FACTORS ASSOCIATED WITH NUTRITIONAL STATUS OF CHILDREN LIVING IN WELFARE HOMES IN SELANGOR, MALAYSIA

By

NUR NABILLA BINTI A RAHIM

Thesis submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

May 2016

FPSK(m) 2016 82

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

FACTORS ASSOCIATED WITH NUTRITIONAL STATUS OF CHILDREN LIVING IN WELFARE HOMES IN SELANGOR, MALAYSIA

By

NUR NABILLA BINTI A RAHIM

May 2016

Chairman : Chin Yit Siew, PhD
Faculty : Medicine and Health Sciences

This cross-sectional study was conducted to determine the association between socio-demographic, psychological, dietary, and physical activity factors with BMI-for-age and Height-for-age among welfare home children in Selangor. While information on studied variables was obtained using self-administered questionnaires, height and weight were measured by trained researchers. BMI-for-age and Height-for-age were classified based on the WHO Growth Reference 2007.

The study sample consisted of 307 school-going welfare home children (mean age of 13.0±2.7 years old) from 15 selected welfare homes, with 51.5% boys and 48.5% girls. There were three statuses of welfare home children in the study, including orphans (54.4%), abandoned children (23.8%), and children from problematic families (21.8%).

The prevalence of overweight and obesity (23.1%) was three times higher than thinness and severe thinness (8.5%). The findings reported that age (r=0.169, p=0.003), satisfaction of body size and shape (r=0.551, p=0.0001), self-esteem (r=-0.112, p=0.049), and energy expenditure per kilogram body weight (r=-0.550, p=0.0001) were correlated with BMI-for-age. Besides that, there were differences in BMI-for-age by sex (t=-3.992, p=0.0001), ethnicity (F=5.358, p=0.001), children status (F=5.926, p=0.003), and perception of body weight status (F=6.523, p=0.0001), respectively. The prevalence of severe stunting and stunting was 13.6%. The findings reported that age (r=-0.128, p=0.024), satisfaction of body size and shape (r=0.117, p=0.040), trying new food (r=-0.133, p=0.020) and energy expenditure per kilogram body weight (r=-0.213, p=0.0001) were correlated with Height-for-age.

The multiple linear regression analysis showed that girls (β=0.428), Malay (β=0.602) or Chinese (β=0.437), at an older age (β=0.150), abandoned (β=0.369), underestimated their body weight status (β=0.460), have higher dissatisfaction with their body size and

shape (β=0.361), and have lower energy expenditure per kilogram body weight (β=-0.053) contributed to the variances in higher BMI-for-age (R^2=0.566, F=48.515, p<0.05). Besides that, the multiple linear regression showed that respondents of younger age (β=-0.173), and low energy expenditure per kilogram body weight (β=-0.032) contributed to the variances in low height-for-age (R^2=0.150, F=26.846, p<0.05).

In conclusion, overweight and obesity problem was more prevalent than thinness and stunting problem among the welfare home children in Selangor. Hence, periodic assessment is essential to monitor their body weight status. The reported findings can be used as guidelines for planning nutrition intervention programs among welfare home children.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

FAKTOR-FAKTOR BERKAITAN DENGAN STATUS PEMAKANAN DALAM KALANGAN KANAK-KANAK DI RUMAH KEBAJIKAN DI SELANGOR

Oleh

NUR NABILLA BINTI A RAHIM

Mei 2016

Pengerusi: Chin Yit Siew, PhD
Fakulti: Perubatan dan Sains Kesihatan

Kajian keratan rentas ini telah dijalankan untuk menentukan hubungan antara faktor sosiodemografi, psikologi, pemakanan, dan fizikal aktiviti dengan BMI-untuk-umur dan Tinggi-untuk-umur dalam kalangan kanak-kanak di rumah kebajikan di Selangor. Sementara maklumat mengenai pemboleh ubah yang dikaji telah diperolehi dengan menggunakan soal selidik yang ditadbir sendiri, ketinggian dan berat badan diukur oleh penyelidik terlatih. BMI-untuk-umur dan Tinggi-untuk-umur telah dikelaskan berdasarkan Rujukan Pertumbuhan WHO 2007.

Sampel kajian terdiri daripada 307 kanak-kanak rumah kebajikan yang bersekolah (min umur 13.0 ± 2.7 tahun) dari 15 rumah kebajikan terpilih, dengan 51.5% lelaki dan 48.5% perempuan. Terdapat tiga status kanak-kanak rumah kebajikan dalam kajian ini, termasuk anak-anak yatim (54.4%), kanak-kanak terbiar (23.8%), dan kanak-kanak dari keluarga yang bermasalah (21.8%).

Prevalens berat badan berlebihan dan obesiti (23.1%) adalah tiga kali lebih tinggi daripada kurus dan kurus teruk (8.5%). Hasil kajian melaporkan bahawa umur ($r = 0.169$, $p = 0.003$), kepuasan saiz badan dan bentuk ($r = 0.551$, $p = 0.0001$), harga diri ($r = -0.112$, $p = 0.049$), dan penggunaan tenaga per kilogram berat badan ($r = -0.550$, $p = 0.0001$) telah dikaitkan dengan tinggi BMI-untuk-umur. Selain itu, terdapat perbezaan BMI-untuk-umur mengikut jantina ($t = -3.992$, $p = 0.0001$), etnik ($F = 5.358$, $p = 0.001$), status kanak-kanak ($F = 5.926$, $p = 0.003$), dan persepsi status berat badan ($F = 6.523$, $p = 0.0001$), masing-masing. Prevalens pertumbuhan terbantut teruk dan terencat pertumbuhan adalah 13.6%. Hasil kajian melaporkan bahawa umur ($r = -0.128$, $p = 0.024$), kepuasan saiz badan dan bentuk ($r = 0.117$, $p = 0.040$), cuba makanan baru ($r = -0.133$, $p = 0.020$) dan penggunaan tenaga per kilogram berat badan ($r = -0.213$, $p = 0.0001$) telah dikaitkan dengan Tinggi-untuk-umur.

Analisis regresi linear menunjukkan bahawa kanak-kanak perempuan (β = 0.428), Melayu (β = 0.602) atau Cina (β = 0.437), pada usia yang lebih tua (β = 0.150), ditinggalkan (β = 0.369), mereka yang memandang ringan status berat badan (β = 0.460), mempunyai rasa tidak puas hati yang lebih tinggi dengan saiz badan dan bentuk mereka (β = 0.361), dan mempunyai penggunaan tenaga rendah bagi setiap kilogram berat badan (β = -0.053) menyumbang kepada varians yang lebih tinggi BMI-untuk-umur (R^2 = 0.566, F = 48.515, p <0.05). Selain itu, analisi regresi linear menunjukkan bahawa responden yang berusia muda (β = -0.173), dan penggunaan tenaga rendah bagi setiap kilogram berat badan (β = -0.032) menyumbang kepada varians dalam ketinggian-untuk-umur rendah (R^2 = 0.150 , F = 26.846, p <0.05).

Kesimpulannya, masalah berat badan berlebihan dan obesiti adalah lebih banyak daripada kurus dan kurus teruk dalam kalangan kanak-kanak rumah kebajikan di Selangor. Oleh itu, penilaian berkala adalah penting untuk memantau status berat badan dan tinggi mereka. Hasil penemuan yang dilaporkan boleh digunakan sebagai garis panduan untuk program intervensi pemakanan dalam kalangan kanak-kanak rumah kebajikan.

ACKNOWLEDGEMENT

First and foremost, I would like to express my deepest gratitude to my research supervisor, Dr. Chin Yit Siew and co-supervisor, Associate Professor Dr. Norhasmah Sulaiman for their guidance, valuable advice, and encouragement towards the completion of this master's thesis. I do appreciate their time, tolerance and patience in guiding me to carry out this research. Furthermore, I would like to express my sincere thanks to the caregivers and respondents from all the participated welfare homes as well as research enumerators who have involved in this study. I really appreciate their cooperation and help during the data collection process. Last but not least, I would like to thank my parents, family members, and friends for their great understanding, support and assisstance throughout my journey as a Master's student. Their continuous support give me courage to complete this Master's thesis within the allocated time.

Thank you.

I certify that a Thesis Examination Committee has met on 19th May 2016 to conduct the final examination of Nur Nabilla binti A Rahim on her thesis entitled "Factors Associated with Nutritional Status of Children Living in Welfare Homes in Selangor, Malaysia" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

Members of the Thesis Examination Committee were as follows:

Rosita Jamaluddin, PhD
Associate Professor
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Chairman)

Mohd Nasir Mohd Taib, PhD
Associate Professor
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Internal Examiner)

Hamid Jan Jan Mohamed, PhD
Associate Professor
Nutrition Program
School of Health Sciences
UniversitiSains Malaysia
(External Examiner)

ZULKARNAIN ZAINAL, PhD
Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 23rd August 2016

The thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

Chin Yit Siew, PhD
Senior Lecturer
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Chairman)

Norhasmah Sulaiman, PhD
Associate Professor
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Member)

BUJANG KIM HUAT, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

Declaration by graduate student

I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- this thesis has not been submitted previously or concurrently for any other degree at any other institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
- written permission must be obtained from supervisor and the office of Deputy Vice-Chancellor (Research and Innovation) before thesis is published (in the form of written, printed or in electronic form) including books, journals, modules, proceedings, popular writings, seminar papers, manuscripts, posters, reports, lecture notes, learning modules or any other materials as stated in the Universiti Putra Malaysia (Research) Rules 2012;
- there is no plagiarism or data falsification/fabrication in the thesis, and scholarly integrity is upheld as according to the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) and the Universiti Putra Malaysia (Research) Rules 2012. The thesis has undergone plagiarism detection software.

Signature: _____ Date: _____

Name and Matric No.: _____

Declaration by Members of Supervisory Committee

This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

Signature: _____

Name of Chairman of Supervisory Committee: _____

Signature: _____

Name of Member of Supervisory Committee: _____

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Child growth is recognized internationally as an important indicator of nutritional status and health within a population (Mushtaq et al., 2011). Unlike the situation in adulthood, age, sex, weight, and height are important indices to evaluate the growth of children and adolescents. There are several different means commonly used to define stunting, thinness, overweight, and obesity among children and adolescents. Among the international definitions used are International Obesity Task Force's (IOTF) reference for children aged two until eighteen years old (Cole et al., 2000), World Health Organization's (WHO) reference for children aged six to nineteen years old (WHO, 1995), and WHO's reference for children aged zero to five years old (WHO, 2006).

The recent and ideal international reference for determining undernutrition and overnutrition among children and adolescents is WHO's reference for children aged five to nineteen years old (WHO, 2007). Indicators such as BMI-for-age and height-for-age can be used to understand their nutritional statuses. Thinness and severe thinness are defined as the proportion of children with BMI-for-age values <-2SDs and <-3SDs, respectively. Meanwhile, overweight and obesity are defined as the proportion of children with BMI-for-age values >2SDs and >3SDs. Besides that, severe stunting and stunting are defined as the proportion of children with height-for-age values <-2SDs and <-3SDs.

According to World Health Organization (2005), stunting is the best indicator of child growth, while thinness in an indication of acute undernutrition, usually due to insufficient food intake or a high incidence of infectious diseases. On the other hand, overweight and obesity are a result of the imbalance between energy intake and energy expenditure (Daniels et al., 2005). According to Caulfield et al. (2006), undernutrition leads to poor school readiness and performance and becomes a risk factor that reduces the years of schooling. Meanwhile, overnutrition is associated with established risk factors for cardiovascular diseases and accelerated atherosclerotic processes (Raj et al., 2012).

Malaysia is currently in the midst of a nutritional transition, where undernutrition persists, and overnutrition is gradually increasing. The National Health and Morbidity Survey (NHMS) 2011 on children below 18 years old reported that the prevalence of thinness (12.2%) was higher than that of obesity (6.1%) (Institute of Public Health, 2011). A year after, the Malaysian School-based Nutrition Survey 2012 on adolescents aged 10-17 years old reported that the prevalence of overweight and obesity (26.9%) was higher than that of severe thinness and thinness (7.4%) (Institute of Public Health, 2013). Similarly, findings of the Nutrition Survey of Malaysian Children (SEANUTS Malaysia) 2013 on children aged six months to 12 years old showed that the prevalence of overweight and obesity (21.6%) was higher than that of thinness (5.4%) (Poh et al., 2013). However, in the most recent study of NHMS 2015, the findings showed the prevalence of overnutrition (11.9%) was higher than undernutrition (7.8%) (Institute of Public Health, 2015).

Reports on nutritional status focusing on children living in welfare homes in Malaysia are limited in National Surveys. According to Berens and Nelson (2015), welfare homes might house children having no family care for reasons of orphaning, abandonment, abuse, disabilities, mental or physical illnesses, or other special needs. Welfare homes compensate children for the missing family home, yet most of the homes are impoverished and lack basic facilities, needs, and necessities for their proper growth and development (Mwaniki & Makokha, 2013). Referring to growth, children living in welfare homes have a bigger potential for long-term malnutrition crisis, but limited study delved into their plight.

In Malaysia, there is no clear definition of the term welfare home. Based on the Social Welfare Department of Malaysia (2014), any children who are maternal orphans, paternal orphans, or double orphans; abandoned children who did not know their parents' whereabouts since birth; and children from problematic families such as divorced parents, poor, and abusive can be accepted to live in welfare homes. Throughout this study, children living in welfare homes were classified into three main categories, including orphans, abandoned, and children from problematic families. Welfare home is a viable option for survival, growth, and development of children who lack the care and love from their parents.

1.2 Problem Statement

Malnutrition is serious among children living in welfare homes. Previous studies have reported that there were differences in nutrition-related problems among children who are living in orphanages and their counterpart (Lindblade et al., 2003; Watts et al., 2007).

A United Nations Children's Fund study reported that orphans are more likely to be stunted in their growth and less likely to be enrolled in schools compared to children living with both parents (UNICEF, 2012). Meanwhile, findings by B. Shukla, and D. Shukla (2011) reported that more than half of the children living in welfare homes were malnourished. About a quarter of the children in a welfare home in Southeast Nigeria were found to be stunted (Bismarck et al., 2014). Furthermore, it was reported from other studies as well that children living in welfare homes were more likely to be stunted (Dininger et al., 20013; Lindblade et al., 2003; Nwaeri & Omuemu, 2013; Sadik, 2010).

Moreover, several researchers have reported that the common nutritional problems experienced by children living in welfare homes were related to undernutrition such as stunting, underweight, and wasting (Duefield & Aguka, 2013; Jayasekara, 2006; Linblade et al., 2003; Nwaeri & Omuemu, 2013; Obidual et al., 2013; Ramakrishanan, 2004; Sadik, 2010; Sebanjo et al., 2011). Nonetheless, a few researchers reported measures of over nutrition that includes overweight and obesity (Bismarck et al., 2014; Sadik, 2010).

On the other hand, studies in Malaysia are limited to report on either undernutrition or overnutrition problems among children living in welfare homes. To the best of the author's knowledge, two studies in Malaysia reported such malnutrition problems among the children living in welfare homes. According to Chee et al. (2008), the prevalence of undernutrition (21.0%) was about five times higher than the prevalence of overnutrition (4.0%) among 73 children aged six to seventeen years old in a welfare home in Kuala Lumpur. On the contrary, Mohd Dzulkhairi et al. (2015) reported that the prevalence of overnutrition (32.1%) was higher than that of undernutrition (6.2%) among 128 children below 18 years old living in welfare homes in Selangor and Melaka.

Taking into account the fact that children belong to one of the two groups to the greatest extent and exposed to the effects of malnutrition, there is a need to understand the factors that contribute to malnutrition among children living in welfare homes. It must be noted that the study by Chee et al. (2008) only focused on girls and studied the association between dietary factors and body weight status of the respondents. Meanwhile, Mohd Dzulkhairi et al. (2015) studied on nutritional status, knowledge, attitude, and practice of children living in welfare homes. The trend of malnutrition in Malaysia has shifted from undernutrition in the NHMS 2011 (Institute of Public Health, 2011) to over nutrition in the NHMS 2015 (Institute of Public Health, 2015). Therefore, there is an urgent need to undertake a study targeting the nutritional status of children living in welfare homes in Malaysia and to determine factors such as socio-demographic, psychological, dietary, and physical activity factors towards the problem.

1.3 Objectives of the Study

1.3.1 General Objective

To determine factors associated with nutritional status in terms of height-for-age and BMI-for-age among children living in welfare homes in Selangor.

1.3.2 Specific Objectives

1. To determine the association between socio-demographic factors, psychological factors, dietary factors, and physical activity factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.
2. To determine the prevalence of severe stunting, stunting, severe thinness, thinness, overweight, and obesity among children living in welfare homes in Selangor.
3. To describe characteristics of welfare homes (location of residence, number of caregivers, number of children, source of financial support, food insecurity) in Selangor.
4. To determine socio-demographic factors (age, sex, ethnicity, enrollment status, duration of stay), psychological factors (self-esteem, depressive disorders, perception of body shape, perception of body weight status), dietary factors (risk of eating disorders, main meal consumption, snacking consumption, outside meals consumption, dietary supplement consumption, food approach behaviors, food avoidant behaviors, energy intake, macronutrients intake, micronutrients intake), and physical activity factors (energy expenditure per kilogram body weight, duration of screen-based media activities) among children living in welfare homes in Selangor.
5. To determine the association between socio-demographic factors, psychological factors, dietary factors, and physical activity factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.
6. To determine the contribution of socio-demographic factors, psychological factors, dietary factors, and physical activity factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.

1.4 Null Hypothesis

1. There is no significant association between socio-demographic factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.
2. There is no significant association between psychological factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.
3. There is no significant association between dietary factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.

4. There is no significant association between physical activity factors with BMI-for-age and height-for-age among children living in welfare homes in Selangor.
5. There is no significant contribution of socio-demographic factors, psychological factors, dietary factors, and physical activity factors to BMI-for-age and height-for-age among children living in welfare homes in Selangor.

1.5 Significance of the Study

The information from this study adds to the existing body of knowledge on the nutritional status of Malaysian children living in welfare homes. The study provides evidence as to whether the children in welfare homes are at risk of malnutrition and thus raise awareness about their nutritional status, psychological health, adequacy of nutrients intake, other nutritional-related factors, and physical activities. Prevention and intervention require consideration of the children living in welfare homes as the main target, whereby policies and practices can be changed or improved to enable targeted behaviors and discourage competing behaviors among children living in welfare homes.

The findings will help government agencies, Non-Governmental Organizations (NGOs), and donors identify the factors that contribute to the problems of under nutrition and over nutrition in welfare homes. Research institutions can also use the outcomes of this study to develop intervention programs that can improve the living conditions of these children. The output from this study provides baseline data for future nutrition intervention programs, besides helping welfare homes and their caregivers improve their nutritional care practices. Finally, it enables the nutritionists to understand the difficulties faced by the children and allows them to monitor their nutritional status.

1.6 Conceptual Framework

The conceptual framework of this study is as shown in Figure 1.1. The dependent factor in this study is nutritional status. The independent factors in this study include the children's socio-demographic factors, psychological factors, dietary factors, and physical activity factors.

In socio-demographic factors, age, sex, ethnicity, enrollment status, and duration of stay were studied. A previous study reported that the prevalence of overweight and obesity increased with increasing age (Poh et al., 2013). Meanwhile, the prevalence of stunting was higher in younger age compared to older age children. By sex, boys were likely to be overweight and obese (Deepthi et al., 2014), while another study reported the opposite (Barrett & Huffman, 2011). By ethnicity, previous studies reported that the prevalence of overweight and obesity was highest among Chinese (Institute of Public Health, 2015) and the prevalence of severe thinness and thinness was highest among

Indian children (Rampal et al., 2009). For stunting, it was reported that higher prevalence of stunting was found with increasing age (Al-Saffar, 2009; Kimani Murage et al., 2010). Also, some studies reported that stunting prevalence was higher in boys than girls (Gur et al., 2006; Oninla et al., 2007). Meanwhile, Van et al. (2007) reported that longer duration of stay was associated with more prevalence of stunting.

Previous studies have shown that psychological factors such as self-esteem, depression (Sadik, 2010), the perception of body shape, and perception of body weight status (Khor et al., 2009; Kim & Kim, 2003; Nur Syuhada Zofiran et al., 2011) were associated with nutritional status. A study by Nazrat et al. (2005) examined the association among self-reported body image, self-esteem, and measured BMI among El-Salvadoran American youth. The findings showed that higher BMI was associated with body size dissatisfaction and lower self-esteem.

Besides that, past studies have shown that dietary factors such as risk of eating disorders (Dan et al., 2011; Monir et al., 2010), eating behaviors (Chin & Mohd Nasir, 2009), food-approach and food-avoidant behaviors (Loh et al., 2008), as well as dietary intake (Chee et al., 2008) were associated with nutritional status. Food-approach behaviors predisposed respondents to a higher risk of becoming obese, whereas food-avoidant behaviors prevent unnecessary weight gain among the respondents (Loh et al., 2008).

Finally, previous studies showed that physical activity factors such as energy expenditure and duration of screen-based time activities (Fara Wahida et al., 2006; Woon et al., 2014) were associated with nutritional status. They reported that energy expenditure was significantly higher in overweight and obese respondents compared to their other counterparts.

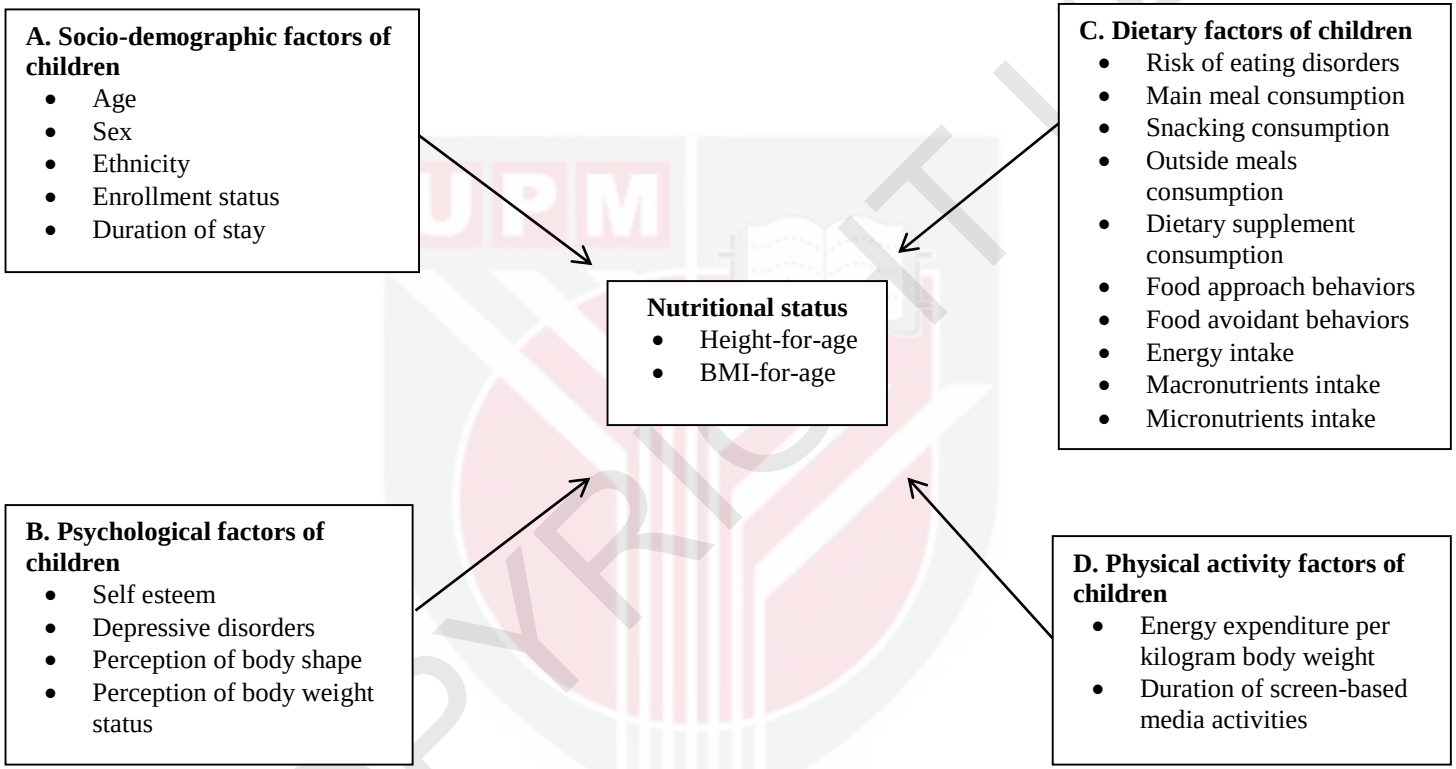

Figure 1.1: Conceptual Framework

REFERENCES

Abebe, T. (2009). Orphanhood, Poverty and the Care Dilemma: Review of Global Policy Trends. *Social Work and Society International Online Journal*, *7*,1.

Aboussaleh, Y., Ahami, A.O.T., Azzuoni, F.Z., et al. (2004). A diversified diet may reduce school age children stunting in North Western Morocco. *Asia Pacific Journal of Clinical Nutrition, 13*, 116.

Ahmad Ali, Z., Mala, A.M., Azli, B., Azahadi, O., Siew, M.C., Rashidah, A., Mohamad Hasnan, A., & Suhaila, A.G. (2014). Self-Perception of Body Weight Status and Weight Control Practices among Adolescents in Malaysia. *Asia-Pacific Journal of Public Health, 26*(5S), 18S–26S.

Ahmad Ali, Z., Rusidah, S., Azli, B., Suhaila, A.G., Norsyamline, C.E.R, & Tahir, A. (2013). Nutritional Status of Malaysian Primary School Children Aged 8-10 Years: Findings from the 2008 National IDD Survey. *Malaysian Journal of Nutrition, 19*(2), 149 – 161.

Ahmed, M.L., Ong, K.K., & Dunger, D.B. (2009) Childhood obesity and the timing of puberty. *Trends Endocrinol Metab*, *20*, 237–242.

AIDS in Cape Town, South Africa. *Annals of General Psychiatry*, 5, 8.

AIDS orphans in rural Uganda. *Social Science & Medicine*, 61, 555-64.

Ainsworth, B.E., Haskell, W.L., Herrmann, S.D., Meckes, N,, Bassett, D.R. Jr., Tudor-Locke, C., Greer, J.L., Vezina, J., Whitt-Glover, M.C., & Leon, A.S. (2011) Compendium of Physical Activities: a second update of codes and MET values. *Med Sci Sports Exerc.*, *43*(8), 1575-81.

Ainsworth, M., & Semali, J. (2000). *The impact of adult deaths on children's health in North Western Tanzania*. Policy research working paper.

Alderman, H., Hoogeveen, H., & Rossi, R. (2006). Reducing child malnutrition in Tanzania combined effects of income growth and program interventions. *Journal of Economics and Human Biology*, *4*,1-23.

Al-Ghamdi, S.H. (2013). The association between watching television and obesity in children of school-age in Saudi Arabia. *Journal of Family and Community Medicine*, *20*(2), 83-9.

Al-Saffar, A.J. (2009). Stunting among primary-school children: a sample from Baghdad, Iraq. *East Mediterr Health J.*, *15*(2), 322–329.

Al-Sendi, A.M., Shetty, P., & Musaiger, A.O. (2004). Body weight perception among Bahraini adolescents. *Child: Care Health and Development*, *30*, 369-376.

American Academy of Pediatrics. (2001). Committee on Public Education. American Academy of Pediatrics: Children, adolescents, and television. *Pediatrics, 107*, 423-6.

Amin, T., Al-Sultan, A., & Ali, A. (2008). Overweight and Obesity and their Association with Dietary Habits and Sociodemographic Characteristics Among Male Primary School Children in Al-Hassa, Kingdom of Saudi Arabia. *Indian J. Comm. Med., 33*, 172-81

Anderson, S. E., Cohen, P., Naumova, E. N., Jacques, P. F., & Must, A. (2007). Adolescent obesity and risk for subsequent major depressive disorder and anxiety disorder: Prospective evidence. *Psychosomatic Medicine*, *69*(8), 740–747.

Anita, T. (2002). *Food and Nutrition*. Oxford University Press.

Anuar Zaini, M.Z., Lim, C.T., Low, W.Y., & Harun, F. (2005) Factors affecting nutritional status of Malaysian primary school children. *Asia Pac J Public Health, 17*(2), 71–80.

Aral, N., Gürsoy, F., & Yıldız-Bıçakçı, M. (2005). Investigation of Self-Esteem Conception Levels of Adolescents Staying and Not Staying At Orphanage. *Education Research Journal, 21*, 24-34.

Arruda, E.L., & Lopes, A.S. (2007). Gordura corporal, nível de atividade física e hábitos alimentares de adolescentes da região serrana de Santa Catarina, Brasil. *Rev Bras Cineantropom Desempenho Hum, 29*, 5-11.

Avdeeva, N. (2009). Development of Self Image in Orphanage Children during the First Three Years of Life. *Psychological Science and Education, 3*, 13-23.

Azizi, F., Allahverdian, S., Mirmiran, P., Rahmani, M., & Mohammadi, F. (2001). Dietary factors and body mass index in a group of Iranian adolescents: Tehran lipid and glucose study--2. *Int J Vitam Nutr Res., 71*, 123–127.

Azli, B., Ahmad, A.Z., Rusidah, S., Suhaila, A.G., Khor, G.L, Poh, B.K., Norimah, A.K., Kee, C.C., Ng, C.K., Noor, A.A., Syafinaz, M.S., & Tahir, A. (2013). Malnutrition among Malaysian Adolescents: Findings from National Health and Morbidity Survey (NHMS) 2011. *International Journal of Public Health Research*, *3*(2), 282-289

Barrett, S.C., & Huffman, F.G. (2011). Comparison of self-perceived weight and desired weight versus actual body mass index among adolescents in Jamaica. *Revista Panamericana de Salud Pública*, *29*(4), 267–76.

Barros, C.R.S., Zucchi, E.M., & Junior, I.F. (2010). Physical activity level among children and adolescents orphaned by AIDS. *Brazilian Journal of Epidemiology*, *13*(3), 1-10.

Bauman, L., & Germann, S. (2005). Psychosocial impact of the HIV/AIDS epidemic on children and youth. In G. Foster, C. Levine & J. Williamson (Eds.), A Generation at Risk- The Global Impact of HIV/AIDS on Orphans and Vulnerable Children (93-133). Cambridge: Cambridge University Press.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561–571.

Berens, A. E., & Nelson, C. A. (2015). The science of early adversity: is there a role for large institutions in the care of vulnerable children? *Lancet, 386* (9991), 388-398.

Berg, I.M., Simonsson, B., Brantefors, B., & Ringqvist, I. (2001). Prevalence of overweight and obesity in children and adolescents in a county in Sweden. *Acta Paediatr, 90*, 671-676.

Bergh, I. H., Grydeland, M., Bjelland, M., Lien, N., Andersen, L. F., Klepp, K. I., . . . Ommundsen, Y. (2011). Personal and social-environmental correlates of objectively measured physical activity in Norwegian pre-adolescent children. *Scandinavian Journal of Medicine & Science in Sports, 21*(6), e315-e324.

Berkey, C.S., Rockett, H.R., Field, A.E., Gillman, M.W., Frazier, A.L., Camargo, C.A.Jr, & Colditz, G.A. (2000). Activity, Dietary Intake, and Weight Changes in a Longitudinal Study of Preadolescent and Adolescent Boys and Girls. *Pediatrics, 105*(4), E56.

Best, C., Neufingerl, N., Van Geel, L. et al. (2010). The Nutritional Status of School-aged Children: Why Should We Care? *Food and Nutrition Bulletin, 31*(3), 400-417.

Bhurtun, D.D., & Rajesh Jeewon, R. (2013). Body Weight Perception and Weight Control Practices among Teenagers. *ISRN Nutrition.*

Bin Zaal, A.A., Musaiger, A.O., & D'Souza, R. (2009).Dietary habits associated with obesity among adolescents in Dubai, United Arab Emirates. *Nutr Hosp., 24*(4), 437-44

Birch, L.L., & Fisher, J.O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics, 101*, 539-549.

Bismarck, E.C., Onyeka, E.B., Mildred, U.O., & Nnaemeka, I.A. (2014). Nutritional status of children living in motherless babies' homes in Enugu State Southeast Nigeria. *Indian Journal of Applied Research, 4*, 8.

Black, R.E., Allen, L.H., Bhutta, Z.A., et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet, 371*(9608), 243–260.

Boon, T.Y., Sedek, R., & Kasim, Z.M. (2012). Association between snacking patterns, energy, and nutrient intakes, and body mass index among school adolescents in Kuala Lumpur. *Amer J Food Nutrition, 2*(3), 69-77.

Braitstein, P., Ayaya, S., Nyandiko, W.M., Kamanda, A., Koech, J., et al. (2013). Nutritional Status of Orphaned and Separated Children and Adolescents Living in Community and Institutional Environments in Uasin Gishu County, Kenya. *PLoS ONE, 8*(7), e70054.

Brown, T., & Sittitrai, W. (2005). Making the right choices in the Asia-Pacific region: Protecting children and young people from HIV and its impacts. In G. Foster, C. Levine & J. Williamson (Eds.), A Generation at Risk- The Global Impact of HIV/AIDS on Orphans and Vulnerable Children (181-212). Cambridge: Cambridge University Press.

Çağdaş, A., & Seçer Şahin, Z. (2002). Development of Social Ethics in Children and Adolescents. Ankara: Nobel Publications. (In Turkish)

Çaman, Ö.K., & Özcebe, H. (2011). Adolescents Living in Orphanages in Ankara: Psychological Symptoms, Level of Physical Activity, and Associated Factors. *Turkish Journal of Psychiatry, 22.*

Cao, Y.T., Svensson, V., Marcus, C., Zhang, J., Zhang, J.D. et al. (2012) Eating behaviour patterns in Chinese children aged 12-18 months and association with relative weight - factorial validation of the Children's Eating Behaviour Questionnaire. *Int J Behav Nutr Phys Act, 9*, 5.

Carlson Jones, D., & Crawford, J.K. (2005). Adolescent boys and body image: weight and muscularity concerns as dual pathways to body dissatisfaction. *J Youth Adolesc, 34*, 629-636.

Carnell, S., & Wardle, J. (2007) Measuring behavioural susceptibility to obesity: validation of the Child Eating Behaviour Questionnaire. *Appetite, 48*, 104-113.

Caulfield, D.E., Richard, S.A., Rivera, J.A., Musgrove, P., & Black, R. E. *Stunting, wasting, and micronutrient deficiency disorders*. In Measham, A. R. Alleyne, G., Mills, A., Musgrove, P., Claeson, M., Jamison, D.T., Evans, D.B., Breman, J.G., & Jha, P. editors, Disease Control Priorities in Developing Countries (2nd Edition). Oxford University Press, New York, 2006

CDC. (2006). About BMI for Children and Teens: Centers for Diseases Control and Prevention.

http://www.cdc.gov/nccdphpdnpa/bmi/childrens_BMIabout_childrens_BMI.htm#What%20is%20BMI. Retrieved on 20 September 2014.

Chakravarthy, M.V., & Booth, F.W. (2003). Inactivity and inaction: we can't afford either. *Arch Pediatr Adolesc Med., 157*, 731–732.

Chaplin, K., & Smith, A. (2011). Definitions and perceptions of snacking. *Current Topics in Nutraceutica Research, 9*(1), 53-59.

Chee, Y.F., Roseline, Yap, W.K., & Siti, S. B. (2008). Weight Status and Dietary Intake among Female Children and Adolescents Aged 6-17 Years in a Welfare Home, Kuala Lumpur. *Malaysian Journal of Nutrition, 14*(1), 79 – 89.

Cheung, P., Ip, P., Lam, S. T., & Bibby, H. (2007). A study on body weight perception and weight control behaviours among adolescents in Hong Kong. *Hong Kong Medical Journal, 13*(1), 16–21.

Cheung, Y.T.D., Lee, A.M., Ho, S.Y., Li, S.E.T., Lam, T.H., & Fan, S.Y.S. *et al.* (2011). Who wants a slimmer body? The relationship between body weight status, education level and body shape dissatisfaction among young adults in Hong Kong. *BMC Public Health, 11*, 835

Chilima, D.M. (2006). Relief and Recovery Operation (PRRO): Integrated Support to HIV/AIDS Infected and Affected People in Eight Districts of Malawi. *Baseline Survey Final Report*. Lilongwe: WFP.

Chin, Y.S., & Mohd Nasir, M.T. (2009). Eating behaviors among female adolescents in Kuantan district, Pahang, Malaysia. *Pakistan Journal of Nutrition, 8*, 425-32.

Chin, Y.S., Taib, M.N., Shariff, Z.M., & Khor, G.L. (2008). Development of Multi-dimensional Body Image Scale for Malaysian female adolescents. *Nutrition Research and Practice, 2*, 85-92

Chowdhury, S.D., Chakraborty, T., & Ghosh, T. (2008). Prevalence of undernutrition in Santal children of Puruliya district, West Bengal. *Indian Pediatr, 45*, 43-6.

Claeson, M., Evans, D.B., Jha, P., Mills, A., Mushrove, P., eds. (2006). Disease control priorities in developing countries, 2nd ed. Washington, DC: World Bank, 551–67.

Cluver, L., & Gardner, F. (2007). The mental health of children orphaned by AIDS: a review of international and southern African research. *Journal of Child and Adolescent Mental Health*, *19*(1), 1–17.

Cluver, L., Gardner, F., & Operario, D. (2007). Psychological distress amongst AIDS-orphaned children in urban South Africa. *J Child Psychol Psychiatry, 48*(8), 755-63.

Cole, T.J., Bellizzi, M.C., Flegel, K.M., & Dietz, W.H. (2000). Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ, 320*, 1240–1243.

Cole, T.J., Bellizzi, M.C., Flegel, K.M., & Dietz, W.H. (2000). Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ, 320, 1240–1243.

Collins, M.E. (1991). Body figure perceptions and preferences among preadolescent children. *International Journal of Eating Disorder*, *10*, 199-208.

Dan, S. P., Mohd Nasir, M. T., & Zalilah, M. S. (2011). Determination of factors associated with physical activity levels among adolescents attending school in Kuantan, Malaysia. *Malaysia Journal of Nutrition, 17(2)*, 175-187.

Dan, S., Mohd. Nasir, M.T., & Zalilah, M.S. (2007). Sex and ethnic differentials in physical activity levels of adolescents in Kuantan. *Malaysian Journal of Nutrition, 13*(2).

Daniels, S.R., Arnett, D.K., Eckel, R.H., Gidding, S.S., Hayman, L.L., Kumanyika, S., Robinson, T.N., Scott, B.J., St. Jeor, S., & Williams, C.L. (2005). Overweight in children and adolescents: pathophysiology, consequences, prevention, and treatment. *Circulation, 111*, 1999-2012

de Moura, S.L. (2007) Determinants of food rejection amongst school children. *Appetite, 49*, 716-719.

de Moura, S.L. (2007). Determinants of food rejection amongst school children. *Appetite*, *49*, 716-719.

de Onis, M. et al. (2007). Development of WHO Growth Reference For School-aged Children and Adolescence.*Bulletin of the World Health Organization*, *85* (9), 649-732.

de Onis, M., Monteiro, C., Akré, J., & Clugston, G. (2002). The worldwide magnitude of protein-energy malnutrition: An overview from the WHO global database on child growth. Bull. *World Health Organisation, 71*, 703-712.

de Onis, M., Onyango, A.W., Borghi, E., Siyam, A., Nishida, C., & Siekmann, J. (2007). Development of a WHO growth reference for school-aged children and adolescents. *Bulletin of World Health Organization, 85*, 660-667.

de Sousa Lopes, H.M. (2012). Diagnostic accuracy of CDC, IOTF and WHO criteria for obesity classification, in a Portuguese school-aged children population. Maestrado en Saúde Pública. Universidad do Porto. Facultade de Medicina. Instituto de Ciências Biomédicas Abel Salazar. 2012. [Available at: http://repositorio-aberto.up.pt/bitstream/10216/62314/3/Hugo%20de%20Sousa%20LopesTeseDiagnostic%20accuracy%20of%20CDC%20IOTF%20and%20WHO%20criteria%20for%20obesity%20classification%20in%20a%20Portuguese%20schoolaged%20children%20population%20Mestrado%20em%20Sade%20Pblica.pdf] [Accessed on: June 7, 2014].

Deepthi, A., Praveen, K.K., Chandrashekhar-Rao, P., Vincent, K., & Kishore, M.T. (2014). Relationship among Body Mass, Self-esteem and Depression in Overweight Indian Adolescents: Role of Binge Eating. *Journal of the Indian Academy of Applied Psychology*, *40*(2), 289-293.

Deininger, Garaic, & Subharao. (2003). "Africas orphaned generations" New York: United Nations Childrens Fund Analysis for various countries documented by Subarao and Coury. *UNICEF*.

Dininger, Garaic, & Subharao. (2003). African orphaned generations. New York: United Nations Children's Fund (UNICEF) analysis for various countries.

Dollman, J., & Lewis, N. (2009). Interactions of socioeconomic position with psychosocial and environmental correlates of children's physical activity: an observational study of South Australian families. *International Journal of Behavioral Nutrition and Physical Activity*.

Donnellan, M.B., Trzesniewski, K.H., Robins, R.W., et al. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science*, *16*(4), 328-35.

Duefield, C., & Aguka, D. (2013). Nutritional status of orphaned and separated children and adolescents living in community and institutional environments in Uasin Gishu County, Kenya. *PLOS ONE*.

Dutta, A., Pant, K., Puthia, R., & Sah, A. (2009). Prevalence of undernutrition among children in the Garhwal Himalayas. *Food and Nutrition Bulletin*, *30*(1), 77-81.

Elmer, P.J., Obarzanek, E., Vollmer, W.M., Simons-Morton, D., Stevens, V.J., Young, D.R., et al. (2006). Effects of comprehensive lifestyle modification on diet, weight, physical fitness, and blood pressure control: 18-month results of a randomized trial. *Annals of Internal Medicine*, *144*(7), 485-495.

Erermis, S., Cetin, N., Tamar, M., Bukusoglu, N., Akdeniz, F., & Goksen, D. (2004). Is obesity a risk factor for psychopathology among adolescents? *Pediatrics International*, *46*(3), 296-301.

Erol, N., Simsek, Z., & Munir, K. (2010). Mental health of adolescents reared in institutional care in Turkey: challenges and hope in the twenty-first century. *European Child and Adolescent Psychiatry, 19*(2), 113–124.

Esfarjani, F., Roustaee, R., Mohammadi, F., & Esmaillzadeh, A. (2013). Determinants of Stunting in School-Aged Children of Tehran, Iran. *Int J Prev Med., 4*(2), 173–179.*European Journal of Clinical Nutrition, 59*, 914–922.

Fact sheet EURO/06/05. The health of children and adolescents in Europe. Copenhagen, Bucharest, 12 September 2005.

Faith, M.S., Matz, P.E., Jorge, M.A. (2002). Obesity-depression associations in the population. *Journal of Psychosomatic Research*, *53*, 935-942

FAO/WHO/UNU. (1985). Energy and protein requirements. Report of a joint FAO/WHO/UNU expert consultation. Technical report series 724. Geneva: WHO.

Fara Wahida, R., Chin, Y.S., & Barakatun Nisak, M.Y. (2012). Obesity-related behaviors of Malaysian adolescents: a sample from Kajang district of Selangor state. *Nutrition Research and Practice*, *6*(5), 458—65.

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-91.

Fawzy, N., & Fouad, A. (2010). Psychosocial and Developmental Status of Orphanage Children: Epidemiological Study. *Current Psychiatry, 17*(2), 41-48.

Feranil, I., Herstad, B., Jallow, W., & Mbuya-Brown, R. (2010). Assessing Implementation of Botswana's Program for Orphans and Vulnerable Children. Washington, DC: Futures Group, Health Policy Initiative, Task Order 1.

First Data Bank Inc. (2003). Nutritionist Pro for Windows. 2.4.1 ed. Indianapolis: First Data Bank Inc.

Franklin, J., Denyer, G., Steinbeck, K.S., Caterson, I.D., & Hill, A.J. (2006). Obesity and risk of low self-esteem: a statewide survey of Australian children. *Pediatrics*, *118*(6), 2481–2487.

French, S.A., Perry, C.L., Leon, G.R., & Fulkerson, J.A. (1996). Self-esteem and change in body mass index over 3 years in a cohort of adolescents. *Obesity Research, 4*(1), 27-33.

French, S.A., Story, M., Neumark-Sztainer, D., Fulkerson, J.A., & Hannan, P. (2001). Fast-food restaurant use among adolescents: association with nutrient intake, food choices and behavioral psychosocial variables. *Int J Obes., 25*, 1823-1833.

Friedman, J.F., Phillips-Howard, P.A., Mirel, L.B., Terlouw, D.J., Okello, N., Vulule, J.M., Hawley, W.A., Nahlen, B.L., ter Kuile, F.2005. Progression of stunting and its predictors among school-aged children in western Kenya.

Galloway, A.T., Fiorito, L., Lee, Y., & Birch, L.L. (2005). Parental pressure, dietary patterns and weight status among girls who are "picky eaters". *J Am Diet Assoc., 105*, 541-548.

Galloway, A.T., Fiorito, L., Lee, Y., & Birch, L.L. (2005). Parental pressure, dietary patterns and weight status among girls who are "picky eaters". *J Am Diet Assoc, 105*, 541-548.

Garner, D.M. (1997). The body image survey. *Psychology Today*, 32-84.

Garner, D.M., & Garfinkel, P.E. (1979). The eating attitudes test: an index of the symptoms of anorexia nervosa. *Psychology Medicine, 9*, 273-279.

Garvin, M.C., Tarullo, A.R., Van Ryzin, M., & Gunnar, M.R. (2012). Postadoption parenting and socioemotional development in postinstitutionalized children. *Development and Psychopathology*, *24*(1), 35–48

Gibson, E.L. (2006). Emotional influences on food choice: sensory, physiological and psychological pathways. *Physiol Behav, 89*, 53-61.

Gillespie, S., & Kadiyata, S. (2004). Rethinking food aid to fight AIDS. International nutrition foundation for United Nations University. *Food and Nutrition Bulletin, 25*(3), 272-282.

Gillis, D.E., & Williams, P.L. (2003). Concerns about young women's nutrition. *Canadian Family Physician.*

Gillison, F.B., Standage, M., & Skevington, S.M. (2011). Motivation and body-related factors as discriminators of change in adolescents' exercise behavior profiles. *Journal of Adolescent Health, 48*(1), 44–51.

Goldfield, G.S., Moore, C., Henderson, K., Buchholz, A., Obeid, N., & Flament, M.F. (2010). Body dissatisfaction, dietary restraint, depression, and weight status in adolescents. *The Journal of School Health, 80*(4), 186–192.

Goluch-Koniuszy, Z., & Bonczek, M. (2011). Glycemic index and glycemic load of thirteen year old children whose waist circumference (WC) ≥90

percentile dependent on BMI. *Acta Sci Pol Technol Aliment, 10*(2), 245-265.

Government of Botswana. (2008b). National Guidelines on the Care of Orphans and Vulnerable Children. Gaborone, Botswana: Ministry of Local Government, Department of Social Services.

Grantham-McGregor, S., Cheung, Y.B., Cueto, S., et al. (2007). Developmental potential in the first 5 years for children in developing countries. *Lancet, 369* (9555), 60–70.

Gregori, D., & Maffeis, C. (2007). Snacking and obesity: urgency of a definition to explore such a relationship. *Journal of the American Dietetic Association, 107*(1), 562.

Gregory, C.O., Blanck, H.M., Gillespie, C., Maynard, L., Serdula, M.K. (2008). Health perceptions and demographic characteristics associated with underassessment of body weight. *Obesity, 16*, 979–986

Gür, E., Can, G., Akkus, S., Ercan, G., Arvas, A., Güzelöz, S., et al. (2006). Is undernutrition a problem among Turkish school children?: Which factors have an influence on it? *J Trop Pediatr, 52*, 421-6

Gürsoy, F., Biçakçi, M., Y., Orhan, E., Bakırcı, S., Çatak, S., & Yerebakan, Ö. (2012). Study on Self-Concept Levels of Adolescents in the Age Group of 13-18 who Live in Orphanage and those who do not Live in Orphanage. *International Journal of Social Sciences and Education, 2*(1).

Hailemariam, B., Alemseged, A., Bruh, G., & Shekmnesh, A. (2013). Prevalence and Associated Factors of Anxiety among Aids Orphan Adolescents in Mekelle City, Tigray Ethiopia: A Cross-Sectional Study. *Advance Research in Pharmaceuticals and Biologicals, 3*(II).

Haines, J., Neumark-Sztainer, D., Wall, M., & Story, M. (2007). Personal, behavioral, and environmental risk and protective factors for adolescent overweight. *Obesity, 15*, 2748–2760.

Hallal, P.C., Bertoldi, A.D., Gonçalves, H., & Victora, C.G. (2006). Prevalência de sedentarismo e fatores associados em adolescentes de 10-12 anos de idade. *Cad Saude Publica, 22*, 1277-87.

Hamer, M., Stamatakis, E., & Mishra, G. (2009). Psychological distress, television viewing, and physical activity in children aged 4 to 12 years. *Pediatrics, 123*(5), 1263-1268.

Hancox, R.J., & Poulton, R. (2006). Watching television is associated with childhood obesity: but is it clinically important? *International Journal of Obesity (London), 30*(1), 171-5.

Hatami, M., Taib, M. N. M., Djazayery, A., Mojani S. M., & Mejlej, H. F. (2015). Relationship between body image, body dissatisfaction and weight status in Iranian adolescents. *Archives of Obesity,1*, 1.

He, Z., & Ji, C. (2007). Nutritional status, psychological well-being and the quality of life of AIDS orphans in rural Henan Province, China. *Trop Med Int Health, 12*(10), 1180-90.

Herman, K.M., Sabiston, C.M., Mathieu, M.E., Tremblay, A., & Paradis, G. (2014). Sedentary behavior in a cohort of 8- to 10-year-old children at elevated risk of obesity. *Preventive Medicine, 60*, 115-20.

Hesketh, K., Wake, M., & Waters, E. (2004). Body mass index and parent-reported self-esteem in elementary school children: evidence for a causal relationship. *International Journal of Obesity and Related Metabolic Disorders, 28*(10), 1233-7.

Hien, N.N., & Kam, S. (2008). Nutritional status and the characteristics related to malnutrition in children under five years of age in Nghean, Vietnam. *Journal of Preventive Medicine and Public Health, 41*(4), 232–240.

Hoffman, D.J., Sawaya, A.L., Coward, W.A., Wright, A., Martins, P.A., de Nascimento, C., Tucker, K.L., & Roberts, S.B. (2000). Energy expenditure of stunted and non-stunted boys and girls living in the shantytowns of Sao Paulo, Brazil. *Am. J. Clin. Nutr., 72*, 1024–1034.

Hosegood, V., Floyd, S., Marston, M., Hill, C., McGrath, N., et al. (2007) The effects of high HIV prevalence on orphanhood and living arrangements of children in Malawi, Tanzania, and South Africa. *Population Study (Camb), 61*, 327–336.

Hotez, P., & Kamath, A. (2009). Neglected tropical diseases in sub-Saharan Africa: Review of their prevalence, distribution, and disease burden. *PLoS Neglected Tropical Diseases, 3*(8), 412.

Humbert, M. L., Chad, K. E., Spink, K. S., Muhajarine, N., Anderson, K. D., Bruner, M. W., et al. (2006). Factors that influence physical activity participation among high and low SES youth. *Qualitative Health Research, 16*, 467–483.

Institute for Public Health (IPH). (2011). Vol II: Non-Communicable Diseases; 2011. *National Health and Morbidity Survey 2011 (NHMS 2011)*.

Institute for Public Health (IPH). (2015). National Health and Morbidity Survey 2015 (NHMS 2015). Vol. II: Non-Communicable Diseases, Risk Factors & Other Health Problems; 2015.

Institute of Medicine. (2006). *Dietary Reference Intakes: The Essential Guide to Nutrient Requirement.* Washington, DC: The National Academies Press.

Isaranurug, S., & Chompikul, J. (2009). Emotional development and nutritional status of HIV/AIDS orphaned children aged 6–12 years old in Thailand. *Matern Child Health J., 13*, 138–143

Jacobi, J. (2009). Between Charity and Education: Orphans and Orphanages in Early Modern Times. *Paedagogica Historica, 45,* 51–66.

Janssen, I., Katzmarzyk, P.T., Boyce, W.F., King, M.A., & Pickett, W. (2004). Overweight and obesity in Canadian adolescents and their associations with dietary habits and physical activity patterns. *J Adolesc Health, 35*, 360-367.

Jarosz, M., & Bułhak-Jachymczyk, B., (eds). (2008). Recommendations. Prevention of obesity and non-communicable diseases. Warszawa, Wydawnictwo Lekarskie PZWL (in Polish).

Jayasekera, C.R. (2006). Nutritional status of children under five in three State foster care institutions in Sri Lanka. *Ceylon Medical Journal, 51,* 63-65.

Jensen, C.D., & Steele, R.G. (2009). Brief report: body dissatisfaction, weight criticism, and self-reported physical activity in preadolescent children. *Journal of Pediatric Psychology*, *34*(8), 822–826.

Jeżewska-Zychowicz, M. (2004). The influence of social factors on nutritional behaviors. *Żyw Człow Matab*, *31*(1), 78-85 (in Polish).

Johnson, D.E. (2000). Medical and development sequelae of early childhood institutionalized in Eastern European adoptees. In C. A. Nelson (Ed.), The effects of early adversity on neurobehavioral development. *The Minnesota Symposia on Child Psychology, 31,* 113-162. Mahwah, NJ: Lawrence Erlbaum.

Kabubo, M.J., Ndenge, G.K., & Mwabu, D.K. (2008). Determinants of Children's Nutritional Status in Kenya: Evidence from Demographic and Health Surveys. *Journal of African Economies.*

Kadiyala, S., & Gillespie, S. (2004). Rethinking food aid to fight AIDS. *Food Nutr. Bull., 25,* 271-282.

Kamil, A.A., Saidon, A., Yee, K.L., & Bahaman, A.S. (2011). Assessment of Weight Status of Secondary School Children in Selangor, Malaysia. *Australian Journal of Basic and Applied Sciences*, *5*(9), 1675-1682.

Karayiannis, D., Yannakoulia, M., Terzidou, M., Sidossis, L.S., & Kokkevi, A. (2003). Prevalence of overweight and obesity in school-aged children and adolescents. *Eur J Clin Nutr, 57*, 1189-1192.

Karim, K.M.R., & Zahid, M.K. (2012). Nutritional status and dietary intake of the orphans: A case study in the ICH (Intervida Children Home) in Dhaka city in Bangladesh. *Bangladesh J. Nutr., 24-25*, 23-30.

Kerr, M.A., Rennie, K.L., McCaffrey, T.A., Wallace, J.M.W., Hannon-Fletcher, M.P., & Livingstone, M.B.E. (2009). Snacking patterns among adolescents: a comparison of type, frequency and portion size between Britain in 1997 and Northern Ireland in 2005. *British Journal of Nutrition, 101*(1), 122-131.

Khor, G.L., Zalilah, M.S., Phan, Y.Y., Maznah, B., & Norimah, A.K. (2009). Perception of body image among Malaysian male and female adolescents. *Singapore Med J, 50*(3), 303.

Kim, K. H. (2007). Religion, weight perception, and weight control behavior. *Eating Behaviour, 8*, 121-31.

Kim, O., & Kim, K. (2003). Comparisons of body mass index, perception of body weight, body shape satisfaction, and self-esteem among Korean adolescents. *Perceptual and Motor Skills, 97*(3 Pt 2), 1339-1346.

Kimani-Murage, E.W., Kahn, K., Pettifor, J.M., et al. (2010). The prevalence of stunting, overweight and obesity, and metabolic disease risk in rural South African children. *BMC Public Health, 10*, 158.

Koletzko, B., & Toschke, A.M. (2010) Meal patterns and frequencies: do they affect body weight in children and adolescents? *Crit Rev Food Sci Nutr., 50*, 100-105.

Kovacs, M. (1985). The Children's Depression Inventory (CDI). *Psychopharmacology Bulletin, 21*, 995-998.

Kovacs, M. (1992). The Children's Depression Inventory (CDI) Manual. Toronto, ON: Multi-Health Systems, 15-25.

Kowalski, K., Crocker, P., & Donen, R. (1997). The Physical Activity Questionnaire for Older Children (PAQ-C) and Adolescents (PAQ-A) Manual. College of Kinesiology, University of Saskatchewan.

Kromhout, D., Saris, W.H.M., & Horst, C.H. (1988). Energy intake, energy expenditure and smoking in relation to body fatness: The Zutphen Study. *Am. J. Clin. Nutr. 47*, 668-674.

Lackey, K.J., & Kaczynski, A.T. (2009). Correspondence of perceived vs. objective proximity to parks and their relationship to park-based physical activity. *Int J Behav Nutr Phys Act, 6*, 53.

Lasserre, A.M., Chiolero, A., Cachat, F., Paccaud, F., & Bovet, P. (2007). Overweight in Swiss children and associations with children's and parents' characteristics. *Obesity (Silver Spring), 15*, 2912–9

Lassi, Z.S., Mahmud, E.U., Syed, N.Z. & Janjua N.Z. (2011). Behavioral problems among children living in orphanage facilities of Karachi, Pakistan: comparison of children in an SOS Village with those in conventional orphanages. *Social Psychiatry and Psychiatric Epidemiology*, *46*(8), 787–796

Lee, M.C., Orenstein, M.R., & Richardson, M.J. (2008). Systematic review of active commuting to school and children's physical activity and weight. *J Phys Act Health, 5*, 930–949

Lee, P.H., Lai, H.R., Chou, Y.H., & Chang, W.Y. (2009). Perceptions of exercise in obese school-aged children. *Journal of Nursing Research, 17*(3), 170–178

Lee, Y.Y., & Wan Abdul Manan, W.M. (2014). Nutritional status, academic performance and parental feeding practices of primary school children in a rural district in Kelantan, Malaysia. *Prog Health Sci, 4*(1), 144

Lekhraj Rampal, G.R., Mohd Sidik, S., Rampal. S., Daniel Wong, Y.J., Chow, P.L., Liew, J.S., & Shum, Y.S. (2007). Prevalence of overweight among secondary school students in Klang district, Selangor. *Malaysian Journal of Nutrition, 13*, 1-8.

Lemon, R., & Sapka, B.A. (2009). Contributions of weight perceptions to weight loss attempts: Differences by body mass index and gender. *Body Image, 6*, 90-96.

Lemon, S.C., Rosal, M.C., Zapka, J., Borg, A., & Andersen, V. (2009). Contributions of weight perceptions to weight loss attempts: differences by body mass index and gender. *Body Image, 6*(2)**,** 90-96.

Liechty, J.M. (2010). Body image distortion and three types of weight loss behaviors among nonoverweight girls in the United States. *Journal of Adolescent Health, 47*(2), 176–182.

Lindblade, K.A., Odhiambo, F., Rosen, D.H., & DeCock, K.M. (2003). Health and Nutritional status of orphans <6 years old cared for by relatives in Western Kenya. *Tropical Medicine & International Health, 8*, 67-70.

Loh, D.A., Moy, F.M., Zaharan, N.L., & Mohamed, Z. (2013) Eating Behaviour among Multi-Ethnic Adolescents in a Middle-Income Country as Measured by the Self-Reported Children's Eating Behaviour Questionnaire. *PLoS ONE 8*(12), e82885.

Loth, Katie, A., Mond, J., Wall, M., & Neumark-Sztainer, D. (2011). Weight Status and Emotional Well-Being: Longitudinal Findings from Project EAT. *Journal of Pediatric Psychology*, *36*, 216–35.

Lundstedt, G., Edlund, B., Engstrom, I., Thurfjell, B., Marcus, C. (2006). Eating disorder traits in obese children and adolescents. Eating and Weight Disorders, 11, 1, 45-50.

Makame, V., Ani, C., & Grantham-McGregor, S. (2002). Psychological well-being of orphans in Dar El Salaam, Tanzania. *Acta Paediatr.*, *91*(4), 459–65.

Malik, V.S., Schulze, M.B., & Hu, F.B. (2006). Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr*, *84*, 274-288.

Malina, R.M. (2008). *Physical activity: Impact on child health and nutritional needs. In: Koletzko B.* et al. (eds.), Pediatric Nutrition in Practice, Basel: Karger, 62-68. |

Malinauskas, B. M., Raedeke, T. D., Aeby, V. G., Smith, J. L., & Dallas, M. B. (2006). Dieting practices, weight perceptions, and body composition: a comparison of normal weight, overweight, and obese college females. *Nutrition Journal*, *5*(11).

Maloney, M.J., McGuire, J., & Daniels, S.R. (1988). Reliability testing of a children's version of the Eating Attitude Test. *Journal of the American Academy of Child & Adolescent Psychiatry*, *27*, 541-3

Martins, C., Belsky, J., Marques, S., Baptista, J., Silva, J., et al. (2012). Diverse Physical Growth Trajectories in Institutionalized Portuguese Children Below Age 3: Relation to Child, Family, and Institutional Factors. *J. Pediatr. Psychol.*

Maximova, K., McGrath, J.J., Barnett, T., O'Loughlin, J., Paradis, G., & Lambert, M. (2008). Do you see what I see? Weight status misperception and exposure to obesity among children and adolescents. *International Journal of Obesity (London)*, *32*(6), 1008-15.

McCabe, M.P., & Ricciardelli, L.A. (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls. *Behaviour Research and Therapy*, *43*(5), 653-68.

McGee, R., Williams, S., & Nada-Raja, S. (2001). Low self-esteem and hopelessness in childhood and suicidal ideation in early adulthood. *Journal of Abnormal Child Psychology, 29*(4), 281-91.

Mishra, S.K., & Mukhopadhyay, S. (2010). Eating and weight concerns among Sikkimese adolescent girls and their biocultural correlates: An exploratory study. *Public Health Nutrition, 14*(5), 853–859.

Misra, A., Alappan, N.K., Vikram, N.K., et al. (2008). Effect of supervised progressive resistance-exercise training protocol on insulin sensitivity, glycemia, lipids, and Body composition in Asian Indians with type 2 diabetes. *Diabetes Care, 31*(7), 1282–1287.

Mogre, V. Gaa, P.K., & Abukari, R.N.S. (2013). Overweight, Obesity and Thinness and Associated Factors Among School-Aged Children (5-14 Years) In Tamale, Northern Ghana. *European Scientific Journal, 9,* (20).

Mohd Dzulkhairi, M.R., Syimir, S., Zairina, A.R., Wan Noraini, W.S., Khairun Nain, N., & Nazefah, A.H. (2015). Nutritional status, knowledge, attitude, and practice among orphans living in institutions in Selangor and Melaka. *Medical Journal of Malaysia, 70* (1).

Mokdad, A., Serdula, M.K., Dietz, W.H., Bowman, B.A., Marks, J.S., & Koplan, J.P. (2000). The continuing epidemic of obesity in the United States. *Journal of the American Medical Association, 284*, 1650–1651.

Molnar, D., Jeges S., Erhardt E., & Schutz Y. (1995) Measured and predicted resting metabolic rate in obese and nonobese adolescents. *Journal of Pediatrics, 127*, 571-577.

Monge-Rojas, R., Nunez, H.P., Garita, C. & Chen-Mok, M. (2002). Psychosocial aspects of Costa Rican adolescents' eating and physical activity patterns. *J Adolesc Health, 31*, 212-219

Monir, Z.M., Khalifa, A.G., Hassaballa, F., Tawfeek, S., Abdelmonem, M., Shady, M.A., & Mansour, M. (2010). Eating Behavior and Problems in Egyptian Adolescents; Relation to Dietary Intake. *Journal of American Science, 6*(12), 1145-1159.

Moy, F.M., Gan, C.Y., & Zaleha, M.K. (2004). Body mass status of school children and adolescents in Kuala Lumpur, Malaysia. *Asia Pacific Journal of Clinical Nutrition, 13*, 324-9.

Muhammad, N.A., Omar, K., Shah, S.A., Muthupalaniappen, L.A., & Arshad, F. (2008). Parental perception of their children's weight status, and its association with their nutrition and obesity knowledge. *Asia Pacific Journal of Clinical Nutrition, 17*(4), 597—602.

Mushtaq, M.U., Gull, S., Mushtaq, K., Shahid, U., Shad, M.A., & Akram, J. (2011). Dietary behaviors, physical activity and sedentary lifestyle associated with overweight and obesity, and their socio-demographic correlates, among Pakistani primary school children. *International Journal of Behavioral Nutrition and Physical Activity*, *8*, 130.

Mustillo. S., Worthman, C., Erkanli, A., Keeler, G., Angold, A., & Costello, E.J. (2003). Obesity and psychiatric disorder: developmental trajectories. *Pediatrics*, *111*(4 Pt 1), 851-9.

Mwaniki, E.W., & Makokha, A.N. (2013) Nutrition Status of Children in Orphanages in Selected Primary Schools within Dagoretti Division Nairobi, Kenya. *J Nutr Food Sci*, *4*, 248.

National Center for Health Statistics [NCHS]. (1997). Growth curves for children birth -18 years, United States. Vital and Health Statistics, Series 11, No. 165. Department of Health, Education, and Welfare Publication No. 78 - 1650. Washington, DC: US Government Printing Office.

National Coordinating Committee on Food and Nutrition [NCCFN]. (2005). Recommended nutrient intake's for Malaysia. A report of the Technical Working Group on Nutritional Guidelines. Putrajaya. Ministry of Health.

National Coordinating Committee on Food and Nutrition [NCCFN]. (2013). Malaysia dietary guidelines for children and adolescents. Putrajaya, Malaysia: Ministry of Health.

Navia, B., Ortega, R. M., Requejo, A. M., Mena, M. C., Perea, J. M., & López-Sobaler, A. M. (2003). Influence of the desire to lose weight on food habits, and knowledge of the characteristics of a balanced diet, in a group of Madrid university students. *European Journal of Clinical Nutrition*, *57*(1), S90–S93.

Nazrat, M.M., Dawnavan Davis M.S., & Yanovski, J.A. (2005). Body dissatisfaction, self-esteem, and overweight among innercity Hispanic children and adolescents. *Journal of Adolescent Health*, *36*(3), 267.e16–267.e20.

NCCFN. (2005). Recommended Nutrient Intakes for Malaysia. A Report of the Technical Working Group on Nutritional Coordinating Committee on Food and Nutrition. Ministry of Health, Putrajaya.

Needham, B.L., & Crosnoe, R.C. (2005). Overweight status and depressive symptoms during adolescence. *Journal of Adolescent Health*, *36*, 48-55.

Neumark-Sztainer, D., Story, M., Hannan, P. J., Tharp, T., & Rex, J. (2003). Factors associated with changes in physical activity. A cohort study of

inactive adolescent girls. *Archives of Pediatric and Adolescent Medicine, 157*, 803–810.

Neumark-Sztainer, D., Wall, M., Guo, J., Story, M., Haines, J., & Eisenberg, M. (2006). Obesity, disordered eating, and eating disorders in a longitudinal study of adolescents: how do dieters fare 5 years later? *J Am Diet Assoc., 106*(4), 559-68.

Neumark-Sztainer, D., Wall, M., Story, M., & Standish, A. R. (2012). Dieting and unhealthy weight control behaviors during adolescence: associations with 10-year changes in body mass index. *Journal of Adolescent Health*, *50*, 80–86.

Newman, D.L., Sontag, L.M., & Salvato, R. (2006). Psychosocial aspects of body mass and body image among rural American Indian adolescents. *J Youth Adolesc*, *35*, 281-291

Nishimura, R., Sano. H., Matsudaira, T., Morimoto, A., Miyashita, Y., Shirasawa, T., Kokaze, A., & Tajima, N. (2009). Changes in body mass index, leptin and adiponectin in Japanese children during a three-year follow-up period: a population-based cohort study. *Cardiovascular Diabetology*, *8*, 30.

Nur Syuhada Zofiran, M.J., Kartini, I., Siti Sabariah, B., & Ajau, D. (2011). The relationship between eating behaviours, body image, and BMI status among adolescence age 13 to 17 years in Meru, Klang, Malaysia. *American Journal of Food and Nutrition*, *1*(4), 185-192.

Nwaeri, D.U., & Omuemu, V.O. (2013). Intestinal helaminthiasis and nutritional status of children living in orphanages in Benin–City, Nigeria. *International Journal of Clinical Practice*, *16*, 243-248.

Obidul, H.A.K., Chowdhury, T., Roy, P., et al. (2013). Healthcare facilities and nutritional status of orphans residing in capital city of Bangladesh. *International Journal of Current Microbiology and Applied Sciences*, *2*, 118-125.

Ogechi, U.P., Onimawo, I., & Ugwunna, U. A. (2007). Nutritional Status and Energy Intake of Adolescents in Umuahia Urban, Nigeria. *Pakistan Journal of Nutrition*, *6*(6).

Oliveira, P.S., Soares, I., Martins, C., Silva, J.R., Marques, S., Baptista, J., & Lyons-Ruth, K. (2012). Indiscriminate behavior observed in the Strange Situation among institutionalized toddlers: Relations to caregiver report and to early family risk. *Infant Mental Health Journal, 33*, 187-196.

Oninla, S.O., Owa, J.A., Onayade, A.A., & Taiwo, O. (2007). Comparative study of nutritional status of urban and rural Nigerian school children. *J Trop Pediatr, 53*, 39-43

Ozimek, M., Cisek, D., Zadarko, E., & Barabasz, Z. (2010). Attitudes towards health and physical activity in the opinion of students of Tourism and Recreation, University of Rzeszów. Activity throughout life. Health and Fitness students under control. Wydawnictwo Państwowej Wyższej Szkoły Zawodowej w Krośnie, 249-266 (in Polish).

Ozmen, D., Ozmen, E., Ergin, D., Cetinkaya, A.C., Sen, N., Dundar, P.E., & Taskin, E.O. (2007). The association of self-esteem, depression and body satisfaction with obesity among Turkish adolescents. *BMC Public Health, 7*, 80.

Page, R.M., Lee, C.M., & Miao, N.F. (2004). Assessing prevalence of overweight and obesity through self-reports of height and weight by high school students in Taipei, *Taiwan. J Sch Health*, *74*, 401-407.

Pahkala, K., Heinonen, O.J., Lagstrom, H., Hakala, P., Sillanmaki, L., & Simell, O. (2006). Leisure-time physical activity of 13-year-old adolescents. *Scand J Med Sci Sports*, 1-7

Pallan, M.J., Hiam, L.C., Duda, J.L., & Adab, P. (2011). Body image, body dissatisfaction and weight status in South Asian children: a cross-sectional study. *BMC Public Health, 11*, 21

Palosaari, U., Aro, H., & Laippala, P. (1996). Parental divorce and depression in young adulthood: adolescents' closeness to parents and self-esteem as mediating factor. *Acta Psychiatrica Scandinavica, 93*(1), 20-6.

Paradise, A.W., & Kernis, M.H. (2002). Self-esteem and psychological well-being: implications of fragile self-esteem. *Journal of Social and Clinical Psychology, 21*, 345-61.

Patro, B, & Szajewska, H. (2010) Meal patterns and childhood obesity. *Curr Opin Clin Nutr Metab Care 13*, 300-304.

Paul, G., Levine, D., &Martinez, S. (2003). The Presence and Presents of Parents: Do Parents Matter for More Than Their Money?: *Preliminary Version*. University of California, Berkeley.

Pine, D.S., Goldstein, R.B., Wolk, S., et al. (2001). The association between childhood depression and adulthood body mass index. *Pediatrics, 107*(5), 1049–1056.

Pivik, R., & Dykman, R. (2007). Event –related variations in alpha band activity during an attention task in pre-adolescents. Effect of morning nutrition. *Clin Neurophysiol, 178*, 615-632.

Poh, B.K., Ng, B.K., Siti Haslinda, M, D., et al. (2013). Nutritional status and dietary intakes of children aged 6 months to 12 years: findings of the

Nutrition Survey of Malaysian Children (SEANUTS Malaysia). *British Journal of Nutrition*, *110*, S21-S35.

Pokhrel, P, Sussman, S., Black D., & Sun, P. (2010). Peer Group Self-Identification as a Predictor of Relational and Physical Aggression among High School Students. *Journal of School Health, 80*(5), 249-28.

Pongou, R., Ezzati, M., & Salomon, J.A. (2006). Household and community socioeconomic and environmental determinants of child nutritional status in Cameroon. *BioMed Central Journal of Public Health, 6*, 98.

Procter, K.L. (2007). The aetiology of childhood obesity: A review. *Nutrition Research, 20*, 29-45

Puhl, R.M., & Latner, R.D. (2007). Stigma, obesity, and the health of the nation's children. *Psychological Bulletin*, *133*(4), 557-80.

Pysz, K., Leszczyńska, T., & Kopeć, A. (2015). Anthropometric Assessment of the Nutritional Status of Children and Adolescents Residing in Selected Polish Orphanages Based on Their Energy Intake and Physical Activity Level. *Rocz Panstw Zakl Hig, 66*(1), 77-83.

Pysz, K., Leszczyńska, T., & Kopeć, A. (2015). Assessment of nutritional habits and preferences of children and adolescents brought up in Krakow's orphanages. *Rocz Panstw Zakl Hig.*, *66*(3), 253-60.

Radimer, K.L., Olson, C.M., & Campbell, C.C. (1990). Development of indicators to assess hunger. *J Nutr., 129*, 1544–1548.

Raj, M. (2012). Obesity and cardiovascular risk in children and adolescents. *Indian Journal of Endocrinology and Metabolism*, *16*(1), 13–19.

Ramakrishanan, U. (2004). Nutrition and low birth weight: from research to practice. *Am J Chin Nutr, 79*, 17-21.

Rampal, G.R.L., Sherina, M.S., Rampal, S., & Jie, D.W.Y. (2009). Prevalence of Overweight among Secondary School Students in Klang District, Selangor, *Malaysian Journal Nutrition, 1*(8), 362–367.

Rand, C.S.W., & Wright, B.A. (2000). Continuity and change in the evaluation of ideal and acceptable body sizes across a wide age span. *Int J Eat Disord, 28*, 90-100.

Rapp, K., Schick, K.H., Bode, H., & Weiland, S.K. (2005). Type of kindergarten and other potential determinants of overweight in pre-school children. *Public Health Nutrition, 8*(6), 642–649.

Rathnayake, K.M, Roopasingam, T., & Wickramasighe, V.P. (2014). Nutritional and behavioral determinants of adolescent obesity: a case–control study in Sri Lanka. *BMC Public Health, 14*, 1291.

Reimann C., Filzmoser, P., Garret, R.G., & Dutter, R. (2008). *Statistical Data Analysis Explained: Applied Environmental Statistics with R. Hoboken*. NJ: John Wiley & Sons; 2008.

Rey-Lopez, J. P., Vicente-Rodriguez, G., Ortega, F. B., Ruiz, J. R., Martinez-Gomez, D., De Henauw, S., . . . Moreno, L. A. (2010). Sedentary patterns and media availability in European adolescents: The HELENA study. *Preventive Medicine, 51*(1), 50-55.

Ricciardelli, L.A., & McCabe, M.P. (2001). Children's body image concerns and eating disturbance: a review of the literature. *Clin Psychol Rev, 21*, 325-344

Ricciardelli, L.A., McCabe, M.P., Holt, K.E., & Finemore, J. (2003). A biopsychosocial model for understanding body image and body change strategies among children. *Appl Dev Psychol., 24*, 475-495

Ricciardelli, L.A., McCabe, M.P., Lillis, J., & Thomas, K. (2006). A longitudinal investigation of the development of weight and muscle concerns among preadolescent boys. *J Youth Adolesc, 2*, 177-187

Rideout, V.J., Foehr, U.G., & Roberts, D.F. (2010). *Generation M2: Media in the lives of 8-18 year-olds*. Kaiser Family Foundation.

Ridley, K., Ainsworth, B.E., & Olds, T.S. (2008). Development of a Compendium of Energy Expenditures for Youth. *International Journal of Behavioral Nutrition and Physical Activity, 5*, 45.

Ritchie, L.D. (2012) Less frequent eating predicts greater BMI and waist circumference in female adolescents. *Am J Clin Nutr, 95*, 290-296.

Roberts, K.C., Shields, M., Groh, M.D., Aziz, A., & Gilbert, J. (2012). Overweight and obesity in children and adolescents: Results from the 2009 to 2011 Canadian Health Measures Survey. *Health Reports, 23*(3).

Rose, D., & Bodor, J.N. (2006). Household food insecurity and overweight status in young school children: results from the Early Childhood Longitudinal Study. *Pediatrics, 117*(2), 464-73.

Rosenberg, M. (1965). Society and The Adolescent Self-Image. *Princeton University Press*, Princeton, N.J.

Rozin, P., & Fallon, A.E. (1987). A perspective on disgust. *Psychol Rev, 94*, 23-41.

Rutengwe, R.W. Oldewage-theron, Oniang, R., & Vorster, H.H. (2001). Co-existence of over nutrition and under nutrition related diseases in low income, high burden countries: a contribution towards the 17th IUNS congress of nutrition Vienna Austria. *African Journal of Food Nutrition Science, 1*, 34-35

Rutter, M. (2000). Psychosocial influences: Critiques, findings, and research needs. *Development and Psychopathology*, *12*, 265–296.

Sadik, A. (2010). Orphanage children in Ghana: Are their dietary needs met? *Pakistan Journal of Nutrition*, *9*, 844-852.

Saifuddin, A. (2009). Methods in sample surveys: Cluster sampling. John Hopkins. Retrieved from http://ocw.jhsph.edu/courses/statmethodsforsamplesurveys/PDFs/Lecture5.pdf.

Santos, J.L., Ho-Urriola, J.A., González, A., Smalley, S.V., Domínguez-Vásquez, P. et al. (2011) Association between eating behavior scores and obesity in Chilean children. *Nutr J, 10*, 108.

Savige, G., MacFarlane, A., Ball, K., Worsley, A., & Crawford, D. (2007). Snacking behaviours of adolescents and their association with skipping meals. *International Journal of Behavioral Nutrition and Physical Activity, 4*(1), 1-9.

Saxton, J., Hill, C., Chadwick, P., & Wardle, J. (2009). Weight status and perceived body size in children. *Arch Dis Child, 94*, 944-949.

Scho¨nbeck, Y., Dommelen, P.V., HiraSing, R.A., & Buuren, S.V. (2014). Thinness in the era of trends in children and adolescents in The Netherlands since 1980. *European Journal of Public Health*, 1–6.

Senbanjo, I.O., Oshikoya, K.A., Odusanya, O.O., & Njokanma, O.F. (2011). Prevalence of and Risk factors for Stunting among School Children and Adolescents in Abeokuta, Southwest Nigeria. *Journal of Health, Population, and Nutrition, 29*(4), 364-37

Serene Tung, E.H., Mohd Nasir, M.T., & Shamarina, S. (2011). Familial and socio-environmental predictors of overweight and obesity among primary school children in Selangor and Kuala Lumpur. *Malaysian Journal of Nutrition, 17*(2), 151—62.

Serere, J.H., Zengeni, P., Usai, T., Chinofunga, D., & Nyamunda, B.C. (2013). Adequacy of Nutritional Levels at Local Orphanage Homes. *International Journal of Scientific Engineering and Research (IJSER), 1*(1).

Sharada, R., Damayanthi, M.N., Vidya, B., & Manjunatha, S. (2014). Nutritional Status of Children Residing in Social Welfare Hostel in Bangalore City. *Annals of Community Health*, *2*(2), 31.

Sharma, M., & Ickes, M.J. (2008). Psychosocial Determinants of Childhood and Adolescent Obesity. *Journal of Social, Behavioral, and Health Sciences*, *2*(1), 33–49.

Sherina, M.S., & Rozali, A. (2004). Childhood obesity: contributing factors, consequences and intervention. *The Malaysian Journal of Nutrition*, *10*(1), 13-22.

Shukla, B., & Shukla D. (2011). Study to assess physical health status of children at selected orphanage in Salem Chennai India. *International Research Journal*, *1*(2).

Silva, P. (2005). Environmental Factors and Children's Malnutrition in Ethiopia. Washington D.C: World Bank

Simko, M.D., Cowell, C., & Hreha, M. (1989). Practical Nutrition: a quick reference for the health care practitioner. Aspen Publishers, Rockville, 282-286.

Simsek, Z., Erol, N., Oztop, D., & Ozcan, O.O. (2008). Epidemiology of Emotional and Behavioral Problems in Children and Adolescents Reared in Orphanages: A National Comparative Study. *Turkish Journal of Psychiatry*, *19*(3).

Sirang, Z., Bashir, H.H., Jalil, B., Khan, S.H., Hussain, S.A., Baig, A., Taufeeq, M., Samad, K., & Kadir, M.M. (2013). Weight patterns and perceptions among female university students of Karachi: a cross-sectional study. *BMC Public Health*, *13*, 230.

Sjoberg, R.L., Nilsson, K.W., & Leppert, J. (2005). Obesity, shame, and depression in school-aged children: A population-based study. *Pediatrics*, *116*(3), e389–e392.

Sleddens, E.F., Kremers, S.P., & Thijs, C. (2008). The Children's Eating Behaviour Questionnaire: factorial validity and association with Body Mass Index in Dutch children aged 6-7. *Int J Behav Nutr Phys Act*, *5*, 49.

Sleddens, E.F., Kremers, S.P., & Thijs, C. (2008). The Children's Eating Behaviour Questionnaire: factorial validity and association with Body Mass Index in Dutch children aged 6-7. *Int J Behav Nutr Phys Act*, *5*, 49.

Smolak, L. (2004). Body image in children and adolescents: where do we go from here? *Body Image*, *1*, 15-28.

Smyke, A.T., Koga, S.F., Johnson, D.E., Fox, N.A., Marshall, P.J., Nelson, C.A., & Zeanah, C.H., The BEIP Core Group. (2007). The caregiving context in institution-reared and family-reared infants and toddlers in Romania. *Journal of Child Psychology and Psychiatry, 48*, 210-218

Soo, K.L., Wan, A.M., Abdul, M.H., & Lee, Y.Y. (2011). Dietary practices among overweight and obese Chinese children in Kota Bharu, Kelantan. *Malaysian Journal of Nutrition*, *17*(1), 87-95.

Spear, B.A. (2000). Nutrition in adolescence. In: Krause's food and nutrition and diet therapy. 10th Edn., Philadelphia: W.B. Saundres.

Story, M., Stevens, J., Himes, J., Stone, E., Rock, B.H., Ethelbah, B., & Davis, S. (2003). Obesity in American-Indian children: prevalence, consequences and prevention. *Prev Med*, *37*, S3-S12.

Stover, J., Bollinger, L., Walker, N., & Monasch, R. (2007). Resource needs to support orphans and vulnerable children in sub-Saharan Africa. Health Policy Plan, *Oxford Journals*, *22*(1), 21-27.

Strauss, R.S. (2000). Childhood obesity and self-esteem. *Pediatrics*, 105, e15.

Strong, W.B., Malina, R.M., Blimkie, C.J. Daniels, S.R., Dishman, R.K., Gutin, B., Hergenroeder, A.C., Must, A., Nixon, P.A., Pivarnik, J.M., Rowland, T., Trost, S., & Trudeau, F. (2005). Evidence based physical activity for school-age youth. *J Pediatr., 146*(6), 732-73

Stunkard, A.J, Sorensen, T., & Schulsinger, F. (1983). Use of the Danish Adoption Register for the study of obesity and thinness. *Res Publ Assoc Res Nerv Ment Dis, 60*, 115-20.

Susmitha, K.M., Jyothi, C., Prabakaran, J., & Ananthaiah Chetty, N. (2015). Nutritional Status of Adolescent Girls in Social Welfare Hostels: A Cross-Sectional Study. *National Journal of Research in Community Medicine, 4*(1), 106-113

Svensson, V., Lundborg, L., Cao, Y.T., Nowicka, P., Marcus, C. et al. (2011) Obesity related eating behaviour patterns in Swedish preschool children and association with age, gender, relative weight and parental weight - factorial validation of the Children's Eating Behaviour Questionnaire. *Int J Behav Nutr Phys Act, 8*, 134.

Swallen, K., Reither, E., Haas, S., & Meier, A. (2005). Overweight, obesity and health related quality of life among adolescents. The National Longitudinal Study of Adolescent Heath. *Pediatrics*, *115*(2), 340–7.

Swinburn, B.A., Caterson, I., Seidell, J.C., & James, W.P.T. (2004). Diet, nutrition and the prevention of excess weight gain and obesity. *Public Health Nutrition*, *7*(1A), 123–146.

Szajewska, H., & Ruszczynski, M. (2010). Systematic review demonstrating that breakfast consumption influences body weight outcomes in children and adolescents in Europe. *Crit Rev Food Sci Nutr.*, *50*(2), 113-9.

Taveras, E.M., Berkey, C.S., Rifas-Shiman, S.L., Ludwig, D.S., Rockett, H.R., Field, A.E., Colditz, G.A., & Gillman, M.W. (2005). Association of consumption of fried food away from home with body mass index and diet quality in older children and adolescents. *Pediatrics, 116*, e518

Tee, E.S., Ismail, M.N., Mohd Nasir, A., & Khatijah, I. (1997). Nutrient Composition of Malaysian Foods. 4. Kuala Lumpur: Institute for Medical Research.

Teo, Y.B., Razalee, S., & Zalifah, M.K. (2012). Association between snacking patterns, energy and nutrient intakes, and body mass index among school adolescents in Kuala Lumpur. *Am. J. Food. Nutr., 2*(3), 69-77

Thompson, M.A., & Gray, J.J. (1995). Development and validation of a new body image assessment tool. *Journal of Personality Assessment*, *64*, 258-269.

Toyama, N., Wakai, S., Nakamura, Y., & Arifin, A. (2001). Mother's working status and nutritional status of children under the age of 5 in urban low-income community, Surabaya, Indonesia. *Journal of Tropical Pediatrics*, *47*(3), 179–181.

Tremblay, L., & Lariviere, M. (2009). The influence of puberty onset, body mass index, and pressure to be thin on disordered eating behaviors in children and adolescents. *Eating Behaviors,10*, 75−83.

Truesdale, K.P., & Stevens, J. (2006). Do the obese know they are obese? *The FASEB Journal*, *20*, A1313.

UNICEF. (2008). The State of the World's Children 2009: Maternal and Newborn Health.

UNICEF. (2011). The State of the World's Children 2011: Adolescence An Age of Opportunity.

UNICEF. (2012). The State of the World's Children: Urbanization. Geneva: United Nations Children's Fund

UNICEF. (2014).Facts on Children. http://www.unicef.org/media/media_45451.html. Last accessed November 17, 2014.

US Department of Agriculture. (2009). USDA National Nutrient Database for Standard Reference, Release 22. United States: Agricultural Research Service, US Department of Agriculture. Retrieved from http://esa.un.org/unpd/wpp/Excel-Data/population.htm.

Üstüner, S., Erol, N., & Şimşek, Z. (2005). Behavioral and Emotional Problems of Children under The Care of Protecting Family. *Journal of Child and Youth Psychological Health*, *12*(3), 130-140.

Vaida, N. (2013). Nutritional Status of Children Living in Orphanages in District Budgam, J&K. *International Journal of Humanities and Social Science Invention*, *2*(2), 36-41.

Vaidya, V. (2006). Psychosocial aspects of obesity. Advances in *Psychosomatic Medicine*, *27*, 73-85.

Van den Berg, P., & Neumark-Sztainer, D. (2007). Fat 'n happy 5 years later: Is it bad for overweight girls to like their bodies? *Journal of Adolescent Health*, *41*, 415-417.

Vander, W.J.S., & Mitchell, E.R. (2011). Psychological complications of pediatric obesity. *Pediatr Clin North Am*, *58*, 1393–1401.

Viana, V., Sinde, S., & Saxton, J.C. (2008) Children's Eating Behaviour Questionnaire: associations with BMI in Portuguese children. *Br J Nutr*, *100*, 445-450.

Victora, C.G., Adair, L., Fall, C., et al. (2008). Maternal and child under nutrition: consequences for adult health and human capital. *Lancet, 371*(9609), 340–357.

Viner, R.M., Haines, M.M., Taylor, S.J., Head, J., Booy, R., & Stansfeld, S. (2006). Body mass, weight control behaviours, weight perception and emotional well-being in a multiethnic sample of early adolescents. *International Journal of Obesity (London)*, *30*(10), 1514–1521.

Wamani, H., Astrom, A.N., Peterson, S., Tumwine, J.K., & Tylleskar, T. (2007). Boys are more stunted than girls in sub-Saharan Africa: a meta-analysis of 16 demographic and health surveys. *BioMed Central Journal of Pediatrics*, *7*, 17.

Wamba, P.C.F., Oben, J.E., & Cianflone, K. (2013). Prevalence of Overweight, Obesity, and Thinness in Cameroon Urban Children and Adolescents. *Journal of Obesity*.

Wan Abdul Manan, W.M., Norazawati, A.K., & Lee, Y.Y. (2012). Overweight and obesity among Malay primary school children in Kota Bharu, Kelantan:

parental beliefs, attitudes and child feeding practices. *Malaysian Journal of Nutrition, 18*(1), 27- 36.

Wang, F.F., & Veugelers, P.J. (2008). Self-esteem and cognitive development in the era of the childhood obesity epidemic. *Obesity Reviews, 9*, 615-23.

Wang, Y., Liang, H., & Chen, X. (2009). Measured body mass index, body weight perception, dissatisfaction in urban, low-income African American adolescents. *BMC Public Health, 9*(183).

Wardle, J. (2007). Eating behaviour and obesity. Obes Rev, 8, 73-75.

Wardle, J., & Cooke, L. (2005). The impact of obesity on psychological well-being. *Best Practice and Research Clinical Endocrinology and Metabolism, 19*(3), 421-40.

Wardle, J., Guthrie, C.A., Sanderson, S., & Rapoport, L. (2001). Development of the Children's Eating Behaviour Questionnaire. *J Child Psychol Psychiatry, 42*, 963-970.

Wardle, J., Williamson, S., Johnson, F., & Edwards, C. (2006). Depression in adolescent obesity: cultural moderators of the association between obesity and depressive symptoms. *International Journal of Obesity (London), 30*(4), 634-43.

Watts, H., Gregson, S., Saito, S., Lopman, B., Beasley, M., & Monasch, R. (2007). Poorer health and nutritional outcomes for orphans and vulnerable young children not explained by greater exposure to extreme poverty in Zimbabwe. *Tropical Medicine and International Health, 12*, 584–593.

Wawrzyniak, A., Hamułka, J., & Brenk, M. (2010). Assessment of children and teenagers daily food ration in one of the orphanages. *Rocz Panstw Zakl Hig, 61*(2), 183-189 (in Polish).

Webber, L., Hill, C., Saxton, J., van Jaarsveld, C., & Wardle, J. (2009). Eating behaviour and weight in children. *Int J Obes, 33*, 21-28.

Weker, H., Barańska, M., Riahi, A., Dyląg, A., Strucińska, M., Więch, M., Kurpińska, P., Klemarczyk, W., & Rowicka, G. (2012). Why is the childhood obesity treatment ineffective? *Probl Hig Epidemiol., 93*(4), 848-853 (in Polish).

Whetten, K., Ostermann, J., Whetten, R.A., Pence, B.W., O'Donnell, K., et al. (2009). A Comparison of the Wellbeing of Orphans and Abandoned Children Ages 6–12 in Institutional and Community-Based Care Settings in 5 Less Wealthy Nations. *PLoS ONE, 4*(12).

WHO Expert Consultation (2004). Appropriate body mass index for Asian populations and its implications for policy and intervention strategies. *Lancet, 363*, 157-63.

WHO Multicentre Growth Reference Study Group. (2006). WHO child growth standards based on length/height, weight and age. Acta Paediatr Suppl., 450, 76–85.

WHO Multicentre Growth Reference Study Group. (2006). *WHO Child Growth Standards: length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: methods and development.* Geneva: WHO.

Wiesner, M., & Ittel, A. (2002). Relations of Pubertal Timing and Depressive Symptoms to Substance Use in Early Adolescence. *Journal of Early Adolescence*, *22*(1), 5-23

Wild, L.G., Flisher, A.J., Bhana, A., & Lombard, C. (2004). Associations among adolescent risk behaviours and self-esteem in six domains. *Journal of Child Psychology and Psychiatry*, *45*(8), 1454-67.

William, W. W., Carmen, M., Christina L.O., Debra, L., Louis, A.M., Karen, L. K., E., & O'Brian, S. (2014). Body weight has no impact on self-esteem of minority children living in inner city, low-income neighborhoods: a cross-sectional study. *BMC Pediatric*, *14*, 19.

Williamson, J., & Greenberg, A. (2010). Families, Not Orphanages. Better Care Network, New York. Retrieved from http://www.thinkchildsafe.org/thinkbeforevisiting/resources/Families_Not_Orphanages_J_Williamson.pdf

Woon, F.C., Chin, Y.S, & Mohd Nasir, M.T. (2014). Association between behavioural factors and BMI-for-age among early adolescents in Hulu Langat district, Selangor, Malaysia. *Obesity Research and Clinical Practice, xxx,* xxx.e1—xxx.e11.

World Bank. (2006). Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action. Retrieved from http://siteresources.worldbank.org/NUTRITION/Resources/281846-1131636806329/NutritionStrategy.pdf

World Food Programme (WFP). (2004). School children nutrition. London UK, 69.

World Health Organisation (WHO) Programme of Nutrition. (2000). Global database on child growth and malnutrition. Retrieved from http://www.who.int/nutgrowthdb/intro_text.htm

World Health Organization (WHO). (2007). Growth reference 5-19 years, BMI-for-age 5-19 years (z-scores).

World Health Organization (WHO). (2007). The World Health Report 2007 - A safer future: global public health security in the 21st century. Geneva: World Health Organization; 2007.

World Health Organization (WHO). (2008). Schools and health; their nutrition and health in Kenya. Improved Learning through better Health, Nutrition, and Education for the School-Age Child.

World Health Organization (WHO). (2009). WHO anthroplus for personal computers manual:software for assessing growth and development of the world's children and adolescents. World Health Organization, Geneva. Retrieved from http://www.who.int/growthref/tools/en/.

World Health Organization (WHO). (2010). Global recommendations on physical activity for health. WHO Press, Geneva, Switzerland.

World Health Organization [WHO]. (1995). Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee. Technical Report Series No. 854. Geneva: World Health Organization, 1995

Xanthopoulos, M., Borradaile, K., Hayes, S., Sherman, S., Vander Veur, S., Grundy, K., & Foster, G. (2011). The impact of weight, sex, and race/ethnicity on body dissatisfaction among urban children. *Body Image, 8*(4), 385-389.

Xie, B., Liu, C., Chou, C.P., Xia, J., Spruijt-Metz, D., Gong, J., et al. (2003). Weight perception and psychological factors in Chinese adolescents. *J Adolesc Health, 33*, 202-210.

Yıdırım, A. (2005). Investigation of the Relationship between Continuous Anger and Depression Levels in Children between ages 13-18 who are Under Institution Care and Those Who Live with Their Family. Fırat University, Institute of Health Sciences, Department of Public Health, M.A. Thesis, Elazığ.

Yu, Z.B., Han, S.P., Cao, X.G., & Guo, X.R. (2010). Intelligence in relation to obesity: a systematic review and meta-analysis. *Obes Rev*, *11*, 656–670.

Zalilah, M.S., Khor, G.L., Mirnalini, K., Norimah, A.K., & Ang, M. (2006). Dietary intake, physical activity and energy expenditure of Malaysian adolescents. *Singapore Medical Journal, 47*, 491-8.

Zalilah, M.S., Mirnalini, K., Khor, G.L., Nerlin, A., Bahaman, A.S., & Norinlah, K. (2006). Estimates and distribution of body mass index in a sample of Malaysian adolescents. *Medical Journal of Malaysia*, *61*(1), 48—58.

Zeinab, M.M., Abla, G.K., Fawzya, H., Sawsan, T., Mohamed, A., Moones, A.S., & Manal, M. (2010). Eating behavior and problems in Egyptian adolescents; relation to dietary intake. *Journal of American Science*, *6*(12).

Zhang, Y., & Wang, S. (2010). Prevalent change in overweight and obesity in children and adolescents from 1995 to 2005 in Shandong, China. *Asia-Pacific Journal of Public Health*, *23*(6), 904-916.