Underreporting of Overweight and Obesity in Primary Care: A Cross-Sectional Study of Children Aged 6–11 Years old.

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ABSTRACT

Aims: To explore the underreporting of nutritional status among children aged 6–11 years old in primary care, assessed using BMI categories (from World Health Organization). Additionally, the study will evaluate the prevalence of overweight and obesity by age and sex and examine whether identified cases are being referred to specialised services, such as paediatrics or nutrition.
Study design: A descriptive and cross-sectional study was conducted through a retrospective review of medical records.
Place and Duration of Study: Ambulatory Care Medical Unit. The study was carried out from February 1st to December 31st, 2024, with Mexican paediatric patients attending outpatient consultations in the Family Medicine Specialty and General Medicine departments at the "División del Norte" Family Medicine Clinic, ISSSTE, in Mexico City, Mexico. The data was collected from January, 2022 to December, 2022.
Methodology: Data on health and sociodemographic variables was collected through a retrospective design, using medical records.
Results: We included 363 medical records of paediatric patients, mainly boys (50.7%, 95% CI: 45.5–55.9). The age average, weight, height and BMI was similar between girls and boys (p value >0.05). The largest proportion of children were underweight (n=204, 56.2%; CI95% 51.5-61.2), followed by normal weight (n=130, 35.9%; CI95% 30.3-41.3). Smaller proportions were classified as overweight (n=25, 6.9%; CI95% 4.7-9.6) and with obesity (N=4, 1.1%; CI95% 0.3-2.5). A total of 10 patients (2.8%) were diagnosed during consultations, leaving a significant majority undiagnosed (n=353, 97.2% CI95% 95.3-98.6). Boys were four times more likely than girls to be referred to paediatric services (25% vs. 5.9%). In contrast, girls showed a slightly higher likelihood of being referred to nutrition services compared to boys (23.5% vs. 16.7%).
Conclusion: Malnutrition is the most prevalent nutritional disorder. Overweight and obesity are significantly underreported. This study emphasises the importance of improving the identification, diagnosis, and referral of children with nutritional disorders in primary care settings.

Keywords: child obesity; childhood overweight; malnutrition; nutritional status; primary care; referral

1. INTRODUCTION

Child growth and development are intricate processes involving somatic and functional changes that arise from the interplay among epigenetic responses to environmental changes, as well as genetic factors and social determinants of health (Murgatroyd & Spengler 2011, Hochberg et al. 2011, Lenroot & Giedd 2008, Li et al. 2023). According to the Official Mexican Standard (NOM-031-SSA2-1999) for child health care, it is essential to ensure proper growth and development in children for their holistic well-being and future prospects. Favourable conditions, such as adequate nutrition, a stable psychosocial environment, and access to

quality healthcare services, allow children's genetic potential to unfold fully (National Research Council 2004). Conversely, adverse conditions such as malnutrition, infectious diseases, unfavourable socioeconomic factors, or exposure to toxic substances which can hinder development and increase infant mortality rates (Walson & Berkley 2018, Hannah 2024, Trollebø et al. 2024, lson & Berkley 2018, Li et al. 2023). Other sociodemographic findings associated with child stunting are the child is insurance, a maternal education level (primary school, low middle school, and vocational school), maternal employment status, the mother's average working days, average household per capita income, and the urbanization index (Li et al. 2023). In this regard, children aged 6 to 11 represent a pivotal population group, as this stage is crucial for establishing healthy lifestyle habits that will influence their physical, mental, and social health in long term (Regalado & Halfon 2001, World Health Organization, WHO 2012, Choo et al. 2019, Taywade et al. 2024). Therefore,growth and development programmes in primary care units play a fundamental role in the early identification of developmental issues (Regalado & Halfon 2001, WHO 2012). These programs affect personal well-being and public health because proper child development is tied to reduced chronic disease costs and enhanced later-life productivity. National policies in various countries emphasise the importance of comprehensive child care as a priority for achieving public health and sustainable development goals (Neuman & Powers 2022, United Nations Children's Fund, UNICEF 2023, United Nations Educational, Scientific and Cultural Organization, UNESCO & UNICEF 2024). In Mexico, health policies focused on child growth and development include promoting breastfeeding, nutritional monitoring, addressing infectious diseases, and implementing immunisation programmes (NOM-031-SSA2-1999, Muñoz-Hernández et al. 2012, González de Cosío et al. 2018, Hernández-Cordero et al. 2022). These efforts aim to reduce the prevalence of conditions such as malnutrition, overweight, and obesity (usually performed by paediatricians by using anthropometry parameters such as body mass index [BMI], and weight to height indices) (Zsakai et al. 2023), which present significant challenges for the paediatric population. Moreover, Mexico has one of the highest rates of childhood obesity globally, during the last 10 years (Mercado-Mercado 2023). Over recent decades, the prevalence of childhood obesity in the country has been rising steadily, reflecting a growing public health concern (Aceves-Martins et al. 2022, Mercado-Mercado 2023). This trend highlights the urgent need for effective strategies to address childhood obesity and its associated health risks. Despite progress in this area, challenges persist regarding the coverage, equity, and quality of child health programmes in primary care settings. Therefore, it is crucial to strengthen these services by adopting integrated models that include health promotion, early diagnosis, nutritional management, and longitudinal monitoring of child growth and development (Shi 2012, Liu et al. 2017, Taylor et al. 2023, Cassidy et al. 2023). Central to this approach is the importance of maintaining accurate and systematic records of the growth and development of paediatric patients attending primary care consultations. Such an approach will ensure that children reach their full potential and contribute meaningfully to the social and economic development of the nation. Moreover, childhood overweight and obesity have emerged as a critical public health concern due to their rising prevalence and long-term implications on health (Trasande & Chatterjee 2009, Karnik & Kanekar 2012, Hasan et al. 2020). Although much attention has been directed at high-prevalence areas, underreporting of overweight and obesity cases in clinical settings which remains a significant barrier to timely intervention.

1.1 The Aims of the Study.

This study aims to explore the underreporting of nutritional status among children aged 6–11 years old in primary care, assessed using BMI categories (from World Health Organization). Additionally, the study will evaluate the prevalence of overweight and obesity by age and sex and examine whether identified cases are being referred to specialised services, such as paediatrics or nutrition.

2. MATERIAL AND METHODS

2.1 Study design and settings.

A descriptive and cross-sectional study was designed and conducted through a retrospective review of medical records of Mexican paediatric patients attending outpatient consultations in the Family Medicine Specialty and General Medicine departments at the "División del Norte" Family Medicine Clinic (FMC), ISSSTE, in Mexico City, Mexico. The data collection was assembled from January, 2022 to December, 2022 (we selected this period because, at the time of registering the study, there was updated and comprehensive information on the patients in the consultation registration system). The sociodemographic and clinical variables included were age, sex, body weight, height, BMI, somatometric diagnosis (overweight, obesity, malnutrition, and normal weight), referral to paediatrics, referral to nutrition, referral to paediatrics and nutrition, and follow-up. The diagnosis of overweight and obesity is defined as follows (for children aged between 5–19 years old): overweight is a BMI-for-age greater than 1 standard deviation above the WHO Growth Reference median, while obesity is greater than 2 standard deviations above the WHO Growth Reference median (WHO 2024). The diagnosis of being underweight was indicated as deficiencies in weight for age based on WHO criteria (Hron & Duggan 2020). The criteria for determining whether a child should be referred to a specialist are based on their nutritional status, as outlined in the clinical practice guidelines. These guidelines recommend referral to specialists, such as paediatricians or nutritionists, when a child's nutritional status indicates a risk of malnutrition, overweight or obesity, in order to ensure timely multidisciplinary intervention and management. The study was carried out from February 1st to December 31st, 2024.

2.2 Sampling.

A simple probabilistic sampling method was employed for this study. The sample size was calculated using the formula to estimate the sample size for a known population:

$$n = N * Z^{2\alpha} * p * q / e^2 * (N - 1) + Z^{2\alpha} * p * q$$

Where:

- n = is the sample size
- N = is the total size of the population
- p = is the estimated probability of the event occurring (often taken as 0.5 for maximum variability when the actual probability is unknown)
- q = is the probability of the event not occurring (q = 1 − p)
- $^{z}_{\alpha/2}$ is the value corresponding to the standard normal distribution for the 95% confidence level
- E is the margin of error

For this calculation, the following parameters were used:

- N = 529 (total population size)
- Confidence level = 95% ($^{z}_{\alpha/2}$ - 1.96)
- Precision = 3% (E - 0.03)
- Expected proportion of incomplete records = 50% (p - 0.5, q - 0.5)

Using these values, a sample size of n - 354 records was obtained.

2.3 Study Population, and Data Collection.

Of a total 529 outpatient consultations ,363 records met the inclusion criteria. The inclusion criteria were: boys and girls aged 6 to 11 years old, who attended the “División del Norte” FMC during the study period, and with a complete medical record. A total of 166 records were excluded from the research for not meeting the criteria. The reasons for exclusion were as

follows: 62 records lacked complete information on weight or height, 50 records were not found, 21 records belonged to workers who were no longer active, 13 records indicated that the children attended the Dentistry service instead, 13 records showed that the patients were already assigned to another FMC, and 7 records were excluded for other reasons, including duplicate record numbers, failure to attend the appointment, or institutional discharge. The collected data was stored in an Excel workbook, which served as the statistical database for subsequent analysis. This procedure ensured the accuracy, quality, and reliability of the extracted data, supporting the integrity of our study's findings.

2.4 Statistical analysis.

We included all complete records, in order to ensure a comprehensive dataset. The categorical variables are described as absolute frequency and percentage, and quantitative variables as mean, standard deviation (SD), and interquartile range (IQR). A confidence Interval 95% (CI95%) was included. Categorical variables were compared using Yates' corrected chi-square (X^2) test and likelihood ratio, as appropriate. Quantitative variables were compared using the Mann-Whitney U test or Student's T test as appropriate. A P value < 0.05 (two-tailed test) was considered significant.

2.4 Ethical Considerations.

The study was carried out in accordance with the Good Clinical Practice Guidelines of our laws and the Declaration of Helsinki for human experiments. The protocol was approved by two committees: The Research Committee and the Ethics Committee in Research of the FMC "División del Norte", ISSSTE. The Data was treated confidentially. Since this study utilized medical records, the authorization was obtained from the relevant committees to ensure proper handling of the information in compliance with ethical guidelines. To guarantee confidentiality, only the principal investigators had access to the complete dataset, including identifiable patient information (e.g., names). The patient names were replaced with unique identification numbers. The assigned number allows the data to be linked to a specific individual without revealing the individual's identity. This approach ensured that all patient data was handled under ethical standards and maintained the highest level of confidentiality throughout the study. This anonymization was carried out before sharing the dataset for statistical analysis with some researchers. After the statistical analysis, only the processed statistical data was made available to the rest of the research team.

3. RESULTS AND DISCUSSION.

3.1 Characteristics of the study population

We included 363 medical records of paediatric patients, comprising 179 girls (49.3%, 95% CI: 44.1–54.5) and 184 boys (50.7%, 95% CI: 45.5–55.9). The average age, weight, height, and BMI are presented in Table 1.

Table 1. Descriptive Statistics for Sociodemographic and Somatometric Parameters of the Paediatric Patients Population

	Age	Weight	Height	BMI
Mean	8.34	34.79	134.18	18.63
Standard deviation	1.771	12.714	15.715	3.900
Range	5	65	173	21
Minimum	6	15	1	11
Maximum	11	80	174	31
Median	8.00	32.50	134.00	17.90
Interquartile range	7.00-10.00	25.00-42.00	124.00-145.00	15.70-21.10

Source: Prepared by the authors using data from the data base.

The average of age, weight, height and BMI was similar between girls and boys (p value >0.05). Only the median BMI was higher in girls' patients compared to boys' patients (table 2).

Table 2. Comparison of Sociodemographic and Somatometric Parameters of the Paediatric Patient Population by Sex

	Age		Weight		Height		BMI	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Mean	8.39	8.29	36.00	33.60	134.73	133.64	18.92	18.35
SD	1.80	1.75	13.66	11.636	17.72	13.512	3.95	3.831
Range	5	5	65	58	165	74	20	19
Minimum	6	6	15	15	1	100	11	12
Maximum	11	11	80	73	166	174	31	31
Median	8	8	33.9	32	136	132	18.3	17.4
IQR	7-10	7-10	25-45	24-40	124-147	123.25-143	16-21.3	15.4-20.64*

Source: Prepared by the authors using data from the data base. SD= Standard deviation. IQR= Interquartile range. * p=0.041 calculating by Median Test between independent groups. Mean comparisons were collected by using Student Test or U Mann-Whitney test.

The most prevalent paediatric age group in the study population was children aged 6 years old, followed by those aged 9 and 11 years old . The least prevalent age group was children aged 10 years old. The data show an even distribution of age and sex within the pediatric population under study. Although there are slight variations in sex proportions within certain age groups, these differences are not significant (table 3).

Table 3. Study Population of Children by Age.

Age (years)	Total n, % (95% CI)	Girls n, % (95% CI)	Boys n, % (95% CI)
6	82, 22.6 (18.2-27.0)	42, 23.5 (17.3-30.2)	40, 21.7 (16.3-27.7)
7	52, 14.3 (11.0-18.2)	22, 12.3 (7.8-17.3)	30, 16.3 (10.9-21.2)
8	59, 16.3 (12.4-20.1)	27, 15.1 (10.1-20.1)	32, 17.4 (12-23.4)
9	61, 16.8 (13.2-20.4)	31, 17.3 (12.3-23.5)	30, 16.3 (11.4-22.3)
10	49, 13.5 (10.2-17.1)	26, 14.5 (9.5-19.6)	23, 12.5 (8.2-17.4)
11	60, 16.5 (12.7-20.4)	31, 17.3 (11.7-22.9)	29, 15.8 (10.3-21.2)
Total	363, 100 (100-100)	179, 100 (100-100)	184, 100 (100-100)

Source: Prepared by the authors using data from the data base. P value was calculated by Likelihood Ratio Chi-Square Test.

3.2 Nutritional status of children population

Table 4 outlines the distribution of the paediatric study population by nutritional status categories, divided into the total population and subgroups by sex (girls and boys). Nutritional status categories include normal weight (NW), underweight (UW), overweight (OW), and obesity.

Table 4. Study Population of Children by Age.

BMI category	Total n, % (95% CI)	Girls n, % (95% CI)	Boys n, % (95% CI)
NW	130, 35.9 (30.3-41.3)	2, 1.1 (0-2.8)	2, 1.1 (0-2.7)
UW	204, 56.2 (51.5-61.2)	93, 52 (44.7-59.2)	111, 60.3 (53.3-66.3)
OW	25, 6.9 (4.7-9.6)	69, 38.5 (31.3-45.8)	61, 33.2 (26.6-40.2)
Obesity	4, 1.1 (0.3-2.5)	15, 8.4 (4.5-12.8)	10, 5.4 (2.2-9.2)

Total	363, 100 (100-100)	179, 100 (100-100)	184, 100 (100-100)

Source: Prepared by the authors using data from the data base. BMI= body mass index. NW= normal weight. UW= underweight. OW= overweight. P value was calculated by Chi-Square Test.

The largest proportion of children were underweight, followed by normal weight. Smaller proportions were classified as overweight and with obesity. Although differences in the prevalence of nutritional status between girls and boys are observed, they are not statistically significant. However, boys showed a slightly higher prevalence of underweight compared to girls. In contrast, a higher proportion of girls were classified as overweight and obesity compared to boys.

3.3 Analysis of the underreporting of overweight and obesity in the paediatric population attending primary care consultations

Out of 29 children with overweight or obesity, only 10 (2.8%) were diagnosed during consultations, leaving a significant majority undiagnosed (Table 5).

Table 5. Underreporting of overweight and obesity in the paediatric population attending primary care consultations

Diagnosed	Total n, % (95% CI)	Girls n, % (95% CI)	Boys n, % (95% CI)
No	353, 97.2 (95.3-98.6)	173, 96.6 (93.9-98.9)	180, 97.8 (95.1-99.5)
Yes	10, 2.8 (1.4-4.7)	6, 3.4 (1.1-6.1)	4, 2.2 (0.5-4.9)
Total	363, 100 (100-100)	179, 100 (100-100)	184, 100 (100-100)

Source: Prepared by the authors using data from the data base. P value was calculated by the Fisher exact Test.

No cases of malnutrition were detected among the paediatric patients attending primary care consultations. Moreover, less than 3% of the total population had their nutritional status formally diagnosed. This highlights a critical gap in the assessment of nutritional status, suggesting a need for more comprehensive and systematic screening practices in primary care settings.

3.4 Referral and follow up practices

The table 6 provides data on referral practices among paediatric patients with overweight and obesity attending a primary care unit. The referrals are categorised by service type and compared between girls and boys. Less than 14% of children were referred to the paediatric service, indicating a relatively low frequency of referrals to this speciality. Additionally, a slightly higher proportion of 20% was referred to the nutrition service. Only one child was referred to paediatrics and nutrition services, highlighting minimal referral overlap (table 6).

Table 6. Referral Practices Among Paediatric Patients with Overweight and Obesity Attending a Primary Care Unit

Services	Total n, % (95% CI)	Girls n, % (95% CI)	Boys n, % (95% CI)
PS	4, 13.8 (72.4-96.6)	1, 5.9 (0.0-17.6)	3, 25.0 (0.0-50.0)
NS	6, 20.7 (6.9-34.5)	4, 23.5 (5.9-47.1)	2, 16.7 (0.0-41.7)
PNS	1, 3.4 (0.0-10.3)	1, 5.9 (0.0-17.6)	0, 0 (0.0-0.0)
Total	29, 100 (100-100)	17, 100 (100-100)	12, 100 (100-100)

Source: Prepared by the authors using data from the data base. P value was calculated by the Fisher exact Test.

Boys were more likely to be referred to paediatric services compared to girls, with a fourfold higher referral percentage. In contrast, girls were slightly more likely than boys to be referred to nutrition services, although the difference is not substantial. Finally, none of the diagnosed children received follow-up care for their condition. Similarly, children with malnutrition, representing more than half of the sample, were neither consistently diagnosed nor referred for appropriate care.

3.5 Discussion.

The findings of this study highlight critical gaps in the identification, diagnosis, and referral of paediatric patients with nutritional disorders in primary care settings. These results underscore the importance of comprehensive nutritional records, timely diagnoses, and effective referral systems to the paediatric and nutrition services, particularly for undernourished and overweight children. Besides, underweight is the most common nutritional status in the study population, with boys being slightly more affected than girls. On the other hand, overweight and obesity are more prevalent among girls, reflecting a possible difference in health or behavioural patterns between sexes. The data highlight a predominance of underweight children in this population, raising potential concerns about malnutrition or socioeconomic factors affecting dietary intake. Despite the overall prevalence of overweight and obesity is relatively low, it is noteworthy that these conditions are more common in girls, warranting targeted interventions or further investigation into gender-specific factors which influence nutritional status.

The prevalence of underweight children in this study contrasts sharply with global trends indicating rising rates of paediatric overweight and obesity, as reported by the World Health Organization (WHO, 2024). Despite a significant proportion of children being classified as overweight or obese (6.9%), only 2.8% received a formal diagnosis during consultations. These results are consistent with findings by other authors, who noted a widespread failure to recognise overweight and obesity in primary care, often due to inadequate training and the absence of standardised protocols for nutritional assessment (Vine et al. 2013, Imoisili et al. 2018, Imoisili et al. 2019). Imoisili et al. (2018) reported that clinicians referred only a small percentage of their paediatric patients with obesity for weight management. Furthermore, the literature indicates that paediatric malnutrition is more prevalent than the frequency with which it is formally diagnosed, aligning with our findings (Corkins 2017). As a result, diagnosing paediatric malnutrition emerges as a crucial responsibility for primary care units. Additionally, the referral rates to paediatric (13.8%) and nutrition (20.7%) services observed in this study are lower than those reported in comparable research (Imoisili et al. 2018). In the study reported by Imoisili et al. (2018), who surveyed 891 physicians, found that two-thirds of physicians in this study indicated that they scheduled follow-up appointments as a paediatric obesity management strategy. However, nearly half of the respondents reported referring less than a quarter of their paediatric patients with obesity to speciality services or weight management programs, while only 15% reported referring the majority (≥75%) of their paediatric patients with obesity (Imoisili et al. 2018). As observed in our study (3.4%), the lack of dual referrals to both services, further emphasises the need for interdisciplinary approaches in order to address the multifaceted nature of paediatric nutritional disorders. Accurate and complete nutritional records are indispensable for the early detection and management of malnutrition in children. Such records enable healthcare providers to identify at-risk populations and implement targeted interventions. Likewise, incomplete documentation, as highlighted by this study, compromises the ability to monitor growth patterns and delays necessary interventions, potentially leading to adverse health outcomes in the child population (WHO, 2024). Thus, maintaining detailed records can also facilitate more effective communication between primary care providers (Physicians, nutritionists, etc), ensuring continuity of care. Even, family medicine, as the cornerstone of primary care, is uniquely positioned to address paediatric nutritional disorders through early diagnosis, preventive

measures, and coordinated care. Public health initiatives, such as community-based nutritional education programmes, can complement primary care efforts by raising awareness and promoting healthy behaviours. Moreover, primary care settings serve as the first point of contact for most families, making them critical for the early identification and management of nutritional disorders. Therefore, it is essential to strength the capacity of primary care providers through training in nutritional assessment and the use of standardised growth charts. Integrated care models that combine family medicine and public health approaches have been shown a best practice in the provision of care, to improve referral rates and patient outcomes (Imoisili et al. 2018, Imoisili et al. 2019, McLeigh et al. 2022, Lines 2022).

The early diagnosis of malnutrition, particularly undernutrition, is crucial to preventing long-term complications such as stunted growth and impaired cognitive development (Lassi 2017, Galler et al. 2021, Kesari & Noel 2023). In addition, malnutrition can have long-term effects on a people's health and life quality (Serón-Arbeloa et al. 2022, Kesari & Noel 2023). Therefore, early detection and treatment can also help prevent these effects. Several authors report that delays in recognising and addressing undernutrition can result in irreversible health consequences (Victora et al. 2008, UNICEF 2021, De Sanctis et al. 2021). This study's findings, showing that no children with malnutrition were diagnosed or referred, highlight a critical gap in care that must be addressed. On the other hand, referral practices also need significant improvement. The observed disparities in referral rates between boys and girls indicate potential biases or inconsistencies in clinical decision-making. Then, boys were more likely to be referred to paediatric services, whereas girls were more often referred to nutrition services. Ensuring equitable and standardised referral practices is essential to addressing the needs of all children effectively.

On the other hand, the underreporting of nutritional status highlights a critical gap in primary care assessments. Accurate recognition and reporting of these conditions are essential to prompt timely interventions. Underreporting can delay referrals to specialised services, such as paediatric or nutritional care, potentially exacerbating long-term health outcomes associated to obesity, including cardiovascular and metabolic disorders (Sahoo et al., 2015, Lobstein et al. 2020). From a policy perspective, these findings emphasise the need to improve training for primary care providers in the use of BMI and other anthropometric measures, as well as the implementation of standardised screening protocols. Therefore, policies that integrate routine nutritional assessments into primary care practices could ensure earlier detection and intervention, mitigating the risk of chronic conditions associated with childhood obesity (Sahoo et al. 2015, Lobstein et al. 2020). These findings align with global recommendations for tackling childhood obesity, underscoring the importance of aligning local primary care practices with international guidelines in order to improve health outcomes and reduce healthcare costs over time.

3.6 Limitations and applications.

Descriptive and cross-sectional studies systematically describe a situation and cannot be used to establish cause-and-effect relationships (Lopez-Hernandez et al. 2024). Therefore, this has limitations that should be considered. Firstly, the design doesn't allow the establishment of causal relationships. Additionally, the reliance on self-reported data from clinicians may introduce bias, as medical records themselves could reflect inconsistencies or inaccuracies in documentation, leading to potential information bias. In order to minimise this type of bias, only medical records that met the inclusion criteria were selected, as well as somatometric data was collected directly by the medical staff participating in the research in order to establish the diagnoses. Consequently, this approach allowed the identification of underreporting in the diagnosis of the children's nutritional status. However, the balanced distribution of boys and girls in the dataset ensures that these findings are representative of the study population and allow for meaningful gender comparisons. The findings may also be

affected by the specific context of the study population, which may not be generalizable to other regions or healthcare systems. On the other hand, selection and reporting biases may significantly impact the results of this study, influencing potentially the accuracy and generalizability of the findings. In groups of children with more severe nutritional imbalances, the findings may not accurately reflect the true prevalence of underreporting in primary care. It is essential to recognize these biases to refine data collection methods and improve the accuracy of future research in paediatric nutritional assessment. Despite these limitations, the study underscores the importance of maintaining accurate and detailed records in clinical practice. Furthermore, reliable documentation ensures that data on referral rates, follow-up practices, and patient outcomes can be effectively evaluated. This, in turn, supports the development of targeted interventions and policies aimed at improving paediatric malnutrition as underweight, overweight and obesity management and addressing gaps in care delivery.

Therefore, future research should explore the underlying reasons for the underreporting of nutritional status in primary care, including potential barriers faced by healthcare providers in diagnosing and documenting paediatric malnutrition. Investigating factors such as time constraints, lack of training, or inconsistent use of clinical guidelines could provide valuable insights into improving screening accuracy. Additionally, studies evaluating the effectiveness of interventions aimed at standardising nutritional assessment and referral processes would be essential in determining best practices for primary care settings. Longitudinal research could further assess how improved documentation and early referrals impact long-term health outcomes in children, helping to shape evidence-based policies and targeted interventions for better paediatric obesity prevention and management.

4. CONCLUSION

Overweight and obesity are significantly underreported. The referral and follow-up rates for affected children remain inadequate, necessitating systemic improvements. Malnutrition continues to be the most prevalent condition, requiring immediate attention alongside efforts to tackle obesity. Consequently, this study underscores the urgent need to enhance the identification, diagnosis, and referral of paediatric patients with nutritional disorders in primary care settings. Comprehensive nutritional records, supported by robust training and standardised protocols, are essential for effective care. Besides, strengthening the collaboration between family medicine, public health, and specialised services can improve the timely diagnosis and management of undernutrition and obesity, ultimately enhancing health outcomes for paediatric populations. Moreover, healthcare providers should sharpen their skills in diagnosing and managing paediatric weight disorders. Regarding screening protocols, we suggest implementing routine somatometric evaluations which should be established for early detection. Additionally, pathways linking primary care with specialised services should be established for paediatrics and nutrition. Furthermore, public health campaigns should be increased to raise awareness among parents and caregivers about the importance of regular health checks. This study highlights a significant gap in the identification and referral of overweight and obese children within primary care settings. The findings emphasize the need for the implementation of systematic screening protocols to ensure consistent and accurate identification of these conditions and improve accurate and timely diagnosis with better-standardised screening protocols. Furthermore, improved documentation practices are crucial to facilitate timely referrals and enhance early diagnosis and intervention. These steps are essential in addressing childhood obesity and reducing the risk of associated long-term health complications. Additionally, policymakers should also consider integrating clear referral guidelines and monitoring systems to track and improve patient outcomes. By contributing to public health strategies aimed at optimizing nutritional assessment and intervention, this study reinforces the need for evidence-based policies that support comprehensive and effective paediatric care.

DISCLAIMER.

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

CONSENT.

The study was conducted using **MEDICAL RECORDS**, and no informed consent was obtained. The handling of the information was approved by the ethics committee, ensuring compliance with the appropriate ethical standards.

ETHICAL APPROVAL.

The study was conducted in accordance with the Good Clinical Practice Guidelines of our laws and the Declaration of Helsinki for human experiments. The protocol was approved by two committees: The Research Committee and the Ethics Committee in Research of the FMC "División del Norte", ISSSTE. The Data was treated confidentially to ensure the privacy and protection of participants' information.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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