**Original Article**

# Prediction of psychological, spiritual, and social health with cardiovascular risk factors in children and adolescents

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## Abstract

**Objectives:** Children are the most important asset in any country. Since cardiovascular diseases are built up little by little from childhood, this study attempted to detect the relationship between psychological, spiritual, and social health conditions and cardiovascular risk factors in children.

**Methods:** This study is a cross-sectional study performed on 1035 children aged 6-18 years by multi-stage random cluster sampling in 2016 in Yazd province of Iran. The lifestyle questionnaire (LSQ) was used to collect data. In addition, demographic information (i.e., age and sex) and cardiac risk factors were measured. Logistic regression and t-test were used to analyze the data.

**Results:** In this study, by increasing the mean score of psychological and spiritual health, fasting blood sugar (FBS) decreased significantly (OR = 0.14, 95% CI: 0.02-0.80, P trend = 0.003 and OR = 0.05, 95% CI: 0.01, -0.28, P trend = 0.013). Also, with increasing the mean score of spiritual health, body mass index (BMI) reduced significantly too. (OR = 0.35, 95% CI: 0.18-0.66, P trend = 0.014). However, social health failed to be significantly associated with cardiac risk factors.

**Conclusions:** FBS in children aged 6-18 years is affected by psychological and spiritual health. BMI and the level of spiritual health also turned out to be inversely related. As a result, psychological and spiritual health dimensions should be improved to lower the risk factors for cardiovascular diseases in children aged 6-18 years.

**Keywords:** Children, Cardiovascular risk factors, Health, Life style

## Introduction

Cardiovascular disease is now considered one of the most widespread chronic diseases in most parts of the globe. In 2016, the World Health Organization reported that cardiovascular diseases annually trigger mortality in 17.9 million people worldwide, and 31% of all deaths are attributed to cardiovascular diseases. And it is anticipated that cardiovascular diseases account for 25 million deaths annually by 2020 (1).

Since 2019, the prevalence of coronary heart disease has caused a significant increase in the number of deaths due to heart disease. According to global statistics, ischemia or coronary artery disease accounts for 7.6 million deaths annually (2). The results of several studies conducted in Iran reveal that cardiovascular disease has been the leading cause of death in the last decade. Cardiovascular diseases are currently the first cause

of death in Iran. The prevalence of coronary artery disease and its complications in society has caused morbidity, mortality, and disability of a large number of productive forces of the country, especially in the best years of job productivity, and has ultimately reduced production and increased medical costs (3 Known factors such as high blood pressure, cholesterol, smoking, diabetes, and lack of adequate mobility fail to explain the causes of the disease. In addition, in all industrialized countries, the incidence of the disease is based on socioeconomic status, and its highest rate is cogently associated with the lowest social classes. On the other hand, personality, anxiety, depression, psychological factors related to work, and lack of social support are among the psychological indices that can contribute to the prevalence of this disease. Some studies conducted on people over 50 have detected a relationship between symptoms of anxiety or depression with a heart attack. Patients' beliefs and perception of the disease are other influencing factors at the stage of recovery (5). One of the concepts concerning how to deal with problems and understand the disease is spiritual health. Spiritual health is one of the dimensions of health that induces integration of other dimensions of health and comprises the two other dimensions of existence and religion. Spirituality refers to personal attempts to understand final questions about life and their relation to the sacred and transcendent, which can lead (or not) to the development of religious practices (Weber, Pargament, 2014). Religious health relates to the satisfaction emanating from the relationship with superior power, and existential health addresses the attempt to understand the meaning and purpose of life (6). When spiritual health is seriously endangered, a person may suffer from mental disorders such as loneliness, depression, and loss of the concept of life. Therefore, support from spiritual or religious sources and connection with higher power can be beneficial for improving the quality of life, reducing and controlling mental health disorders, providing interpersonal support, reducing the severity of symptoms, and rising positive medical outcomes (7). As for the relationship between spiritual, psychological, and social health with the course of various diseases in recent years, several studies have been conducted pertinent to religion construct and its effect on different psychological variables, personality organization, individual and social adaptation, as well as spirituality-based therapies. Swart's (2017) study, for example, deals with the

role of spirituality in physical health during and after the illness. Patients who bear a spiritual vision and believe in prayers and the help of God when diseased, experience less stress and hope for more recovery and better mood during treatment or surgery process (8). Farganoli et al. (2019) studied the role of mental health in heart disease. They concluded that patients with coronary heart disease who undergo mental health treatment experience faster improvement in cardiovascular function and less recurrence of the disease (9). In a study that examined the relationship between mental illness and cardiovascular disease, Hert et al. (2018) concluded that a number of behavioral and lifestyle parameters (quality of health care or lack of access to it) are of biological factors which seem to be common in mental and cardio-metabolic diseases. Mental illness is common in patients with heart disease and may be associated with a significant increase in mortality. Mental illness and heart disease appear to have a common cause, including biological, behavioral, psychological, and genetic mechanisms (10). Therefore, the role of mental health in the course of heart disease is of crucial importance. However, a few studies have investigated the impact of spiritual, psychological, and social health on the risk factors of cardiovascular diseases as the most important cause of death in Iran. Also, a few studies addressed the role of spiritual health in patients with coronary artery disease.

Iran is a young country. Over 60 percent of *Iran's* 80 million *people* are under 30 years. It is necessary to take more heed of these age groups as the "future makers" of the country. Hence, it is necessary to examine the impact of spiritual, psychological, and social health on the risk factors of cardiovascular disease in children and adolescents. The present study aims at investigating the relationship between spiritual, psychological, and social health and heart risk factors in children and adolescents aged 6-18 years in Yazd province of Iran.

## Materials and Methods

This is cross-sectional analytical research and part of a national project implemented in all provinces of Iran. This study was performed to compare urban and rural areas of Yazd province focusing on children and adolescents aged 6-18 years in 2016 by multi-stage cluster sampling. Given that the prevalence of psychiatric disorders was assumed to be equal to 0.3, error type 1 equal to 0.05, and the acceptance error 0.05, the number of samples resultantly increased from 825 to 1035. Totally,

167 blocks were randomly selected through the postal code to match the number of urban and rural samples. Each block contained three males and three females in age ranges of 6-9 years, 10-14 years, and 15-18 years.)

$$n \geq \frac{\left(z_{1-\frac{\alpha}{2}}+z_{1-\beta}\right)^2 (\delta_1{}^2+\frac{\delta_2{}^2}{r})}{(\mu_1-\mu_2)^2}$$

α = o.o5
Power = 80%

### Inclusion and exclusion criteria

Inclusion criteria comprised being a citizen of Yazd (having lived in Yazd province for at least one recent year) and the age range being 6-18 years. Children and adolescents with severe physical illnesses were excluded from the study.

### Ethical considerations

Participants aged 15-18 or their parents completed the consent form. However, for participants under 15, their parents filled out the consent forms. Information as to children, adolescents, and their families was all kept confidential. If children or adolescents were diagnosed with a psychiatric disorder, they would be treated free of charge by the psychiatrist cooperating with the project or referred to another psychiatrist if they wished. This study was supported by the National Institute for the Development of Medical Research (NIMAD) through receiving the ethical code of IR.NIMAD.REC.1395.001.

### Scales

*Lifestyle Questionnaire (LSQ) (Lali et.al, 2012)*
This questionnaire examines 10 different dimensions of lifestyle. There are 70 questions on the Likert scale that are scored as always (3), usually (2), sometimes (1), and never (0). This questionnaire consists of 10 components: 1- physical health, 2- exercise and health, 3- weight control and nutrition, 4- prevention of diseases, 5- psychological health, 6- spiritual health, 7- social health, 8- avoidance of drugs, narcotics, and alcohol, 9- accident prevention, and 10- environmental health. A high score in each component and the whole questionnaire indicate an appropriate lifestyle. In our study, three dimensions of mental health (questions 30-36), spiritual health (42-37), and social health (43-49) were examined. The validity and reliability of this questionnaire have already been determined by

Lali et al. The Cronbach alpha value of the LSQ questionnaire for mental health proves to be 0.88, spiritual health 0.84, and social health 0.82 (questionnaire and cut points are attached) (11).

To assess the risk factors for cardiovascular disease, a skilled and trained nurse measured anthropometric indices (weight, height, body mass index, waist, and hip circumference) as well as systolic and diastolic blood pressure. The subjects were also questioned about the clinical signs of heart disease including palpitations, shortness of breath, and chest pain. They also answered questions as to physical illness, medications are taken, and family history of heart disease. Fasting blood glucose and lipid profiles (triglycerides, cholesterol, LDL, and HDL) of the participants were also measured.

### Data analysis

Finally, the data were entered into SPSS version 19, and descriptive statistics, that is, mean, standard deviation, and frequency distributions as well as inferential statistics including t-test and logistic regression were used to analyze the data. The significance level was considered to be lower than 0.05. In this study, first, the raw model was examined using logistic regression test to find the relationship between three dimensions of psychological, spiritual, and social health with the mentioned variables based on the purpose of the study. To eliminate the interventional effect of age and gender variables in the study population, these variables were modified in model one, and the risk factors in the raw model and the modified model of age and sex (model 1) were separately examined and reported.

### Results

In this study, out of initial volume size of 1035, 1027 samples were kept after excluding the incomplete files. Out of 1027 samples, 450 males (43%) and 577 (57%) females participated in the study. Table 1 sets out demographic characteristics. The mean age in the whole population was 11.87. The mean age of the males was significantly higher than that of the females. Also, fasting blood sugar (FBS) and systolic blood pressure (SBP) were significantly different between the two groups; they were lower in females.

As Table 2 illustrates, FBS decreased significantly with increasing psychological health score (P value =0.003), and other variables

showed no significant relationship with psychological health (P value> 0.05) (Table 2).
With increasing spiritual health score, FBS and BMI reduced significantly (P value = 0.013, P value = 0.014), but other variables were not significantly associated with spiritual health (P value> 0.05) (Table 3).
Also, social health was not significantly associated with TG (P=0.700), HTN (P=0.198), and BMI (P=0.557) (Table 4).

**Table 1.** Demographic characteristics of urban children aged 6-18 in Yazd in terms of gender and in total population

| DF | Male<br>Mean ±SD | Female<br>Mean ±SD l | Total | p value |
|---|---|---|---|---|
| Age | 11.69 ± 3.728 | 11.03 ± 3.973 | 11.32 ± 3.879 | 0.006 |
| FBS | 89.20 ± 9.185 | 87.41 ± 8.498 | 88.25 ± 8.866 | 0.005 |
| TG | 87.23 ± 45.494 | 88.69 ± 37.252 | 88.01 ± 41.289 | 0.624 |
| Chol | 156.46 ± 32.541 | 161.80 ± 62.993 | 159.30 ± 51.052 | 0.144 |
| LDL | 99.44 ± 22.507 | 99.54 ± 22.947 | 99.49 ± 22.727 | 0.948 |
| HDL | 40.65 ± 13.837 | 42.50 ± 13.481 | 41.63 ± 13.672 | 0.059 |
| SBP | 102.01 ± 14.211 | 98.94 ± 11.645 | 100.27 ± 12.904 | 0.000 |
| DBP | 68.39 ± 9.714 | 69.53 ± 10.123 | 69.03 ± 9.959 | 0.080 |
| BMI | 19.79 ± 5.522 | 19.24 ± 4.610 | 19.48 ± 5.040 | 0.088* |

FBS: Fasting blood sugar, TG: Triglyceride, Chol: cholesterol, LDL: Low-density lipoprotein, HDL: high-density lipoprotein, SBP: systolic blood pressure, DBP: diastolic blood pressure, BMI: body mass index

**Table 2.** Relationship between mean psychological health score and heart risk factors psychological health score

| | | low | Moderate | Good | High | p value |
|---|---|---|---|---|---|---|
| FBS | Crude | 1 | 0.14<br>(0.01-1.7) | 0.11<br>(0.02-0.64) | - | 0.002 |
| | Model I | 1 | 0.16<br>(0.01-1.99) | 0.14<br>(0.02-0.80) | - | 0.003 |
| Chol | Crude | 1 | 1.20<br>(0.09-15.26) | 0.48<br>(0.04-4.90) | 0.81<br>(0.07-8.59) | 0.978 |
| | Model I | 1 | 0.95<br>(0.07-12.78) | 0.38<br>(0.03-4.16) | 0.66<br>(0.06-7.35) | 0.999 |
| LDL | Crude | 1 | 2.27<br>(0.20-24.88) | 1.19<br>(0.13-10.76) | 0.67<br>(0.06-6.63) | 0.140 |
| | Model I | 1 | 2.17<br>(0.19-24.27) | 1.06<br>(0.11-10.03) | 0.60<br>(0.86-1.07) | 0.118 |
| HDL | Crude | 1 | 0.38<br>(0.02-5.27) | 0.39<br>(0.04-3.92) | 1.00<br>(0.10-9.66) | 0.142 |
| | Model I | 1 | 0.56<br>(0.03-8.31) | 0.62<br>(0.05-6.57) | 1.72<br>(0.16-18.19) | 0.780 |
| HTN | Crude | 1 | 1.05<br>(0.41-2.65) | 0.79<br>(0.35-1.78) | 0.74<br>(0.32-1.72) | 0.270 |
| | Model I | 1 | 1.03<br>(0.40-2.63) | 0.74<br>(0.32-1.68) | 0.70<br>(0.30-1.62) | 0.198 |
| BMI | Crude | 1 | 0.28<br>(0.12-0.67) | 0.38<br>(0.18-0.79) | 0.34<br>(0.16-0.72) | 0.128 |
| | Model I | 1 | 0.27<br>(0.11-0.64) | 0.38<br>(0.18-0.80) | 0.34<br>(0.16-0.73) | 0.174 |

FBS: Fasting blood sugar, TG: Triglyceride, Chol: cholesterol, LDL: Low-density lipoprotein, HDL: high-density lipoprotein, HTN: hypertension, BMI: body mass index

**Table 3.** Relationship between mean spiritual health score and heart risk factors spiritual health

|  |  | low | Moderate | Good | High | *pvalue* |
|---|---|---|---|---|---|---|
| FBS | Crude | 1 | - | 0.06 (0.01-0.41) | 0.06 (0.01-0.34) | 0.017 |
|  | Model I | 1 | - | 0.05 (0.00-0.35) | 0.05 (0.01-0.28) | 0.013 |
| Chol | Crude | 1 | 2.00 (0.19-20.89) | 0.76 (0.08-7.30) | 1.09 (0.12-9.93) | 0.670 |
|  | Model I | 1 | 2.09 (0.19-22.38) | 0.72 (0.07-7.09) | 1.14 (0.12-10.69) | 0.727 |
| LDL | Crude | 1 | 4.66 (0.47-45.54) | 1.84 (0.21-16.19) | 1.30 (0.15-11.27) | 0.175 |
|  | Model I | 1 | 5.05 (0.50-50.45) | 1.91 (0.21-16.86) | 1.35 (0.15-11.91) | 0.175 |
| HTN | Crude | 1 | 0.80 (0.34-1.87) | 0.68 (0.33-1.42) | 0.71 (0.35-1.46) | 0.449 |
|  | Model I | 1 | 0.88 (0.38-2.07) | 0.72 (0.34-1.51) | 0.75 (0.36-1.55) | 0.471 |
| BMI | Crude | 1 | 0.46 (0.22-0.96) | 0.40 (0.21-0.77) | 0.38 (0.20-0.71) | 0.016 |
|  | Model I | 1 | 0.40 (0.19-0.86) | 0.37 (0.19-0.71) | 0.35 (0.18-0.66) | 0.014 |

FBS: Fasting blood sugar, Chol: cholesterol, LDL: Low-density lipoprotein, HTN: hypertension, BMI: body mass index

**Table 4.** Relationship between mean social health score and heart risk factors social health

|  |  | low | Moderate | Good | High | P Value |
|---|---|---|---|---|---|---|
| TG | Crude | 1 | 0.13 (0.00-3.08) | 0.22 (0.01-3.72) | 0.25 (0.01-4.38) | 0.738 |
|  | Model I | 1 | 0.13 (0.00-3.77) | 0.22 (0.01-3.77) | 0.26 (0.01-4.59) | 0.700 |
| HTN | Crude | 1 | 1.05 (0.41-2.65) | 0.79 (0.35-1.78) | 0.74 (0.32-1.72) | 0.270 |
|  | Model I | 1 | 1.03 (0.40-2.63) | 0.74 (0.32-1.68) | 0.70 (0.30-1.62) | 0.198 |
| BMI | Crude | 1 | 2.87 (0.34-23.93) | 3.89 (0.48-31.04) | 3.74 (0.43-27.74) | 0.587 |
|  | Model I | 1 | 2.59 (0.30-21.77) | 3.69 (0.46-29.54) | 3.26 (0.40-26.21) | 0.557 |

TG: Triglyceride, HTN: hypertension, BMI: body mass index

**Table 5.** Comparison of psychological and social health between the two genders

| Health dimensions | Male Mean ±SD | Female Mean ±SD | *p value* | Total Mean ±SD |
|---|---|---|---|---|
| Mental health | 15.00 ± 4.638 | 14.86 ± 4.997 | 0.628 | 14.92 ± 4.841 |
| Spiritual health | 13.81 ± 4.134 | 13.10 ± 4.567 | 0.010 | 13.41 ± 4.395 |
| Social health | 15.88 ± 4.042 | 15.85 ± 4.254 | 0.890 | 15.86 ± 4.160 |

As Table 5 shows, no statistically significant difference was identified between the two groups of males and females as for psychological (P= 0.628) and social dimensions (p=0.628); however, in the spiritual dimension, males scored higher in terms of mental health (p = 0.01).

**Discussion**

In this cross-sectional study conducted to investigate the relationship between the dimensions of psychological, spiritual, and social health with heart risk factors in children and adolescents aged 6-18 years, the results revealed as spiritual and

psychological health scores increase, blood sugar rate significantly diminishes, and with elevated levels of these two health parameters in children, lower amounts of FBS in both males and females can be observed. Also with boosting spiritual health, BMI decreases significantly. Social health, however, bears no significant relationship with any of the risk factors.

This study is part of a general probe on lifestyle of Iranian children aged 6-18 years. In this study, only three dimensions of lifestyle (psychological, spiritual, and social health) including 20 questions pertinent to a total of 10 investigated. In addition, two different models were deployed to neutralize the interfering effect of gender and age. According to Nelson, individuals up to 18 years old are considered children. However, predicated on the biological structure of the body following puberty and hormonal changes, attitudes, choices, tastes, and consequently the overall health and lifestyle of people are affected so female and male hormones distinguish between boys and girls (12). Regardless of these, gender, at least in our country and culture, bears a known impact on mobility, social role, and attitude toward fitness. Based on this speculation, in model one, the role of age and gender was adjusted. There was no significant difference in any of the health dimensions of the raw model and model 1. The results imply that the presence of varying risk factors such as diabetes and blood pressure, dyslipidemia, and obesity triggers the patient's susceptibility to cardiovascular diseases and that these risk factors are related to people's lifestyles (13). Regarding mental health, psychological disorders such as acute depression, anxiety disorders, and bipolar disturbance are associated with atrial and ventricular arrhythmia, ischemia and myocardial infarction, left ventricular dysfunction, and cardiac arrest. Moreover, if there is heart disease, psychological disorders can worsen the prognosis of the disease (14, 15). Biological mechanisms affect the functioning of the autonomic nervous system in people with mental disorders and increase the risk of myocardial infarction. Behavioral factors, along with biological factors, can also increase the risk of cardiovascular disease. For example, poor inflammatory drugs and heart medications increase inflammation which may increase the depressive symptoms. Depression is associated with decreased blood pressure at night and

increases the risk of cardiovascular disease (Chohen, Edmondson, Kronish, 2015)

The results of the present study are in agreement with Fernando et al.'s (2013) conducted in Brazil. They have reported that spiritual and religious health can positively affect cardiac risk factors, including smoking and alcohol use, mobility, poor diet, high cholesterol, obesity, high blood sugar, hypertension, psychological and social stress (16). Fernando et al. (2013) also reported that religiously/spiritually oriented people bear 56% lower blood cholesterol when compared to other people (16). In the same line, our study revealed that two critical components of cardiac risk factors, including fasting blood sugar and BMI, were reduced as spiritual health increased.

However, in our study, cholesterol was not significantly associated with any of the dimensions of health. This discrepancy can be attributed to the difference in the age groups studied.

The results of Kobayashi et al's. (2015) study is not consonant with the results of ours. They compared 36965 participants, religious participants, and their non-religious counterparts. The results showed a lower tendency of religious participants to use cigarettes and alcohol; however, no significant difference was observed in the rate of hypertension, diabetes, or the prevalence of dyslipidemia between the groups (17).Yet, in another research, anxiety, and stress showed significant correlations with existential and religious health (18). On the other hand, according to the American Heart Association, factors such as poor nutrition, high blood pressure, diabetes, and obesity show unilateral and sometimes bilateral relations to spiritual health (16, 19). This was also identified in our study, i.e., factors such as high FBS as well as high BMI being related to spiritual health are evidences of this claim that the higher the score of spiritual health, the lower the BMI in children. Interestingly, in our study, BMI proved higher as the overall psychological health score increased, but this increment indicated the children being closer to the normal rate of BMI (18.5-24.9). In other words, lower than normal and above normal BMI were both signs of psychological and spiritual health disorders respectively in the children we studied. Poor psychological health in children predisposes them to heart disease in their adulthood; according to a cohort study conducted in the UK, young people who experience psychological stress in their childhood will tend to adopt an unhealthy lifestyle in adulthood (20-21). Parent's lifestyle affects children and adolescents' lives, therefore if parents bear high psychological health -spirituality grows (not just

religious ideas) in their childern's lives. This can engender a positive attitude toward the world and help them deal with unfortunate life events (such as losses or illnesses) that affect a person's hopefulness and resilience. In this regard, if parents enjoy appropriate social support, they will experience less stress, anxiety, and distress in the face of illness thus affecting their children and making them follow their parents' way of life, i.e., manage stress and hope for a better living by motivating and energizing them. This increases their resilience and acceptance of immutable situations (22-23). In case of dyslipidemia and cardiovascular disease, they will be less prone to these conditions, and if they suffer from the disease, they can surely recover faster (24). Several studies have reported that spiritual-religious people bear the potential to control blood pressure due to enjoying a higher peace of mind resulting from spiritual health. On the other hand, some other studies have refused to accept this; and reported that in some religions, because of certain restrictions, people experience more stress, pressure, and guilt, and as a result, they bear a higher blood pressure (25-26). However, in our study, blood pressure showed no significant relationship with any of the three dimensions investigated.

To date, a host of studies have been conducted on obesity as a risk factor for cardiovascular diseases and metabolic syndromes (27, 28). On one hand, research on the cadavers of individuals aged 15-34 years suggests that arteriosclerosis is a complex event occurring from puberty. Previous studies imply that diabetes is responsible for two-thirds of all cardiovascular deaths, and the risk of coronary artery disease in diabetic patients is four times higher than that of other people. Botello et al. (2008) demonstrated that children with type 1 diabetes suffer from disorders such as anxiety, depression, and mental health, and consequently, a lowered quality of life. Another study in the United States reported that parents of children with diabetes always experience some stress, regardless of their children's potential stress. This parental stress also harms the mental health of these children (29). According to the ISPAD guideline, children with diabetes are also affected by cognitive impairment, learning disabilities, and the inability to play an important role in society. On the other hand, psychological disorders such as behavioral disorders and depression can affect these children. Improper eating habits are also

much more common in children with diabetes, which can give rise to obesity, overweight, uncontrolled blood sugar, and aggravation of these psychological disorders like a defective cycle. Therefore, supporting children with diabetes is psychologically significant (30-32). Kreatsoulas (2010) stated that low social health in children predisposes them to atherosclerosis because these children suffer from a poor diet, have inactive lifestyles, and tend to smoke. It has even been reported that higher MetS (metabolic syndrome) scores make these children more susceptible to cardiovascular incidents (27, 35).

Studies have shown that people with higher spiritual health and greater belief in God from childhood experience greater peace and positivity, higher self-confidence, and better life satisfaction. All these factors contribute to distancing from stress as one of the most critical predisposing factors for cardiovascular diseases (35, 36).Paying attention to spirituality can play a vital role in the healing process of diseases. Spirituality elevates the ability to cope with illness and accelerates recovery, thus giving rise to greater physical, mental, and social well-being. Accordingly, some researchers believe that when clinicians are involved in treatment, it is needed to accommodate the patient as a multifaceted individual. In other words, if clinicians only consider the patient's physical illness and ignore other aspects, the healing process would be disrupted (37).

**Conclusion**
In this study, we discussed the role of various modifiable factors underlying heart disease and its risk factors and underlined the significance of considering psychological, spiritual, and social health for primary prevention Creating a healthy lifestyle and monitoring the growth and activities of children and adolescents should be addressed in a life cycle approach to promoting health and preventing cardiovascular diseases from the prime of life. Increasing the level of psychological and spiritual health dimensions in reducing the risk factors for cardiovascular diseases in children aged 6-18 years is one of the important and necessary attitudes toward life. In the present study, it was observed that concerning psychological and spiritual health dimensions, the higher spiritual and psychological health levels, the significantly lower blood sugar rate. The issue previously addressed in some studies as high

blood sugar also contributing to fewer scores in the area of psychological and spiritual health requires further research. On the other hand, it has been suggested that spiritual and psychosocial health are also affected by each other; in this regard, a new study needs to be conducted to get the issue established. Moreover, since the study of health dimensions, especially in the psychological and social dimension in adults appears to be more tangible, it is recommended to design and conduct

research among adult's consonant with this study. One of the limitations of this study is that sampling was confined to the city of Yazd, the center of Yazd province, which affects the generalizability of the findings. Sampling from all the other cities of Yazd province could have provided more accurate information. Moreover, this study was cross-sectional, so the associations obtained fail to be considered as cause and effect relationships.

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