

Evaluation of Studies Related to Anesthesia on Various effects on Overweight and Obesity in Children and its Relationship with Covid-19

Mahzad Alimian¹, Taymaz Amiraslani², Mohammad Ghaemi^{3*}

¹Associate Professor of Anesthesiology, Department of Anesthesiology, School of Medicine, Pain Research Center, Hazrat-e Rasool General Hospital, Iran University of Medical Sciences, Tehran, Iran
Email: Mahzadalimian@gmail.com

²Assistant Professor of Anesthesiology, Department of Anesthesiology, School of Medicine, Hazrat-e Rasool General Hospital, Hazrat-e Fatemeh Hospital, Iran University of Medical Sciences, Tehran, Iran
Email: golezard1@gmail.com

³Assistant Professor of Anesthesiology, Department of Anesthesiology, School of Medicine, Hazrat-e Rasool General Hospital, Iran university of Medical Sciences, Tehran, Iran
Email: Mohammadgh6569@yahoo.com

Abstract

This study reviews the effects of various effects on overweight and obesity in children. While age is a significant risk factor for death from Covid-19 compared to other factors, it may not be the case with obesity. Obese patients who die from Covid-19 are younger than non-obese patients. Of all the common risk factors and chronic diseases, obesity has the greatest effect on death from Covid-19. Obesity is associated with an increased need for ICU intensive care, respiratory support and in-hospital death. In addition, obesity is more associated with the severity of covid-19 than cardiovascular disease and diabetes. In our country, overweight and obesity are very common in adults (25-60 years old) so that about half of the adults in the country are overweight and obese. Overweight and obesity in children and adolescents is also on the rise. This person is overweight or obese. By calculating body mass index and comparing it with standard values, we can find out about overweight and obesity. To do this, weight and height are measured and then using the formula: weight (in kilograms) divided by the square of height (in meters) of body mass index is calculated. The distribution of body fat plays a very important role in the risks of obesity. Central obesity is far more dangerous than peripheral obesity. For this reason, the waist circumference index is a very important indicator to determine the risks of cardiovascular disease, hypertension and diabetes. Also, the main reason for the decrease in muscle mass that reduces metabolism is that we often spend a lot of time sitting.

Keywords: Obesity, Food Industry Shortages, Health, Children, Physical Injuries.

Introduction

Nowadays, for proper anesthesia in surgeries, one should also pay attention to the patient's psychological condition, including the reduction of excitement, anxiety and fear of surgery in all preschool children who suffer from separation from their parents and exposure to the operating room[1-3]. The above cases have been mentioned and it seems that these factors can adversely affect the surgery and its results. Therefore, with the help of appropriate nursing methods and care, children should be tried to be easily separated from their parents, tolerate the anesthesia mask and venous needle better, and be asleep at the beginning of anesthesia and entering the operating room. One of these methods is prescribing ketamine oral anesthesia[4-6].

Obesity in adolescents is a complex health problem that occurs due to various factors. Obesity increases the risk of chronic diseases, such as type 2 diabetes, in the long run and adversely affects the growth and quality of life of adolescents. Parents often worry about their teen children being obese[7-9]. Fortunately, timely intervention can improve the health of adolescents with obesity and prevent them from developing chronic diseases. Lack of physical activity may play a role in weight gain more than a high-calorie diet[10-13]. One of the most common reasons for teens to be sedentary is to spend a lot of time on screens such as laptops, tablets, phones or televisions. Consumption of snacks and sugary drinks while working with laptops and other electronic devices reduces mobility, increases calorie intake and as a result leads to obesity. Studies show that lack of sleep plays a very important role in weight gain[14]. Going to bed late, short sleep time and not having a regular sleep schedule all reduce the quality of sleep. Studies show that sleep deprivation causes false stress in the body. As a result, the level of the hormone cortisol increases and causes the accumulation of fats in the body[15]. Obesity is a disease with no known cause, but several factors are involved in its development (Table 1)[16].

Raw	Study	Year							Proportion Wight 98%	Weight %	
1	Shi et al.	2021							0.95	[0.02 – 1.07]	5.90
2	Marin et al.	2021							0.93	[0.12 – 1.16]	5.99
3	Sagy et al	2021							0.84	[0.19 – 1.18]	4.85
4	Team	2020							0.81	[0.55 – 1.48]	5.69
Heterogenelty $t^2=0.00$, $I^2= 0.00$, $H^2=1.00$								0.88	[0.58 – 1.19]		
Test of $\Theta= \Theta$, $Q (4) =3.88$, $P= 0.77$											
1	Hesun et al.	2020							0.48	[0.97 – 1.05]	5.36
2	Esyi et al.	2020							0.64	[0.95 – 1.55]	4.99
3	Mohammad et al	2020							0.98	[0.85 – 1.11]	6.03
4	Rebout et al	2020							0.92	[0.86 – 1.12]	7.01
Heterogenelty $t^2=0.09$, $I^2= 0.09$, $H^2=1.02$								0.97	[0.98 – 1.22]		
Test of $\Theta= \Theta$, $Q (4) =4.55$, $P= 0.71$											

Table 1. The result of study

Covid and Obesity

The corona epidemic has caused changes in the way of life of individuals in societies. Obesity and overweight are among the risk factors that threaten human health[17-19]. Examination of the statistical results of the consequences of Covid 19 has also shown that people with obesity have experienced more severe forms of the disease and a higher mortality rate[20]. But despite this alarming fact, changes in outbreaks and quarantine conditions have increased the risk of overweight and obesity[21]. Remember that obesity and overweight in people with diabetes can upset the blood sugar balance, and this component itself increases the likelihood of severe symptoms of the disease[22-24]. This happens mainly in three ways:

First, by staying at home, having more time helps temptation and makes people more inclined to eat more and more varied foods.

Second, the increase in home cooking to provide daily necessities and avoid shopping from outside, which also extends to baking bread and sweets, has also intensified temptations and increased consumption of food indoors, add to all these quarantine changes a change in sleep pattern that results in waking up later and falling asleep later. This mainly eliminates the main meal of breakfast and snacks in the last hours of the night, which has prepared the ground for weight gain[25].

Third, another factor that has helped to increase the incidence of overweight these days is misconceptions and misconceptions about nutrition, which during this period quickly spread from unreliable scientific sources and spread by word of mouth and became a common misconception. The need to consume more calories to strengthen the immune system or to eat so-called hot foods in order to prevent coronary heart disease is one of the incorrect recommendations that have led to weight gain and obesity. Lack of public health literacy has also helped these beliefs and by changing the consumption basket of individuals and families has provided the ground for more calories[26]. A clear example of this is the consumption of most industrial juices that people consume in order to receive vitamins and prevent coronary heart disease, while these foods, due to excess sugar, not only do not provide the required number of vitamins, but also cause weight gain and obesity. The third factor that should be mentioned as upsetting this balance is the decrease in physical activity due to people staying at home.

Observance of social distance, closure of sports facilities and the need to stay in quarantine have caused a sharp decrease in the amount of daily physical activity, which in itself has led to a positive balance of energy and ultimately overweight[27]. To deal with this problem, first of all, it is recommended to adjust the sleep rhythm, which in itself helps to maintain the order of eating and eating as a common denominator to deal with this phenomenon. It is important to know that adherence to the principles of nutrition based on the standard nutrition pyramid is the only diet that provides the body with the needs to strengthen the immune system and to some extent can have a preventive effect against Quid 19.

Diet with the help of experts in the field and manage the contents of refrigerators and snacks at home so that protein foods such as meats and legumes, low-calorie fruits and vegetables are more available and fatter and sweet and high-calorie foods are available. If not, it will be an effective way to control calorie intake and of course weight control[28].

However, it should be noted that even excessive consumption of fruits can lead to the accumulation of extra calories and weight gain[29]. Considering a regular program of physical activity at home is also one of the necessary solutions that while regulating the level of metabolism, is an effective factor in filling idle time and is effective in combating weight gain due to calorie consumption. However, he points out that doing sports should not be considered as a license to eat more, and people should take this into account so as not to lose the desired effects[30-32].

Finally, we must know that although coronary heart disease is deadly and dangerous, but neglecting other aspects of health and overweight and obesity over time threatens health and conflict with its long-term consequences such as diabetes, hypertension, cardiovascular disease and Other non-communicable diseases permanently and lifelong disrupt the health and ultimately the quality of life of individuals[33].



Figure 2. Obesity and overweight increasing worldwide[34].

Both Quovid-19 and the pathophysiology of obesity are associated with coagulation disorders, so obese people are at greater risk for Quovid-19 infection and blood clots. This can lead to pulmonary embolism, stroke or heart disease[35]. It is well known that people with obesity often have other comorbid conditions such as type 2 diabetes and heart disease. Obesity also increases vitamin D deficiency[36]. This modulates innate and adaptive immune responses. While there are several FDA-approved drugs for the treatment of obesity, there is no clear information as to whether these drugs affect the treatment, improvement, or exacerbation or reduction of Covid symptoms. Does not exist. As mentioned, there are natural remedies and lifestyle modifications that can help a person experience Covid[37]. Research has shown that Covid-19 is associated with clinically significant weight loss and the risk of malnutrition. It is recommended that healthcare providers monitor the nutrition and ability of the individual to maintain a healthy weight during Covid treatment. Many of the techniques a person uses to achieve a healthy weight can be helpful in fighting the coronavirus[38]. A 2020 study found that regular exercise and physical activity may actually reduce the risk of acute respiratory syndrome (ARDS), which is one of the leading causes of death in people with Covid-19[39]. Beyond fitness, a healthy diet can be the key to fighting the virus and boosting a person's immune response. Anti-inflammatory diets can be the key to eliminating some of the inflammation caused by obesity and the virus. In addition, getting enough sleep and developing regular, healthy behaviors, all of which are important in helping to achieve a healthy weight, can improve a person's immune system, which is key to preventing and treating Covid[40-42]. While there have previously been questions about the effectiveness of Covid-19 vaccines for people with obesity, the current consensus among medical professionals is that vaccines are just as effective for obese people as they are for people with other underlying conditions. Obesity seems to affect the effectiveness of vaccination. For example, the flu vaccine has been shown to be less effective in preventing the disease among people who are obese. However, data released by the US Food and Drug Administration (FDA) show that Covid-19 vaccines are almost equally effective worldwide, especially in age, gender, racial and ethnic groups, as well as People with underlying diseases such as high blood pressure, diabetes and obesity.

Relationship between obesity, other hobbies and COVID-19

Studies in the United States have shown that the number of obese people increases with each new computer game or new advancement in entertainment technology[43-45]. Eating snacks and snacks while watching TV, not only because it reduces the child's physical activity, but also because it increases the intake of high-calorie foods while watching TV or playing computer games, exposes the child to obesity; Because a person, regardless of the amount of substances he consumes, eats only these foods, and in many cases, because he focuses too much on what he sees, he uses ready-made foods or snacks[46]. They are easily eaten and do not need to be chewed. However, in many cases, the person is so busy that he swallows food without causing it and sometimes with difficulty[47-49]. One of the most important findings of studies on computer games and eating habits of people, especially children, is the type of food children play. Therefore, field studies by researchers have shown that when playing with the computer or watching TV for two hours or more, the consumption of salty and fatty snacks increases significantly. Such foods have a variety of short-term and long-term effects on physical health, including asthma and hyperlipidemia, or high blood pressure[50]. These side effects, apart from the obvious effect of increasing calorie intake and the occurrence of overweight and obesity. Having such chronic diseases in childhood, in addition to paving the way for other chronic diseases in adulthood, imposes high costs on the health care system and the efficiency and ability of the individual in his youth is considerable. It decreases[51-53]. On the other hand, accessing the Internet or engaging in computer games, if left unchecked, isolates the person from the world to such an extent that in principle, the person cannot be separated from the computer, and this may cause the person to eat their meals on time[54-56]. Do not consume or eat snacks that have no nutritional value. Because skipping meals is a threat to eating habits and should be considered as a reason for being overweight. Most children who use computers and computer games for a long time skip one or more meals, and this causes the most damage to children's eating habits and behaviors. A German study of 2,546 elementary school children found that a third of them skipped at least one main meal a week to play computer games. Such people also skip one or more meals a week to watch TV, which is called Media Meal Skipping[57]. One of the most important points in this regard is that people eat high-calorie and unhealthy foods while playing computer games or even watching TV, and this causes false satiety. This is one of the most important reasons for skipping meals. Studies have shown that repetition of meals and snacks in groups and with the presence of at least 2 family members increases the amount of healthy and nutritious food intake by children and adolescents, including he noted an increase in intake of fruits, vegetables, whole grains and foods rich in calcium, especially yogurt and milk. Consumption of such foods improves the nutritional status of the child and institutionalizes

appropriate and correct eating habits and behaviors in them. In Iran, the results of studies show that on average 20% of students are overweight and about 5% are obese. The point that is worrying in our country is losing weight in this age group, which shows about 15% of students in this age group[58]. It should be noted that the percentage of students with obesity and students with weight loss is increasing compared to previous years and shows a growing trend. Combining these two statistics on the nutritional status of children raises concerns about the unhealthy and inadequate nutritional intake of children and indicates an increase in the prevalence of poor eating habits and unbalanced lifestyles in Iranian children and adolescents. The interesting thing about children and the use of electronic devices, computers and televisions is that in Iran, as in other countries, the highest age of people who spend a lot of time (more than two hours) working with these devices is adolescents. In figure 3 and 4 the results of Forest plot showed Body temperature and obesity is shown.

1	ali et al.	2020					0.92	[0.77 – 1.08]	5.03
2	xdet et al.	2020					0.87	[0.64 – 1.09]	6.02
3	sami et al.	2020					0.88	[0.46 – 1.05]	5.57
4	Gahbi et al	2019					0.60	[0.55 – 1.03]	6.13
Heterogenelty $t^2=0.02, I^2= 0.00, H^2=1.00$									
Test of $\theta= \theta, Q (4) =5.55, P= 0.74$									

Figure 3. Forest plot showed Body temperature

Raw	Study	Year	Severe COVID-19		non- Severe COVID-19			Proportion Wight 98%	Weight %
			Yes	No	Yes	No			
1	Wang et al.	2021					0.85	[0.39 – 1.02]	6.02
2	Kragholm et al.	2021					0.83	[0.42 – 1.01]	5.92
3	Papadopoulos et al	2021					0.74	[0.55 – 1.02]	5.65
4	Team	2020					0.91	[0.48 – 1.08]	6.03

Figure4. Forest plot showed obesity

Drugs affecting the central nervous system

A) Catecholamine stimulants: These drugs affect the brain and increase access to norepinephrine. In its second program, the Institute for drug Improvement talks about appetite suppressants such as amphetamines, which have great potential for abuse and misuse in the treatment of obesity. The institute's third program talks about drugs that can still be abused in this area [59-61]. The usual program (DEA) contains certain cholinergic catheters such as phentermine, which are less likely to be abused. Phenylpropanolamine has been known to cause anorexia for many years, but was stopped in November 2000 due to a bleeding stroke [62-64].

B) Serotonergic drugs: Serotonin-producing drugs act by increasing and increasing their amount in the brain. Two drugs in this category, fenfluramine hydrochloride and fluorecein hydrochloride, have been on the market since September 1997. Further studies have shown that there is a relationship between heart valve disorders caused by these two classes of drugs.

C) Combination of catecholamine and serotonin-producing drugs: such as Sibutramine (Meridia), which limits the intake of serotonin and norepinephrine. It was originally prescribed to prevent depression. It is better not to use this drug in patients with coronary heart disease, arrhythmia, stroke.

Activators outside the central nervous system

A) Orlistat (Xenical): An ineffective agent on the CNS that does not reduce appetite, but directly affects the intestine to absorb fat. Orlistat is often used with low-calorie meals and reduces fat absorption by 30%. Of course, blocking fat absorption raises concerns about fat-soluble vitamins. Not everyone responds well to medication, but for patients who have a partial response, weight loss of about one pound per week can be expected (Figure 5 and 6) [65].



Figure 5. Orlistat STADA 120 mg



Figure 6. Diabetes and Sarcopenic Obesity: Pathogenesis, Diagnosis, and Treatments

Body mass index (BMI) was calculated by dividing weight (kg) by height squared (square meters). In addition to age and gender variables, the questionnaire included information about demographic and social characteristics, exposure to environmental factors and basic factors of the child's life, which included the variables of child nationality, parental literacy level, standard of living, number of people in a room, number of children [73-75]. Family history of smoking was maternal smoking during pregnancy, breastfeeding, preterm birth and birth weight. Data were collected and analyzed by statistical methods (chi square). Findings obtained in this study showed that the mean body mass index of children was 15.8 kg/m². Of the children participating in this project, 15.5% were classified as overweight and 4.3% as obese. The mean age of the children was 6.3 years and half of the children were boys and the other half were girls.

The majority were German citizens, and most of the children were from urban areas in eastern Germany, weighing between 2,500 and 4,000 grams at birth. The level of education of parents was high and only 11.5% of them reported less than 10 years of schooling. About half of the children lived in houses under 75 square meters, and about half were in kindergarten daily, and about one in two children was exposed to secondhand smoke (Figure 7).

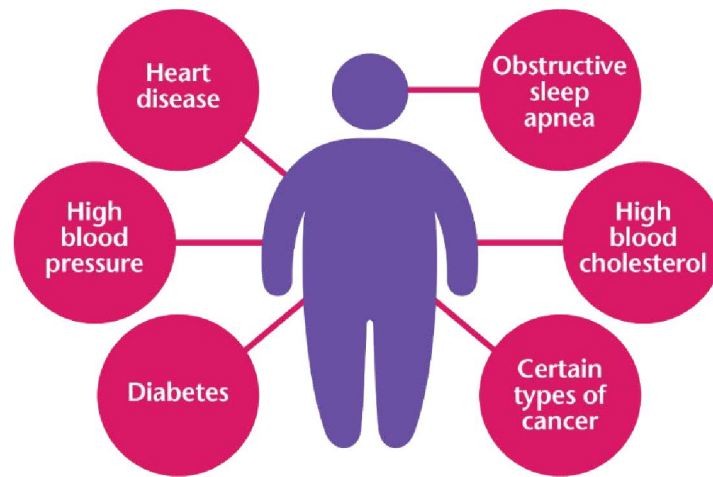


Figure 7. Overweight and Obesity

Data were collected and analyzed using SPSS software. Findings from this study were that 20% of parents were illiterate, 27% were literate, 28% were university literate and 25% were higher literacy. The majority of children (54%) had one to three siblings and more than 44% had more than three siblings and one percent did not have siblings. Fifty-one percent of the children lived with more than three people in the room, 43 percent between one and three, and 6 percent with no one in the room. At-home smoking was 30%. Most children lived in middle- and upper-income neighborhoods, with 35% in low-income neighborhoods and 16% in high-income neighborhoods. 51% of children were normal weight, 9.5% were overweight and 7.5% were obese. Children whose parents had a college education or higher were particularly at risk for obesity and overweight. Children whose parents were both working were significantly more likely to be overweight and obese. Overweight and obesity were 9% among children with more than three siblings, 23% among those with 1/3 siblings, and 35% among children without siblings, which increased significantly. Twelve percent of the children in the room with more than three people were overweight and obese.

Conclusion

In this section, the general results of the analysis of findings based on research questions or hypotheses are discussed.

1- Research results for the first question of the research "What is the prevalence of overweight in children upon entering primary schools in Rasht?" And the second question of the study "What is the prevalence of obesity in children upon entering primary schools in Rasht?", Indicates that 8.6% of boys and 14% of girls are overweight and 19% of boys and 15.3% of girls are obese. The test results show that there is no significant difference in weight status between boys and girls.

2- The results of the research for the third question of the research "What is the relationship between individual and social characteristics of the child with overweight children upon entering primary schools in Rasht?" And the fourth question of the study "What is the relationship between personal and social characteristics of the child with childhood obesity when entering primary schools in Rasht?" There is a significant difference with the weight of children, but between the sex of the child, birth weight, infant nutrition, birth rate, number of children in the family, living with parents, history of maternal illness during pregnancy, education of mother and father, type of occupation of mother and there is no significant difference between father and average family income and children's weight status.

3- The results of the research for the first hypothesis of the research "Nutrition pattern is related to overweight in children upon entering primary schools in Rasht." And the second hypothesis of the study "Nutritional pattern is related to obesity in children entering primary schools in Rasht", indicates that there is a significant difference between breakfast consumption and parents' opinion about eating the child compared to peers with children's weight status. But between the number of meals, going to a restaurant, the number of times you go to a restaurant, eating only when you are hungry, eating ready meals, eating snacks, eating snacks, eating high-fat foods and eating breakfast with the weight of children There is no significant difference.

4- The results of the research for the third hypothesis of the study "Physical activity is related to overweight in children entering primary schools in Rasht" and the fourth hypothesis of the study "Physical activity is related to obesity in children entering primary schools in Rasht", indicate that between There is a significant difference between the hours of physical activity and the weight of children, but there is a difference between membership in a sports club, hours of exercise in the club, going to kindergarten or preschool, exercising and its number in kindergarten, and intensity of exercise or playing with weight in children. There is no meaning.

5- The results of the research for the fifth hypothesis of the study "Sleep and rest pattern is related to overweight in children entering primary schools in Rasht" and the sixth research hypothesis "Sleep and rest pattern is related to obesity in children entering primary schools in Rasht", indicating That is, there is a significant difference between sleeping hours at night and sleeping hours of the child during the day with children's weight status, but there is a significant difference between waking up at night, watching TV and playing computer games with children's weight status. does not have.

Finally, in order to determine the predictors of overweight and obesity in children upon entering primary schools in Rasht, multiple regression logistic model was used and four variables: family obesity history, maternal body mass index, parents' opinion about child eating compared to peers and hours Child physical activity was recognized as a predictor of child overweight and obesity upon entering school.

References

- [1]. Akhavan S. et al. Survey prevalence and predisposing factors of obesity and overweight in preschool children in Yazd city. *Yazd Shahid Sadoghi Journal of Medical Sciences*. Vol.16, No. 5, Winter 2009, pp. 13-8.
- [2]. Chimiagar et al. Relationship between overweight and obesity with some lifestyle factors in female students in third to fifth grade in six education districts of Tehran. *Journal of Food Sciences and Nutrition*. Year 6, No. 3, Fall 2012, pp. 84-75.
- [3]. Dehon, H., Bredart, S. (2004). False memories: Young and older adults think of semantic associates at the same rate, but young adults are more successful at source monitoring. *Psychology and Aging*, 19, 191-197.
- [4]. Diamond, A. (2007). Interrelated and Interdependent. *Developmental Science*, 10(1), 152-158.
- [5]. Draganski, B., Gaser, C., Busch, V., Schuierer, G., Bog-dahn, U., May, A.(2004).Neuroplasticity: Changes in Grey Matter Induced by Training. *Nature*,427(6972), 311-312.
- [6]. Dywan, J., Jacoby, L. (1990). Effects of age on source monitoring: Differences in susceptibility to false fame. *Psychology and Aging*, 5, 379-387.
- [7]. Etnier, J. L., Nowell, P. M., Landers, D. M., Sibley, B. A. (2006). A Meta-Regression to Examine the Relationship between Aerobic Fitness and Cognitive Performance. *Brain Research Reviews*, 52(1), 119- 130.
- [8]. Etnier, J., Salazar, W., Landers, D., Petruzello, S. (1997). The Influence of Physical Fitness and Exercise upon Cogni-tive Functioning: A Meta-Analysis. *Journal of Exercise & Sport Psychology*, 19(3), 249-277.
- [9]. Fabre, C., Chamari, K. Mucci, P., Massé-Biron J., Préfaut, C. (2002). Improvement of Cognitive Function by Mental and/or Individualized Aerobic Training in Healthy Eld-erly Subjects. *International Journal of Sports Medicine*, 23(6), 415-421.
- [10]. Fesharaki M, et al. Investigate the effect of teaching on lifestyle of overweight female elementary school students in Orumieh city. *Iran Journal of Diabetes and Lipid*, 2011, Volume 9, pp. 295-290
- [11]. Gaylord, S.A., Marsh, G.R. (1975). Age differences in the speed of a spatial cognitive process. *Journal of Gerontology*, 30, 674-678.
- [12]. Geary, D. C., Saults, S. J., Liu, F. Hoard, M. K. (2000). Sex Differences in Spatial Cognition, Computational Fluency, and Arithmetical Reasoning. *Journal of Experimental Child Psychology*, 77(4), 337-353.
- [13]. Ghiasvand R. et al. Survey relationship between intake of junk food and weight in children 7-6 years old in Shahin shahr&Mimeh 2010. *Journal of health system research*. Sixth year, second Vol. Summer 2011, pp. 342-335.
- [14]. Gillberg, C. (2003). Deficits in Attention, Motor Control, and Perception: A Brief Review [Oct]. *Archives of Disease in Childhood*, 88(10), 904-910.
- [15]. Golshan M. Survey lifestyle and Body mass index of young adults in Kerman, in order to obtain a master's degree thesis, 2008.
- [16]. Greger N. Edwin Ch. Obesity: A Pediatric Epidemic. *Pediatric Annals* 2001; 11, 694-700.
- [17]. H. Pyman; H. Roshanfekr; S. Ansari, DNA-based electrochemical biosensor using chitosan-carbon nanotubes composite film for biodetection of Pirazon. *Eurasian Chem. Commun.*, 2020, 2(2), 213-225.

- [18]. Hajiyani K, et al. Prevalence of overweight and underweight in elementary school children in the city of Babol. *Journal of Babol University of Medical Sciences, Tenth Period* (2009). PP 93-81
- [19]. Hasher, L., Stoltzfus, E.R., Zacks, R.T., Rypma, B. (1991). Age and inhibition. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 17, 163-169.
- [20]. Hasher, L., Zacks, R.T. (1988). Working memory, comprehension, and aging: A review and a new view. In G.G. Bower (Ed.), *The psychology of learning and motivation*, San Diego, CA: Academic Press, 22, 193-225.
- [21]. Hegarty, M., Kozhevnikov, M. (1999). Types of Visual-Spatial Representations and Mathematical Problem Solving. *Journal of Educational Psychology*, 91(4), 684-689.
- [22]. Huus K. Ludvigsson JF. Enskar K. Ludvigsson J. Risk factors in childhood obesity-Southeast Sweden (ABIS) Cohort. *Pediatrics* 2007; 96: 1321-1325.
- [23]. Hyde, J.S., Linn, M.C. (1988). Gender differences in verbal ability: A meta-analysis. *Psychological Bulletin*, 104, 53-69.
- [24]. J. Ghanaat; M.A. Khalilzadeh; D. Zareyee, KF/CP NPs as an efficient nanocatalyst for the synthesis of 1,2,4-triazoles: Study of antioxidant and antimicrobial activity. *Eurasian Chem. Commun.*, 2020, 2(2), 202-212.
- [25]. J. Taran; A. Ramazani; K. Atrak, Silica nanoparticles as highly efficient catalyst for the one-pot synthesis of α -aminophosphonate derivatives from primary amines, quinoline-4-carbaldehyde and phosphite under solvent-free conditions. *Eurasian Chem. Commun.*, 2020, 2(2), 257-264.
- [26]. Jacewicz, M.M., Hartley, A.A. (1979). Rotation of mental images by young and old college students: The effects of familiarity. *Journal of Gerontology*, 34, 396-403.
- [27]. Jansen, P., Léonie, F., Lange, Heil. (2011). The influence of juggling on mental rotation performance in children. *Biomedical Human Kinetics*, 3, 18 – 22, 2011.
- [28]. Jansen, P., Pietsch, S. (2010). Physical Activity Improves Mental Rotation Performance. *Creative Education*, 1, 58-61.
- [29]. Jansen, P., Titze, C., Heil, M. (2009). The Influence of Juggling on Mental Rotation Performance. *Journal of International Sport Psychology*, 40(1): 351-359.
- [30]. Javaheri J. et al. Investigate the relationship between height and weight of children entering primary school and meals status and level of education. *Journal of Health Care. Sixth year. No.one. Spring 2011*, pp. 72-65.
- [31]. Jazaeri F, Recognition and treatment of obesity. First publication in Tehran: Jameahnegar Publication, 2004.
- [32]. Jordan, K., Heinze, J., Lutz, K., Kanowski, M., Jäncke, L. (2001). Cortical Activations during the Mental Rotation of Different Visual Objects. *Neuroimage*, 13(1), 143-152.
- [33]. Just, M.A., Carpenter, P.A. (1985). Cognitive coordinate systems: Accounts of mental rotation and individual differences in spatial ability. *Psychological Review*, 92, 137-171.
- [34]. Kalantari N. et al. Relationship of obesity and overweight in first grade school children in Shiraz with breastfeeding pattern, birth weight and socio - economic status in 2007-8. *Journal of Food Sciences and Nutrition. Fifth Year, No. 3, Fall 2011*, pp. 28-19.
- [35]. Little, D.M., Hartley, A.A. (2000). Further evidence that negative priming in the Stroop color-word task is equivalent in older and younger adults. *Psychology and Aging*, 15, 9-17.
- [36]. Maddah M. Nikooyeh B. Factors associated with overweight in children in Rasht, Iran: gender, maternal education, skipping breakfast and parental obesity. *Public Health Nutrition*: 13 (2), 2009, 196-200.
- [37]. Marja Vanhala, et al. Lifestyle risk factors for obesity in 7 - year-old children. *Obesity Research Clinical Practice*, 2009.
- [38]. Maurer F, Smith MC. *Community Public Health Nursing Practice, Third Edition*, Elsevier Saunders, 2005.
- [39]. McCarthy, A L. (2010). Improving older adults' mental rotation skills through computer training. PhD Dissertation, University of Akron.
- [40]. McCrae, C.S., Abrams, R.A. (2001). Age-related differences in object- and location-based inhibition of return of attention. *Psychology and Aging*, 16, 437-449.
- [41]. McDowd, J.M., Filion, D.L. (1992). Aging, selective attention, and inhibitory processes: A psychophysiological approach. *Psychology and Aging*, 7, 65-71.
- [42]. Meriem S, et al. Predictive Factors of Obesity and their Relationships to Dietary Intake in Schoolchildren in Western Algeria. *A Journal of Clinical Medicine. Vol 6.2011*
- [43]. Mitchell, K.J., Johnson, M.K., Mather, M. (2003). Source monitoring and suggestibility to misinformation: Adult age-related differences. *Applied Cognitive Psychology*, 17, 107-119.
- [44]. Mohtasham Amiri Z, Maddah M. Survey prevalence of overweight and obesity in female medical students in Guilan University. *Iran Journal of Endocrinology*, 2007, Vol. 8, pp. 162-157

- [45]. Moreau, D., Clerc, J., Mansy-Dannay, A., Guerrien, Alain. (2012). Enhancing spatial ability through sport practice: Evidence for an effect of motor training on mental rotation performance. *Journal of Individual Differences*, 33(2), 83-88.
- [46]. Muazzez G. et al. Obesity Risk Factors in Turkish Children. *International Pediatric Nursing*, 2009.
- [47]. Nelson, *Pediatric Basics 2011*. Translated by: Mohsen Arjmand, First Edition, Arjmand Publication, 2011.
- [48]. Neutzling MB, Taddei JA. Risk factors of obesity among Brazilian adolescents: a case-control study. *Public Health Nutrition* 2003; 6 (8); 743-749.
- [49]. Nixon GM, Thompson JMD, Yeo Han D, Becroft DM, Clark PM, Robinson E. et al. short sleep duration in middle childhood: risk factors and consequences. *Sleep* 2008; 31:71-8.
- [50]. Park, Park, *Fundamentals of Health Services*. Translated by Hussein Tehrani Shojaee. Volume (3) Printing (6). Tehran: Samat Publications ,2006.
- [51]. Parsa S, Soltany R. Maternal and child health, first publication in Tehran, Sanjesh publication, 2003.
- [52]. Pitcher, T. M., Piek, J. P., Hay, D. A. (2003). Fine and Gross Motor Ability in Males with ADHD. *Developmental Medicine and Child Neurology*, 45(8), 525-
- [53]. Ray, W.J., Newcombe, N., Semon, J., Cole, P.M. (1981). Spatial abilities, sex differences, and EEG functioning. *Neuropsychologia*, 19, 719-722.
- [54]. Roberts, J.E., Bell, M.A. (2000). Sex differences on a computerized mental rotation task disappear with computer familiarization. *Perceptual and Motor Skills*, 91, 1027-1034.
- [55]. Roberts, J.E., Bell, M.A. (2000). Sex differences on a mental rotation task: Variations in EEG hemispheric activation between children and college students. *Developmental Neuropsychology*, 17, 199-224.
- [56]. Roller, C.A., Cohen, H.S., Kimball, K.T., Bloomberg, J.J. (2001). Variable practice with lenses improves visuo-motor plasticity. *Cognitive Brain Research*, 12, 341-352.
- [57]. Rouw, R., Kosslyn, S.M., Hamel, R. (1997). Detecting high-level and low-level properties in visual images and visual percepts. *Cognition*, 63, 209-226.
- [58]. S.A. Tabibzadeh Dezfuli; R. Yazdani; J. Yarmoradi; M. Banar; S. Hayati, Comparison of the ultrasonography report by the emergency service with radiology service in suspected DVT patients: A cross sectional study for investigation about pharmaceutical and therapeutic interventions. *Eurasian Chem. Commun.*, 2020, 2(2), 181-186.
- [59]. Saczynski, J.S., Willis, S.L., Schaie, K.W. (2002). Strategy use in reasoning training with older adults. *Aging, Neuropsychology, and Cognition*, 9, 48-60.
- [60]. Salthouse, T.A., Somberg, B.L (1982). Time-accuracy relationships in young and old adults. *Journal of Gerontology*, 37, 349-353.
- [61]. Schaeffer, P.D., Thomas, J. (1998). Difficulty of spatial task and sex difference gains from practice. *Perceptual and Motor Skills*, 87, 56-58.
- [62]. Schmidt, R.A., Bjork, R.A. (1992). New conceptualizations of practice: Common principles in three paradigms suggest new concepts for training. *Psychological Science*, 3, 207-217.
- [63]. Shepard, R. N., Metzler, J. (1971). Mental Rotation of Three- Dimensional Objects. *Science*, 171(972), 701-703.
- [64]. Shepard, R.N., Cooper, L.A. (1982). *Mental images and their transformations*. The MIT Press: Cambridge MA and London, England.
- [65]. Van Goozen, S.H.M., Cohen-Kettenis, P.T., Gooren, L.J.G., Fridja, N.H., Van de Poll, N.E. (1995). Gender differences in behaviour: Activating effects of cross-sex hormones. *Psychoneuroendocrinology*, 20, 343-363.
- [66]. Van Goozen, S.H.M., Cohen-Kettenis, P.T., Gooren, L.J.G., Fridja, N.H., Van de Poll, N.E. (1994). Activating effects of androgens on cognitive performance: Causal evidence in a group of female-to-male transsexuals. *Neuropsychologia*, 32, 1153-1157.
- [67]. Voyer, D., Voyer, S., Bryden, M.P. (1995). Magnitude of sex differences in spatial abilities: A meta-analysis and consideration of critical variables. *Psychological Bulletin*, 117(2), 250-270.
- [68]. Weigelt, M., Steggemann, Y., Engbert, K. (2011). Selective effects of motor expertise in mental body rotation tasks: Comparing object-based and perspective transformations. *Brain and Cognition*, 76, 97-105.
- [69]. Zhang CAI-XIA, Tse LA, Deng XQ, Jiag Z-Q., 2008. Cardiovascular risk factors in overweight and obese Chinese children. *Eur J Nutr* 2008; 47: 244-250.
- [70]. Majid Montazer; Leila Soltani, Epidemiological Study of the Characteristics of Patients with Lymphedema Following Breast Cancer Referred to the Hospitals of Tabriz University of Medical Sciences, *International Journal of New Chemistry*, 9(1), 2022, Pages 165-170, DOI: 10.22034/ijnc.2022.1.13

- [71]. Morvarid Keshavarz; leilatorkian, Effective Parameters on Biosynthesis of Silver using the Pelargonium sidoides Root Extract", *International Journal of New Chemistry*,9(1), 2022, Pages 129-143, DOI: 10.22034/ijnc.2022.1.9
- [72]. Nabati, M., Lohrasbi, E., Sabahnoo, H., Bodaghi-Namileh, V., Mazidi, M., Mohammadnejad-Mehrabani, H., Tavakkoli, A., Gervand, A. (2020). 'In Silico Study of Metoclopramide as A Small Molecule of Dopamine D2 Receptor: a Quantum-Mechanical (QM) Based Molecular Docking Treatment', *Chemical Methodologies*, 4(1), pp. 19-33. <https://doi.org/10.33945/SAMI/CHEMM.2020.1.2>
- [73]. Naser Ghorbanian, Comparison of Endotracheal Intubation Training on Mannequins and Normal Patients in Anesthesia Students, *International Journal of New Chemistry*,9(1), 2022, Pages 171-180, DOI: 10.22034/ijnc.2022.1.14
- [74]. Park SE. Epidemiology, virology, and clinical features of severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2; Coronavirus disease-19). *Clin Exp Pediatr*. 2020; 63 (4): 119-4. [DOI: 10.3345 / cep.2020.00493]
- [75]. Parviz Ahmadi Aval; Elaheh Bohloulbandi; Mohadeseh Khavari; Hajar Mohammadi, Study on the Preparation and Modification of Hydrazodicarbonamide, *International Journal of New Chemistry*, 9(1), 2022, Pages 14-20, DOI: 10.22034/ijnc.2022.1.2
- [76]. Q. Chen, J. Li, Z. Deng, W. Xiong, Q. Wang, and Y.-Q. Hu, "Comprehensive detection and identification of seven animal coronaviruses and human respiratory coronavirus 229E with a microarray hybridization assay," *Intervirolgy*, vol. 53, no. 2, pp. 95–104, 2010, doi: 10.1159 / 000264199.
- [77]. S. Faridi et al., "A field indoor air measurement of SARS-CoV-2 in the patient rooms of the largest hospital in Iran," *Sci. Total Environ.*, Vol. 725, p. 2005,01, Jul. 2020, doi: 10.1016 / j. scitotenv.2020.138401.
- [78]. S. K. P. Lau et al., "Complete genome sequence of bat coronavirus HKU2 from Chinese horseshoe bats revealed a much smaller spike gene with a different evolutionary lineage from the rest of the genome," *Virology*, vol. 367, no. 2, pp. 428–439, Oct. 2007, doi: 10.1016 / j. virol.2007.06.009.
- [79]. Saeed Jamehbozorgi; Manizheh Ghahramanpour; Mahyar Rezvani, The role of insertion of Li atom in C60-Porphyrin-Metalloporphyrin, M = (V, Cr, Ni, Cu) as dyes in the DSSC by using the theoretical outlook, *International Journal of New Chemistry*, 9(1), 2022, Pages 102-128, DOI: 10.22034/ijnc.2022.1.8
- [80]. Shahriyar Sarabi; Parisa Rajabali Jamaat; HooriehDjahaniani, Investigation of the conversion process of verdoheme Hydroxyl Iron (II) to biliverdin Iron (II): Theoretical study, *International Journal of New Chemistry*,9(1), 2022, Pages 84-101, DOI: 10.22034/ijnc.2022.1.7
- [81]. Umaphathi, S., Natarajan, J. (2020). 'Improving degradation of polyethylene /acrylic dextrose with ground nut powder', *Chemical Methodologies*, 4(1), pp. 100-105. <https://doi.org/10.33945/SAMI/CHEMM.2020.1.9>
- [82]. Z. Ebrahimi; A. Davoodnia; A. Motavalizadehkakhky; J. Mehrzad, Synthesis, characterization, and molecular structure investigation of new tetrahydrobenzo[b]thiophene-based Schiff bases: A combined experimental and theoretical study. *Eurasian Chem. Commun.*, 2020, 2(2), 170-180. DOI: <http://dx.doi.org/10.33945/SAMI/ECC.2020.2.2>
- [83]. Samimi, A., (2021). The Need for Risk Assessment in Occupational Health, *Journal of Engineering in Industrial Research* 2 (2), 71-76