

# Self-Rated Health and Life Satisfaction in Iranian Children and Adolescents at the National and Provincial Level: The CASPIAN-IV Study

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## Abstract

**Background:** Self-rated health (SRH) and life satisfaction (LS) are of increasing interest to medical researchers, because of their close relationship with different aspects of health.

**Objectives:** This paper describes the patterns of LS and SRH among Iranian children and adolescents, analyzed by sex and residence area, at the national and provincial levels.

**Methods:** In this nationwide study 14880 students, aged 6-18 years, were selected by multistage random cluster sampling from urban and rural areas of 30 provinces in Iran, as part of the fourth survey of a national surveillance program conducted in 2011-2012. LS and SRH were assessed through a questionnaire following the World Health Organization-Global School-based Student Health Survey (WHO-GSHS) protocols.

**Results:** 13486 out of 14880 invited students completed the study (participation rate: 90.6%). Their average age was  $12.47 \pm 3.36$  years. The prevalence of good SRH at national level was 80.13 (95% CI: 79.25, 80.99); the prevalence of LS among Iranian students at the national level was 80.17 (95% CI: 79.18, 81.13). At the provincial level, the highest and the lowest LS scores were 85.42 (80.01, 89.55) and 74.78 (68.74, 79.99), respectively. Likewise, the highest and the lowest prevalence of good SRH was 88.36 (83.99, 91.66) and 74.22 (69.06, 78.78), respectively.

**Conclusions:** Our findings show that, at provincial levels, a complex set of known/unknown influencing factors affect individuals' assessments of their own health quality. Understanding these patterns of SRH and LS could be useful for better health policy and more targeted studies in this field.

**Keywords:** Life Satisfaction, Health-Related Quality of Life, Children, Adolescents, Iran

## 1. Background

Self-rated health (SRH) and life satisfaction (LS), because of their close relationship with different aspects of health, have attracted increasing interest among researchers in several fields (1). SRH, also called self-reported health, assesses different dimensions of individuals' own health and can show the effects of some non-biomedical factors, including lifestyle, psychosocial, and socio-demographic conditions (2). LS is an evaluation of general well-being that includes one's subjective feeling of health. The relationship of SRH and LS was documented in

several studies (3-6).

These personal assessments broadly affect both physical and mental health. They involve a wide range of personality development in the mental health domains, religious behaviors in spiritual health, and even physical disorders and life expectancy (3, 7-10). Moreover, SRH is a powerful predictor of mortality (11). Scientific evidence emphasizes that these considerations, especially in the early stages of development, should be addressed more closely (1, 10, 12). Despite the importance and priority of these fields, there is only a little scattered information on SRH and LS for

some population sub-groups, and no information at the national or provincial levels (9, 13). Many studies concentrated on adult populations, and there are few studies on children or adolescents (14). In 2010, a nationwide study of Iranian adolescents showed that 75% of them reported good SRH. Moreover, physical activity and high risk behaviors seem to shape the adolescents' perceptions of health (13). Based on other scientific evidence, socioeconomic factors may be related to SRH and LS (2, 4). Recently, scholars have emphasized that geographical and environmental factors could also affect SRH and LS (15, 16).

## 2. Objectives

This is the first study to document SRH and LS in Iranian children and adolescents, and to compare the results among different provinces with different socio-demographic factors.

## 3. Methods

The present cross-sectional study is a part of the fourth survey of a national surveillance program, entitled childhood and adolescence surveillance and prevention of adult non-communicable diseases (CASPIAN-IV), which was conducted in 2011-2012 in 30 provinces in Iran. The details of the survey's processes and methodology have been published before (17). Children and adolescents aged 6 - 18 years were selected by multistage random cluster sampling from urban and rural areas of 30 provinces of Iran. The sample size was calculated according to the cluster sampling method. The maximum sample size that could give an optimal estimate of all risk factors of interest was selected. Thus, the sample size was calculated as 480 subjects in each province. A total of 48 clusters of 10 subjects in each of the provinces, and a total of 14,880 students and an equal number of their parents, were selected from 30 provinces. Eligible schools for the study were stratified according to information from the Ministry of Education, and then they were selected randomly. In the selected schools, students were also selected randomly. Stratification was performed according to school grade (elementary, middle-, and high school) and habitation area (urban vs. rural).

We prepared Persian versions of standardized questionnaires, which were designed based on world health organization models. The validity and reliability of the questionnaires were confirmed through previous studies (18). In order to assess the highest quality of data, a critical criterion of multi-center data gathering, multiple levels of quality assurance were exactly controlled by the project's

data and safety monitoring board (DSMB) (17). SRH was assessed through a single item: "How would you describe your general state of health?" The categories of response were "Perfect," "Good," "Moderate," and "Bad." LS was assessed through a single item as well; subjects were asked to indicate their degree of life satisfaction by using a ten-point scale from 1 = very dissatisfied to 10 = very satisfied. Scores under 6 were defined as "dissatisfied," and those above 6 were defined as "satisfied." According to these categories, the LS score was calculated.

### 3.1. Statistical Analyses

We reported the prevalence of LS and good SRH with a 95% confidence interval (CI). The LS score (range: 1-10) was also considered a continuous variable, and was reported as mean and 95% CI. Associations of categorical variables with LS and SRH were assessed using Chi-square tests. The means of LS scores across living areas (urban/rural) and sex were assessed using T-tests. All analyses were performed at the national, regional, and provincial levels by using the survey analysis method in STATA Corp. 2011 (Stata Statistical Software: Release 12. College Station, TX: StataCorp LP. Package). were were plotted using R software, version 2.15.1.

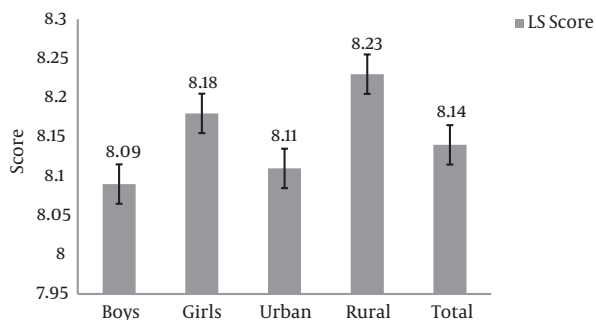
### 3.2. Ethical Consideration

Required approvals have been documented from the ethical committees of Isfahan University of Medical Sciences (IUMS), Tehran University of Medical Sciences (TUMS), and other relevant regulatory organizations at the national and provincial levels. Participation of students in the present study was voluntary. During the beginning phase, the objectives and methods of study were described to all the participants. After this complete introduction, written informed consent and oral assent, respectively, were obtained from all the parents and students who agreed to participate. All procedures of gathering and managing were conducted carefully and anonymously, with careful security considerations.

## 4. Results

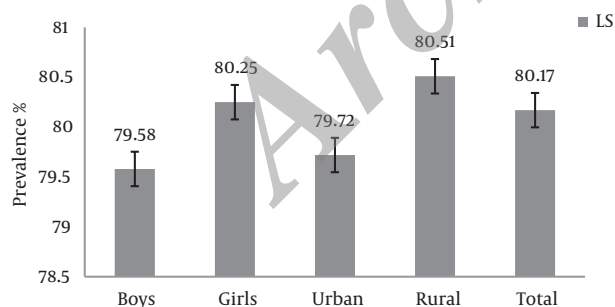
A total of 13486 out of the 14880 invited students completed the study (participation rate: 90.6%). The average age of the participants was  $12.47 \pm 3.36$  years, without a significant difference between girls and boys. 6640 (49.2%) girls and 6846 (50.8%) boys participated; 75.6% were from urban areas and 24.4% were from rural areas. The mean of LS scores at national levels, according to sex and living area, are presented in Figure 1. The mean LS score was 8.14 (95% CI: 8.08, 8.20) at the national level. The mean LS scores in urban and rural areas were not statistically different (8.11,

95% CI: 8.05, 8.17 and 8.23, 95% CI: 8.11, 8.35, respectively). Likewise, the mean LS scores between boys and girls had no significant difference (8.0 (CI 95%: 8.01, 8.17) vs. 8.18 (95% CI: 8.11, 8.26), respectively,  $P > 0.05$ ).



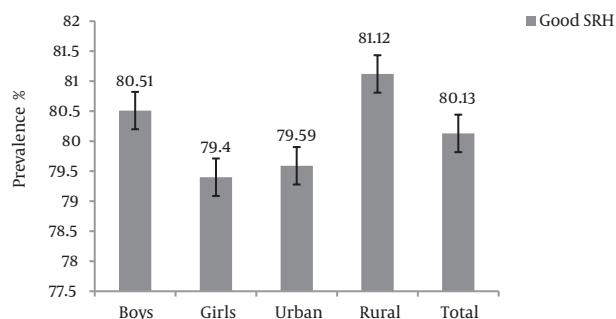
**Figure 1.** Life Satisfaction Scores in Iranian Children and Adolescents, by Sex and Living Area, at the National Level: the CASPIAN IV Study

The prevalence of “satisfied” LS among Iranian students at the national level was 80.17% (79.18%, 81.13%); it did not differ significantly between boys and girls (79.58% vs. 80.25%). The prevalence of LS in urban vs. rural areas also showed no significant difference (79.72% (95% CI: 78.62, 80.78) vs. 80.51% (95% CI: 78.44, 82.42), respectively,  $P > 0.05$ ) (Figure 2). The prevalence of good SRH at the national level was 80.13% (95% CI: 79.25, 80.99), and is presented in Figure 3. The prevalence was 80.51% (95% CI: 79.33, 81.64) and 79.4% (95% CI: 78.13, 80.61) for boys and girls, respectively ( $P > 0.05$ ), and was 79.59% and 81.12% for urban and rural areas, respectively ( $P > 0.05$ ).



**Figure 2.** Prevalence of Life Satisfaction in Iranian Children and Adolescents, by Sex and Living Area, at the National Level: the CASPIAN IV Study

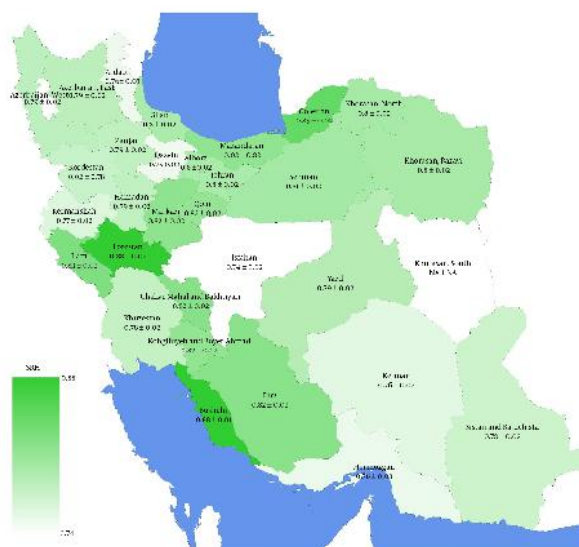
The mean of LS scores, prevalence of high LS, and good SRH at the provincial levels are presented in Appendix 1. At the provincial level, the highest and the lowest prevalence of LS, respectively, were 85.42% (80.01, 89.55) and 74.78% (68.74, 79.99)]. Similarly, the highest and the lowest preva-



**Figure 3.** Prevalence of Good Self-Rated Health in Iranian Children and Adolescents, by Sex and Living Area, at the National Level: the CASPIAN IV Study

lence of good SRH were 88.36% (83.99, 91.66) and 74.22% (69.06, 78.78). Figure 4 shows the prevalence of good SRH at the provincial level. Bushehr (0.88 ± 0.01) and Lorestan (0.88 ± 0.02) show the highest prevalence of good SRH, while Isfahan (0.74 ± 0.02) and Qazvin (0.75 ± 0.02) have the lowest prevalence of good SRH. For LS prevalence, the highest values belonged to Golestan (0.85 ± 0.02) and Semnan (0.85 ± 0.02), whereas the lowest values were seen in Keraman (0.75 ± 0.02), Hormozgan (0.75 ± 0.03), Ilam (0.75 ± 0.02), and East Azarbaijan (0.75 ± 0.02). See Figure 5.

**Figure 4.** The Prevalence of Good SRH at the Provincial Level: the CASPIAN-IV Study



Data are presented as prevalence ± SE.





## Footnote

**Authors' Contribution:** Mostafa Qorbani and Ramin Heshmat equally contributed as corresponding authors.

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