

Prevalence of obesity and associated factors among girls' primary school-age in Riyadh: Perspectives of mothers

To Cite:

Alamer SS, Alanazi AK, Alazzam SM, Almutairi RS, Alasfr RM, Sendy JS, Aleid LS, Fallatah HA, Omar AA, Alfadeel MA. Prevalence of obesity and associated factors among girls' primary school-age in Riyadh: Perspectives of mothers. *Medical Science* 2022; 26: ms528e2498. doi: <https://doi.org/10.54905/disssi/v26i130/ms528e2498>

Authors' Affiliation:

¹Medical Students, Faculty of Medicine, Almaarefa University, KSA
²Assistant professor of community medicine, Faculty of Medicine, Almaarefa University, Riyadh, KSA

Peer-Review History

Received: 01 October 2022
 Reviewed & Revised: 05/October/2022 to 01/December/2022
 Accepted: 05 December 2022
 Published: 14 December 2022

Peer-review Method

External peer-review was done through double-blind method.

URL: <https://www.discoveryjournals.org/medalscience>



This work is licensed under a Creative Commons Attribution 4.0 International License.

Sarah S Alamer¹, Amjad K Alanazi¹, Shujon M Alazzam¹, Reem S Almutairi¹, Rawan M Alasfr¹, Jana S Sendy¹, Lama S Aleid¹, Huda A Fallatah¹, Abrar A Omar¹, M A Alfadeel²

ABSTRACT

Obesity is a complex condition due to accumulation of excess body fat that impairs human health. Obesity in childhood is a special concern causing development of multiple chronic conditions. *Objective:* To evaluate the problem of Childhood Obesity in girls of a primary school in Riyadh. *Methodology:* This study was cross-sectional. Participants were 408 mothers. Selected according to convenience. Electron questionnaire used for data collection. Data cleared, coded and entered through SPSS. *Results:* Overall mothers of 408 children aged 6-12 years old, obesity prevalence was 49.5%, significant results of child obesity was associated with mothers who suffer obesity 61%, mothers with educational level secondary school or lower 41%, less than normal birth weight or more than normal birth weight 64%, risk factors such as child eat larger amount of food 67.2%, child skips early morning breakfast 49%, child watches TV/electronic devices(more than 2 hours per day) 53% and child who experience stressful condition 86%. *Conclusion:* Mother's health status, occupation status, the level of their attitude and their awareness of obesity risk factors is strongly associated with their children obesity.

Keywords: Obesity, Lifestyle, Childhood, Girls.

1. INTRODUCTION

Obesity is abnormal, complex condition in which there is accumulation of excess body fat that impairs the health and well-being of human (Alqarni, 2018). Obesity is not a single disease but is instead a syndrome with multifactorial etiology that includes metabolic, genetic, environmental, social and cultural interaction (Al-Enazy et al., 2014). Obesity and socioeconomic status (SES) have been consistently related worldwide. Over the past 30 years, Saudi Arabia has witnessed significant economic prosperity and lifestyle changes including sedentary lifestyle and dietary habits that have led to

increase in obesity prevalence among children and adults (El Mouzan et al., 2010). Obesity in childhood is a special concern given its life course impact by causing the development of multiple chronic conditions (Dietz and Burniat, 2002). It may increase the risk of developing metabolic syndrome, hypertension, diabetes, dyslipidemia, stroke, certain types of cancer such as endometrial, breast, prostate and colon, sleep apnea, gall bladder disease, osteoarthritis, emotional distress, discrimination and social stigmatization, increase all cause of mortality (Redsell et al., 2011). Globally, childhood obesity is a significant public health issue. It is associated with life-threatening and debilitating physical health and psychosocial consequences and it is likely to increase the risk of adult obesity (Al-Hussaini et al., 2019).

Importance of the study

Because of their public health importance, research on risk factors of childhood obesity is crucial for developing and evaluating success of interventions for prevention of obesity in any country.

Hypothesis

It is expected that girls who take early morning breakfast would have lower BMI than those who do not take early morning breakfast.

Objectives

To estimate the prevalence of Childhood Obesity in a girl's primary school in Riyadh.

To describe the awareness, attitude and attempts to control it in a girl's primary school in Riyadh.

To determine the risk factor of Childhood Obesity in a girl's primary school in Riyadh.

CONSORT Flow Diagram

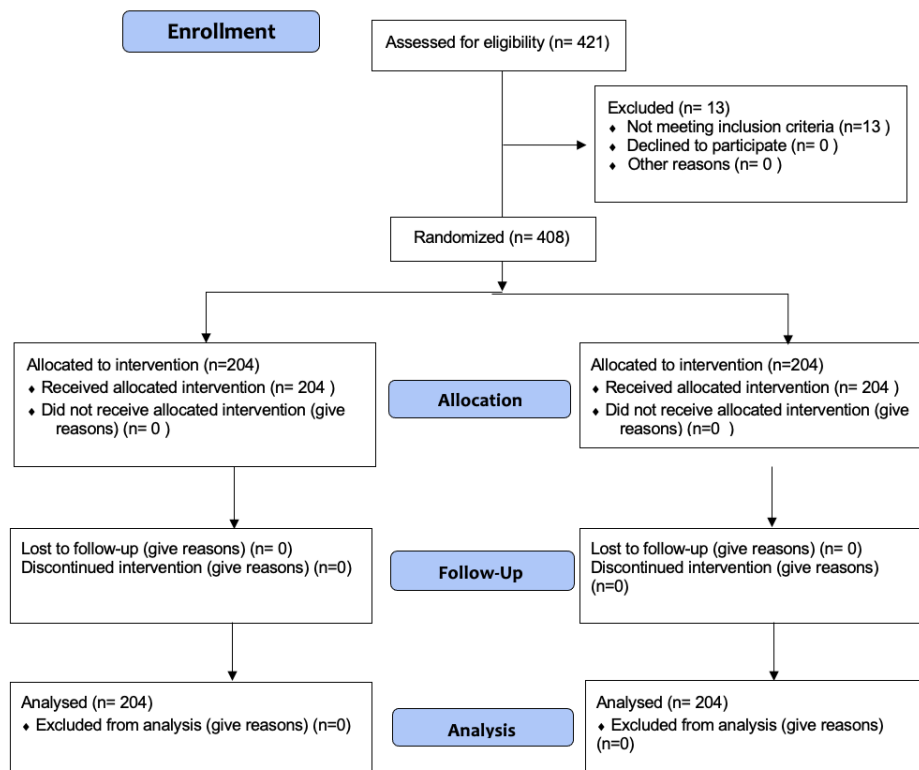


Chart 1 CONSORT flow chart of study

2. METHODOLOGY

This study was cross-sectional conducted between July 2022 and September 2022. We target the mothers who had children aged 6-12 years old in Riyadh, KSA. Selection was according to convenience. Mothers with diverse education level and different

occupations were enrolled in the study. Mothers who had children older than 12 years old or younger than 6 years old were excluded from the study. Data was collected through an electronic questionnaire, distributed to the eligible participants through social media application. The questionnaire was composed of 42 questions intended to collect sociodemographic data of the participant and to evaluate the problem, proportion and risk factors of Childhood obesity among a girl's primary school in Riyadh (Chart 1). The used questionnaire had a brief introduction explaining the study's objectives and assuring that the respondent's identity will not be revealed. The study proposal and the questionnaire were approved by the Institutional Review Board of AlMaarefa University. The data cleared, coded and entered through the Statistical Package for the Social Sciences (SPSS). Tables used to present the results as frequencies and percentages. A p-value of < 0.05 considered significant.

3. RESULTS

Among fathers who suffer from obesity 51% of the children were obese, compared to 48% among those who are not obese. This difference was not significant. The proportions of obese children among obese mothers were 61 % and 42% among non-obese mothers. This difference was statistically significant ($p = 0.0011$) (Table1 and Figure1).

Table 1 The relationship between parent's weight status and status of child obesity

Father weight status	Status of Childs obesity		Total
	Absent	Present	
Father suffers obesity	43 (49%)	44 (51%)	87 (30.3%)
Father not suffers obesity	104 (52%)	96 (48%)	200 (66.9%)
Total	147 (51.2%)	140 (48.8%)	287 (100%)

Chi square=0.862 p-value=0.650

Mother weight status	Status of Childs obesity		Total
	Absent	Present	
Mother suffer obesity	40 (39%)	64 (61%)	104 (36.3%)
Mother not suffer obesity	107 (58%)	76 (42%)	183 (61%)
Total	147 (51.2%)	140(48.8%)	287 (100%)

Chi square=9.279 p-value=0.0011

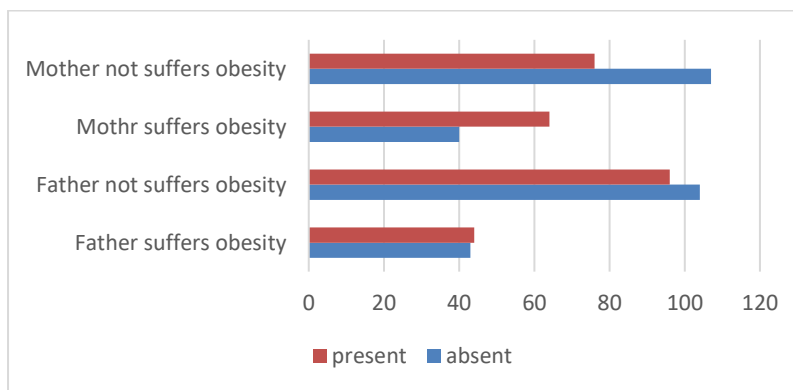


Figure 1 The relationship between parent's weight status and status of child obesity

Among unemployed mothers 39% have obese children. Employed mothers have 64% obese children. This difference was statistically significant ($p\text{-value} = 0.0153$) (Table 2 and Figure2).

Table 2 The relationship between the occupation of the mother and child obesity

Mother Occupation	Child obesity		
	Present	Absent	Total
Government sector	59 (59%)	43 (41%)	102 (35.5%)
Private sector	14 (40%)	21 (60%)	35 (12.2%)
Freelancer	2 (29%)	5 (71%)	7(2.4%)
Unemployed	39 (39%)	61 (61%)	100 (34.9%)
Student	26 (60%)	17 (40%)	43 (15%)
Total	140 (48.8%)	147(51.2%)	287 (100%)

Significant p-value= 0.0153

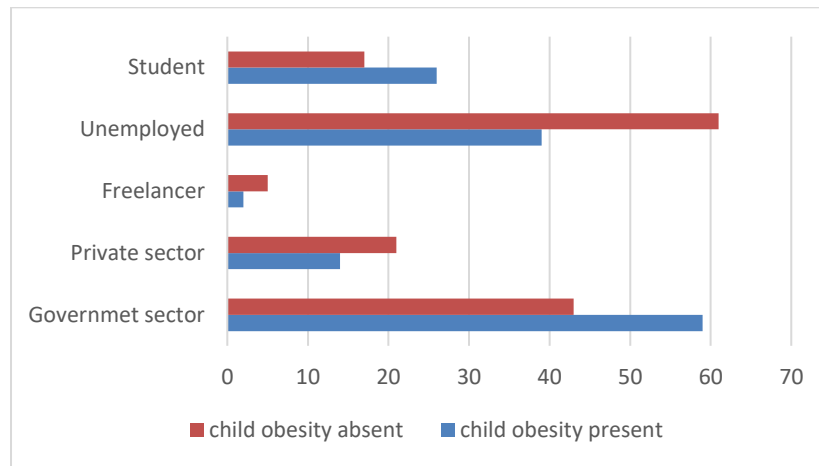


Figure 2 The relationship between the occupation of the mother and child obesity

Child suffer overweight and have Family have daily activity 40% compared to child does not suffer overweight and have Family daily activity 60%. This difference was statistically significant $p = 0.1884$ (Figure 3).

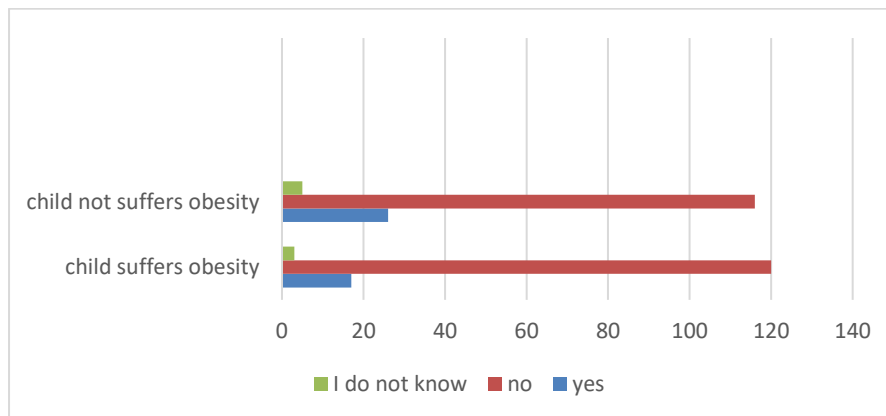


Figure 3 The relationship between child status and attitudes of family daily activity

Among children not getting adequate sleep 51% developed obesity. Among those getting adequate sleep 46% developed child obesity. This difference as a border line statistical significance $p = 0.027$ (Figure 4).

Child suffer overweight and experience stress 86% compared to child does not suffer overweight and experience stress 14%. This difference was statistically significant $p = 0.0001$ (Table 5, Figure 5).

Mothers who have high awareness about risk factors of obesity have 8% obese child and 68% amongmothers who have low awareness. This difference was statistically significant $p = 0.00001$ (Figure 6).

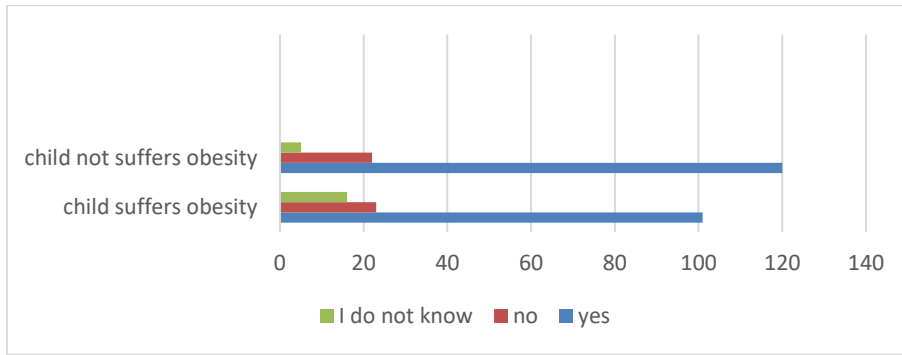


Figure 4 The relationship between child weight and getting an adequate sleep

Table 5 The relationship between child experiences a stressful condition and obesity

Status of child weight	A stressful condition child experience			Total
	Yes	No	May be	
Child suffers obesity	22 (86%)	86 (42%)	32 (57%)	140 (100%)
Child not suffers obesity	4 (14%)	119(58%)	24 (43%)	147 (100%)
Total	26	205	56	287

Chi-square=13.393 p-value=0.0001

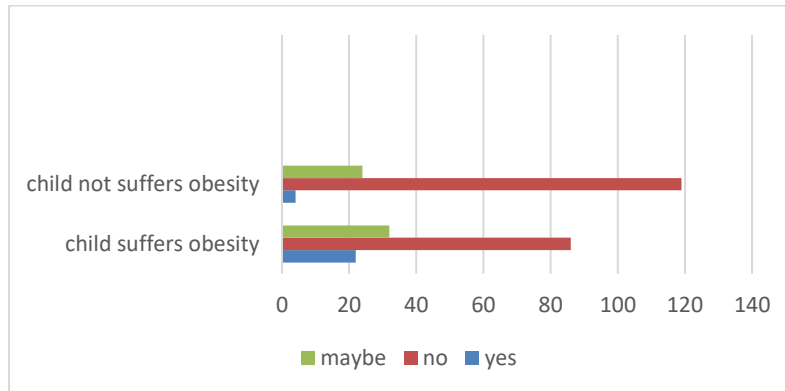


Figure 5 The relationship between child experience a stressful condition and obesity

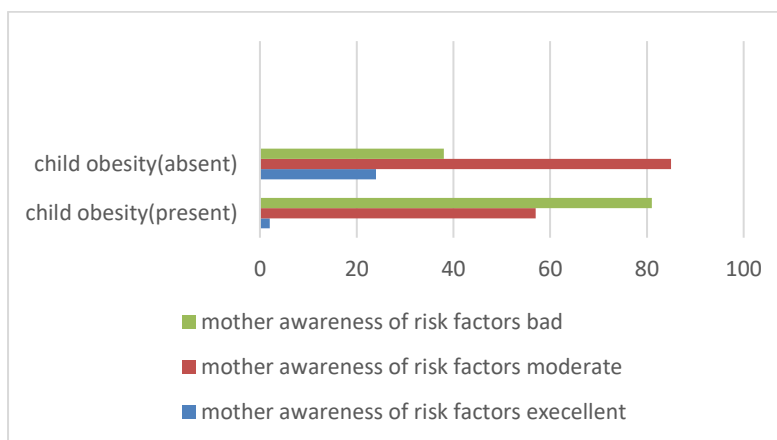


Figure 6 The relationship between awareness of mother about risk factors of obesity and child obesity

4. DISCUSSION

There was a strong association between mother obesity and their child obesity while there is no association with father obesity. This is against to a study done in United States a child with one obese parent has a 50% chance of being obese. When both parents are obese their children have an 80% chance of obesity (UCSF benioff children's hospital, 2019). The mother might have poor awareness, unhealthy eating habits. It is expected that the mother would have more influence on her child. To reduce child obesity,

we need to target the obese mother and reduce their weight. It is evident that mother obesity affecting their child health. The high risk of mother obesity on child weight entails targeting them early before child get obese. There is a relationship between the employment of the mothers and child's obesity, since the result showed child's obesity is much higher among employed mothers. This is in a line with a study done in India, where increased fast-food consumption had been linked with obesity in the recent years. Many families, especially those with two parents working outside the home as these places are often favored by their children and are both convenient and inexpensive (Sahoo et al., 2015). Working mothers are busy and have no time to prepare homemade food to their children. To reduce obesity among children, working mothers need to be more careful about content of the meals. It is evident that employed mothers tend to have obese children more than unemployed mothers. Awareness of employed mothers about the consequences of frequent fast-food eating (Hussein et al., 2021). This is in a line with study done in Australia, they were found there an additive interaction between short sleep duration and physical activity.

Children with low levels of physical activity and short sleep had 3.4 times higher the OR of obesity. These results emphasize the importance of both sleep and physical activity in the prevention of childhood obesity (Shi, 2010). This is in a line with a study done in Poland, they found that stress during childhood is often associated with decreased levels of physical activity and increased levels of sedentary activity, which may increase obesity risk (Kuzbicka and Rachon, 2013). Regarding the risk factors of obesity, the study shows that eat large amount of food, more than 3 meals, eat snacks, skipping morning breakfast, sleep duration less than their needs are statistically significant. This study denoted that child obesity is increase among mothers with low awareness compared to mothers with good awareness. This is similar to a study done in India, only 5.6% of study participants had good knowledge about child obesity and their children had healthy weight, 56.9% poor knowledge, 37.5% had no knowledge about it and their children were obese (Pradeepa, 2018). The awareness of mothers affecting the child health status. To raise awareness toward risk factor of obesity. It is evident that mother with high awareness of risk factors does not have child obesity in contract to mothers with low awareness. Mother with low awareness toward obesity risk factor should be aware. Mothers with good attitude have less obese child while mothers with bad attitude have more obese child. This is in a line with a study done in Bangladesh, the mother's that had excellent attitude score (56.50%) while the mother's that had moderate attitude score (61.67%) (Hossain, 2019). The attitude of mother affects the child health status awareness toward risk. It is evident that mother with excellent attitude have less child obesity in contract to mothers with bad attitude. Mother with bad attitudes should be aware.

5. CONCLUSION

In summary, the current study confirms that mother obesity affecting their child health, mothers in all ages can have an obese child, mothers educational level is not involve in their children obesity, employed mothers tend to have obese children more than unemployed mothers, babies born with low or overweight develops obesity, mother with high awareness of risk factors does not have child obesity in contract to mothers with low awareness and mother with excellent attitude have less child obesity in contract to mothers with bad attitude.

Recommendations

Awareness of mothers about the effect of obesity on their children health. Mother at all educational level should be aware about the harmful effect of obesity on their children health status. Awareness of employed mothers about the consequences of frequent fast-food eating. Awareness of the mothers to eat a healthy food. Mother with low awareness toward obesity risk factor should be aware. Mother with bad attitude should be aware.

Ethical approval

The study proposal and the questionnaire were approved by the Institutional Review Board of AlMaarefa University. Ethical approval number: IRB07-23072022-54

Acknowledgements

The authors deeply acknowledge AlMaarefa University, Riyadh, Saudi Arabia for supporting the steps of this work and we thank the participants who were all contributed samples to the study.

Authors' contributions

Sarah S Alamer (Research Team head), Amjad K Alanazi, Shujon M Alazzam, Reem S Almutairi, Rawan M Alasfr, Jana S Sendy, Lama S Aleid, Huda A Fallatah, Abrar A Omar, M A Alfadeel (Principle investigator): Collaborative work searching the literature, writing the proposal, collecting data analysis and statics, results, discussion writing, report writing and reviewing.

Funding

This study has not received any external funding.

Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

REFERENCES AND NOTES

1. Al-Enazy WH, AL-Dahi SK and AL-Hariri IM. Prevalence of Overweight and Obesity among Saudi Primary School Students in Tabuk, Saudi Arabia. *Saudi J Obesity* 2014; (2)1: 14-18.
2. Al-Hussaini A, Bashir M, Khormi M, AlTuraiki M, Alkhamis W, Alrajhi M, Halal T. Overweight and Obesity among Saudi Children and Adolescents. *Saudi J Gastroenterol* 2019; 4(25):229-235.
3. Alqarni SS. Prevention of Childhood Obesity in Saudi Arabia. *J Child Obesity* 2018; 3(2): 1-8.
4. Dietz W and Burniat W. Child and Adolescence Obesity Causes and Consequences. Cambridge University press 2002; 15-17. doi: 10.1017/CBO9780511544675
5. El Mouzan M, Foster P, Al Herbish A, Al Salloum AA, Al Omer AA, Qurachi MM, Kecojevic T. Prevalence of Overweight and Obesity in Saudi Children and Adolescents. *Ann Saudi Med* 2010; 3(30):203-208.
6. Hossain MS, Siddiqee MH, Ferodous S, Faruki M, Jahan R, Shahik SM, Raheem E, Okwly AD. Is Childhood Overweight/Obesity Perceived as a Health Problem by Mothers of Preschool Aged Children in Bangladesh: A Community Level Cross-Sectional Study. *Int J Environ Res Public Health* 2019; 16(2): 202.
7. Hussein HM, Almishaal AA, Alrawaili SM, Ahmed AA, Kamel EM. Prevalence and risk factors of obesity among school-age female children in Ha'il, Saudi Arabia. *Medical Science* 2021; 25(107):7-15
8. Kuzbicka K, Rachon D. Bad eating habits as the main cause of obesity among children. *J Pediatr Endocrinol Metab* 2013; 19(3):106-10.
9. Pradeepa S, Elango S, Andrews M, Amin HR, Amritha S, Ambica G. Awareness on childhood obesity among mothers attending pediatrics outpatient department at tertiary care teaching hospital. *Int J Med Sci Public Health* 2018; 7(9):760-764. doi: 10.5455/ijmsph.2018.0308113062018
10. Redsell SA, Atkinson PJ, Nathan D, Siriwardena AN, Swift JA, Glazebrook C. Preventing Childhood Obesity During Infancy in UK Primary Care: A mixed methods Study of HCPs' Knowledge, beliefs and practice. *BMC Fam Pract* 2011; 54(12):1-9. doi: 10.1186/1471-2296-12-54
11. Sahoo K, Sahoo B, Choudhury AK, Sofi NY, Kumar R, Bhadoria AS. Childhood obesity: Causes and consequences. *J Fam Med Prim Care* 2015; 4(2):187-192.
12. Shi Z, Taylor AW, Gill TK, Tuckerman J, Adams R, Martin J. Short sleep duration and obesity among Australian children. *BMC Public Health* 2010; 609(10):1471-2458.
13. UCSF benioff children's hospital. *Obesity* 2019.