ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

Evaluation of the Relationship Between Students' Breakfast Habits and Chronotype: A Cross-Sectional Study

Öğrencilerin Kahvaltı Alışkanlıkları ile Kronotip Arasındaki İlişkinin Değerlendirilmesi: Kesitsel Bir Çalışma

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ABSTRACT Objective: This research was conducted to evaluate the relationship between the breakfast habits of students and their chronotypes. **Material and Methods:** The research, which was carried out as a cross-sectional study, was carried out with the participation of parents with children in 6-12 age range between December 21st, 2018 and May 18th, 2019 by the online survey method. Socio-Demographic and Breakfast Habits Survey Form and Children's Chrono type Questionnaire were used as data collection tools. A total of 431 parents (77% mothers, mean age: 40.61±6.51, 61.5% daughters, children's mean age: 10.1±1.9) were included in the study. p<0.05 was considered statistically significant in the evaluation. **Results:** It was determined that 4.4% of the intermediate type children and 15.7% of the E-type children did not have breakfast on weekdays. It was found that 10.4% of the E-type children did not have breakfast at the weekend. E-type students were found to be skipping breakfast (SB) both on weekdays and at weekends. In the split-day schooling hours practice, morning students (attending school from 07.00 to 13.00) were determined to be SB much more on weekdays. It was found that children had a higher risk of skipping the weekday breakfast as weekday sleep decreased, and the risk of skipping the weekend breakfast was higher as the weekend sleep periods increased. **Conclusion:** Health service providers are recommended to evaluate the sleep, chronotype and breakfast habits of children and their families and involve families in health promotion interventions regarding breakfast consumption.

Keywords: Child; breakfast; sleep; chronotype

ÖZET Amaç: Bu araştırma, öğrencilerin kahvaltı alışkanlıkları ile kronotipleri arasındaki ilişkiyi değerlendirmek amacıyla yapılmıştır. **Gereç ve Yöntemler:** Kesitsel bir çalışma olarak yürütülen araştırma, 21 Aralık 2018-18 Mayıs 2019 tarihleri arasında 6-12 yaş aralığında çocuğu olan ebeveynlerin katılımıyla çevrim içi anket yöntemiyle gerçekleştirilmiştir. Veri toplama aracı olarak sosyodemografik ve Kahvaltı Alışkanlığı Anket Formu ve Çocukluk Dönemi Kronotip Anketi kullanılmıştır. Çalışmaya toplam 431 (%77 anne, yaş ortalaması: 40,61±6,51, %61,5 kız çocuğu, çocukların yaş ortalaması: 10,1±1,9) ebeveyn dâhil edilmiştir. p<0,05 değerlendirmede istatistiksel olarak anlamlı kabul edilmiştir. **Bulgular:** Ara tip çocukların %4,4'ünün, E tipi çocukların ise %15,7'sinin hafta içi kahvaltı yapmadığı belirlenmiştir. E tipi çocukların %10,4'ünün hafta sonu kahvaltı yapmadığı saptanmıştır. E tipi öğrencilerin hem hafta içi hem de hafta sonu kahvaltıyı atladıkları tespit edilmiştir. Bölünmüş okul saatleri uygulamasında sabah 07.00-13.00 saatleri arasında okula giden öğrencilerin hafta içi kahvaltıyı daha fazla atladıkları belirlenmiştir. Çocukların hafta içi uykuları azaldıkça hafta içi kahvaltıyı atlama riskinin, hafta sonu uyku süreleri arttıkça hafta sonu kahvaltısını atlama riskinin daha yüksek olduğu saptanmıştır. **Sonuç:** Sağlık hizmet sunucularının çocukların ve ailelerinin uyku, kronotip ve kahvaltı alışkanlıklarını değerlendirmeleri ve kahvaltı tüketimine ilişkin sağlığı geliştirme müdahalelerine aileleri dâhil etmeleri önerilmektedir.

Anahtar Kelimeler: Çocuk; kahvaltı; uyku; kronotip

In living organisms, biological, behavioral and psychological aspects are formed according to a certain rhythm. The sleep-wake cycle, body temperature, hormone levels, affectivity and some cognitive functions in humans have a daily rhythm referred to as the "circadian rhythm".[1] The individual differences of the circadian rhythm are expressed in chronotypes. Depending on their daily preference, people may have a morning or evening-oriented (M or E type) or a neutral chronotype.[1,2] Chronotypes differ from each other in terms of biological, psychological characteristics and daily life routines. While individuals with M type

(lark) who prefer to sleep early and wake up early and plan their activities early, show their best mental and physical performance in the morning hours; E type (owl) who prefer to go to bed late, wake up late and plan their activities later in the day show better mental and physical performance in the evening. On the other hand, individuals with a neutral chronotype that are neither morning nor evening and show significant flexibility are more adaptable to a one-day time period in terms of physical and cognitive performance.[1-3] Previous studies have shown that E-types often skip breakfast and that there is a correlation between skipping breakfast (SB) and decreased sleep duration.[4-8]

Breakfast is one of the most important daily meals, especially in childhood. The positive effect of regular breakfast consumption on health, educational development and cognitive development among children of various ages is well documented.[9,10] Studies focused on children in previous years have shown that regular breakfast consumption is associated with mental performance, neural function and school success.[11,12] At the same time, systematic review and meta-analysis results in previous years showed that SB is associated with overweight and obesity.[13,14] Despite the evidence supporting the importance of regular breakfast consumption, SB and unhealthy eating habits among children continue to be reported. In a study conducted in 12 countries representing the Human Development Index and inequality in the world, it has been reported that rates of SB are between 16.6% and 23.1% among children aged 9-11 years.[15] In 41 countries in Europe and North America, around one third of children and adolescents have been found to skip breakfast regularly.[16] 87.4% of pre-school children in Türkiye and 51.2% of the children between the ages of 12-15 were found to have breakfast regularly.[17,18]

When the frequency of SB is considered, it is important to investigate the causes and factors associated with SB, to promote and improve health and to carry out the planned initiatives successfully. In a recent systematic review examining the relationship between chronotype and dietary habits, E types were more likely to SB.[19] Studies have shown that there is an opposite relationship between the waking time of university students and their attitudes towards break-

fast, and a positive relationship between weekday sleep time and daily breakfast consumption in adolescents.[20,21] Studies report that more studies are needed to investigate the relationship between breakfast and chronotypes.[13,22] Therefore, in our study, we tried to understand the relationship between the breakfast habits of children's and their chronotypes and sleep indicators. We conducted analyses considering that breakfast habits changed between weekdays and weekends. In addition, children attend schools at different hours in the schools in Türkiye. Students are present in three different time periods: morning (07.00/13.00), afternoon (13.00/19.00) and full time (08.00/17.00). In this study, the effect of time of school attendance on SB was evaluated. Therefore, it is thought that we need further information about the effects of sleep on breakfast habits. In this study, it is aimed to evaluate the relationship between students' breakfast habits and their chronotypes.

MATERIAL AND METHODS

PARTICIPANTS

The research was conducted as a cross-sectional study. The study was carried out with the participation of parents with children in 6-12 age range between December 21st, 2018 and May 18th, 2019 by the online survey method. In the online questionnaire, a total of 461 parents were reached. The data of thirty parents who have had any medical/developmental problems that may affect the feeding and sleep patterns of the children and who have used any medication to affect their sleep were excluded from the scope of the research. A total of 431 parents (77% mothers, mean age: 40.61±6.51, 61.5% daughters, children's mean age: 10.1±1.9) were included in the study.

In schools in Türkiye, students attend school at different hours. In our country, a temporal-oriented education system is practiced. According to this system called the morning-afternoon education system or the part-time education system, education is divided into two in schools implementing this system, where there are morning and afternoon students. Morning students attend school between 07.00/13.00, and afternoon students do so between

13.00/19.00. In regions with sufficient number of classrooms, students receive full-time education between 08.00/17.00.

ETHICAL APPROVAL

For the implementation of the study, permission was obtained from the University of Health Sciences Ankara Numune Training and Research Hospital Clinical Research Ethics Committee (date: October 4, 2018, no: E-18-2242).

DEPENDENT AND INDEPENDENT VARIABLES OF THE STUDY

The independent variable of the study was the chronotypes of the students while the dependent variable was the breakfast habits of the students.

APPLICATION OF THE RESEARCH

In this study, the snowball sampling technique. The questionnaire form was used as a data collection tool, and the scale was created online to include a link to the internet survey site. The questionnaire link was copied and was directed to the people who met the research criteria (parents with children between the ages of 6-12 attending school), those who the researchers know and those who work with schools, especially with the help of a phone messaging application. Before responding to the online questionnaire, the respondents were asked to submit the link to three people who met the questionnaire inclusion criteria. The monitoring, control and coordination of the survey links were carried out by the first author. The informed consent form was added in the beginning of the survey, and the questionnaire was started following the approval of the participants. Participants completed their online questionnaires in approximately 15 minutes.

DATA COLLECTION TOOLS

Socio-Demographic and Breakfast Habits Survey Form

The relevant literature has been scanned by the researchers, and the form includes questions investigating school period of the children, breakfast habits and sleep duration on weekdays and weekends separately, as well as the children's demographic information.

Children's Chrono Type Questionnaire

This is a form containing 27 questions in mixed format that is filled by the family and that interrogates many areas and helps determine the chronotype of children. The Children's Chrono Type Questionnaire was developed by Werner et al., and the Turkish validity and reliability studies were adapted by Dursun et al.[23,24] This questionnaire determines the mean sleep amount, Morningness/Eveningness (M/E) score and chronotype score. In this study, 10 questions were asked to the parents to determine the M/E score in the scale. Child chronotypes have three different dimensions: ≤ 23=M, 24-32=intermediate form and ≥ 33=E. The Cronbach α reliability coefficient of the scale was found to be 0.65.[24] The Cronbach α coefficient of the scale was found to be 0.72 in this study.

DATA ANALYSIS

The data obtained from the study were evaluated in the IBM SPSS Statistics 25 software (USA). The data of the study are summarized as number, percentage, mean and standard deviation. Whether there is a difference between chronotype of children and weekday-weekend breakfast habits is determined by using c^2 analysis. In the variable defined as "breakfast habits" including regular breakfast, irregular breakfast and no breakfast at all, the presence of differences between the mean bedtime, waking up and sleep time of the children -separately for weekdays and weekends- was compared with one-factor covariance analysis after adjusting for age (covariate). $p<0.05$ was considered statistically significant in the evaluation.

Binary logistic regression analysis was used to examine the causality relationship between children's weekday-weekend breakfast habits and the independent variables. To establish the acceptable model that will provide the best fit by using the least variable and that will define the relationship between the result variable the explanatory variables, backward elimination method was used. To determine the risk factors for SB, the variables that are candidates to enter the logistic model (parents' employment status, family structure, family income status, parents' educational status, family accommodation, whether the child eats snacks before bedtime, serving breakfast at the child's school, where the child has breakfast, the

family encouraging the child to have breakfast, the SB of the parent completing questionnaire on weekdays/weekends, when the child attends school, the child's age, gender and weekday-weekend sleep time) were determined. In this analysis, categorical variables were converted into dummy variables. Age and weekday-weekend sleep time were used as a continuous variable. In choosing variables, variables that were at least moderately significant (with a p value of 0.25 and below) were selected for multivariate analysis. The variables that were thought to contribute to the model were included after testing with G statistics, and thus, variable selection was finalized. Goodness of fit test of the final model was performed, and the odds ratios were used in its interpretation.[25]

RESULTS

It was found that most participants (94.2%) formed a nuclear family and that most (74%) had a moderate level income. More than half (62.2%) of the mothers and most (86.3%) of the fathers were found to be employed. It was determined that almost half of the mothers and fathers had university or higher education (Table 1).

For weekdays, the mean bedtime, wake time and sleep time of the children were determined as 22.5±0.9, 7.4±1.0 and 8.77±1.30, respectively. For weekends, the mean bedtime, wake time and sleep time of the children were determined as 22.5±0.9, 9.98±1.61 and 10.57±1.36 (Table 1).

It was determined that 90.9% of the M-type children, 78.1% of the intermediate type children and 66.3% of the E-type children had breakfast regularly during the weekdays. It was determined that 4.4% of the intermediate type children and 15.7% of the E-type children did not have breakfast on weekdays (Table 2).

It was found that 95.5% of the M-type children, 93.8% of the intermediate type children and 81.1% of the E-type children had regular breakfast at the weekend. It was determined that 10.4% of the E-type children did not have breakfast at the weekend (Table 2).

It was determined that, in the split-day schooling hour practice, 66.3% of morning students, 88.8% of afternoon students and 72.5% of full-time students

TABLE 1: Sociodemographic and some descriptive characteristics of participants (n=431).		
	n	**%**
Family structure of child		
Nuclear family	406	94.2
Extended family	25	5.8
Family income		
Low	83	19.3
Moderate	319	74.0
High	29	6.7
Working status of mother		
Working	268	62.2
Not working	163	37.8
Working status of father		
Working	372	86.3
Not working	59	13.7
Educational status of the mother		
Basic education	174	40.4
High school	69	16.0
University and above	188	43.6
Educational status of the father		
Basic education	123	28.5
High school	120	27.8
University and above	188	43.6
The child's weekdays (hours)	Minimum/maximum	$\overline{X}$±SD
Bed time	21/2	22.5±0.9
Wake time	5/12	7.4±1.0
Sleep duration	6/13.30	8.77±1.30
The child's weekend (hours)		
Bed time	20/3	22.5±0.9
Wake time	6/10	9.98±1.61
Sleep duration	3/13.30	10.57±1.36

SD: Standard deviation.

had regular breakfast during weekdays. It was found that 21.8% of morning students and 7.5% of full-time students did not have breakfast during weekdays (Table 2).

When the breakfast habits, sleep time, bedtime and waking hours and the average age of the children are examined, statistically significant differentiation is seen except for waking hours on weekdays (f=9.681, p=0.000; f=0.666, p=0.514; f=8.695, p=0.000; f=6.561, p=0.002; f=14.285, p=0.000; f=11.962, p=0.000) (Table 3).

Logistic regression analysis was applied to the factors associated with weekday and weekend breakfast skipping. Both models were found to be statisti-

TABLE 2: The comparison of children's breakfast habit, chronotypes and schooling hours on weekdays/weekends (n=431).

	Chronotype						Significance*
	M type		Intermediate type		E type		
	n	%	n	%	n	%	
Breakfast habit on weekdays							
Has breakfast regularly	20	90.9	125	78.1	165	66.3	0.001
Has breakfast irregularly	2	9.1	28	17.5	45	18.1	
Never has breakfast	0	0.0	7	4.4	39	15.7	
Breakfast habit at the weekend							
Has breakfast regularly	21	95.5	150	93.8	202	81.1	0.000
Has breakfast irregularly	1	4.5	10	6.3	21	8.4	
Never has breakfast	0	0.0	0	0.0	26	10.4	
Total	22	100	160	100	249	100	
	Schooling hours						
	Morning student (07.00/13.00)		Noon Student (13.00/19.00)		Full Day (08.00/17.00)		Significance*
Breakfast habit on weekdays							
Has breakfast regularly	67	66.3	22	88.0	221	72.5	0.000
Has breakfast irregularly	12	11.9	2	8.0	61	20.0	
Never has breakfast	22	21.8	1	4.0	23	7.5	
Total	101	100	25	100	305	100	

*χ^2 test.

cally significant (weekdays: c^2 (6)=138.04, p=0.001, Cox and Snell R-square=29% and Nagelkerke R-squared=39%; Weekend: c^2 (6)=91.69 , p=0.001, Cox and Snell R-square=19% and Nagelkerke R-squared=35%). As shown in Table 4, all variables in the model were important determinants.

It was determined that the risk of SB during the weekdays was higher in children whose mother was not working [odds ratio (OR)=1/0.385=2.60], whose father was working (OR=2.46), whose school did not

provide breakfast (OR=8.67), who had breakfast outside the house (OR=13.45) and whose parents skipped breakfast on weekdays (OR=1.88). In addition, it was found that the risk of SB was 1.33 times higher (OR=1/0. 779=1.28) as the sleep time decreased during weekdays.

The risk of SB at the weekend was seen to be higher in children whose mothers graduated from primary school compared to university graduates (OR=2.72), who had breakfast outside the house

TABLE 3: Comparison of breakfast habit and sleep duration, bedtime and wake time of the children on weekdays/weekends (n=431).

		Weekdays				Weekend			
	Breakfast habit	n	$\overline{X}\pm SD$	F	p*	n	$\overline{X}\pm SD$	F	p*
The child's	Has breakfast regularly (1)	310	22.42±0.89			373	23.20±0.80		
bedtime	Has breakfast irregularly (2)	75	22.65±0.83	9.681	0.000a**	32	23.08±1.44	6.561	0.002b**
	Never has breakfast (3)	46	23.14±0.92			26	23.81±0.40		
Wake time	Has breakfast regularly (1)	310	7.45±1.10			373	9.82±1.60		
of the child	Has breakfast irregularly (2)	75	7.33±0.62	0.666	0.514	32	10.29±1.54	14.285	0.000c**
	Never has breakfast (3)	46	7.11±0.94			26	11.81±0.49		
Sleep duration	Has breakfast regularly (1)	310	8.99±1.28			373	10.48±1.31		
of the child	Has breakfast irregularly (2)	75	8.59±1.05	8.695	0.000a**	32	10.50±1.71	11.962	0.000d**
	Never has breakfast (3)	46	7.92±1.49			26	12.00±0.49		

*Univariate analysis of variance; covariates appearing in the model are evaluated at the following values: child age=10.24;
** According to the Bonferroni test, which shows the group comparisons according to breakfast habits, it was determined that there were statistical differences among the a: 1 and 3; b: 1 and 2; c: 1 and 2, 1 and 3; d: 1 and 3, 2 and 3 groups; SD: Standard deviation.

TABLE 4: Logistic regression analysis for factors related to skipping breakfast.					
			95% CI		
The child skipping breakfast on weekdays[a]	B	OR	Lower	Upper	p value
Working status of mother					
Not working (0)					
Working (1)	-0.955	0.385	0.22	0.69	0.001
Working status of father					
Not working (0)					
Working (1)	0.898	2.456	1.02	5.91	0.044
Breakfast provided at child's school					
Breakfast is provided in the school (0)					
No breakfast at school (1)	1.937	6.935	2.84	16.93	0.000
Breakfast place of the child					
At home (0)					
Outside home (1)	2.599	13.447	7.52	24.03	0.000
The breakfast state of the parent completing the questionnaire					
Has breakfast regularly (0)					
Skips breakfast (1)	0.630	1.877	1.01	3.48	0.046
The child's sleep duration on weekdays	-0.288	0.750	0.60	0.93	0.009
The child skipping breakfast at the weekend[a]					
The age of the child	0.336	1.399	1.12	1.75	0.003
The education status of mother					
University and above (0)					
Basic education (1)	0.999	2.715	1.13	6.54	0.026
High school (2)	0.253	1.288	0.44	3.81	0.647
Breakfast place of the child					
At home (0)					
Outside home (1)	1.564	4.780	2.46	9.29	0.000
The breakfast state of the parent completing the questionnaire					
Has breakfast regularly (0)					
Skips breakfast (1)	3.355	28.65	9.79	83.78	0.000
The sleep duration of the child at the weekend	0.371	1.450	1.06	1.98	0.020

[a]The state of the child having breakfast on a weekday/weekend=has breakfast regularly (0), skips breakfast (has breakfast irregularly, never) (1);
OR: Odds ratio; CI: Confidence interval.

(OR=4.78 times), and whose parents skipped breakfast at weekends (OR=28.65 times). In addition, as the weekend sleep time increased by 1.45 times and as the child's age increased, the child had a higher risk of SB (OR=1.40),

DISCUSSION

In previous studies conducted on various age groups and countries, it was revealed that E-types had more frequent SB.[4-7,19] Similarly, the results of this study, analogous to the results of previous studies, showed that E-types had SB more frequently. In addition, E-type children were found to have more SB on weekdays than on weekends. It is likely that E-type children were late for the weekday routine, thus contributing to the absence of time to eat before leaving the house. In addition, the more frequent SB of E-types may be due to children wanting to sleep more or not being hungry in the early hours of the morning.[13]

In accordance with the literature, the prevalence of SB reported in this study was higher on school days than on weekends.[26] At the same time, a greater number of morning students in the split-day schooling hours practice were found to skip breakfast. This may be due to that children who leave the house earlier to start school, such as 7.00 am., have limited time to have breakfast in their homes before starting

their classes. The lack of sufficient time to have breakfast, which is the most frequent cause of SB, is a common answer in the previous literature.[26,27] This finding is an important message for school health and education policy makers. The American Academy of Pediatrics recommends that school start hours should be postponed to 8.30 am or later to promote healthy sleep patterns at secondary and high school level schools.[28] It is considered that evaluating the starting hours of schools will be useful for sleep health and breakfast habits.

Studies showed that regular breakfast was associated with regular and qualified sleep.[4,29] In previous years, it was determined that those who skipped breakfast had shorter sleep duration.[30] Lebacq et al. showed that there is a positive relationship between weekday sleep duration and daily breakfast consumption in adolescents.[21] Martínez-Gómez et al. reported that Spanish adolescents who had shorter sleep duration on active school days had the lowest breakfast consumption.[8] In this study, as in the study of Martínez-Gómez et al., it was determined that the children who had shorter sleep duration on active school days had higher breakfast skipping rates.[8] In addition, according to the logistic regression analysis, shortened sleep duration of children during weekdays was determined as a predictor of weekday SB. This result shows that children who want to sleep and wake up late do not have enough time to have breakfast. In addition, most of the mothers in the study were employed. Among the reported causes of poor breakfast habits are lack of control (parents divorced or parents working outside the house).[27] It is considered that the risk of SB during weekdays is increased due to lack of parental supervision in children with a working mother.

However, in this study, the children's bedtime, wake time and sleep duration at the weekend were also examined. In this context, it was determined that children who did not have breakfast at the weekend had more sleep duration. In addition, according to the logistic regression analysis, the longer periods of sleep duration of the children at the weekend was stated as the determinant of the risk of SB at the weekend. Boschloo et al. assessed that children had fallen asleep at weekends to compensate for the sleep debt accumulated during school days.[6] It is seen that this occurs due to late sleeping and awaking because of the lack of the daily routine in the free day of the week. It is thought that children who get up in the afternoon skip breakfast since they have been late for breakfast.

In a systematic examination, a positive relationship was found between the parent and the child having breakfast.[31] In another review, attention was drawn to the relationship between family environment and being a single-parent family and SB behavior.[32] Mahmood et al. reported that having breakfast with their parents, who are considered the main role models of children, has a positive effect on their children's eating behaviors.[33] In another study, parents having breakfast were defined as the most important factor for adolescents having breakfast.[34] This study showed that there were parallels between the breakfast habits of children and their families both on weekdays and at weekends. It is known that parents play a very important role in their children's eating behaviors and attitudes. Therefore, the creation of an environment that motivates regular breakfast consumption should not only target children but also parents. It is strongly recommended that healthcare professionals target both children and their mothers while undertaking health promotion initiatives regarding the importance and promotion of breakfast consumption.

Considering the traditions and cultural norms in Türkiye and around the world, as expected, in Türkiye, breakfast is usually provided at home.[26,29,35] In this study, it was found that the number of children who had breakfast outside the house was low (26.5%), but it was determined that they had more risk of SB. This study also revealed that children who were not served breakfast at school during weekdays were more likely to have the risk of SB than children who were given breakfast at school. Children who cannot have breakfast at home are unable to have this meal since it is not provided in the school. This finding is considered to be an important issue when determining health and education policies in our country.

In previous studies, it was stated that parent unemployment or working status of mothers did not

have a significant effect on children's SB status.[34,35] However, in this study, it was determined that the risk of SB during weekdays was higher in the children with unemployed mothers and working fathers. In contrast, most mothers and fathers were employed in this study. However, it is recommended that researchers who plan to conduct further study on this subject should deeply investigate the factor of the employment status of parents. In addition to the working status of the parents in the research questions, it is considered that their jobs and the hours of leaving the house in the morning will be helpful in explaining the reason of this result and in interpreting the finding.

As the children's age increased and parent education levels declined the tendency of SB became more frequent.[16,26] Our weekend risk findings of SB were consistent with previous studies. The eating habits of young people are less under parental control than that of young children.[34] Therefore, this should not be ignored in the planned initiatives.

LIMITATIONS OF THE RESEARCH

Although snowball sampling is a valid technique for taking specific sub-samples in a population, the use of this technique indicates that the whole sample is not representative, and therefore, these findings should be interpreted with caution when generalized to a larger population.[16] In addition, when it is considered that the study is cross-sectional, it should be assumed that there are certain limitations in the correct representation of a cause-and-effect relationship. Therefore, the risk values obtained should be evaluated on this basis and should be defined as rough risk rates.

CONCLUSION

This study showed that there was a relationship between breakfast skipping and the chronotypes of children aged 6-12 years. E-type students were found to have a higher rate of SB during both weekdays and weekends. It was determined that children in the "morning" students group had a higher rate of SB on weekdays. Health professionals should evaluate

evening type students as risky in SB. Therefore, evening type students should identify and follow up. It should provide medical assistance in extreme evening types. For the target groups at risk, school nurses and other health professionals should plan health interventions to increase children's breakfast consumption by including parents and educate children about the sleep hygiene rules. In addition, the school nurse, as the active staff of the school health team, should actively participate in the studies for the implementation of healthy nutrition in the school. It would be beneficial for school health and education policy makers to encourage the provision of breakfast meals in schools and to review the regulation of the morning-afternoon split-day education system.

The most effective way to influence children's sleep health and breakfast habits is to create family and peer environments that support health-sensitive lifestyles, in general, by health professionals. To shape these strategies, more detailed studies on sleep, chronotypes and variables affecting breakfast are required.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

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