

Factors that affect healthy lifestyle behaviors of high school students in Turkey: A systematic review

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ABSTRACT

This systemic review aimed to reveal factors that affect the healthy lifestyle behaviors of high school students. The Healthy Lifestyle Behaviors Scale (HLBS), whose first version (comprising 48 items) was developed by Walker in 1987, was revised in 1996 and named as HLBS II. Articles, searched using the databases of PubMed, ScienceDirect, CINAHL, EBSCOhost, Medline, Google Scholar, and National Thesis Center between March and April 2015, were included in this review. Various combinations of keywords such as “healthy lifestyle behaviors, healthy lifestyle behaviors scale, high school, adolescent” for the Turkish databases and “healthy lifestyle behavior, healthy lifestyle behaviors scale, Turkey, high school, adolescent” for the foreign databases were used. Eleven articles that met the selection criteria were included in the study. In the evaluation of the data, the general characteristics of the studies, mean scores obtained from subscales of the HLBS, and the distribution of the affecting factors were made. It was determined that high school students generally had moderate scores of the HLBS. The total scores of the HLBS I were between 113.0 ± 17.0 and 126.6 ± 20.3 and those of the HLBS II were between 126.3 ± 18.2 and 129.5 ± 21.9 . Among the sociodemographic characteristics, male individuals who lived in a village for a long time, had good general health perceptions, high parental education, good income status, good family relationships, had a nuclear family, social security, employed parents, performed exercise, and participated in social activities had positive effects on healthy lifestyle behaviors. Thus, establishing intervention programs by considering factors that affect healthy lifestyle behaviors was important for planning health promotion programs.

Keywords: Healthy lifestyle behavior, healthy lifestyle behaviors scale, high school student, adolescence

INTRODUCTION

It aims at improving health, protecting and enhancing physical, cognitive, mental and social wealth of the individual to the utmost degree. The purpose of improving health is to add positive behaviors to individuals, and to ensure their continuity. Health behavior is all behaviors that an individual exhibits in order to stay healthy, be safe from diseases, and not get sick (1). As it is proven in this day and age that lifestyle is crucial in improving health, health care professionals have oriented their studies towards ensuring positive health behaviors for health improvement (2). Besides that, the preservation and maintenance of health is the responsibility of the individual, as much as it is the health professionals’.

The adolescent period (between the ages of 10-19) is a process when various physiological, psychological and social changes are experienced (3), and the transition from childhood to adulthood, as well as the formation of personality (4) occurs. This process is especially important in terms of attitudes and behaviors in the area of health. A student’s attitudes and behaviors regarding health affect him/her personally, as well as his/her family and society in his present and future life (5). 16.2% of Turkey’s pop-

ulation is comprised of the age group of 10 through 19 (6). The lifestyle of such dense population that will generate the society and parents of the future, will influence not only themselves but also the resources of the country. The health status of societies is measured by the rate of healthy individuals. Therefore, it is important that youth assume the type of behaviors that improve their health or know the risk factors in adopting behaviors of a negative lifestyle that may damage themselves and others and that the necessary practices are performed.

The most frequently seen health issues during adolescence are obesity, insufficient physical activity, eating disorders, depression, violence, accidents, risky sexual behaviors, smoking, alcohol and drug abuse (7-9). Studies aimed at improving adolescent health indicate that the knowledge and behaviors of youth regarding diet and physical activity, their beliefs and their skills of stress management affect their lifestyle behaviors (10, 11). Therefore, the importance of assuring that adolescents assume healthy lifestyle behaviors in order to raise healthy generations and to prevent chronic diseases that may emerge, becomes evident. With the knowledge of factors that are influential in the healthy lifestyle of adolescents, education/opportunities that

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will be provided at schools will be revealed, and possible occasions of cooperation between sectors will be identified. Results can be instructive in terms of what family and society-based applications may be.

An individual must control himself/herself in order to adopt health improving behaviors, and be willing to acquire these behaviors. Because it is necessary to ensure adoption and maintenance of positive health behaviors in order to improve it. Consequently, for the sake of public health, it is crucial to investigate practices of high school students regarding health, and to support them in areas where they need improvement (12). In the academic year of 2015-2016, there were approximately 5.8 million students in 10.550 high schools in Turkey (13). In this regard, taking into consideration the fact that adolescents spend one third of their time in educational institutions while making attempts towards factors that influence healthy living practices, will increase success in protecting and improving adolescent health.

This systematic review aims at examining studies that are conducted with high school students using the Healthy Lifestyle Behavior Scale (HLBS), and uncovering the factors that have an effect on students' healthy lifestyle behaviors. The review seeks answers to the questions stated below.

- What are the general characteristics of studies conducted with high school students using the HLBS?
- What are the scores of high school students in the sub-categories of the HLBS?
- What are the factors affecting the healthy lifestyle behaviors of high school students?

METHODS

This systematic review that examines the studies conducted with high school students using the HLBS was conducted between March-April 2015. The HLBS was developed by Walker et al. (14) using the model developed by Pender to evaluate the health improving behaviors of individuals. The first version of the scale was developed in 1987. This initial scale introduced 48 items and six factors (14). Later on (1996), the scale was revised, and named as HLBS II (15). The second version of the scale had 52 items and six factors. The sub-categories of the scale are spiritual development, interpersonal relationships, nutrition, physical activity, health responsibility, and stress management. The validity and credibility testing of the first version of the scale in Turkey was conducted in 1997 by Esin (16), while the validity and credibility testing of the second version was conducted in 1998 by Akca (17), and in 2007 by Bahar et al. (18).

This systematic review was conducted in line with the guideline developed in 2009 by the York University's York Institute for Health Research. This guideline includes the principles and relevant information of systematic reviews conducted in the area of health (19).

The inclusion criteria for this study are as follows: The fact that it has been used since 1997, when the scale was adapted to Turkish without any limitation with regards to the years it includes,

that the language of publication is Turkish or English, that the studies are only conducted in Turkey, that the studies used HLBS I or II form, that studies were conducted with students, and that the studies are full text were observed as criteria for the selection of articles.

The method followed in the study: For the purpose of the study, PubMed, ScienceDirect, CINAHL, EBSCOhost and Medline are examined as international publications, while Google Scholar and National Thesis Center indexes were examined as national publications. During article browsing, various combinations of the key words "healthy lifestyle behaviors", "healthy lifestyle behaviors scale", "high school", "adolescent", "teenager" were used in the national databases, while the key words "healthy life style behavior", "healthy life style behaviors scale", "Turkey", "high school", "adolescent" were used in the international databases. The goal during this browsing was to get access to all studies related to the selected key words. The bibliography of the browsed articles that were considered to be included in the study were also reviewed one more time.

The titles and abstracts of the relevant articles that were found electronically were evaluated according to the criteria of their inclusion at different times and independently by the investigators. If the title or the abstract were not accessible, the full text of the study was analyzed in order to determine whether it satisfied the inclusion criteria. Later on, the appropriate studies were included in the review following a comparative process. The form of access to the 11 studies retrieved at the end of the browsing is shown in Figure 1. No contradictions have been experienced between the investigators.

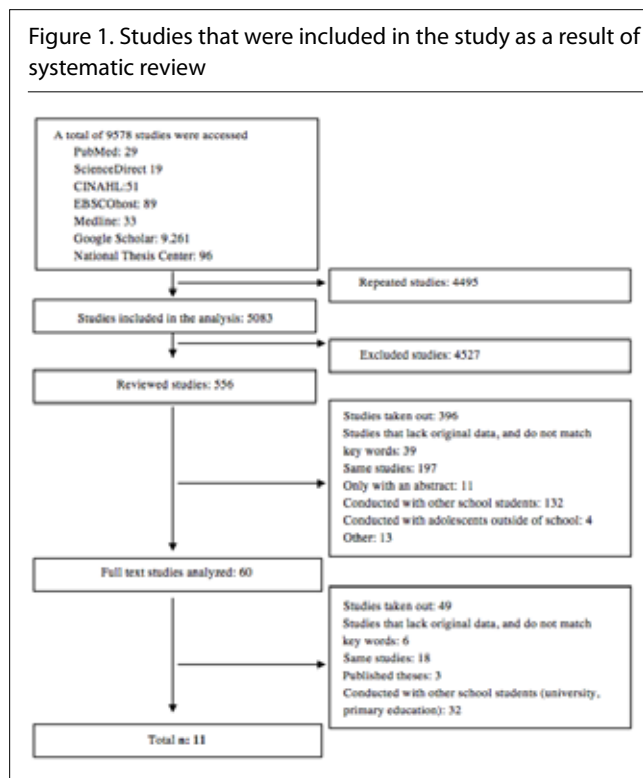
Evaluation of data: A standard data summary form was primarily developed, and the information retrieved was assessed accordingly. The investigators recorded the data of the studies, which would be independently examined, on the summary form. Afterwards, the summaries were compared, and a consensus was built among the investigators. The data summary forms are prepared based on the year of study, the HLBS used, form of publication, characteristics of participants, the study design, questionnaires used, total and sub-category scale scores, and the socio-demographic characteristics of participants. Furthermore, a checklist form was prepared by the investigators based on the assessment criteria. Quantitative distribution of the variables related to the studies was conducted at the time of data assessment. In order to demonstrate the relationship between socio-demographic characteristics, and the HLBS and its sub-groups, studies with a level of significance of $p < 0.05$, $p < 0.01$ and $p < 0.001$ were selected for comparison.

The ethical aspect of the study: There was no risk of any financial/emotional damage to the investigators during the conduct of the systematic review. Moreover, the articles analyzed were shown in the bibliography.

RESULTS

The systematic review accessed and analyzed a total of 11 studies with high school students, which used HLBS. The general

Figure 1. Studies that were included in the study as a result of systematic review



characteristics of the studies that were included in the study are shown in Table 1. It was determined that the studies, the number of which recently shows an increase, were brought into play following the initial introduction of the first version of the scale in 1997, and that 2010 was the most productive year, with six studies being published (20-25). HLBS was mainly used in thesis studies with students, six of which were master’s theses (20-23, 25, 26). Three of these theses were later published in national journals as study articles (27-30). Only one of the studies was published in English, in international journals (31). Regarding the research type of studies that used the scale, only one of them was quasi-experimental, while the others were descriptive, cross-sectional, and descriptive-cross-sectional (20-26, 31-34). In Geçkil’s (28) quasi-experimental study, 122 students from all grades were trained in nutrition and stress management towards health behaviors, and their effects on development of health behaviors and on minimizing the problems experienced were evaluated. At the end of the study, an increase was observed following this training in adolescents’ health behaviors related to stress management and nutrition.

Seven of these studies used the first form of HLBS. With the approval of validity and credibility of the revised HLBS, and its publication in 2007, four studies have used the second version of the scale (Table 2). All of the studies have used the entire sub-categories of the scale. Table 2 shows the total scores student received in the HLBS I and II, as well as their scores in the sub-categories. The scores range from 113.0±17.0 to 126.6±20.3 in total HLBS-I, 19.1±5.2 to 20.9±5.6 in health responsibility, 9.4±3.6 to 11.7±3.6 in physical activity, 14.3±3.2 to 15.7±3.5 in nutrition, 33.3±6.4 to 38.0±6.5 in spiritual development, 18.8±3.6 to 21.2±3.7 in interpersonal relationships, 16.8±2.8 to 18.5±3.7 in stress man-

agement; while the scores range from 126.3±18.2 to 129.5±21.9 in total HLBS-II, 17.7±4.8 to 18.4±4.7 in health responsibility, 15.8±4.7 to 20.2±3.9 in physical activity, 18.3±4.9 to 20.2±3.8 in nutrition, 25.2±4.3 to 27.3±4.6 in spiritual development, 20.5±3.7 to 26.7±4.5 in interpersonal relationships, 19.4±3.7 to 24.5±4.5 in stress management.

When the relationship between some of the socio-demographic characteristics of high school students that were found significant in two or more studies, and the score averages of HLBS and its sub-categories were compared, it was observed that respectively gender, age, parents’ level of education, a working father, income level, type of family, family relations, number of siblings, existence of social security, general perception of health, participation in social activities, working out, smoking and alcohol consumption were effective in the total HLBS score (20-25, 32-34). It was also observed that age, mother’s level of education, family relations, existence of social security, participation in social activities, and working out affected the health responsibility score; gender, age, parents’ level of education, family relations, number of siblings, general perception of health, participation in social activities, and working out affected the physical activity score; gender, age, mother’s level of education, type of family, family relations, general perception of health, smoking and alcohol consumption affected the nutrition score; gender, age, parents’ level of education, income level, family type, family relations, existence of social security, general perception of health, participation in social activities, smoking and alcohol consumption affected the interpersonal relationships score; gender, age, mother’s level of education, family type, family relations, general perception of health, participation in social activities, and working out affected the stress management score (Table 3) (20-25, 31-34).

DISCUSSION

The adolescent period is a transitional period from childhood to adulthood where a series of physical and mental changes occur (35). While this period is seen as the healthiest period in all age groups, it is also the one where the highest inclination towards behaviors that negatively affect specifically the health status is observed (36, 37). Health behaviors in adolescents are multi-dimensional, and some of the health behaviors are influenced by various important factors. Age, gender, family structure, socioeconomic status, relations with parents and peers, personal knowledge and value, academic success, perspective on health, and perception of health checkup are among these factors (38). Therefore, it is crucial to identify the factors that influence the healthy lifestyle behaviors of high school students, and accordingly, to make the appropriate attempts. The discussion in this review includes the six sub-categories of the scale.

Taking health responsibility: One of the important results of this review that should be accentuated is the fact that the behaviors of high school students towards health responsibility is at the mid-level (Table 2). This situation can be interpreted

Table 1. The general characteristics of the studies that were included in the study

Resource No	Author/ Year	Type	Sample	Forms used	Study type	Published theses
32	Geçkil, 2002	Doctoral dissertations	Malatya All grades 610 definitive students Quasi-experimental 122 students	HLBS Descriptive information form Identification scale for adolescent problems Body mass indexes	Descriptive Quasi-experimental (pre-assessment, nutrition and stress management training, and final test after 6 months)	Descriptive section (27) Quasi-experimental section (28)
33	Sevil et al., 2006	Study	Izmir Preparatory, 9 th , 10 th grades 169 students	HLBS Descriptive information form	Descriptive	
31	Can et al., 2008	Study	Amasya All grades 366 students	HLBS Descriptive information form Information form on nutrition and dietary habits, and cancer prevention	Descriptive and cross-sectional	
20	Berçin, 2010	Master's thesis	Duzce 9 th and 12 th grades 344 students	HLBS Descriptive information form	Descriptive	
21	Dağdeviren, 2010	Master's thesis	Sanliurfa All grades 1023 students	HLBS Socio-demographic information form Importance of health scale Health focus of control scale	Cross-sectional	(29)
22	Karadamar, 2010	Master's thesis	Adana 1 st grades 750 students	HLBS Student and parents assessment form Body mass indexes Perception of weight survey	Descriptive	(30)
23	Kefeli, 2010	Master's thesis	Samsun All grades 378	HLBS Evaluation of descriptive characteristics of adolescents form	Cross-sectional	
24	Limnili, 2010	Specialization in medicine	Izmir Between ages of 15–17 1089 students	HLBS Anthropometric evaluations Descriptive information form	Cross-sectional	
25	Yıldız, 2010	Master's thesis	Sivas All grades 1000 students	HLBS Personal information form Problematic Internet use scale	Cross-sectional	
26	Uzun, 2014	Master's thesis	Aydin Preparatory, 9 th , 10 th , 11 th grades 625 students	HLBS Socio-demographic information form Information form on health and nutrition Parents psychological control scale Parents behavioral control scale Childhood depression scale Body mass index	Descriptive	
34	Dil et al., 2015	Study	Cankiri 9 th and 12 th grades 1001 students	HLBS Coopersmith Self-Esteem Scale Descriptive information form	Descriptive and cross-sectional	

HLBS: Healthy Lifestyle Behaviors Scale

Table 2. Score averages of students in HLBS and its sub-categories

Resource No	Author	Scale type	Total	Health responsibility	Physical activity	Nutrition	Spiritual development	Interpersonal relationships	Stress management
Score Interval		HLBS I	48–192	10–40	5–20	6–24	13–52	7–28	7–28
32	Geçkil, 2002		117.2±18.0	19.1±5.2 ↓	10.9±3.3	15.2±3.3	35.1±5.8	18.8±3.6 ↓	17.7±3.4
33	Sevil et al., 2006		116.1±18.2	19.8±4.6	10.2±2.9	14.3±3.2 ↓	34.2±6.0	19.6±3.7	17.8±3.6
31	Can et al., 2008		113.0±17.0 ↓	19.9±4.1	9.4±3.6 ↓	15.0±4.2	33.3±6.4 ↓	19.1±2.9	16.8±2.8 ↓
20	Berçin, 2010		120.8±16.7	19.1±4.8	9.7±3.4	15.7±3.5 ↑	37.3±5.7	20.7±3.7	18.1±3.5
21	Dağdeviren, 2010		118.4±20.0	20.6±5.4	10.6±3.4	15.1±3.4	35.7±6.4	18.9±3.8	17.6±3.9
22	Limnili, 2010		126.6±20.3 ↑	20.9±5.6 ↑	11.7±3.6 ↑	15.2±3.5	38.0±6.5 ↑	21.2±3.7 ↑	18.5±3.7 ↑
23	Yıldız, 2010		121.5±19.9	20.5±5.5	10.4±3.3	15.2±3.5	36.8±6.6	20.3±4.0	18.0±3.8
Score Interval		HLBS II	52–208	9–36	8–32	9–36	9–36	9–36	8–32
24	Karadamar, 2010		126.4±19.5	17.7±4.8 ↓	20.2±3.9 ↑	18.3±4.9 ↓	25.2±4.3 ↓	20.5±3.7 ↓	24.5±4.5 ↑
25	Kefeli, 2010		126.3±18.2 ↓	18.3±4.3	17.0±5.0	19.5±3.8	25.2±4.3	26.7±4.5 ↑	19.4±3.7 ↓
26	Uzun, 2014		129.5±21.9 ↑	18.1±5.0	17.9±5.4	19.9±4.0	26.9±5.0	26.2±4.9	20.3±4.1
34	Dil et al., 2015		128.0±19.1	18.4±4.7 ↑	15.8±4.7 ↓	20.2±3.8 ↑	27.3±4.6 ↑	26.0±4.4	20.0±3.9

HLBS: Healthy Lifestyle Behaviors Scale

Table 3. Correlation between some of the socio-demographic characteristics of students and the score averages of HLBS and its sub-categories*

Characteristics	HLBS total	Health responsibility	Physical activity	Nutrition	Spiritual development	Interpersonal relationships	Stress management
Male gender	20, 21, 22, 23, 24, 25, 32		20, 21, 22, 23, 24, 25, 31, 32	20, 22, 25	20, 21		20, 24
Decrease in age and grade	24, 33	24, 33	20, 24, 25	20, 24	24, 33	24	24, 33
Place of birth/location of long term residency in a rural area				20			
Mother's level of education being high school and above	21, 22, 23, 25, 34	21, 25	21, 22, 34	21, 34	21, 23, 34	21, 22, 23, 34	21, 34
Father's level of education being high school and above	21, 22, 23	21	21, 22		21, 22, 23	21, 33	21
Working mother						21, 23	
Working father	21, 22		21	21	22	22	21
Good level of income	22, 23, 33		23	23	22, 23	20, 22, 25	
Nuclear family type	21, 23			21, 33	21, 23	23	21, 23
Engaging in activities with family/ having good family relations	23, 34	23, 34	23, 34	23, 34	23, 34	23, 34	23, 34
Having good friend relations	23	23	23	23	23	23	23
Decrease in number of siblings	22, 34	34	22, 34		34	34	34
Existence of social security	20, 21	20, 21	20		20, 21	20, 21	
A good general perception of health	20, 21, 23	21	21, 23	21, 23	20, 21, 23	20, 21	21, 23
Not having a chronic disease	21		21	21	21	21	
Participation in social activities/ having hobbies	20, 21	20, 21	20, 21	21	20, 21	20, 21	20, 21
Being engaged in sports	20, 23, 34	20, 34	20, 23, 34	34			20, 34
Normal BMI/Weight	23	23	23	23	23		23
Not smoking and consuming alcohol	33, 34	34		21, 23, 34	21, 23, 33, 34	23, 34	34
No suicide attempts	34	34	34	34	34	34	34
Not being subjected to violence within the family	34	34		34	34	34	34

*Figures on the table indicate the numbers assigned to studies mentioned in the bibliography, as well as studies that were found significant in comparisons HLBS: Healthy Lifestyle Behaviors Scale; BMI: body mass index

as an expected result for the adolescent period. This is because risk taking behaviors of adolescents are high, and the belief that nothing can happen to them since they are young can be influential in these behaviors. Adolescents do not have the awareness of the need to take responsibility for their own health, and they do not notice or pay attention to symptoms of sickness (39). It is reported that generally the main reasons for adolescents failing to use health services are that they do not believe they can be treated, they fear the treatment, and the high costs of treatments (40). This can be attributed to the fact that not many health problems occur in this period, and their attention is geared completely towards the changes in their own bodies and their relationships with their peers, that they are unaware of their potential to have control over their own health, to take responsibility for personal care, to develop and maintain health, and to the fact that they do not have sufficient knowledge, as well as sufficient number of programs related to adolescents. The studies showed that the health responsibility of students was mostly affected by participation in social activities, working out, existence of social security, mother's level of education, and family relations (Table 3). The positive influence of social, cultural, and sports activities on healthy lifestyle behaviors is an expected outcome. The existence of health insurance enables people to easily benefit from health services. The easy access of individuals to health services prevents the progression of diseases, and guarantees generally good social health indicators (41). The fact that adolescents do not know how to benefit from health service resources gives the idea that it may be negatively influencing healthy lifestyle behaviors. Additionally, since it is evident how influential the mother's level of education and family relations are in taking health responsibility, the importance of considering the family as a whole becomes clearer. The result regarding a high level of education in women is notable in that it shows how this affects both themselves and their children.

Physical activity and working out: Another striking result of the studies conducted is the fact that adolescent behaviors regarding physical activity is at a medium or higher level (Table 2). The studies found that the physical activity dimension of students was influenced more by gender, participation in social activity, general perception of health, parents' level of education, grade, number of siblings, working out, and family relations (Table 3). It is significant that the sub-category of physical activity was high in boys in eight of the 11 studies. While girls comprise the majority of students who stated that they did not work out, it was found out that boys for the most part were working out regularly. According to the 2013 data of the American Center for Disease Control and Prevention, 17.7% of girls, and 36.6% of boys engaged in physical activities for at least 60 minutes a day (42). As the mother's level of education increases, the level of access to and use of health information, noticing health problems and seeking help, and emphasis on health increases as well, and therefore it is believed that this situation affects the positive lifestyles of adolescents. Regular and sufficient amounts of physical activities lower the risk of coronary heart disease, high blood pressure, stroke, diabetes, breast and colon cancer, and depression, while they improve bone health, and provide energy balance and weight control (43). Therefore, it is important to pro-

vide encouraging approaches aside from popularizing environments that allow adolescents to be engaged in physical activities and workouts. The fact that workout scores drop as the grade level goes up, as demonstrated in the studies, may be the indicator of failure to devote sufficient time to physical activities due to their focus on the university exam, which is a turning point in the lives of students as they become seniors. Studies that were conducted in addition to this showed that boys have a higher rate of working out habit than girls (44, 45). The fact that families do not encourage their children to participate in sports activities due to the idea that they will negatively influence their classes, can be explained by the lack of role models for adolescents due to their lack of regular working out and sports habits, and the lack of locations where they can work out around their schools and neighborhoods.

Nutrition status: The fact that students' nutrition scores are higher than mid-level in the analyzed studies (Table 2) is an important result in terms of demonstrating that again the body form changes and physical appearance is important, and that the behavioral changes in the adolescent period reflect badly on the diet and habits of the individual. Eating in haste (fast food) due to today's living conditions has become a habit especially in the adolescents. This leads to the occurrence of obesity problems as a result of excessive and imbalanced diet especially in children and youth (46, 47). The studies showed that students' diets were affected by gender, general perception of health, smoking and alcohol consumption, family type and mother's level of education (Table 3). Considering that dietary habits are behaviors that are gained from childhood upward, this may be caused on one hand by the fact that the dietary habits adolescents learn within the family are not ideal, and on the other by the lack of dining halls in schools where they can eat regularly. It is observed that this is related to healthy lifestyle behaviors such as income level, nutrition and diet, and that accessibility and utilization levels increase with the economic level.

Spiritual development: The fact that the spiritual development sub-category scores recorded in the review is generally mid-level (Table 2) demonstrates that adolescents shall be supported in observing behaviors of health and disease, being attuned to changes, gaining skills of coping with problems, and in finding power and hope for recovery. The results of the studies showed that the sub-category of spiritual development of students were mostly affected by the high level of education of parents, a good general perception of health, being a boy, participating in social activities, not smoking and consuming alcohol, high income level, having social security, being part of a nuclear family, and having good family relations (Table 3). First encounters with habits or pleasure-inducing addictive substances (cigarettes, alcohol, drugs, etc.) usually occur in adolescence (48, 49). This leads to adolescents having a bad developmental period and not being able to gain positive health behaviors. Adolescents perceive their socioeconomic levels as low as their level of income, access to and utilization of opportunities drops, and this leads to the idea that it may also influence their perspective on life. It is shown that having regular social security and a certain level of income in the family constitutes in children a sense of confidence in the future.

It can be thought that having living parents will make sharing within the family, as well as family ties, stronger, and this may be influential in adolescents feeling more confident regarding their environment, life and the future. It is thought that as the parents' level of education increases, the students are more sensitive towards their own needs, and that education, as it does in other areas, contributes to the individual in adopting and developing health-improving behaviors. It is shown that parents who are able to evaluate their own behaviors, and to exhibit their opinions and feelings have a significant role in adolescents demonstrating a healthy emotional development in family relations. The fact that those with a good general perception of health has higher spiritual development shows that these people have a more positive and hopeful perspective of life.

Interpersonal relationships: This review, where study results are evaluated, shows that participants demonstrate a better level in the area of interpersonal relationships compared to the other sub-categories of the scale (Table 2). Relationships become important during the adolescent period. Young people are drawn more to their groups of friends with the sense of belonging to a group, which is significant in this period in terms of social development (50). Studies showed that the interpersonal relationships score of students are most affected by participation in social activities, a good perception of health, higher level of education of parents, not smoking or consuming alcohol, existence of social security, a good level of income, a working mother, and good family relations (Table 3). In this period, discord within the family, problems in relations, and young people who feel pressured create a risk of orienting towards dangerous social circles, rather than innocent ones (51). The adolescent period brings along various risks due to the biological, psychological and social characteristics that are experienced. Therefore, it is significantly important that high school students perceive their families and social circles as sources of support, and stay in mutual contact with them. In this period when relationships such as hanging out and spending time with groups of friends is more likely than with family, socioeconomic conditions are thought to be influential in young people's interpersonal relationships. The fact that as parents' level of education increases, families become more aware, and develop positive relationships with their children is shown to positively influence adolescents' interpersonal relationships. The increase in risk taking behaviors of young people in the adolescent period may be linked to their desire to be accepted by their friends and to belong to a group, as well as to an increase in their smoking habits (52, 53).

Stress management: Studies conducted show that stress management in students is generally at the mid-level (Table 2). The physiological and psycho-social changes experienced in the adolescent period are all by themselves considered sources of stress for young people (54, 55). Studies showed that students' stress management is influenced by gender, participation in social activities, a good perception of health, the mother having a high level of education, and being engaged in sports (Table 3). Strong family relations, family supporting the young person in terms of succeeding in school, monitoring him/her in accordance with his/her developmental level, and providing guidance; as well as

well-maintained interpersonal relationships within the family play a huge role in adolescents' handling of stress (56, 57). The fact that those who evaluate their health as good have higher scores in stress management may indicate that adolescents are more successful in dealing with stress factors as they feel better physically and mentally. The support of physical activities, bringing in a life-long habit of exercising during the adolescence period of rapid growth and development is important in elevating self-confidence and managing stress (58). Aside from having the opportunity to get away from the challenges of daily life, adolescents' involvement in supportive social environments may have allowed them to distance themselves from sources of stress, and to deal with them easily. Improving adolescents' positive coping mechanisms with stress in this period when they are emotionally under intense stress may allow them to resolve their current problems better, and face the future with a more healthy state of mind.

CLINICAL AND STUDY EFFECTS

Students having protective health practices will influence not only the current positive health outcomes, but also the long term health outcomes, and help them become healthy adults. Regarding the adolescent risk groups, on whom the study shall be based on, this systematic review revealed that study groups shall include those who are females, part of older age groups, whose parents' level of education is middle school and below, whose mothers do not work, level of income is not good, who live within extended families, has no favorable family and social circle relations, lack social security, do not have a generally good perception of health, do not participate in social activities, have no habits of being engaged in sports, and are users of substances such as cigarettes and alcohol. Furthermore, it is shown that the inclusion of adolescents who are subjected to violence, attempted suicide, who are obese and suffering a chronic disease in the risk groups is important. Therefore, it will be important to generate intervention programs by taking into consideration the factors that affect the healthy lifestyle behaviors, as well as risk groups in planning health development programs. In light of these findings, nurses who are employed in health services of schools and engaged in activities of health development, may take on crucial roles in detecting the social prevalence of habits that may have adverse effects on health, and in promoting a sense of healthy life and replacing unhealthy behaviors with those that are geared towards improving health, aside from determining the health status of individuals. It is important that nurses who are employed in the area of public health know the risk groups, and collaborate with other disciplines in planning initiatives against them. Initiatives may be planned towards the findings of this study in order to improve positive health behaviors, with collaboration among the Ministry of Health, Ministry of Education, and colleges.

CONCLUSION

When studies conducted in Turkey and used HLBS are generally reviewed, it is found that the scale scores of high school students are generally at mid-level. The fact that this systematic review accessed 11 studies conducted since 1997, that one of these studies was quasi-experimental, and that most were de-

findings reveal the insufficiency of the studies conducted with adolescents. It is evident that experimental studies on this subject is a must. It was determined that the healthy lifestyle behaviors of those who are male, have resided in rural areas for a long period of time, have a good general perception of health, whose parents' level of education is high, who have good income levels, good family relations, have a nuclear family, have social security, whose parents work, who work out, and participate in social activities are positively influenced. Therefore, it is fundamental to generate intervention programs by taking into consideration the factors that influence HLBS in planning programs that improve health. If Public Health Nurses are aware of the factors that influence the healthy lifestyle behaviors of adolescents; they will plan their practices by employing this knowledge in their roles of education, research, counseling, and guidance, collaborate with families, and aspire to elevate students' health to a top level.

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