Impact of Factors upon Children' Weight Status of age one to Five years old at Primary Health Care Centers in AL Samawah City

أثر العوامل على حالة الوزن للأطفال من عمر سنة الى خمس سنوات في مراكزالرعاية الصحية الاولية في مدينة السماوة

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المستخلص
الهدف: تهدف الدراسة الى تحديد العوامل التي قد تساهم في تغير حالة وزن الأطفال.
المنهجية: أجريت دراسة وصفية مستعرضة في مدينة السماوة بمراكز الرعاية الصحية الأولية بغرض فحص حالة وزن الأطفال من عمر سنة إلى خمس سنوات. بدأت هذه الدراسة من ١٦ ديسمبر ٢٠١٨ إلى ١٤ فبراير ٢٠١٩.
تم اختيار عينة عشوائية هادفة تتألف من (٢٠) مركزًا للصحة الأولية (١٠ مراكز رئيسية و١٠ مراكز فرعية) من ٥٠٠ طفل يزورون مركز الرعاية الصحية الاولية خلال الفترة لغرض الدراسة؛ تم جمع البيانات من خلال استخدام استبيان تم تصميمه وتطويره لغرض الدراسة. وهو يتألف من جزأين رئيسيين: الجزء الأول الخصائص الديموغرافية للأم، والتاريخ الطبي والجراحي أثناء الحمل، وتاريخ الانجابي وتغذية الأمهات أثناء الحمل والرضاعة. . الجزء الثاني: الخصائص الديموغرافية للطفل والتاريخ الطبي والجراحي والتحصين وتغذية الطفل. البيانات التي جمعها الباحث من أسر الأطفال من خلال المقابلة وملء استمارة الاستبيان، في حين تم تحديد قسم القياسات البشرية التي أجراها الباحث بعد قياس الوزن والطول والقيام بحساب مؤشر كتلة الجسم. تم التحقق من صحة أداة الدراسة من خلال لجنة من الخبراء وتم تحديد موثوقية الاستبانة كان تحليل البيانات المستخدمة إحصائية وصفية واستنتاجية إحصائية.
النتائج: تشير نتائج الدراسة إلى تقييم الحالة التغذوية للأطفال؛ تكشف النتائج أن جميع المؤشرات تشير إلى الحالة الغذائية الطبيعية اعتمادًا على تقدير Z-Score. يظهر مؤشر الارتفاع / العمر طبيعيًا مع أعلى نسبة مئوية تبلغ ٤٦,٤٪ ، وأكثر من نصف الأطفال يظهرون طبيعيًا أيضًا بنسبة ٥٤,٦٪ ؛ يشير مؤشر الوزن / الارتفاع إلى أن ٤٣٪ يظهرون بشكل طبيعي بينما كان أولئك الذين يعانون من التقزم لا يمثلون سوى ١٠,٤٪ وأن التقزم الشديد كان موجودًا فقط بنسبة ٦,٤٪ ؛ و ٣٨,٤٪ من الأطفال دون سن الخامسة يظهرون أيضًا مؤشر كتلة الجسم / العمر الطبيعي
هناك تأثير كبير على المستوى التعليمي للأمهات على حالة وزن الطفل عند القيمة p = 0.002. يكون لعمر الطفل ووزنه عند الولادة تأثير كبير على حالة الوزن عند القيمة p 0.001. هذا المرض الهضمي بين الأطفال له تأثير كبير على حالة وزنهم عند القيمة p = 0.001.
التوصيات: أوصت الدراسة: يجب أن يكون أخصائي التغذية وفني التغذية متاحًا في مراكز الرعاية الصحية الأولية في السماوةو يجب توفير مركز للكشف المبكر ومعالجته مبكراً ولتقليل الوفيات والمراضة لمشاكل الوزن
الكلمات المفتاحية: حالة الوزن ، التغذية، الوزن، الطول، كتلة الجسم .

Abstract
Objective: The study aim is to identify factors that may contribute to children's weight status variations.
Methodology: A descriptive cross sectional study is carried out has been conducted at the AL- Samawah city in Primary Health Care Centers for the purpose of the screening children's weight status of Age One to five Years Old. This study is started from December 16th 2018 to February 14th 2019.
A(non propriety) purposive sample comprised of (20) primary health centers (10 main and 10 sub) are selected of 500 children who visit the primary health care center during the period for the purpose of the study; Data was collected through using a questionnaire designed and developed for the purpose of the study . It consists of two main parts: Part I. Mother Demographic Characteristics, Medical and Surgical History during Pregnancy, Obstetric History and Mothers Nutrition during Pregnancy and Lactation. . Part II: Childes Demographic Characteristics, Medical and Surgical History, Immunization, and Child Nutrition. Data collected by the researcher from children's families through interview and filling a questionnaire format, while the section of anthropometric measurements carried out by the researcher after measuring weight and height doing Body Mass Index calculation Validity of the study instrument was determined through a panel of experts and reliability of the instrument was determined. The analysis of the data used was descriptive statistics and statistical inferential.
Recommendations: The ministry of health can develop and implement effective strategies for the detection and treatment of malnutrition among children.

Keywords: Weight status, Nutrition, Weight, Height, Body Mass Index

Introduction:

Good nutrition is integral for survival , bodily growth, intellectual development, performance, production, health and well-being across the whole lifestyles span from the earliest tiers of fetal development, at birth, and through infancy, childhood, adolescence and on in to adulthood infancy, childhood, and in to adulthood [1]. Good health is as indispensable to nutritional wellbeing, as good nutrition is fundamental for maintaining healthy growth and development. Preventing infection and managing communicable diseases reducing their incidence, period and severity are important for optimizing nutrition. Access by all too sufficient health care services is necessity to make precedence interventions. These consist of immunization, early prognosis and administration of infectious diseases especially, diarrhea, respiratory disease, measles, malaria, and tuberculosis health and diet education, and growth monitoring

A healthful nutrition also helps minimize many health conditions including. Overweight and obesity, Malnutrition, Iron-deficiency anemia, heart disease, high blood pressure, dyslipidemia (poor lipid profiles),type 2 diabetes, osteoporosis, oral disease, constipation and diverticular disease [2].

Interventions are considered to determine disease in a community early, consequently enabling earlier intervention and administration of the problem weight [3]. Childhood weight status is associated with a range of adverse health impacts that can affect most importantly, and contribute to early obesity at adulthood obesity-associated morbidity and mortality weight status problems in childhood lead to period adolescence lower self-esteem, associated with increased rates of sadness, loneliness and nervousness. Common physical health problems with long-term implications include advanced growth, hyper lipedema and glucose intolerance, and there is a wide range of less common conditions [4].

Numerous factors can influence body weight the children's have no control over some of these factors, including developmental determinants, genetic, gender, and age. Other factors that influence body weight over which has potential control include level of physical activity, diet, and some environmental and social factors. [5] Maternal- related factors pre-pregnancy weight status of the mother was also found to possibly affect the weight status of the child. The magnitude of weight gain between conception and delivery can be categorized as excessive or not depending on the pre-pregnancy weight status of the mother [6]. Socioeconomic factors among lower income families. Low-income families face numerous barriers including food insecurity, lack of safe places for physical activity, and lack of consistent access to healthful food choices, especially fruits and vegetables[7]. There is a strong linkage between maternal education and children's health. Children born to educated mother suffer less from malnutrition, which manifests as underweight, wasting and stunting in children [8].

Children feeding the first year of life are a period of the most rapid growth in one's life. This explains why the infant's energy, vitamin, mineral, and protein requirements are higher per unit of body weight [9]. Breastfeeding, a number of reviews have concluded that exclusive breastfeeding for a period of at least six months is associated with a reduced level of obesity later in childhood [10]. Many parents will choose to bottle-feed their babies. Some women fear they will be unable to produce enough breast milk.

Concerning dietary and eating pattern, Weight gain occurs because of energy imbalance, particularly when energy intake through food intake exceeds energy expenditure for body functions and physical activity. Recent research and reviews indicate that so-called energy balance related behaviors can contribute to

the development of overweight and obesity, particularly a combination of increased fat intake, decreased physical activity and increased screen time. Screen time is the amount of time that a child spends watching television, playing on the computer and with videogames [11]. Studies of an association between short sleep duration in infants and higher levels of overweight in later childhood however, separating the effect of sleep from the wide range of potential confounders in this relationship is difficult [12]. Childhood vaccination may protect children's nutritional status and lead to improved child growth and developing infectious disease [13].

Genetic Influences one of the strongest predictors of a child's weight status is the weight status of their parents. Overweight parents are more likely to have overweight children. This could be a result of the shared family environment, but the fact that adopted children have a weight status closer to their biological rather than adoptive parents suggests a strong role of genetics in weight status [14].

According to the early stated facts, the present study ought to evaluate the impact of contributing factors on children's weight status for those who attend the primary health care centers in Al Sammawah City.

Methodology

A descriptive cross-sectional study is carried out at the AL- Samawah's Primary Health Care Centers for the purpose of the study.

The study started from December 16th 2018 to February 14th at 2019.

A purposive sample of (20) primary health centers are selected (10 Main Centers and 10 Sub Centers) and (500) child are selected for the purpose of the study.

The study instrument designed and constructed by the investigator. It based on literatures review and previous studies. The instrument is consisted of two parts: Part I: mother's demographic characteristics (Age, Marital status, Education, Occupation, Monthly income, and Place of Residence), Medical and surgical history during pregnancy, obstetric history and mothers' nutrition during pregnancy and lactation**.**

Part II: Children's Demographic Characteristics (Age, Gender, Type of family, Rank of the child in the family), the weight of the child after birth, anthropometric measurements, medical and surgical history, immunization, and child nutrition and life style.

A preparatory questionnaire is designed and presented for (12) experts. The reliability of the questionnaire is estimated by determining the internal consistency of the instrument through the computation of Alpha Correlation Coefficient (Cronbach's Alpha). The result of the reliability is (0.71). Data of the study was analyzed using available statistical computer program of SPSS-24.0 (statistical packages for social sciences). Descriptive Data Analysis (Frequencies, Percentages, Mean of Scores) and Inferential Statistical (Pearson Alpha Correlation Coefficient, Linear Regression

Results:

Table (1): Linear Regression for Impact of Mothers' Socio-demographic Characteristics upon Child's Weight Status (N=500)

Variable \ Weight status	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Mothers' Age	.382	.279	.066	1.368	.172
Marital Status	1.558	1.103	.063	1.413	.158
Education	-.437	.137	-.171	-3.187	.002
Occupation	.166	.706	.012	.235	.814
Income	.418	.227	.100	1.841	.066
Residence	.005	.422	.001	.012	.991

Dependent variable: Weight status

This table reveals that there is high significant impact of mothers' educational level on child weight status at p-value=0.002.

Table (2): Linear Regression for Impact of Mothers' Nutrition during Pregnancy upon Child's Weight Status (N=500)

Variable \ Weight status	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Nutrition	.038	.046	.037	.821	.412

Dependent variable: Weight status

This table reveals that mothers' nutrition during pregnancy has no impact on children's weight status evidenced by the non-significant relationship.

Table (3): Linear Regression for Impact of Children Socio-demographic Characteristics upon their Weight Status (N=500)

Weight status / Variable	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Age	1.253	.129	.390	9.698	**.001**
Gender	-.219	.304	-.029	-.721	.471
Family type	.637	.335	.080	1.900	.058
Birth order	.289	.122	.098	2.365	**.018**
Weight at birth	-2.853	.470	-.241	-6.073	**.001**

Dependent variable: Weight status

This table reveals that children's age, weight at birth has high significant impact on their children's weight status at p-value ≤ 0.001.

Table (4): Linear Regression for Impact of Children Medical and Surgical history upon their Weight Status (N=500)

Weight status / Variable	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
GIT disease	4.123	.567	.327	7.269	**.001**
Ear infection	.550	.896	.026	.614	.539
Bladder/kidney infection	1.302	.886	.065	1.469	.142
Diabetes	3.546	1.556	.092	2.279	**.023**
Seizure	.456	1.553	.012	.294	.769
Congenital heart disease	2.953	1.450	.084	2.037	**.042**
Acute respiratory infection	.731	.410	.081	1.784	.075
Premature baby	2.557	1.223	.094	2.090	**.037**
Allergies	.175	1.414	.005	.124	.902
Hospitalization	.184	.542	.018	.339	.735

Family history of weight problem	3.439	1.374	.106	2.502	**.013**
Previous surgery	-1.282	1.269	-.042	-1.010	.313

Dependent variable: Weight status

This table depicts that children's gastrointestinal disease has high significant impact on their weight status at p-value=0.001, premature baby, and family history of weight problem have significant impact on them weight status at p-value ≤ 0.05.

Table (5): Linear Regression for Impact of Children Immunization upon their Weight Status (N=500)

Variable / Weight status	Un standardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Immunization	-.289	.107	-.120	-2.706	**0.007**

Dependent variable: Weight status

This table shows that children's immunization has impact on children's weight status evidenced by significant relationship at p-value ≤ 0.05.

Table (6): Linear Regression for Impact of Children's Nutrition upon their Weight Status (N=500)

Variable / Weight status	Un standardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Feeding	-.977	.359	-.127	-2.723	**.007**
Breast feeding times	-2.028	.262	-.383	-7.732	**.001**
Bottle feeding times	-1.279	.327	-.172	-3.917	**.001**
Starting supplementary food	-.782	.202	-.156	-3.864	**.001**
Kind of supplementary food	-.635	.830	-.030	-.765	.445
Meals per day	.036	.414	.004	.086	.931
Eating at night	-2.066	.445	-.193	-4.640	**.001**

Weaning time	1.308	.279	.190	4.680	**.001**
Child Activity	-3.429	.555	-.247	-6.181	**.001**
Sleep hours	.478	.515	.038	.929	.353
Watching Television	.816	.391	.085	2.086	**.038**
Previous nutritional problem	-1.050	1.500	-.027	-.700	.484

Dependent variable: Weight status

This table indicates that feeding rout, times of breast and bottle feeding, starting supplementary food, eating at night, weaning time, and child activity and T.V. watching has high impact on children weight status evidenced by high significant relationship at p-value= 0.001.

Discussion:

Concerning the impact of mothers' socio-demographic characteristics factors upon children's weight status, it is revealed that mothers' educational level has on child weight status. This result is consistent with study conducted in Diyala governorate, who also found that mother's educational has a significant impact at p-value (<0.05). [15] Mothers' Nutrition during pregnancy has no impact upon their children's weight status (Table 2). A study was carried out in Saudi Arabian Kingdom to identify the dietary patterns during pregnancy and lactation on Saudi Arabian mothers, the result of the study agrees with current study findings concerning the non-significant impact of mother's nutrition during pregnancy on their children weight status after pregnancy [16].

Influence of Children's socio-demographic characteristics factors upon their weight status (Table 3), it is obvious that age, birth order and weight at birth have an impact upon their weight status. Supportive evidence for this result is by a cross sectional analytic study was carried out to identify risk factors that contribute to birth weight, a purposive sample of (400) child's was selected from AL-Elwyia Maternity Teaching Hospital and Fatima Al-Zaharia Maternity and Pediatric Teaching Hospital in Baghdad City. The result indicated that there were five important variables contributed to the incidence of birth weight and these variables were gestational age, nutrition status, previous low birth weight, and psychosocial status for pregnant women during pregnancy and the age of mothers. [17].

Regarding the impact of children's medical and surgical history factor upon their weight, the findings show that GIT diseases, diabetes, congenital heart disease, premature baby, and family history of weight problem have significant impact (Table 4). Promote health and reduce chronic disease risk through the consumption of healthful and achievement and maintenance of healthy child body weights. Functional disorders are those in which the gastrointestinal (GI) such as constipation, diarrhea and irritable bowel syndrome (IBS) [18] .This result is consistent with a study that investigate the prevalence of functional gastrointestinal disorders in children. They recruited a general population sample of children (n =

949). Functional Gastrointestinal Disorders (FGIDs) are common in children and adolescents in the US. There are no significant differences in FGIDs between sex, race, or ethnic groups, except in functional constipation. There is overlap between parental and child FGID symptoms. Children with a FGID report a lower quality of life more than those who are healthy [19].

Impact of children's immunization on their weight status (Table 5), the present study show that this factor has significant impact on the weight status. A study carried out in India to evaluate the effect of vaccination program on children's anthropometry, they also revealed the significant impact on the weight status [20].

As for the impact of children nutrition upon their weight status (Table 6), the present study depicted that feeding, breast feeding, bottle feeding, time of starting supplementary food, weaning time, eating at night and the child physical activity have significant impact upon their weight status. Another study carried out to evaluate the patterns of child feeding in a sample of (484) child at Health Center in Baghdad City. Several factors that play a role to choose the pattern of feeding like mothers' age, education, parity and employment. Results breast-feeding rate was 9.8%, Bottle-feeding babies showed higher percentage rate (21.6%) (Bahir, 2017)

According to these stated findings, the study concluded that most of children in the present study are at normal weight status. Otherwise, there are few cases of children with very low weight status and sever stunning, overweight and obesity . Also, the study confirms that only the factor of mother's education have an impact on the variation in children's weight status. While children's factors have an impact on their weight status include their age, weight at birth, birth order, medical history of gastrointestinal diseases, premature baby, family history of weight problems, immunization, type of feeding, breast feeding times, bottle feeding times, starting of supplementary food, eating at night, weaning time, child activity and T.V. watching.

Recommendations:

1. The ministry of health can develop and implement effective strategies for the detection and treatment of malnutrition among children.

2. Breast feeding oriented education programs for mothers who do not breast-feed their babies.

3. Initiation of children's weight status screening campaigns by health directorate in AL Sammawah City.

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