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## Original research article/Artykuł oryginalny

## The investigation of the causes of failure to thrive among children referred to health centers based on the health belief model

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#### ABSTRACT

Introduction: Failure to thrive (FTT) leads to more serious complications such as mortality-reduced learning and mental, emotional or physical disabilities. This study aimed to determine the causes of growth disorders among 3-6 years old children covered by health centers of Semnan. Methods: This is a descriptive-analytical study which was conducted in Semnan in 2014. Two hundred children, 3-6 years of age, who referred to health centers, were selected and studied through stratified and random sampling in two groups: healthy group and group with failure to thrive. Mothers completed two questionnaires containing demographic and comprehensive information on the child feeding methods (CFPQ). By using CFPQ, child feeding method was evaluated from 12 aspects. SPSS 18 software was used for statistical analysis of data. Results: Two hundred children were studied. In which 51.2% were female and 48.8% were male. The majority of them were aged between 4-5 years old. Considering birth rank, all the children were of first birth. Majority of mothers (78.2%) were housewives, and majority of fathers were self-employed. There was a significant difference between the groups considering mothers' level of education and failure to thrive (p < 0.05). There was also a significant difference between household's income and failure to thrive between the groups (p < 0.05). There was a significant difference between the groups considering model constructs such as perceived intensity (p = 0.02%), perceived benefits (0.011%) and self-efficacy (0.01%). Conclusion: The results of this study showed that there is a significant association between social factors and failure to thrive. The findings also indicated that household size, income, mothers' knowledge, perceived severity, and perceived benefits are associated with failure to thrive. Therefore, educational intervention for family planning is recommended for nutrition patterns in order to regulate household size and promote mothers' knowledge and self-efficiency.

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#### Introduction

For every country, health has a different concept. The first definition of health is "not being sick" [1]. Health was defined as a fundamental human right that requires legal protection [2]. According to The World Health Organization (WHO), "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [3]. In recent years, the ability to have a beneficial economic and social life has been included in health definition [1]. On one hand, health refers to individual responsibility and on the other hand it is a major public health issue which involves the joint efforts of individuals, communities, and government to be preserved and promoted [4]. Undoubtedly, one of the most important factors in promoting health is nutritional status. Good nutrition is essential for the health throughout life before birth to old age [5]. Children need to foods with higher nutritional value than adults [6]. Therefore, assessment of nutritional status and identification of nutritional needs are of most important measures in organizing health care workers [6]. Health is the most important indicator of development and it ensures the survival of the community [7]. Thereby, providing proper nutrition is regarded as most important aspect of good health [8]. If children don't have access to enough nutrients to meet their nutritional needs, they are most likely to suffer from malnutrition. Child malnutrition is a prevalent problem in the area of health [9]. Failure to thrive refers to children insufficient physical growth or their inability to maintain a desired growth overtime [10]. The causes of growth disorders are divided into two categories:

- Organic causes: Organic growth disorder occurs due to the acute or chronic diseases (such as infection which interferes with the absorption or metabolism of nutrients or increases energy intake).
- 2. Inorganic reasons: Inorganic reasons are mainly rooted in environmental, mental, and social factors such as inadequate intake of some essential nutrients. 80% of children are affected with inorganic growth failures. Poverty, loss of appetite, and lack of knowledge about the proper ways of feeding, large numbers of children, inappropriate emotional environment (such as parental lack of attention, child abuse, and child's rejection), insufficient breast milk (due to the mother's poor diet, emotional stress, and mother's employment) are among the inorganic reasons of growth disorders. Sometimes the causes of growth failure occur in the form of mixed organic and inorganic causes [11].

According to WHO, more than 30% of children under 5 years of age suffered from failure to thrive and 80% of them have reduced height growth and 20% are underweight [12]. The causes of failure to thrive were also investigated in Iran. The findings indicate that 16.3% of girls and 15% of boys and 15.7% of all children are underweight and 18.4% of girls and 19.5% of boys as well as 18.9% of all children are stunted [13]. Failure to thrive diagnosis and identification of BMI, body length, and weight to length ratio are target parameters which represent nutritional status [12]. Physical measurements can be made and these experimental values

can be compared to other parameters for assessing child health and therefore can be regarded as health parameters [14]. The conducted studies indicated that mothers' behavioral factors are major causes of growth failure [15, 16]. The use of models for studying behavior in analyzing mothers' feeding behaviors is necessary. As mothers' beliefs are regarded important in their way of feeding their children, health belief model has been used to analyze influencing factors of growth disorders. This is a well-known model in behavioral studies which emphasizes how one's perception causes specific behavior [10].

The health belief model has been used to illustrate the changes and continuity of health related behaviors [17]. On the basis of this model, persons take preventive health behaviors when the following elements affect them:

- 1. Perceived susceptibility: The belief that they are at risk.
- Perceived severity: The idea that they are in danger of disease.
- 3. Perceived barriers: The physical, psychological, or financial barriers, which persons encounter when adopting health behaviors.
- 4. Perceived benefits: Refers to the beliefs of persons about taking into consideration the recommendations which are effective in preventing or lowering complications of the disease.
- 5. Guide for action: It includes health messages, mass communication and trusted people such as doctors, religious and political leaders as well as the mass media.
- 6. Taking action: The resulting health behavior which is affected by mentioned categories [17].

The identification of nutritional patterns is one of the key responsibilities of the nursing team. They can help by taking action to reduce the causes of growth failure in children exposed to risk. Few studies analyzing these aspects have been conducted in Iran so far. Considering importance of child nutrition and high prevalence of malnutrition in Iran, this study was conducted to investigate the relationship between nutrition pattern and health status of children referred to Semnan health centers, Iran in 2014.

### Materials and methods

This is a descriptive-analytical (case-control) study, which was performed on 100 children affected with failure to thrive and 100 children as control group in 2014. Cluster sampling method was used in this study. For this purpose, the percent of failure to thrive was achieved separately according to Semnan health center statistics in the second half of 2013. Then the city of Semnan was divided into 8 regions. One health center was selected from each region. The number of samples in each region was selected from the office of child care through systematic random sampling. Among 8 health centers, children were selected according to Semnan health center statistics in the second half of 2013. The criteria for inclusion in the case group were as follows:

- 1. Children with the growth disorders.
- 2. Children should have health records in health centers.
- 3. Considering control group, mothers of affected children should participate in study.

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