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RESEARCH ARTICLE

HEALTHY LIFESTYLE BEHAVIORS OF UNIVERSITY STUDENTS: THE ROLE OF SENSE OF COHERENCE AND FAMILY HEALTH CLIMATE

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ABSTRACT

Purpose: This study aims to examine the predictive role of individual sense of coherence, family sense of coherence and family health climate variables on university students' healthy lifestyle behaviors.

Material and Methods: The sample of the study consisted of 371 university students aged 18-25. Sociodemographic Information Form, Healthy Lifestyle Behaviors Scale, Sense of Coherence Scale, Family Sense of Coherence Scale, Family Health Climate Scale were applied to the participants in order to collect the research data. Correlation analysis, independent two-sample t-test, one-way ANOVA test and multiple linear regression analysis were used to analyze the data.

Results: According to the results of correlation analysis, a positive relationship was found between healthy lifestyle behaviors and individual sense of coherence, family sense of coherence and family health climate ($p<.05$). As a result of the multiple linear hierarchical regression analysis, after controlling for the sex variable, individual sense of coherence and family health climate variables significantly predicted healthy lifestyle behaviors ($p<.05$), while family sense of coherence had no significant predictive role on healthy lifestyle behaviors ($p>.05$).

Conclusion: The findings show that individual sense of coherence, family sense of coherence and family health climate variables are essential on university students' healthy lifestyle behaviors. The sense of coherence provides significant protection in adopting health behaviors that will determine future health and well-being. Similarly, increasing healthy living practices within the family is of great importance for young people to adopt healthy lifestyle behaviors.

Keywords: healthy lifestyle behaviors, ındividual sense of coherence, family sense of coherence, family health climate

INTRODUCTION

The World Health Organization (WHO) characterizes health as "a condition of holistic well-being encompassing physical, mental, and social aspects, rather than just the absence of disease or infirmity" (1). For overall well-being, there is a need for everyone in the society to take responsibility for protecting, developing and managing their own health (2). Healthy lifestyle behaviors, described as selection and implementation of behaviors to improve

health in daily activities, have a critical place in the development and maintenance of health (3). Health responsibility, exercise, nutrition, self-actualization, interpersonal support, stress management are accepted as healthy lifestyle behaviors (4).

The foundation for adopting healthy lifestyle behaviors is laid during one's youth (5). Failure to develop healthy lifestyle behaviors among young people has the potential to lead to inadequacies in nutrition, exercise, and stress management, affecting both individual and societal well-being. The health status of young people is essential not only for their future physical and psychological well-being, but also for societal development (6).

The 18-25 age period, referred as young adulthood, is characterized as a period in which major changes occur in lifestyles with the transition to university, parental control decreases, individual autonomy increases, and the person begins to take responsibility for health (7). Considering the potential of the university period to be a productive period in terms of gaining healthy lifestyle behaviors (2), it is crucial to determine the behaviors for the protection and improvement of students' health. Based on all these, the current study aims to focus on the healthy lifestyle behaviors of university students.

The sense of individual coherence refers to the level of perceiving the world and life as understandable, manageable and meaningful (8). This perception enables the person to manage tension by allowing them to identify, evaluate and mobilize their internal and external resources. Research shows that a high sense of coherence is associated with positive health outcomes (9-10). Sense of coherence is a vital resource for both preventive health behaviors against risky behaviors and preventive health behaviors for health promotion and maintenance (11-12). Therefore, it is thought that individual sense of coherence should be taken into consideration when evaluating the health behaviors of university students. However, healthy life behaviors are shaped not only individually but also within a social context, for example, by family, school or peer groups. In particular, the family environment is known to be critical for health development and has a direct influence on health behaviors (13). Family coherence is defined as the cognitive map that enables the family to cope with stress throughout its life (14). Galette et al. (2019) propose that the sense of coherence is an orientation that strengthens individuals' resilience to the stressors encountered in daily life (9). . Individuals exhibiting healthy behaviors in terms of nutrition, physical activity, sleep, smoking and alcohol use have a high family sense coherence (15-16). Hence, aside from an individual's sense of coherence, the impact of family sense of coherence on health behaviors appears to be significant.

The family environment is the first place where health protection and development behaviors are learned. The impact of family members' interactions, attitudes, values, and changes within the family on the individual is undeniable (15). A positive health climate within the family, as well as a sense of family coherence, affects the individual's health behaviors (17). The interdependent dynamics among family members influence the physical activity and eating behaviors of individuals, collectively referred to as the "family health climate" (18). Support among family members, family meals, joint physical activities, communication on health issues, and availability of healthy foods at home are indicators of a positive family health climate (19). The physical activity level of family members is associated with the physical activity levels of university students (12). Parents' attitudes towards nutrition affect the eating behaviors that children will develop in their future lives (20). Therefore, family health climate shapes the daily health habits of family members inside and outside the family (19).

Considering all these factors, it can be said that individual sense of coherence, family sense of coherence and family health climate are factors that begin to develop in childhood in a family environment and shape the individual’s health behaviors (8, 16-17). One significant aspect influenced by these variables is healthy lifestyle behaviors. Studies in the literature reveal the relationship between individual sense of coherence and healthy lifestyle behaviors, and family sense of coherence. This research aims to investigate whether family sense of coherence, individual sense of coherence and family health climate variables together significantly predict healthy lifestyle behaviors.

MATERIAL AND METHODS

Ethical Considerations

Ethics committee approval of the study was obtained from FMV Işık University Ethics Committee with the decision dated 30.03.2023 and numbered 2023/04. All individuals participating in the study provided consent. Additionally, written permission from the scale owners was obtained for the use of the scales.

Table 1. Demographic Variables

Baseline Characteristics	***N:371***	**%**
Sex		
Women	275	74
Men	96	26
Grade level		
Prep class	25	7
1st grade	89	24
2nd grade	85	23
3rd grade	90	24
4th grade	74	20
5th grade	3	1
Graduate	5	1
The people they live together		
Dormitory	81	22
Friend	20	5
Alone	30	8
Family (mother/father/sibling)	233	63
Romantic partner	4	1
Spouse/child	3	1
Socio-economic level		
Low	52	14
Middle	216	58
High	103	28
Smoking		
Yes	222	60
No	149	40
Psychiatric diagnosis status		
Yes	45	12
No	326	88
Psychiatric medication use		
Yes	18	5
No	353	95

Study Design and Sample

The study was conducted between June-July 2023 with a cross-sectional and correlational design. G Power software was used to determine the sample size of the study. Based on “multiple linear regression modeling”, when the effect size is 0.15 (medium) and alpha level is 0.05, at least 89 participants are required to reach 0.95 power (21).The population of the study consisted of university students studying in 22 different cities with smaller populations (ranging from 0.2% to 0.8%), mostly in Istanbul (57%) and larger cities such as Ankara (24%), Trabzon (5%), Izmir (2%), Samsun (1%), Eskişehir (1%). Within the scope of the study, convenience sampling method was preferred and a total of 433 participants from different regions of Turkey, undergraduate and graduate students from different faculties and departments were reached. In order to increase generalizability; students from various departments such as psychology, engineering, business administration, communication, management information systems, advertising, chemistry, physics, dentistry, nursing, cookery, architecture, literature,

Table 2. Comparison of healthy lifestyle behaviors according to sociodemographic variables

		Healthy Lifestyle Behaviors			*t/F*	*p*
		N:371	***Mean***	***SD***		
	Women	275	137.35	21.17		
Sex	***Men***	96	143.33	24.33	-2.290	.023
Smoking	***Yes***	222	140.36	20.83		
	No	249	136.71	23.90	1.516	.131
The people they live	***Family***	233	139.78	22.93		
together	***Other***	138	137.41	20.75	.995	.131
Socio-economic level	***Low***	52	136.44	3.05		
	Middle	216	137.87	1.44		
	High	103	142.30	2.34	1.774	.171

political science, nutrition and dietetics participated in the study.

The inclusion criteria were being between the ages of 18-25 (young adulthood) and being a university student. A “leave this question blank” question was added at certain intervals to test whether the respondents answered the questionnaire carefully. The exclusion criterion is answering attention questions that should be left blank. After the eliminations, the study was conducted with 371 participants.

Data Collection

The data collection process was carried out online via Google Forms based on the principle of volunteerism. The administration of the scales took approximately 10 minutes.

Sociodemographic Information Form

The researchers gathered demographic information of the participants, including sex (22), age (7), faculty and department (23), through a prepared form.

Healthy Lifestyle Behaviour Scale II (HLBS II)

This scale was developed by Walker et al. (1987) and revised in 1996 (4). The Turkish adaptation of the scale was conducted by Bahar et al. (2008) (24). The scale aims to measure the health behaviors developed by the individual related to healthy lifestyle. The scale consists of 52 items in total and the rating is on a 4-point Likert scale. The lowest score that can be obtained from this scale is 52 and the highest score is 208. In this study, Cronbach's Alpha reliability coefficient of the HLBS II was determined as .92.

The Revised Sense of Coherence Scale (SOC-R)

The SOC-R was developed by Antonovsky (1993) and revised by Bachem and Maercker (2018) (25-26). The adaptation study of the scale into Turkish was conducted by Tekin and Kırlıoğlu (2019) (27). The scale aims to measure assess one's capacity to view life events as interconnected and to maintain a balance between positive and negative evaluations of life experiences. The SOC-R consists of 13 questions and the rating is on a 5-point Likert scale. The lowest score that can be obtained from this scale is 13 and the highest score is 65. In this study, Cronbach's

Table 3. Correlation between healthy lifestyle behaviors and other variables

Variables	**1**	**2**	**3**	**4**
1- HLBS[1]	1			
2-SOC-R[2]	.442**	1		
3-FSOC-S[3]	.436**	.265**	1	
4-FHC-PA[4]	.535**	.266**	.514**	1
5-FHC-NU[5]	.517**	.275**	.581**	.595**

*p<.01; **p<.001. *Note: HLBS1: Healthy Life Style Behaviour Scale; SOC-R 2: Sense of Coherence Scale-Revised, FSOC-S3: Family Sense of Coherence Scale, FHC-PA4: Family Health Climate-Physical Activity, FHC-NU 5: Family Health Climate-Nutrition*

Table 4. Stepwise multiple linear hierarchical regression analysis results on the predictive effects of independent variables on healthy lifestyle behaviors

Variables	B	S.E.	*B*	t	R	R^2	ΔR^2
Constant	137.353	1.328	-	103.406**	-	-	-
Sex	5.981	2.6111	.118	2.290*	-	-	-
Constant	46.743	7.180		6.510**			-
Sex	.864	2.039	.017	.424	.118[a]	.014	.011
FHC-PA[1]	.511	.083	.305	6.129**	.539[b]	.291	.378
SOC-R[2]	1.004	.147	.288	6.823**	.619[c]	.383	.287
FHC-NU[3]	.399	.078	.255	5.111**	.652[d]	.425	.418

*p<.05; **p<.01. FHC-PA[1]: Family Health Climate-Physical Activity, SOC-R[2]: Sense of Coherence Scale Revised, FHC-NU[3]: Family Health Climate-Nutrition. [a] Predictors: (Constant), Sex. [b] Predictors: (Constant), Sex, FHC-PA. [c] Predictors: (Constant), Sex, FHC-PA, SOC-R. [d] Predictors: (Constant), Sex, FHC-PA, SOC-R, FHC-NU

Alpha reliability coefficient of the SOC-R was determined as .72.

Family Sense of Coherence Scale- Short Form (FSOC-S)

The original FSOC-S was developed by Antonovsky and Sourani (1998) and its short form was created by Sagy (1998) (28-29). The adaptation of the scale into Turkish, validity and reliability study was conducted by Çeçen (2007) (30). The scale measures the sense of coherence that individuals perceive towards their families. The scale consists of 12 questions the rating is on a 7-point Likert scale. The lowest score that can be obtained from this scale is 12 and the highest score is 84. In this study, Cronbach Alpha reliability coefficient of the FSOC-S was determined as .86.

Family Health Climate Scale (FHC-scale)

The original FHC-scale was developed by Niermann et al. (2014) (18). The adaptation study of the scale into Turkish was conducted by Güney et al. (2021) (31). The scale aims to assess the effect of family environment on physical activity and nutrition behaviors. FHC-scale consists of two integrated scales, the Physical Activity Scale (FHC-PA) and the Nutrition Scale (FHC-NU). The scales are 5-point Likert type. The FHC-PA consists of 14 items whereas the FHC-NU consists of 17 items. The lowest and highest scores that can be obtained from the scales are 0-42 and 0-51 for FHC-PA and FHC-NU, respectively. In this study, Cronbach's Alpha reliability coefficient was determined as .94 for FHC-PA and .93 for FHC-NU.

Statistical Analysis

The collected data were evaluated with the SPSS program (version 20.0, IBM Corporation). All scale scores were normally distributed within the ±1 range and demographic data were based on descriptive statistics (percentage and mean). Statistical analysis was conducted using correlation analysis, independent two-sample t-test, one-way ANOVA testFollowing the correlation analysis, multiple linear hierarchical regression analysis was conducted to examine the effect of sense of coherence, family sense of coherence and family health climate on healthy lifestyle behaviors.

RESULTS

The participants' age range was 18-25 and the mean age was 21.22 (SD=.43). 275 (74.1%) of the participants were female and 96 (25.9%) were male. The majority of the participants have a middle socio-economic level (58.2%) and the majority of them live with their families (62.8%) Other demographic characteristics of the participants are given in Table 1.

Independent two-sample t-test and one-way ANOVA test were executed to determine which demographic characteristics differentiate healthy lifestyle behaviors according to the groups. According to the results of the independent two-sample t-test, sex makes a significant difference on healthy lifestyle behaviors (t(269)=-2.290, p<.05). The level of healthy lifestyle behaviors of men (Mean=143.33, SD=24.33) is higher than the level of healthy lifestyle behaviors of women (Mean=143.33, SD=24.33). However, socio-

economic level (F(2.368)=1.1774, p>.05), the people they live together (t(.369)=.995, p>.05) and smoking (t(287.360)=1.516, p>.05) had no significant effect on healthy lifestyle behaviors. (Table 2)

The findings of Pearson Correlation Analysis conducted to test the direction and strength of the relationship between healthy lifestyle behaviors and individual sense of coherence, family sense of coherence and family health climate are presented in Table 3.

Multiple linear hierarchical regression analysis was conducted to examine the effect of individual sense of coherence, family sense of coherence and family health climate on healthy lifestyle behaviors. In this analysis, sex was transformed into a dummy variable and included in the model as a control variable. Based on the analysis results, individual sense of coherence and family health climate had a significant effect on healthy lifestyle behaviors. However, no significant effect of family sense of coherence was observed in the model (F(4.366)=68,722, p<.001). All variables explained 42.3% of healthy lifestyle behaviors (Table 4).

DISCUSSION

This study examined the effect of individual sense of coherence, family sense of coherence and family health climate on healthy lifestyle behaviors of university students, and it was found that individual sense of coherence and family health climate predicted healthy lifestyle behaviors when all variables were together.

In this study, differences between sexes were evaluated and men were found to perform better in healthy lifestyle behaviors. The literature reveals that, in studies conducted on university students, females generally achieve higher scores than males in overall healthy lifestyle behaviors (7, 22). However, males perform better in healthy lifestyle behaviors such as physical activity, stress management and sleep (22, 32).. Kargun et al. (2013) found that male students achieved higher scores in the sub-dimensions of spiritual development, exercise and stress management, while females scored higher in the sub-dimensions of health responsibility, interpersonal relationships and nutrition (33). The analysis shows that sex differences emerge in the subdimensions of healthy lifestyle behaviors.

Considering the relationship among the variables, it was observed that as the individual's sense of coherence increased, healthy lifestyle behaviors also increased. Sense of coherence is related with university students' pro-health behavior tendencies such as actively using their free time, coping better with stress, and paying attention to sleep patterns (23). Several studies have found that a sense of individual coherence is associated with physical activity, interpersonal relationships, stress, and healthy eating in young people (34-35). The results obtained in this study align with existing literature. As a person's sense of coherence improves, they tend to adopt healthier habits. Sense of coherence has a particularly important impact on the health-related behaviors of university students. These findings suggest that interventions to improve the health behaviors of university students may benefit from focusing on strengthening their sense of coherence.

In this study, it was found that as the family health climate increased, healthy lifestyle behaviors also increased. The family health climate functions as a framework for an individual's daily health behavior and forms the basis of health-related regulation (18). Studies indicate that family health climate increases the tendency to exhibit pro-health behaviors in both physical activity and nutrition dimensions (12, 20). Furthermore, engaging in physical activities, sharing family meals, and collectively making food choices within the family environment significantly influence the health behaviors of individuals in their future lives (16). From that point of view, it can be asserted that parents who integrate healthy lifestyle behaviors into their daily routines will effectively serve as role models for their children. This could enhance the probability of individuals adopting healthy lifestyle behaviors.

In this study, it was observed that as the sense of family coherence increased, healthy lifestyle behaviors increased as well as individual sense of coherence. Previous studies also show that family coherence is associated with positive health behaviors (15-16, 36). A study conducted with adolescents reported that parental control and family coherence were positively associated with children eating breakfast and consuming healthy foods, but negatively associated with buying their own food and consuming unhealthy foods (37). Accordingly, it can be said that family coherence increases the tendency to embrace health-conscious lifestyle habits.

Healthy lifestyle behaviors are shaped not by a single factor but by the interaction of individual and family dynamics (17). Within the scope of this study, after controlling for sex, it was found that individual sense

of coherence and family health climate significantly predicted healthy lifestyle behaviors, while family sense of coherence did not have significant predictive power. Moksnes et al. (2012) found that the sense of individual coherence predicted adolescents' emotional health by controlling the sex variable in line with our research findings (38). In a study, it is indicated that the sense of individual coherence affects smoking habits and eating behaviors in young people (11). These findings also reveal that the sense of personal coherence enables individuals to exhibit health-promoting behaviors by mobilizing their internal and external resources (10).

In the current study, the predictive power of family health climate on healthy life behaviors was revealed. The literature supports our current finding and suggests that support for physical activity in the family environment predicts physical activity (39), physically active parents enable children to do more sports (40), and family health climate predicts physical activity and nutritious dietary practices (17). The family health climate triggers the intrinsic motivation which facilitates the maintenance of healthy lifestyle behaviors (17). Also, parental support and parental role modeling improve healthy life behaviors by providing self-efficacy (39). All these findings indicate that exposure to a positive family health climate at an early age increases the predisposition to adopt healthy life behaviors in adulthood.

Another of the current research findings is that the sense of family coherence does not have a predictive effect on health behaviors. On the other hand, it is known that family sense of coherence is closely related to family functioning and family resilience (14). Family functioning plays a pivotal role in influencing behaviors related to weight and overall health (41). Similarly, family resilience contributes to young people's participation in physical activity (42). A longitudinal study shows that family cohesion, parent-child communication and parental involvement predict the level of physical activity of their children for both sexes one year later (36). Besides that, the family environment in which conflict is perceived as high and harmony and warmth are perceived as low contributes to adolescents' low body image perception and dietary problems, and high family harmony and communication are protective factors against smoking (15). In this study, the family sense of coherence did not predict healthy lifestyle behavior. This suggests the presence of other variables influencing family sense of coherence. For example, Wahlqvist et al. (2020) found that family climate was strong, and sense of family coherence was weak in families with deaf parents (43). Although all variables showed a positive relationship with each other in the current study, for example, the presence of a sick family member may have weakened the predictive effect of family sense of coherence. Therefore, the predictive effect of these variables on healthy lifestyle behaviors can be re-evaluated by controlling the health status of family members in future studies.

The fact that sense of family coherence lost its predictive effect when combined with individual coherence and family health climate may also be due to the relationship among the variables themselves. Family environment and relationships are the basis for the development of individual cohesion (44). It is suggested that individuals who experience a supportive family environment and encounter less tension in their relationships with parents during childhood tend to develop a heightened sense of coherence (45). Some research indicates that family coherence can function as a foundation for fostering a healthy family climate (46).

The mediating role of family cohesion and cohesion in the relationship between family meals eaten together in childhood and healthy life behaviors exhibited in later ages is pointed out (46). Similarly, family cohesion has a partial mediating role in the relationship between family meals eaten together and sugar intake (48). According to the literature, the sense of coherence may play a mediating role in the relationship between healthy lifestyle behaviors and family sense of coherence. Moreover, family sense of coherence might serve as a mediating factor in the relationship between healthy lifestyles and the family health climate.

Limitations and Recommendations

Along with the important results obtained, the study has some limitations. More clear results can be achieved by improving the balance between the number of women and men participating in this research. In future studies, it is recommended that demographic information that may affect family dynamics, such as the health status of family members, be considered as control variables. Finally, addressing these variables with longitudinal studies and including mediation hypotheses can make significant contributions to the literature.

CONCLUSION

The findings suggest that the sense of coherence and family health climate are factors that predict healthy lifestyle behaviors among young people. In conclusion, understanding the health behavior patterns of young people, who will constitute the adult population of the future, is a considerable guide for public health studies. Especially adolescence and young adulthood is a critical period for the cultivation of a sense of coherence and behaviors related to health. The sense of coherence developed in this process has a protective and developmental role in coping with stress factors in life and adopting certain health behaviors that will affect future health and well-being. Therefore, various intervention programs can be designed for the development of individual sense of coherence, especially in universities with a young population. In addition, family activities that support the health climate in the family can be included at an early age to help young people develop healthy lifestyle behaviors. Increasing healthy living practices within the family seems to be critical for young people to develop healthy lifestyle behaviors.

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