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Breakfast consumption-related perceived behaviour control and subjective norms among girl adolescents: Applying an indirect measurement

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Abstract:

BACKGROUND: Healthy nutrition in childhood and adolescence is important for growth and development. Breakfast is the most important meal during a day, and many studies have linked eating breakfast to good health. The aim of the present study was to evaluate the subjective norms and perceived behavioural control of Iranian teenage girls about breakfast consumption and its related factors in 2018.

MATERIALS AND METHODS: In this descriptive-analytical study, 320 female students were enrolled using a multistage sampling method. Data were collected using a questionnaire, the validity and reliability of which were evaluated. Data analysis was carried out using SPSS16 software and ANOVA and *t* independent tests.

RESULTS: There was a significant relationship between students' sleep duration and the people with whom they eat breakfast with the Motivation to Comply ($P = 0.009$), ($P = 0.001$) and subjective norms ($P = 0.004$), ($P = 0.001$) as well as between the people with whom they eat breakfast and normative beliefs ($P = 0.05$). There was a significant relationship between father's job and control beliefs ($P = 0.03$) and perceived behavioural control ($P = 0.04$), between household size with perceived behavioural control ($P = 0.05$), between sleep duration and perceived power ($P < 0.001$), and perceived behavioural control ($P = 0.03$), between the people with whom they eat breakfast with control beliefs ($P < 0.001$), perceived power ($P < 0.001$), and perceived behavioural control ($P < 0.001$).

CONCLUSION: Considering the importance of sleep duration for adolescent girls as well as eating breakfast with other family members, health policymakers are recommended to pay special attention to these two factors while designing educational interventions.

Keywords:

Adolescents, breakfast, female, perceived behaviour control, subjective norm's

Introduction

Good nutrition, which is the basis of health, refers to a balanced and sufficient diet with regular physical activity.[1] The development of healthy eating habits during adolescence is the basis for good health in adulthood.[2] Breakfast is the most important meal in a day, but such meal is neglected by adolescents and young people in an ever increasing trend. Some positive effects of eating breakfast include improving diet, reducing overweight and obesity risk, and improving cognitive function.[3] Eating breakfast is one way to prevent overweight and obesity. Children and adolescents who do not eat breakfast are at risk of neglecting other meals.[4]

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Results of a study on girls with a high body mass index (BMI) showed that those who ate breakfast more regularly compared to those who did not eat breakfast had a lower BMI at the end of the study. Recent studies have shown a positive relationship between parents' nutrition behaviours with healthy and unhealthy nutrition behaviours in children and adolescents.[5] It is estimated that 12%–34% of children and adolescents regularly lose their breakfast. Adolescents are easily affected by their friends and this includes eating breakfast behaviour.[6] Some studies have shown a high prevalence of inappropriate nutritional behaviours in students.[7] A significant proportion of students did not eat breakfast properly or regularly[8] and 19% of 11–16 year olds do not eat breakfast regularly in the UK.[9] A study conducted on middle school students in Qom has shown the effect of educational intervention on breakfast consumption.[10] Another study demonstrated the importance of educating students about their eating behaviours .[11] Subjective norms include the social pressure perceived by a person to do or not to do a behaviour. Subjective norms refer to the effect of the social environment of individuals on their behavioural intention.[12] Perceived behavioural control is the result of individual beliefs about having voluntary control over a behaviour[13] and refers to the easy or difficulty of doing a behaviour .[14] Subjective norms and perceived behavioural control are measured directly and indirectly. The indirect measurement is of a priority when the goal is to design interventions more accurately and appropriately. Normative beliefs and motivation to comply, as well as control beliefs and perceived power, are two factors that respectively constitute Subjective norms and perceived behavioural control, which in indirect measurement, are an outcome of the ratings of these two constructs. The beliefs that are based on the subjective norms are called normative beliefs.[12] These beliefs are determined considering the specific references and the individuals accepted by the person confirm or reject a behaviour, on the one hand, and the person's level of motivation to comply, on the other hand. Perceived behaviour control is determined by the control beliefs regarding the existence or absence of facilitators or barriers to a behaviour and evaluated by the perceived power or the effect of each control factor on the facilitation or prevention of behaviour[15] Considering that the most important ones in the adolescent's life who emphasize a behaviour and adolescent feels more about controlling behaviour, it is more likely to have behaviour.

Parents play an important role in shaping their children's eating behaviours and eating patterns. The importance of parents in eating breakfast is an important factor in reducing the elimination of breakfast in adolescents. Therefore, the aim of the present study was to investigate the subjective norms and perceived behavioural control of adolescents about breakfast consumption and its related factors.

Materials and Methods

This is a descriptive-analytical (cross-sectional) research, the target population of which are high school girl students in Ardal County in the year 2018. There are 16 high schools in Ardal County, 9 schools being located in cities and 7 schools in villages covered. There are 430 students in urban areas and 265 students in rural areas. The multi-stage sampling method was used in the present study. At first, the share of urban and rural areas was determined according to the population of each class. According to the sample size formula, a total of 200 and 120 people were assigned to urban and rural schools, respectively. After obtaining permission from the competent centers, the researcher coordinated with the education authorities of the city of Ardal. Then the list of girls' high schools was prepared from the education department of Ardal and four schools were selected randomly from each stratify. Random sampling was carried out from each grade in each school.

According to the previous study[16] and the related formula $n = \frac{z\left(1-\frac{\mu}{2}\right)^2 p(1-p)}{d^2}$ the sample size was considered to be 288 individuals and then increased to 320 people taking into account a 10% drop-out rate ($d = 0.05$, $P = 0.25$). Inclusion criteria were included voluntary and informed consent to participate in the study. In this study, the variables used include perceived behavioural control, control beliefs, perceived power, subjective norms, normative beliefs, and motivation to comply.

The data collection tool included a self-report questionnaire. The Questionnaire was developed by researchers through literature review, related questionnaires, and expert panel. To assess the face validity of the questionnaire, face-to-face interviews were conducted with 15 secondary school girls and attempts were made to examine cases of difficulty (i.e., difficulty in understanding words and phrases), proportionality (i.e. the appropriateness and relevance of the phrases with the dimensions of the questionnaire), and ambiguity (i.e., the probability of misunderstandings of phrases or insufficiency of the meanings of words) and apply adolescents' comments to modify the tool.

It should be noted that these 15 individuals were not included in the study as samples.

The content validity was determined based on experts' judgments. To do the judgment, the opinions of five health education and health promotion experts and two nutritionists were used. While carrying out

the qualitative analysis of the content validity, the experts were asked to comment on any question of the questionnaire designed according to the grammar criteria, use of proper diction, necessity, importance, and proper placement of phrases. Therefore, the phrases were corrected based on the comments provided. Content Validity Ratio (CVR) and Content Validity Index (CVI) measurements were also used in the quantitative method. To measure the reliability of the tool, internal consistency and test-retest method were used. The Intra class Correlation Coefficient (ICC) and Cronbach's alpha values were 0.81, 0.70, 0.71, 0.74 for normative beliefs and motivation to comply, and equal to 0.78, 0.70, 0.96, 0.74 for control beliefs and perceived power, respectively, which demonstrates the good reliability and consistency of the questionnaire.

The questionnaire consisted of the following parts: (1) Thirteen demographic questions, including: (age, level of education, birth rank, father's education, mother's education, number of family members, family structure, mother's job, father's job, economic status, the individuals with whom you live, sleep duration, the individuals with whom you eat breakfast) (2) Normative beliefs, including 4 questions scored using a 5-point Likert Scale ranging from strongly agree (Score 5) to strongly disagree (Score 1). (For example, my friends and classmates believe that I should eat breakfast every day.) (3) The motivation to comply consists of 4 questions scored using a 5-point Likert Scale ranging from Strongly agree (Score 5) to Strongly disagree (Score 1). (For example, my friends and classmates' opinions over eating breakfast is very important for me.) (4) Control beliefs include 5 questions scored using a 5-point Likert Scale ranging from strongly agree (Score 5) to strongly disagree (Score 1). (For example, when I get sick, it's hard for me to have breakfast.) (5) Perceived power consisted of 5 questions scored using a 5-point Likert Scale ranging from strongly agree (Score 5) to strongly disagree (Score 1). (For example, I eat breakfast even when I get sick.) To score the questionnaire, the highest score (5) was assigned to the strongly agree and the lowest score (1) to the strongly disagree options, respectively. The possible score range of all questions on normative beliefs and motivation to comply was 4–20. The possible score range of all questions on control beliefs and perceived power was 5–25. In this study, data analysis was carried out using IBM® (New York, United Stated) SPSS16 software. Descriptive statistics were expressed as frequency and mean, standard deviation and data analysis was carried out using ANOVA and *t* independent tests.

Results

The results of Tables 1 and 2 show the frequency of student's responses to questions about normative beliefs and motivation to comply, as well as control beliefs and perceived power regarding breakfast consumption. Majority of students had opposing opinions regarding questions (my parents believe that I should eat breakfast every day.) (Nutritionists and healthcare workers believe that I should have breakfast every day) and (my parents' opinion over breakfast consumption is very important for me.) (With regard to breakfast consumption, I want to do what nutritionists and health care professionals think is better.) [Table 1].

Most students agreed and disagreed with questions (when I get sick, it's hard for me to have breakfast) and (I have breakfast even if they're snacks). The viewers [Table 2].

There was no significant relationship between variables such as age, father's occupation, mother's job, mother's level of education, father's level of education, with whom they live, economic status, birth rank, household size with subjective norms, normative beliefs, and motivation to comply. There was a significant relationship between students' sleep duration and with whom they eat breakfast with subjective norms and motivation to comply, and students who had proper sleep hours (9–11 h) and ate breakfast with all members had better subjective norms and motivation to comply. There was also a significant relationship between with whom they eat breakfast with normative beliefs, and students who ate breakfast with all family members had a higher subjective norms score [Table 3].There was no significant relationship between variables such as age, mother's job, parents' level of education, with whom they eat breakfast, economic status, and birth rank with perceived behavioural control, control beliefs, and perceived power. There was also a significant relationship between father's occupation, household size, and sleep duration and with whom they eat breakfast with perceived control beliefs, and control behaviours, between father's job and control beliefs, between sleep duration and perceived power, and with whom they eat breakfast with control beliefs and perceived power. Students with working fathers had a better understanding of control beliefs and perceived behavioural control. Students with more household size had more perceived behavioural control, and students with adequate sleep hours (9–11 h) had better perceived power and perceived behavioural control. Moreover, those who ate breakfast with all the family members had better control beliefs, perceived power, and perceived behavioural control [Table 4].

According to Scheffe test and multiple comparisons, there has not been any significant relationship between sleep duration (9–11) with (11–12) as well as (12 onward), and sleep duration (11–12) and (12 onward) with normative beliefs ($P = 0.82$), ($P = 0.53$), ($P = 0.86$), control beliefs ($P = 0.75$), ($P = 0.98$), ($P = 0.89$) and perceived

Table 1: The frequency of student's responses to questions about normative beliefs and motivation to comply on breakfast consumption

Questions	Strongly agree, *n* (%)	Agree, *n* (%)	No idea, *n* (%)	Disagree, *n* (%)	Strongly disagree, *n* (%)
My parents believe that I should have breakfast every day	8 (2.5)	2 (0.6)	23 (7.2)	107 (33.4)	180 (56.3)
My friends and classmates believe that I should have breakfast every day	25 (7.8)	45 (14.1)	142 (44.4)	69 (21.6)	39 (12.2)
My teachers believe that I should have breakfast every day	11 (3.4)	19 (5.9)	84 (26.3)	113 (35.3)	93 (29.1)
Nutritionists and healthcare workers believe that I should have breakfast every day	3 (0.9)	7 (2.2)	37 (11.6)	101 (31.6)	172 (53.8)
My father's opinion about breakfast is very important to me	8 (2.5)	18 (5.6)	36 (11.3)	129 (40.3)	129 (40.3)
My friends' and classmate's opinion about breakfast consumption is very important to me	31 (9.7)	59 (18.4)	105 (32.8)	89 (27.8)	36 (11.3)
I follow my teachers' recommendations regarding breakfast consumption	3 (10.3)	69 (21.6)	112 (35)	73 (22.8)	33 (10.3)
As for breakfast, I want to do what nutritionists and healthcare professionals think is better	9 (2.8)	23 (7.2)	55 (17.2)	118 (36.9)	115 (35.9)

Table 2: The frequency of student's responses to questions about control beliefs and perceived power on breakfast consumption

Questions	Strongly agree, *n* (%)	Agree, *n* (%)	No idea, *n* (%)	Disagree, *n* (%)	Strongly disagree, *n* (%)
It's hard for me to wake up and have breakfast	85 (26.6)	67 (20.9)	40 (12.5)	79 (24.7)	49 (15.3)
When I get sick, it's hard for me to have breakfast	94 (29.4)	103 (32.2)	50 (15.6)	47 (14.7)	26 (8.1)
It's hard for me to eat repetitive breakfast foods	85 (26.6)	86 (26.9)	65 (20.3)	57 (17.8)	27 (8.4)
Because my parents do not prepare the breakfast for me, it's hard for me to have breakfast	25 (7.8)	38 (11.9)	32 (10)	111 (34.7)	114 (35.6)
It's hard for me to have breakfast when there are snacks	48 (15)	50 (15.6)	71 (22.2)	89 (27.8)	62 (19.4)
Although it's hard for me to wake up, I can plan and eat breakfast	23 (7.2)	45 (14.1)	59 (18.4)	116 (36.3)	77 (24.1)
I have breakfast even when I get sick	41 (12.8)	55 (17.2)	69 (21.6)	96 (30)	59 (18.4)
Even if breakfast food is repetitive, I'll have breakfast	22 (6.9)	37 (11.6)	63 (19.7)	123 (38.4)	75 (23.4)
Even though my parents do not prepare breakfast for me, I plan to prepare and eat breakfast	43 (13.4)	59 (18.4)	54 (16.9)	89 (27.8)	75 (23.4)
I eat breakfast even if there are snacks	25 (7.8)	33 (10.3)	64 (20)	105 (32.8)	93 (29.1)

behavioural control (P = 0.19), (P = 0.15), (P = 0.94) respectively. The results of the comparison also showed a significant relationship between sleep duration (9–11) and (12 onward) with motivation to comply (P = 0.01), and subjective norms (P = 0.05), that is, students who had enough sleep hours had the better motivation to comply and subjective norms. The results also showed a significant relationship between sleeping duration (9–11) with (11–12) and also (12 onward) with perceived power (P = 0.03), (P = 0.001), respectively, and the students who slept for (9–11) than those who slept (11–12) and (12 onward) had a higher perceived power.

Discussion

The aim of the present study was to determine the subjective norms and perceived behavioural control of adolescent girls and the factors affecting them. One's subjective norms are determined by those who are accepted by him/her regarding the confirmation or rejection of behaviour and the extent to which the person is motivated to obey them. Perceived behavioural control is the determinant of behaviour when it reflects the actual control of individuals on the behaviour in question. Organizational and environmental factors can make it easy or difficult to perform a behaviour.[12] Findings showed a significant relationship between subjective norms and motivation to comply with the student's sleep duration. Students with adequate sleep duration had better abstract norms and motivation to comply with breakfast consumption. There was also a significant relationship between subjective norms and motivation to comply and normative beliefs with the variable of with whom to eat breakfast, meaning that students who ate breakfast with all family members had better subjective norms, motivation to comply, and normative beliefs for breakfast consumption. The results of the present study revealed a significant relationship between perceived behavioural control with the father's job, family size, sleep duration, who will eat breakfast, between perceived power with sleep time with who will eat breakfast, and finally between control beliefs with father's job and with whom to eat breakfast; and there was no significant relationship between the rest of the variables. Peyman and Nasehnezhad study showed no significant relationship between the parental level

Table 3: The mean and standard deviation of normative beliefs, motivation to comply and subjective norms of the students

Variables	Category	Normative beliefs, mean (SD)	*P*	Motivation to comply, mean (SD)	*P*	Subjective norms, mean (SD)	*P*
Age**	15	15.80 (2.8)	0.51	14.34 (3.34)	0.84	59.29 (19.95)	0.63
	16	15.85 (2.77)		14.24 (3.12)		58.86 (18.32)	
	17	15.72 (2.34)		14.26 (3.29)		58.12 (17.29)	
	18	15.1 (2.98)		13.76 (3.48)		54.68 (20.83)	
Father job**	Employee	15.37 (2.78)	0.59	14.48 (3.46)	0.40	28.78 (19.006)	0.65
	Free job	15.80 (2.60)		14.06 (3.22)		57.80 (18.48)	
	Unemployed	15.63 (3.23)		14.74 (2.91)		60.74 (19.52)	
Mother job*	housewife	15.7 (2.74)	0.89	14.20 (3.21)	0.88	58.28 (18.75)	0.98
	Employed	15.8 (2.07)		14.1 (3.35)		58.2 (17.13)	
Father education**	illiterate	15.83 (2.80)	0.17	14.17 (3.02)	0.53	58.49 (17.89)	0.30
	Movement and Primitive	16.21 (2.36)		14.48 (3.03)		60.94 (17.57)	
	Middle school	15.35 (2.79)		13.67 (3.40)		55.10 (19.07)	
	High school	15.29 (2.90)		14.43 (3.08)		57.06 (18.87)	
	Undergraduate and Bachelor	15.91 (2.78)		14.30 (3.81)		60.30 (20.72)	
Mother education**	illiterate	15.80 (2.58)	0.36	14.93 (2.60)	0.17	16.44 (61.06)	0.44
	Movement and Primitive	15.82 (2.76)		13.88 (3.38)		57.43 (19.40)	
	Middle school	15.88 (2.76)		14.33 (3.20)		59.29 (18.93)	
	High school and more	15.72 (2.70)		14.04 (3.40)		55.88 (18.53)	
Family size*	Four and less	15.37 (30.14)	0.22	13.8 (3.1)	0.26	18.40 (55.28)	0.14
	Five and more	15.82 (2.57)		14.3 (3.25)		59.08 (18.64)	
Who lives*	Parents	15.76 (2.59)	0.39	14.29 (3.20)	0.07	58.67 (18.5)	0.17
	Others	15.26 (3.97)		13.04 (3.25)		53.22 (19.95)	
The economic situation*	Middle	15.79 (2.68)	0.48	14.29 (3.3)	0.40	58.9 (18.38)	0.33
	Good	15.55 (2.79)		13.96 (3.22)		56.62 (19.30)	
Birthday rating**	First	15.43 (2.87)	0.35	14.01 (3.57)	0.68	56.68 (20.16)	0.48
	Second	15.68 (2.89)		14.09 (3.20)		57.86 (18.25)	
	Third and higher	15.92 (2.52)		14.35 (2.10)		59.45 (17.74)	
Sleep time**	9-11	15.89 (2.30)	0.51	14.72 (2.80)	0.009	60.79 (16.86)	0.04
	11-12	15.68 (2.82)		14.10 (3.36)		57.68 (18.69)	
	12And more	15.45 (3.22)		13.31 (3.60)		54.21 (21.18)	
Who eat breakfast**	All members	16.01 (2.58)	0.05	147.72 (3.09)	0.001	61.54 (18.41)	0.001
	Mother	15.84 (2.37)		14.46 (2.56)		59.13 (15.62)	
	Single	15.20 (2.10)		13.26 (3.55)		52.86 (19.42)	

**t*-test, **ANOVA

of education and perceived behavioural control of fast food consumption.[17]

However, the present study revealed a significant relationship between father's level of education with perceived behavioural control of students, and students whose fathers had lower level of education had higher perceived behavioural control over breakfast consumption. In the study of Yarmohammadi *et al*., showed a significant relationship between fast foods and subjective norms, and students with more subjective norms consumed fast foods more frequently[18] This study is consistent with the present study. In the present study, students with adequate sleep duration have had higher subjective norms regarding breakfast consumption.

However, Moeini *et al*., showed no significant relationship between subjective norms and the intention to consume fruits and vegetables.[19] However, this study is not consistent with the present study. Taghdisi *et al*. referred to the low economic status of the family as the reason for inadequate fruit consumption in students. The present study showed no relationship between the family economic status with perceived behavioural control and subjective norms regarding breakfast consumption.[20] Hence, it doesn't match our study. Babazadeh *et al*., also showed no significant relationship between perceived behavioural control and fruit and vegetable consumption, but there was a significant relationship between subjective norms and fruit and vegetable consumption.[21] According to the analysis carried out, most students disagreed about the normative beliefs of parents, nutritionists, and health workers, and agreed with their friends and classmates' normative beliefs. With regard to the motivation to comply construct, most of the students also agreed with the teachers' opinions and disagreed with nutritionists, health workers, and

Table 4: The mean and standard deviation of control beliefs, perceived power and perceived behavior control of the students

Variables	Category	Control beliefs, mean (SD)	*P*	Perceived power, mean (SD)	*P*	Perceived behavior control, mean (SD)	*P*
Age**	15	14.72 (4.52)	0.15	17.60 (4.09)	0.32	53.50 (24.23)	0.22
	16	15.15 (4.36)		17.21 (4.49)		54.07 (24.40)	
	17	14.61 (4.17)		17.93 (4.06)		54.23 (22.78)	
	18	13.35 (4.15)		16.37 (4.66)		45.35 (20.52)	
Father job**	Employee	16.18 (4.49)	0.03	18.18 (3.62)	0.39	60.45 (23.14)	0.04
	Free job	14.65 (4.25)		17.21 (4.49)		52.28 (23.48)	
	Unemployed	13.73 (4.54)		17.18 (4.27)		48.97 (24.16)	
Mother job*	housewife	14.71 (4.35)	0.56	17.35 (4.28)	0.96	52.89 (23.73)	0.72
	Employed	15.3 (4.58)		17.3 (3.34)		54.8 (23.02)	
Father education**	illiterate	15.45 (4.31)	0.21	17.96 (5.06)	0.53	56.71 (25.27)	0.30
	Movement and Primitive	14.72 (3.61)		17.61 (3.80)		53.76 (20.57)	
	Middle school	14.60 (4.48)		17.11 (4.61)		51.74 (25.49)	
	High school	13.85 (5.28)		16.66 (4.73)		48.41 (24.84)	
	Undergraduate and Bachelor	15.73 (3.91)		17.41 (3.17)		56.64 (21.86)	
Mother education**	illiterate	15.04 (4.03)	0.63	18.01 (4.09)	0.14	55.58 (23.71)	0.74
	Movement and Primitive	14.41 (4.12)		17.47 (4.41)		23.23 (52.60)	
	Middle school	15.15 (5.02)		17.30 (4.45)		53.14 (24.96)	
	High school and more	14.85 (4.56)		16.12 (4.31)		50.68 (23.53)	
Family size*	Four and less	14.35 (4.50)	0.39	16.63 (4.71)	0.13	48.48 (21.85)	0.05
	Five and more	14.86 (4.31)		17.53 (4.25)		54.23 (24.01)	
Who lives*	Parents	14.75 (4.37)	0.98	17.40 (4.30)	0.34	53.20 (23.73)	0.60
	Others	14.73 (4.27)		16.52 (5.07)		50.56 (22.95)	
The economic situation*	Middle	14.85 (4.23)	0.49	17.41 (4.21)	0.61	53.60 (23.17)	0.46
	Good	14.47 (4.70)		17.13 (4.76)		51.40 (24.97)	
Birthday rating**	First	14.89 (4.53)	0.82	17.02 (4.58)	0.61	51.78 (23.46)	0.77
	Second	14.92 (4.546)		17.27 (4.83)		54.50 (25.67)	
	Third and higher	14.60 (4.19)		17.56 (4.05)		53.30 (23.18)	
Sleep time**	9-11	14.91 (3.82)	0.75	18.34 (3.54)	<0.001	56.31 (20.30)	0.03
	11-12	14.50 (4.51)		16.92 (4.32)		50.87 (24.45)	
	12And more	14.81 (5.08)		16.00 (5.37)		49.70 (27.78)	
Who eat breakfast**	All members	15.43 (4.26)	0.001	18.04 (3.76)	<0.001	57.41 (22.86)	<0.001
	Mother	15.15 (4.19)		17.94 (2.62)		55.05 (21.20)	
	Single	13.49 (4.34)		15.94 (5.21)		45.21 (24.38)	

**t*-test, **ANOVA

parents. Turconi t al. showed in a study that subjective norms (Peer effect) have been important predictors of the behaviour of breakfast consumption.[22]

Rakhshanderou *et al*., referred to subjective norms as one of the determinants of the behaviour of fruit and vegetable consumption in adolescents.[23] The last two studies are consistent with our study. Previous studies referred to subjective norms as the strongest predictor of fruit, fast food, and of fruits and vegetables consumption in students, respectively. Subjective norms are related to understanding the social pressures imposed on a person to do or not to do something and regulates the standards that individuals can accept or reject, and can increase social support. It has been proved that social support can improve students' consumption rate by increasing students' access. [20,21,24]

Karimi-Shahanjarini referred to friends and classmates as the most influential people on the use of fast foods among students.[25] The results of Javadi *et al*.'s study showed that mothers, family members, friends, and teachers are effective on the selection of foods by adolescents in 60.5%, 25%, 14.3%, and 0.2% of cases, respectively.[26] In the present study, most control beliefs of students to avoid breakfast were included the following, respectively: Being sick, consumption of repetitive breakfast foods, wake up late, snacks, and lack of preparation of breakfast by parents. The least perceived power was attributed to the following reasons, respectively: consumption of snacks, consumption of repetitive breakfast foods, and being sick. Perceived behavioural control is determined by control beliefs about the presence or absence of facilitators or barriers to behaviour, which is assessed by the perceived power or the effect of each control factor on the facilitation or prevention of behaviour. When a perceived behavioural control is high, one tries a lot of effort to carry out the behaviour. When voluntary

control over behaviour is high, the effect of perceived control decreases and the intention is a good predictor of behaviour.[15] Vaghari *et al*. referred to anorexia, unwanted foods, and maternal negligence as the most important reasons for avoiding breakfast.[27] Karami and Ghaleh also referred to a lack of appetite, hurry, and lateness as the most important reasons for skipping breakfast.[28]

Alizadeh, Sivaki *et al*., also reported that 40% of students consumed chips and cheese puffs at least 1–2 times a week, and 10.1% of them consumed all types of chocolates and sweets. Considering that low-value snacks cannot meet the nutritional needs of students, the necessary training should be given to students in this regard .[29] Jafari *et al*., also referred to waking up late, lack of appetite, disliking the breakfast foods, and the absence of prepared breakfast as the most important reasons for skipping breakfast.

These reasons indicate that families lack planning and order and do not pay attention to some of their children's issues, such as regular children's sleep hours, timely breakfast arrangements, and the preparation of various breakfast foods.[30] Identifying barriers and giving advice on the right strategies to overcome such barriers can make a dramatic change in eating habits. [7]

Conclusion

Considering that the sleep time duration, having breakfast with other family members are related to the important constructs of subjective norms and perceived behavioural control, which are considered as determinants of breakfast consumption, educational intervention planners thus should pay special attention to these two important factors.

Suggestions

According to this study finding, several suggestions can be addressed. First, considering the crucial role of parents in shaping healthy food habits and breakfast consumption, should always consider them as a key component of the training intervention. Second, to increase the subjective norm of breakfast consumption and healthy eating behaviour among students, it is necessary to consider and to educate students about all the effective factors on this component

Limitations and strengths

Breakfast consumption is dependent on a number of factors, and it was not possible to investigate all of them in the present study. The present study also focused on female students, and other studies can be carried out on male students. Another limitation of the study is the use of questionnaires to collect data and self-report. One of the strengths of this study is the indirect measurement of Perceived Behaviour Control and Subjective Norms.

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Conflicts of interest

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