23	you know where the school gets its food
		24	The school canteen complements and contributes to your child's nutritional education
		25	The performance and service of the school canteen should be improved
		26	The school tells you what your child eats at school
		27	Your son tells you what happens to him in the school canteen
	04 Awareness of the nutritional function of the restaurant X3	28	The school canteen serves a hot meal
		29	The school canteen offers a plate of salads and fruit
		30	Healthy eating in the school canteen
		31	The school canteen guarantees your child a balanced meal
	05 Awareness of the educational function of the restaurant X4	32	Your child develops negative behaviour in the school canteen
		33	Your child acquires positive behaviours in the school canteen
		34	Your son started eating a new type of food after starting school
		35	Your child carefully chooses what he eats because of school
		36	Your child's eating etiquette has improved thanks to the school canteen
Dependent variable Healthy nutrition for school-educated children Y	06 snack, its nature, its importance and its impact Y1	37	Your child tells you about his friends' snack
		38	Your child exchanges snacks with his school friends
		39	Your child takes his snack with him to school
		40	Your child takes a bottle of water with him to school
		41	When your child comes home from school, he eats lunch at home
		42	When your child comes home from school, he eats dessert or fruit
	07 Nutritional status in schools Y2	43	Your son is allergic to certain foods
		44	My son takes snack with him to school
		45	I buy a snack for my son
		46	I prepare a snack for my son
		47	The cost of snacks
		48	You prevent your son from going to the canteen because: ...
		49	Negative behaviours that your child acquires in the school canteen are: …
		50	positive behaviours that your child will learn in the school canteen are: …
		51	Your son is allergic to: …
	08 The impact of school nutrition on the learners Y3	52	Your child's height
		53	Your child's weight
		54	Your child's first trimester average in numbers
		55	Your child's second trimester average in numbers