

Evaluation of the Relationship between Health Literacy and High-risk Behaviors Due to the Mediating Deficit of Positive Adolescent Development among Adolescent in West Azerbaijan Province

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Abstract

Purpose: The aim of this study was to investigate the relationship between health literacy and high-risk behaviors with respect to the mediating role of positive adolescent development among students in West Azerbaijan province.

Methodology: The research method was descriptive-correlational modeling of structural equations. The statistical population of this study was all high school girls and boys in West Azerbaijan province with the age range of 11 to 18 years who were studying in the 2019-20 academic year. 560 people were selected from the statistical sample by cluster random sampling as a research sample. Research scales were Iranian Adolescents Risk Scale (Zade Mohammadi, Ahmadabadi, Heidari, 2011), Adolescent Positive Development Scale (Geldhof, et al, 2014), Adolescent Health Literacy Questionnaire (Ghanbari, Ramezankhani, Mehrabi, Montazeri, 2015). Structural equation modeling and AMOS software were used to investigate the causal relationships between the variables of the present study.

Findings: The findings of the present study showed that there was a significant direct relationship between health literacy and tendency to high-risk behaviors in adolescents ($p < 0.05$). There was also a significant direct relationship between health literacy and adolescent positive development in adolescents ($p < 0.05$). There was a significant indirect relationship between health literacy and tendency to high-risk behaviors mediated by positive adolescent development ($p < 0.05$).

Conclusion: Health literacy and positive development of adolescence reduces risky behaviors among adolescents. Accordingly, health literacy by providing cognitive resources, positive adolescent development by improving the processing of cognitive processes related to health and the growth of health resources and opportunities, causes Adolescents become less prone to risky behaviors.

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1. Introduction

Adolescence is an important developmental period that is accompanied by identification. This period is associated with a multitude of unhealthy problems due to rapid physical, psychological, social, cultural and cognitive changes. According to the World Health Organization, adolescence begins at the age of 9 and enters puberty until the age of 21 Continues (World Health Organization, 2013). These widespread changes can lead to adolescents' tendency to engage in high-risk behaviors and expose them to greater harm, as many victims of high-risk behaviors are among adolescents and young adults (Adibnia et al, 2016; Marzban, 2018); As this period is called as vulnerable, problematic or endangered period (Holt et al., 2016). Most high-risk behaviors develop during adolescence before the age of 18, beginning with smoking, alcohol, and drugs (Theresa, 2010; Esmailzadeh et al., 2014). Because the risk of youth and adolescents is higher than other age groups, they are more prone to this type of behavior. Among the behaviors that are threatening to others and society are anti-social behaviors such as theft, aggression, running away from home, using substances such as cigarettes, drugs, and illicit unprotected sex (Jakic, et al, 2004; Kuperberg et al, 2017). . In Iran, high-risk behaviors such as smoking, hookah, alcohol and drugs, high-risk sexual behaviors, traumatic thoughts such as suicide are common among Iranian adolescents (Marzban, 2018; Asadi et al, 2014).

Behaviors that endanger health are called high-risk behaviors (Adibnia et al, 2016). High-risk behaviors include a wide range of behaviors such as drug and alcohol use, smoking, high-risk driving, high-risk sex, aggression, self-harm, and suicide (Branley & Covey, 2018). High-risk behaviors can be divided into two groups: The first group is high-risk self-harming behaviors that cause self-harm (such as suicide, drug use); The other group is high-risk behaviors that cause harm to others (such as theft, delinquency) (Jakic et al, 2004; Kuperberg et al, 2017). These behaviors endanger the health and life of adolescents and have adverse physical, psychological and social consequences and in some cases have led to their death. High-risk behaviors threaten the well-being of adolescents, prevent the growth and development of adolescents and make them irresponsible adults (Savi et al, 2015). Various factors have been studied in the occurrence of high-risk behaviors. The occurrence of high-risk behaviors in adolescence can be due to lack of knowledge and awareness in this period about health and high-risk behaviors (Lindau, et al, 2002; Amani, 2019). Health literacy is one of the components that can promote healthy behaviors and reduce high-risk behaviors among adolescents (Batterham et al, 2016; Fleary et al, 2017). Health literacy is a set of individual and social knowledge and skills that increase an individual's ability to acquire perceive and use health information (Tehrani et al, 2015; Shum et al, 2018). Health literacy is a cognitive skill that increases decision-making ability, reduces health threats, and leads to preventive behaviors (Andrade et al, 2017).

Health literacy can improve students' cognitive and behavioral abilities and reduce their tendency to risky behaviors (Tehrani et al, 2005). Center for Health Care Strategies 2000 A general definition of health literacy is the ability to read, understand, and act on health care information (Center for Health Care Strategies, 2000). While some individuals and other institutions consider health as the capacity to obtain, interpret and understand basic health information and services, and the authority to use such information and services to promote health. Therefore, health literacy is very important in preventive behaviors and improving people's health and has become one of the fundamental issues in today's world (Kickbusch, 2001). Health literacy can also be considered the ability to choose health-related behaviors. The report of the American Medical Organization considers health literacy as the degree to which individuals have the ability to obtain, process, and understand basic relevant information so that they can make decisions. Get a health-related fit (Nutbeam, 2008). Overall, the concept of health literacy refers to individual and associative factors that affect an individual's ability to acquire, understand, and use information about health and health services (Batterham et al, 2016). Adolescence is a period of transition from childhood to adulthood, a period in which students and adolescents experience extensive changes in the physical, psychological and social spheres, important behavioral and cognitive patterns are formed in this period that

in It affects the whole of a person's life (Adibnia et al, 2016). These cognitions and knowledge that individuals acquire play a mediating role between cognitions and behaviors of individuals and the background of the year of opportunities are issues in adolescence that affect high-risk behaviors or health (Ciocanel et al, 2017). Therefore, the stages of human development, especially in periods such as adolescence, have been important issues for psychologists and psychoanalysts. Early views, like Freud's, focused on resolving crises in the developmental stages; But with the spread of positivist approaches, attention to the stages of human development has also changed and from attention to crisis resolution to attention and emphasis on opportunities and sources of growth in different periods. The positive development of adolescence has grown under the influence of positivist and transformational views on growth in childhood, adolescence and youth, and instead of pathology in development, it pays attention to identifying opportunities and resources effective in the positive development of adolescence (Shek, 2019; Lerner, Steinberg, 2004; Lerner et al, 2011). In fact, the positive development of adolescence emphasizes that instead of underestimating adolescents and their characteristics in growth; we can pay attention to their desirable characteristics and traits in the development process and use them as resources for growth (Damon, 2005).

Based on the positive development of adolescence, there are opportunities and resources for the development of children and adolescents that affect their positive development, the development process is a flexible process, and adolescents have internal resources (such as psychological characteristics) and external resources (Such as community and family) have a positive effect (Shek, et al, 2019; Tolan et al, 2016). According to this approach, children have opportunities and resources for growth that can pave the way for positive growth and development in them (Nicholas, et al, 2017), their involvement and participation in positive behaviors and activities such as exercise in adolescence. (Nicholas et al, 2017) and reduce the tendency to risky behaviors (Shek, et al, 2019; Ciocanel, et al, 2017). According to what has been stated, adolescence is the period in which a person experiences extensive social, psychological and physical changes that can expose them to high-risk behaviors (Lindau, et al, 2002; Amani, 2019). Preventive behaviors Reduce them and affect their quality of life (Nowruz, et al, 2017; Amani, 2019) and increase risky behaviors in them (Amani, 1398). Health literacy is one of the components that can reduce risky behaviors in adolescents (Feller et al., 2017), but cognitions and awareness such as health literacy with positive growth and development of adolescence, can affect high-risk or healthy behaviors in adolescents. Be transient (Ciocanel et al, 2017; Trenholm, 2007); On the other hand, due to the fact that the age structure of the country is young, adolescents and young people constitute the largest population of the country and introduces them as the most vulnerable groups at high risk behaviors (Esmailzadeh et al, 2014), The study of adolescent high-risk behaviors and its protective factors is one of the most important current concerns of societies (Savi et al, 2015). Therefore, the present study seeks to investigate whether health literacy and positive adolescent development affect adolescents' high-risk behaviors and whether positive adolescent development has a mediating role between health literacy and high-risk behaviors in adolescents?

2. Methodology

The research method was descriptive-correlational modeling of structural equations. The statistical population of this study was all high school girls and boys in West Azerbaijan province with the age range of 11 to 18 years who were studying in the 2019-20 academic year. In sample selection, cluster random sampling method was used first. Thus, West Azerbaijan province was divided into three regions: north, center and south. In the north and south of the province, one city was randomly selected and then by referring to the General Directorate of Education and getting the list of secondary schools of selected cities, four were randomly selected. School (two girls 'schools and two boys' schools) and also in the center of the province from each district one and two, four schools two girls 'schools and two boys' schools) are selected, and then from each school and randomly two classes with a total of 32 classes (560

people) was selected as the final sample of the study and studied. Inclusion criteria include high school students, physical health, no stressful events such as divorce and death of loved ones in the last six months and exclusion criteria dissatisfaction to participate in the study and completing the questionnaires incompletely. Be. Research tools of Iranian Adolescents Risk Scale: (IARS) This scale has been used to measure the tendency to high-risk and addictive behaviors. Zadeh Mohammadi, Ahmadabadi and Heidari (2011) have compiled this questionnaire in 38 items that adolescents' vulnerability in 7 categories of high-risk behaviors such as violence, risky driving, smoking, drug and substance abuse, relationship and drug use, Measures the tendency to the opposite sex. Respondents express their agreement or disagreement with these items on a five-point scale from strongly agrees (with a score of 5) to strongly disagree (with a score of 1). The validity of this tool is shown in Cronbach's alpha method for the overall scale of 0.94 (Zade Mohammadi, Ahmadabadi, Heidari, 2011).

Positive Adolescent Development Scale Goldoff et al. Version 17 Question: This scale measures adolescent positive development through 5 criteria of competency, confidence, communication, character and care. It is acceptable. The 17-item scale has an operating structure of 80 questions. Form 17 has convergent validity with community participation scores (0.21 to 0.56) and divergent validity with depression (0.40 to 0.68) and high-risk behaviors (0.46 to 0.66). Its validity is reported by Milot (2014) using Cronbach's alpha for the whole test of 0.74. The 17-question form asks the teen to first choose one of the two phrases he or she explains most, and then rank that phrase between the two sentences "really true about me" or "almost true about me." To bind Each of the characteristics of competence, reliability and care is measured by 3 items and character and communication is measured by 4 items. Competency subscale with questions 1, 2, 3, confidence with questions 4, 6, 7, care with questions 11, 12, 13, character with questions 5, 8, 9, 10 and communication with questions 14, 15, 16, 17 is. In Babaei et al.'s study in Iran, Cronbach's alpha coefficient of 0.81 scales was obtained.

Adolescent Health Literacy Questionnaire: This questionnaire was designed by Ghanbari et al (2015). This questionnaire has 44 terms in 8 areas including accessibility, reading, comprehension, evaluation, use, communication, self-efficacy and calculation. Cronbach's alpha coefficient of this scale in the study of Ghanbari et al was 0.93. The limited test of the questionnaire with a two-week interval also confirmed the stability of the questionnaire. The method of implementation was such that the researcher first talked to the students about high-risk behaviors in the classroom, giving a separate code to each student to ensure that the information was completely confidential and only for research purposes and to help progress. Science will use it. Then, in the next sessions, in each session, depending on the patience and mood of the students, two or three tests were performed during two to three sessions. This study is in the field of descriptive research because it examines the current situation, and since it examines the relationship between perceived social support, health literacy, and the use of communication media, it is a correlational study. Be. Structural equation modeling and AMOS software will be used to investigate the causal relationships between the variables of the present study.

3. Findings

Based on descriptive findings, 9.1% 12 years, 2.11% 13 years, 16.9% 14 years, 0.25% 15 years, 23.21% 16 years, 18.6% 17 years, 3.4 18% are years old. 68.7% are boys and 31.3% are girls. 72.8% are Azeris and 27.2% are Kurds. 53.07% watch less than 3 hours, 43.58% watch 3 to 7 hours and 3.35% watch more than 12 hours. 60.52% use the Internet in less than 3 hours, 28.68% between 3 to 7 hours and 10.80% more than 12 hours in the school. Descriptive findings of research variables are given in Table (4-6).

Table1. Descriptive findings of research subscales

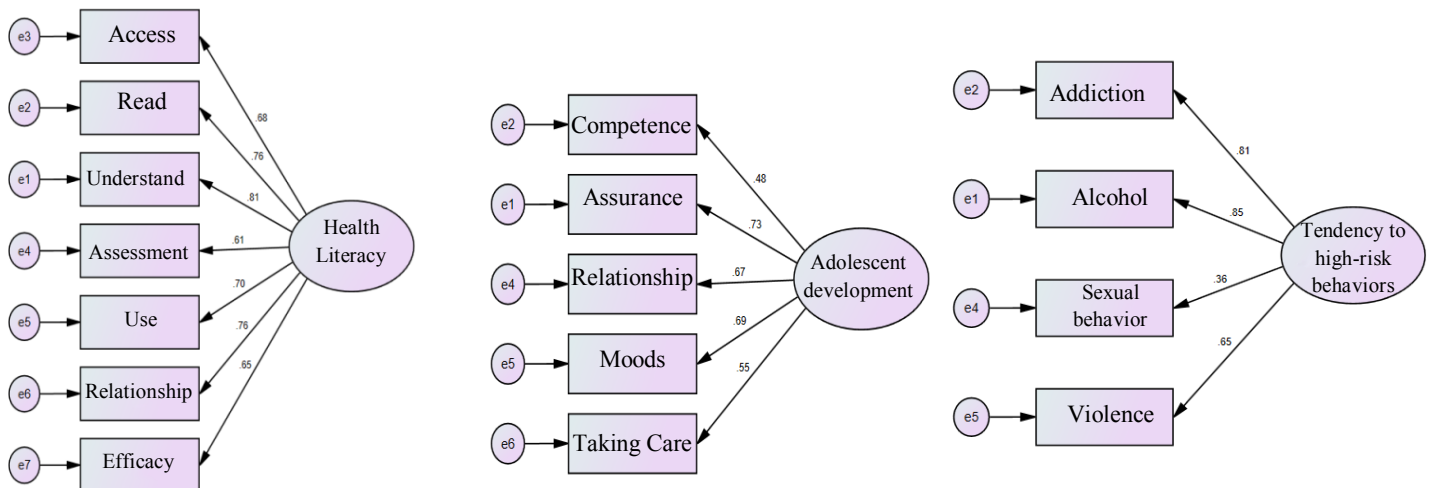
Health literacy		Positive development of adolescence		High-risk behaviors	
access	13/63±4/14	Competence	6/70±2/80	Addiction	5/21±4/98
Read	13/66±4/17	Assurance	6/44±1/96	Alcohol	4/92±4/85
Understand	27/96±8/14	Relationship	6/91±2/03	Sexual behaviors	3/27±2/75
Assessment	13/68±4/85	Moods	8/51±2/33	Violence	7/20±5/08
Use	9/34±3/58	taking care	7/72±2/82	Total	20/57±13/64
Relationship	19/54±6/70	Total	36/25±8/41		
Efficacy	9/30±3/84				
Total	107/12±27/30				

Examination of the defaults shows that the data distribution is normal (based on the distribution of skewness and elongation indices from 3 to -3), the data linearity assumption (based on the data scattering matrix) is observed, and the results Indicates the absence of multiple alignments (tolerance and VIF) based on the test between predictor variables.

Table2. Features of confirmatory factor analysis

Index name	Health literacy	Positive youthful transformation	High-risk behaviors	Fit indicators
				Limit
χ^2 df	0.97	1.29	1.44	Less than 3
(Root of average estimation error) RMSEA	0.03	0.05	0.05	Less than 0.1
CFI (Modified Fit)	0.98	0.96	0.97	Above 0.9
NFI (Softened Fit)	0.95	0.94	0.95	Above 0.9
GFI (Fit Goodness)	0.97	0.96	0.98	Above 0.9
AGFI (Modified Fit Goodness)	0.95	0.94	0.96	Above 0.9

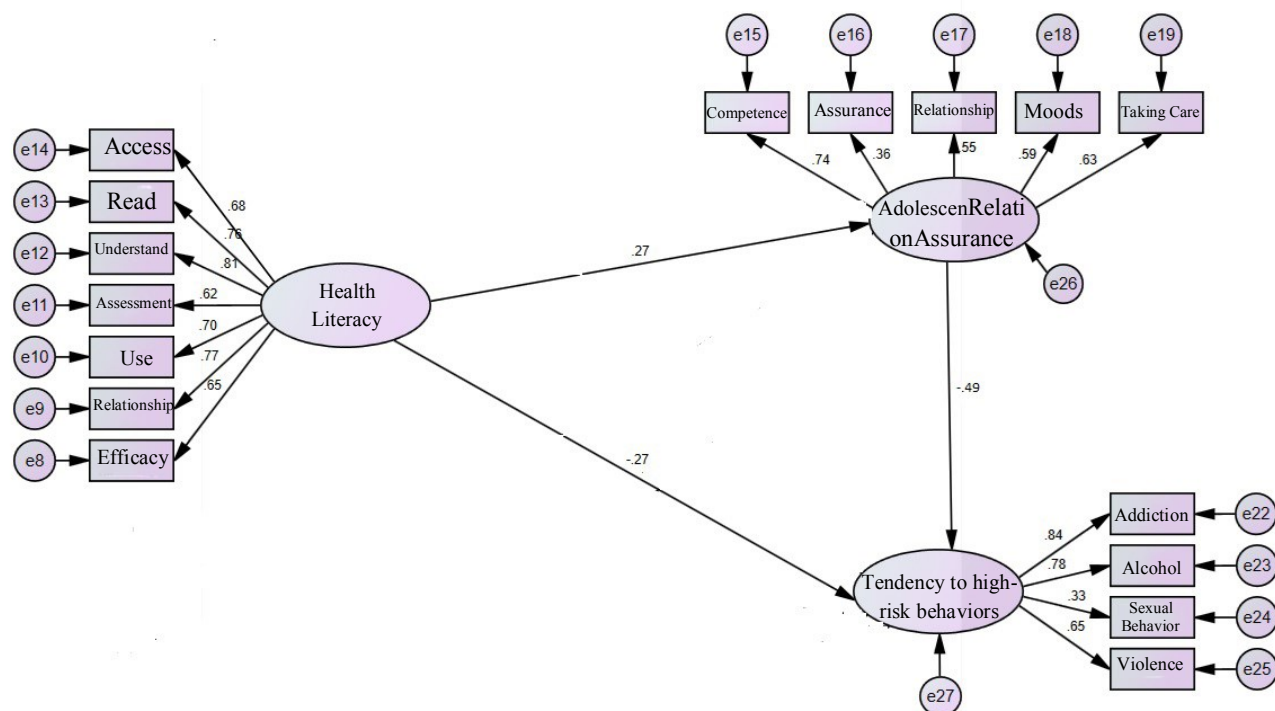
Based on the results obtained from the above table in the confirmatory factor analysis of research scales, it can be stated that in general the pattern of health literacy, positive youth development, high-risk behaviors to explain and fit is appropriate and it can be said that the researcher's assumption is based on seven factors. The health literacy questionnaire is approved.

**Figure1.** Confirmatory factor analysis model of research components

The relationship between health literacy and high-risk behaviors is mediated by mediating the role of adolescent positive development.

Table3. Coefficients and Significance of the Effect of Health Literacy and Positive Transformation on Tendency to High-Risk Behaviors

Criterion variable		Predictive variable	Type of effect	Non-standardized coefficient	β standardized	Significant statistics	sig
Tendency to high-risk behaviors		Health literacy	Direct	-0/41	-0/27	4/94	/0010
Positive development of adolescence		Health literacy	Direct	0/13	0/23	3/38	/0010
Positive development of adolescence		High-risk behaviors	Direct	0/66	0/49	9/86	/0010
Tendency to high-risk behaviors	Health literacy	Due to the positive development of adolescence		0/09 -	0/12 -	/25 2	
					0/01		

**Figure2.** Model of factor analysis of the relationship between the relationship between health literacy and high-risk behaviors with respect to the mediating role of positive adolescent development

According to the results, the relationship between health literacy and the tendency to high-risk behaviors is directly equal ($t = 4.94$ and $\beta = -0.27$). The relationship between health literacy and positive adolescent

development is directly equal ($t = 3.38$ and $\beta = 0.23$). To examine the role of mediator, the Sobel mediation effect test was used. What results from the table above is that health literacy has an indirect effect on the tendency to risky behaviors due to the positive development of adolescence. Therefore, according to the results, health literacy has a significant and negative relationship with high-risk behaviors, except health has a significant relationship with positive adolescent development and positive adolescent development has a mediating role between health literacy and high-risk behaviors.

4. Discussion

Adolescence is a period known as the period of vulnerability, of being at risk, and adolescents are exposed to high-risk behaviors. Health literacy is a cognitive and behavioral resource that adolescents can use to reduce high-risk behaviors, but how to use these high-risk behaviors is influenced by how these cognitive and behavioral resources are used. Therefore, the aim of this study was to investigate the relationship between health literacy and high-risk behaviors with respect to the mediating role of adolescent positive development.

Findings show that health literacy has a significant relationship with high-risk behaviors and reduces the tendency to high-risk behaviors. The findings are consistent with the studies of Amani (2020), Panahi et al (2019), Berkman et al (2011), Von et al (2007) and Vozikis et al (2014), Fernandez et al (2016). Health literacy increases cognitive and social abilities, causing people to tend to use health resources. Adolescents with higher health literacy have higher access to health resources and awareness, develop good cognitions, develop positive emotions about health and healthy behaviors, and avoid high-risk behaviors. These people are more motivated to engage in healthy behaviors and become more involved in health activities. While adolescents with low health literacy levels have insufficient information about healthy behaviors and high-risk behaviors, they do not have sufficient knowledge about high-risk behaviors and their consequences, and do not form healthy behavioral patterns in high-risk and healthy behaviors. Therefore, with decreasing health literacy, due to limited cognitive resources, behavioral patterns, adolescents are exposed to more risky behaviors. These adolescents are unable to take care of high-risk behaviors due to lack of health skills, and do not have the ability and skills to say no (Von Wagner et al, 2007; Shum et al, 2018; Amani, 2020; Oltedal S & Rundmo, 2006). Therefore, increasing health literacy by improving healthy learning in adolescents reduces the tendency to risky behaviors.

A review of the findings shows that the positive development of adolescence reduces high-risk behaviors among adolescents. The result is consistent with the studies of Sarizadeh & Henry (2018) Fleary et al (2017), Ciocanel et al (2017), Jelici et al (2007). By increasing health literacy, cognitive skills and knowledge increase the ability to make decisions about the use of health-related cognitive resources, increase preventive behaviors, and reduce the tendency for high-risk behaviors (Shum et al, 2018; Fleary, et al, 2017). Positive development in adolescence causes adolescents to engage in goals and activities that are generally accepted by society and pave the way for effective and efficient participation of young people in society. The positive development of adolescence by creating warm and intimate relationships, meaningful opportunities for generalization and belonging, fostering positive norms, supporting effectiveness and autonomy, creating opportunities for social skills, causes adolescents to engage in healthy and healthy social activities. The tendency to risky behaviors decreases. In fact, the positive development of adolescence with the growth of internal or external characteristics or resources reduces the tendency to risky behaviors (Petitpas et al, 2005; Holt et al, 2016).

On the other hand, the positive development of adolescence emphasizes the formation and continuation of beneficial and positive relationships in the development of adolescence. Therefore, adolescents who experience the positive development of higher adolescence, with the development of social skills, form healthier social relationships and access healthier external resources in their relationships and interactions, and have more optimistic views about the future, because they have higher social, family and

self-support. Thus, the positive development of adolescence, by increasing adolescents' sense of belonging or community, forms healthy behavioral, emotional, and cognitive tendencies in them that reduce the tendency to risky behaviors (Lerner, Almerigi Theokas, 2005; Damon, 2005; Holt et al, 2016). In fact, according to learning theory, the positive development of adolescence by involving adolescents in healthy groups, pave the way for healthy learning. Consistent with Bandura, it can be said that adolescents, by observing healthy behaviors in healthy environments (external resources), form healthy learning (internal resources), which reduces the learning of high-risk behaviors in adolescents (Schaik, Burkart, 2011).

Findings show that health literacy has a significant relationship with high-risk behaviors and reduces the tendency to high-risk behaviors. Findings consistent with the studies of Amani (2020), Panahi et al (2019) Sarizadeh, Henry (2018), Berkman (2011), and Vozikis (2014), Fernandez et al (2016), Ciocanel et al (2017), Jelici (2007), is. Health literacy provides adolescents with appropriate knowledge and awareness by improving cognitive skills and the ability of individuals to process and understand health information. Therefore, health literacy can be considered as the ability of individuals to process and estimate the health-related information resources that a person has; therefore, by improving these abilities, health literacy causes people to be able to effectively use their cognitive resources and knowledge in the field of health (Batterham et al, 2016).

Adolescent positive development is defined as the ability to develop and develop abilities, skills and resources that increase flexibility in adolescents and pave the way for the development of protective traits against high-risk and antisocial behaviors in adolescents. Adolescents' flexibility in family, social, and personal relationships leads to the formation of warm and intimate relationships that are resources for the development of individual skills and abilities. Thus, the positive development of adolescence, by forming favorable family and social relationships, provides them as external resources that can be used in dealing with problems and achieving their goals. Adolescents, on the other hand, are flexible with them (as an internal resource) and avoid harsh and inefficient criticism and negative emotions about themselves (Vella et al, 2013; Benson, 2007).), Develop appropriate cognitive, emotional and social skills that promote healthy growth and reduce the tendency to risky behaviors (Vella et al, 2013).

The positive development of adolescence is associated with the development of various positive opportunities and experiences in adolescents. Increasing opportunities and positive experiences in adolescents causes them to have more diverse positive cognitive and behavioral resources that pave the way for cognitive and emotional awareness in adolescents. Therefore, adolescents with positive adolescent development are more aware of the emotions and changes of adolescence and have more cognitive resources in dealing with them. Cognitive awareness in adolescents increases their emotional awareness, that is, they are more aware of the fears, frustrations, pressures and stresses they experience. Also, increasing cognition and emotional awareness in adolescents due to the positive development of adolescence is associated with increasing cognitive abilities in adolescents such as self-regulation and enables them to have appropriate and effective cognitive and behavioral resources and skills in coping. Thus, the positive development of adolescence leads to an increase in health behaviors and a decrease in high-risk behaviors (Jelici et al, 2007). The positive development of adolescence, by encouraging positive characteristics, shifts attention from defects and shortcomings to positive benefits and characteristics, which increases adolescents' attention to their positive characteristics and forms a kind of positive selective attention in adolescents, which It can increase adolescents' attention to positive traits and reduce negative traits as well as negative emotions. This causes adolescents to have a healthy transition to adulthood and show fewer undesirable behaviors (McNeely, 2005; Miller, 2011).

Based on the results, it can be said that health literacy, by providing knowledge, information and behavioral patterns, improves students' knowledge in recognizing and being aware of high-risk behaviors, self-care and follow-up. Positive youth development uses health literacy as internal and external resources and promotes positive adolescent growth and development and reduces the tendency to risky behaviors.

Accordingly, it is suggested that by improving and teaching health literacy and positive growth and development of adolescents in schools, provide the ground for reducing high-risk behaviors. The present study faced limitations, such as shame or a desire to hide high-risk behaviors in adolescents, especially girls.

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