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THE SYNERGISTIC ROLE OF PARENTS AND TEACHERS IN CULTIVATING A HEALTHY EATING CULTURE AMONG CHILDREN: A PREVENTIVE STRATEGY AGAINST FUTURE METABOLIC DISORDERS

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Abstract: The establishment of a healthy eating culture during childhood is the most effective intervention for preventing the onset of chronic metabolic and cardiovascular diseases in adulthood. This article presents a cross-sectional observational study conducted at the Department of Hygiene and Ecology of Andijan State Medical Institute. Utilizing the IMRAD framework, the research investigates the distinct and combined influences of parental dietary literacy and teacher-led nutritional interventions on the eating behaviors and body mass indices of 150 primary school children in the Fergana Valley. The findings demonstrate that while the home environment establishes baseline dietary preferences, the active reinforcement of nutritional hygiene by teachers significantly curtails the consumption of ultra-processed foods during school hours. The study concludes that an integrated pedagogical and medical approach, effectively uniting parents and educators, is essential to halt the progression of early metabolic dysregulation and protect the long-term physiological health of the younger generation.

Keywords: eating culture, nutritional hygiene, childhood obesity, pedagogical intervention, metabolic syndrome, disease prevention, Andijan State Medical Institute.

СИНЕРГЕТИЧЕСКАЯ РОЛЬ РОДИТЕЛЕЙ И УЧИТЕЛЕЙ В ФОРМИРОВАНИИ КУЛЬТУРЫ ЗДОРОВОГО ПИТАНИЯ У ДЕТЕЙ: ПРЕВЕНТИВНАЯ СТРАТЕГИЯ ПРОТИВ БУДУЩИХ МЕТАБОЛИЧЕСКИХ НАРУШЕНИЙ

Аннотация: Формирование культуры здорового питания в детстве является наиболее эффективным вмешательством для предотвращения развития хронических метаболических и сердечно-сосудистых заболеваний во взрослом возрасте. В данной статье представлено перекрестное наблюдательное исследование, проведенное на кафедре гигиены и экологии Андижанского государственного медицинского института. Используя структуру IMRAD, исследование изучает отдельное и комбинированное влияние диетической грамотности родителей и диетологических вмешательств под руководством учителей на пищевое поведение и индексы массы тела 150 младших школьников в Ферганской долине. Результаты показывают, что, хотя домашняя среда формирует базовые диетические предпочтения, активное подкрепление гигиены питания учителями значительно сокращает потребление ультрапереработанных продуктов в школьные часы. Исследование делает вывод, что интегрированный педагогический и медицинский подход, эффективно объединяющий родителей и педагогов, необходим для остановки прогрессирования ранней метаболической дисрегуляции и защиты долгосрочного физиологического здоровья подрастающего поколения.

Ключевые слова: культура питания, гигиена питания, детское ожирение, педагогическое вмешательство, метаболический синдром, профилактика заболеваний, Андижанский государственный медицинский институт.

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BOLALARDA SOG‘LOM OVQATLANISH MADANIYATINI SHAKLLANTIRISHDA O‘TA-ONALAR VA O‘QITUVCHILARNING SINERGETIK ROLI: KELAJAKDAGI METABOLIK KASALLIKLARGA QARSHI PROFILAKTIK STRATEGIYA

Annotatsiya: Bolalik davrida sog‘lom ovqatlanish madaniyatini shakllantirish voyaga yetganda surunkali metabolik va yurak-qon tomir kasalliklari rivojlanishining oldini olish uchun eng samarali chora hisoblanadi. Ushbu maqolada Andijon davlat tibbiyot institutining Gigiyena va ekologiya kafedrasida o‘tkazilgan kesim (cross-sectional) kuzatuv tadqiqoti natijalari keltirilgan. IMRAD tuzilmasiga asoslangan ushbu ish Farg‘ona vodiysidagi 150 nafar boshlang‘ich sinf o‘quvchilarining ovqatlanish xulq-atvori va tana vazni indekslariga o‘ta-onalarning ovqatlanish savodxonligi hamda o‘qituvchilar boshchiligidagi diyetologik aralashuvlarning alohida va birgalikdagi ta’sirini o‘rganadi. Natijalar shuni ko‘rsatadiki, uy sharoiti ovqatlanish bo‘yicha dastlabki afzalliklarni shakllantirsa-da, o‘qituvchilar tomonidan ovqatlanish gigiyenasining faol qo‘llab-quvvatlanishi maktab vaqtida o‘ta qayta ishlangan mahsulotlarni iste’mol qilishni sezilarli darajada kamaytiradi. Tadqiqot erta metabolik buzilishlarning rivojlanishini to‘xtatish va yosh avlodning uzoq muddatli fiziologik salomatligini himoya qilish uchun ota-onalar va o‘qituvchilarni samarali birlashtiradigan integratsiyalashgan pedagogik va tibbiy yondashuv zarur degan xulosaga keladi.

Kalit so‘zlar: ovqatlanish madaniyati, ovqatlanish gigiyenasi, bolalar semirishi, pedagogik aralashuv, metabolik sindrom, kasalliklar profilaktikasi, Andijon davlat tibbiyot instituti.

INTRODUCTION

The rapid globalization and urbanization of food systems have dramatically altered the dietary landscapes of communities worldwide, including the deeply traditional regions of Central Asia. The modern diet, heavily reliant on highly processed, hyper-caloric foods lacking in essential micronutrients, poses a profound threat to public health. Children are particularly vulnerable to these dietary shifts, as their eating behaviors and taste preferences are actively being shaped during their formative years. The concept of an "eating culture" extends beyond merely choosing what to eat. It encompasses the entirety of behaviors, attitudes, environments, and physiological understandings associated with food consumption. Cultivating a healthy eating culture in childhood is not an isolated individual task but a complex socio-pedagogical responsibility shared primarily by the two dominant forces in a child's life: parents and teachers.

The family home serves as the primary epicenter for dietary socialization. Parents dictate the availability of food, model eating behaviors, and establish the emotional context of mealtimes. However, as children transition into the educational system, teachers and the school environment assume a critical secondary role. School cafeterias, peer influences, and the nutritional education provided by pedagogical staff either reinforce the positive habits formed at home or actively undermine them. A disconnect between parental guidance and school enforcement often leads to the development of maladaptive eating patterns, culminating in childhood obesity and micronutrient deficiencies.

At the Department of Hygiene and Ecology of Andijan State Medical Institute, we recognize that preventing the impending epidemic of metabolic diseases requires examining the source of the problem. Treating the consequences of poor nutrition in adulthood is medically and economically burdensome. Therefore, this study aims to evaluate the respective and synergistic roles of parents and teachers in shaping the dietary habits of school-age children. The core objective is to demonstrate that a collaborative, educated alliance between the home and the

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school is the most potent non-pharmacological intervention available to safeguard the metabolic trajectory of the pediatric population.

LITERATURE REVIEW

The profound long-term consequences of childhood dietary habits on adult pathophysiology have been extensively documented in contemporary medical literature. The transition from poor pediatric nutritional hygiene to severe adult metabolic and cardiovascular disease is a continuous, progressive continuum.

Recent regional research underscores the severe physiological toll of metabolic dysregulation. Tashtemirova [1] meticulously documented the state of functional activity of the sympathetic-adrenal system and free radical processes in women of fertile age suffering from metabolic syndrome. The insulin resistance, central adiposity, and autonomic overactivity characteristic of this syndrome invariably have their roots in the continuous consumption of refined carbohydrates and unhealthy fats beginning in childhood. When parents fail to establish a healthy eating culture, they inadvertently set the stage for these profound endocrine and oxidative disruptions in their children's future.

Furthermore, the quality of lipids consumed during school years directly dictates the health of the vascular endothelium. Juraboyev and Tashtemirova [2] provided a comprehensive assessment of lipid peroxidation processes and lipid metabolism disorders in patients with ischemic heart disease. The atherogenic dyslipidemia driving ischemic events is deeply connected to the pediatric diet. The unmonitored consumption of trans fats and ultra-processed snacks during school hours, often facilitated by a lack of teacher oversight, initiates the very lipid peroxidation cascades that eventually culminate in coronary artery disease.

Preventing these cascading failures requires an exceedingly vigilant approach to childhood health. As Tashtemirova [3] emphasizes regarding the diagnostic criteria and attentive reviews required in the treatment of complex conditions like Cardiac Syndrome X, waiting for macroscopic disease to appear is a failure of preventive medicine. The microvascular dysfunction typical of such syndromes is heavily influenced by systemic metabolic health. Therefore, the attentive review of health must begin with an attentive review of daily nutrition by both parents and educators, proving that pedagogical vigilance is a fundamental component of cardiovascular prevention.

METHODS

This cross-sectional, observational, and survey-based study was conducted by the Department of Hygiene and Ecology at Andijan State Medical Institute throughout the autumn academic semester. The research methodology was designed to quantitatively and qualitatively assess the influence of adult caregivers on children's health metrics.

The study population comprised one hundred and fifty primary school children, aged between seven and ten years, selected from various public educational institutions across the Andijan region. In addition to the children, the study actively recruited their primary caregiving parents and their respective homeroom teachers. This triadic approach allowed the researchers to cross-reference the dietary environment provided at home, the nutritional oversight provided at school, and the actual physiological outcomes observed in the child. Informed consent was strictly obtained from all participating adults.

Data collection was divided into three distinct phases. The first phase involved a comprehensive nutritional literacy and behavioral survey administered to both parents and teachers. Parents were queried on family meal frequency, the availability of fresh produce at

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home, and their awareness of the caloric density of common snacks. Teachers were evaluated on their proactive monitoring of students' lunchboxes, their integration of nutritional education into the daily curriculum, and their personal modeling of healthy eating in front of students. Based on these responses, the adults were categorized as having "High," "Moderate," or "Low" engagement in cultivating a healthy eating culture.

The second phase focused on the children. With parental assistance, a validated food frequency questionnaire was utilized to determine the children's daily intake of ultra-processed foods, sugary beverages, and fast food. The final phase involved clinical anthropometric measurements. Medical professionals recorded the height and weight of each child to calculate their Body Mass Index (BMI). The BMI data were then plotted against the World Health Organization's age- and gender-specific growth charts to classify the children into normal weight, overweight, or obese categories. The aggregated data were statistically analyzed using SPSS software, applying correlation coefficients and multivariate regression to determine the strength of the association between adult engagement and the children's metabolic health indicators.

RESULTS

The empirical data collected during the study revealed a highly significant correlation between the active involvement of parents and teachers and the physical health outcomes of the children. The results clearly demonstrate that isolated efforts are less effective than a unified approach.

The analysis of the adult surveys indicated a wide variance in nutritional engagement. Approximately thirty-five percent of the parent-teacher dyads demonstrated "High Synergy," where both the home and school environments actively promoted and enforced healthy eating. Forty percent exhibited "Moderate/Mixed Synergy," where either the parent or the teacher was highly engaged while the other was passive. The remaining twenty-five percent fell into the "Low Synergy" category, characterized by a lack of nutritional oversight at both home and school.

The anthropometric and dietary outcomes of the children correlated directly with these categories of adult engagement. The consumption of ultra-processed foods was measured in servings per week, and the physical consequence was measured by the prevalence of excess body weight.

Table 1: Impact of Parent-Teacher Dietary Engagement on Children's Nutritional and Anthropometric Outcomes

Level of Adult Engagement (Synergy)	Number of Children (n=150)	Average Intake of Ultra-Processed Foods (Servings/Week)	Prevalence of Normal Weight (%)	Prevalence of Overweight or Obesity (%)
High Synergy (Active Home & School)	52	3.5	86.5%	13.5%
Moderate/Mixed Synergy	60	9.2	65.0%	35.0%
Low Synergy (Passive Home & School)	38	15.8	31.6%	68.4%

As evidenced in the table, children belonging to the "High Synergy" group consumed drastically fewer servings of ultra-processed, nutrient-poor foods. Consequently, the overwhelming majority of these children maintained a healthy body mass index. Their parents

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consistently provided balanced meals, and their teachers actively discouraged the consumption of sugary snacks during recess.

Conversely, children in the "Low Synergy" group faced severe dietary and physical consequences. In the absence of parental restriction and pedagogical guidance, these children averaged nearly sixteen servings of junk food per week. This excessive caloric and glycemic load translated directly into an alarming obesity and overweight rate approaching seventy percent.

The data also highlighted the specific protective power of the teacher. In cases where parental engagement was low, but the teacher actively enforced nutritional rules within the classroom (Moderate/Mixed category), the children still consumed significantly fewer unhealthy snacks during the school day compared to the completely passive group. This demonstrates that an engaged educator can partially buffer the negative effects of a poor home dietary environment, underscoring the critical public health role of the pedagogical staff.

DISCUSSION

The findings from Andijan State Medical Institute profoundly illustrate that the prevention of childhood obesity and its subsequent adult metabolic complications is fundamentally an educational and environmental challenge rather than a purely clinical one. The cultivation of an eating culture requires consistent, repetitive messaging and environmental control provided concurrently by both parents and teachers.

The biological implications of the data are stark when viewed through the lens of long-term metabolic health. The children in the "Low Synergy" group, consuming vast quantities of refined carbohydrates and trans fats, are laying the precise pathophysiological groundwork for metabolic syndrome. As Tashtemirova [1] documented, the end-stage of this dietary pattern in adults involves severe dysregulation of the sympathetic-adrenal system and overwhelming free radical production. By failing to intervene pedagogically, society permits the initiation of this oxidative and neurohormonal damage during the most vulnerable developmental window.

Furthermore, the trajectory of these children leads directly toward premature vascular aging. The lipid peroxidation processes evaluated by Juraboyev and Tashtemirova [2] in ischemic heart disease patients are actively fueled by the very diets observed in the poorly supervised children in our study. The consumption of heavily processed snacks promotes an atherogenic lipid profile characterized by high low-density lipoproteins and systemic inflammation. Therefore, the role of the teacher in confiscating or discouraging a sugary energy drink is essentially a primary preventive cardiology intervention.

To effectively combat this trajectory, the collaboration between the medical, familial, and educational spheres must be highly structured and attentive. Tashtemirova [3] highlighted the necessity of attentive reviews and rigorous diagnostic criteria for complex cardiac conditions. This exact level of attentiveness must be applied preventively to a child's diet. Schools must transition from being merely academic institutions to becoming active environments for health promotion. This requires training teachers to view nutritional hygiene not as an infringement on personal choice, but as a critical component of their pedagogical duty. Parents must be educated through school-led health seminars to understand that their dietary purchases dictate their child's long-term cardiovascular survival.

CONCLUSION

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The epidemiological and pedagogical study conducted at Andijan State Medical Institute yields several definitive conclusions regarding the establishment of a healthy eating culture in the pediatric population.

Firstly, the research confirms that the highest rates of nutritional compliance and optimal physical health in children are achieved only when there is a strong, synergistic partnership between parents and teachers. The home and the school act as the dual pillars of a child's environment, and a failure in either pillar significantly increases the risk of obesity and poor dietary habits.

Secondly, the study demonstrates that the pedagogical staff possesses a powerful, independent protective effect. Teachers who actively engage in nutritional education and enforce healthy snack policies can substantially mitigate the consumption of ultra-processed foods, even when parental oversight is lacking.

Thirdly, the failure to establish this eating culture results in immediate physical consequences, notably high rates of overweight and obesity, which serve as the direct biological precursors to adult metabolic syndrome, ischemic heart disease, and complex cardiovascular dysregulation.

Therefore, it is strongly recommended that public health initiatives in the region focus on interdisciplinary educational programs. Policies should mandate regular nutritional literacy training for all pedagogical staff and facilitate mandatory health-focused parent-teacher associations. By uniting the adults responsible for a child's development, society can effectively implement the most powerful preventive strategy against the growing epidemic of metabolic and cardiovascular diseases.

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