Adolescent Health Knowledge of Family Physicians

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Abstract

Aim: There are specific life periods when physicians are more cautious with their patients. However, health needs are often disregarded throughout the adolescent era, even though it is a time when fast changes occur in many facets of life, including physical, psychological, cognitive, and social development. This study aimed to improve adolescent health by measuring the degree of knowledge of family physicians (FPs) on adolescent health services.

Methods: This was a descriptive-cross-sectional design study. A questionnaire was given to 2200 FPs by e-mail, and 344 accepted to participate. Two hundred fifteen (62.5%) of the FPs who participated in the survey, had encountered adolescent patients. The questionnaire had a 13% response rate.

Results: Women made up 56.4% of the participants (n=194), and the average age of the participants was 38.77 years (SD: 10.08) (min: 25, max: 80). A statistical correlation was found between having children and the belief that questions should be directed towards obtaining one-word answers from the target in the adolescent age group ($p<0.05$).

Conclusions: The active training of all family physicians in adolescent health can positively enhance the quality of healthcare services provided, primarily supported by the evidence of post-graduate education's beneficial impacts on knowledge and attitudes.

Keywords: *Primary care; adolescent health; family physician.*

1. Introduction

Physicians behave cautiously in their regular procedures during specific life periods. These distinct eras include childhood, characterized by rapid growth and development; old age, associated with frailty; and pregnancy, with particular demands. However, health needs are often disregarded throughout the adolescent era, even though it is a time when fast changes occur in many facets of life, including physical, psychological, cognitive, and social development.

The adolescent period is defined as the period between childhood and adulthood during which physical and sexual maturation, social and economic independence, identity development, the acquisition of necessary skills for adult relationships and roles, and the capacity for reasoning skills all occur. The World Health Organization (WHO) defines *adolescence* as the period between the ages of 10 and 19 years.[1]

Accidents, sexually transmitted diseases, and substance misuse are more common among adolescents than in general society. Although adolescence is not a very long period, it is split into distinct phases based on the extent of the changes that occur as early adolescence (ages 10-15 years), middle adolescence (ages 14-17 years), and late adolescence (ages 16-19 years). These periods have different features on the growth of the body, cognition, peer group and family relations, and sexuality. Youth is defined as the time between the ages of 15 and 24 years, and "young people" covers the age range of 10-24 years.[2]

Because adolescent health is a profession with few trained physicians in our country, family physicians (FPs) and pediatricians still provide health care for this age group. In their daily practice, FPs frequently encounter teenagers registered in their population for various reasons.[3,4] Family medicine, which approaches health holistically and provides health services, plays a role in all areas of health care, including treatment, screening, preventive health services, and health counseling. They attend sessions with their patients regarding disease treatment and health promotion and protection. School health examinations, regularly used in family health clinics, encompass the adolescent years and establish the framework for the minimum service to be offered to adolescents.[5] Psychosocial interviews with adolescents were attempted to be

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Received: 20.08.2023, Accepted: 06.10.2023, Available Online Date: 18.10.2023
Cite this article as: Kucukerdem HS, Aygun o, Gökdemir Ö. Adolescent Health Knowledge of Family Physicians. J Cukurova Anesth Surg. 2023; 6(3): 426-33.
doi: 10.36516/jocass.1346902

standardized in a "booklet of infant-child-adolescent follow-up protocols' developed for FPs, with the inventory abbreviated as "HEEADSSS". The acronym can be explained as Home, Education/Employment, Eating, Activities, Drugs, Sexuality, Suicide/depression, and Safety. Recently, researchers have expressed opinions advocating the inclusion of internet addiction in this evaluation form.[6] FPs are uniquely positioned to discuss risks and offer strategies to assist teens in avoiding unwanted pregnancies, sexually transmitted infections, unintentional accidents, depression, suicide, and other issues.[7] Compared with the short-term and more disease-focused presentations made by adolescents in the hospital setting, the chances of having interviews with FPs in which a trusting environment is built are relatively high.

Each age group's psychological features differ in addition to their growth and development characteristics. Prioritizing these distinctions in communication with the adolescent age group has various elements that should be examined. As a result, conducting interviews with adolescents necessitates a thorough understanding of this age group's features and the application of proper interview strategies.[7,8]

Notwithstanding access to health services, major health problems, risky behaviors, and poor health habits persist among adolescents [7]. Not benefiting from health services adequately has been associated with issues such as adolescents' inability to act independently throughout the medical system, concerns about trust and privacy, long waiting times in healthcare institutions, and fear of being seen by others.[9]

According to data from the Turkish Statistical Institute (TUIK), the teenage population accounted for 15% of the overall population in 2017; there has been no significant change in this ratio in recent years. The leading cause of mortality in the adolescent age group was "external injuries and deaths related to poisoning," according to a study that used TUIK data. Transportation accidents, accidental falls, accidental poisoning, suicide, willful self-harm, and murder-assault are among the five causes of mortality.[10] According to TUIK data, the overall suicide rate for all age groups was 3.94 per 100,000 in 2018, falling to 3.88 per 100,000 in 2019.[11] Suicidal thoughts were detected in 60-70% of teenagers with depression in one study, with suicide attempts recorded in 13-39% of them.[12]

In the United States of America (USA), 95% of 13-17-year-old adolescents reported having smartphone access, and nearly 50% reported regular smartphone use. The same study reported that adolescents' use of computers for 3 hours or more per day in tasks unrelated to school nearly doubled from 2007 to 2017, at a rate of 43%.[6]

According to a WHO report, it was estimated that 1 in 7 (14%) 10-19 year-olds globally experience mental health conditions, yet these remain primarily unrecognized and untreated.[13] In studies, depression and anxiety in adolescents have a variety of negative consequences, including lower education levels, dropping out of school, strained social relationships, and an increased risk of substance abuse, mental health problems, and suicide.[14] Some reviews and meta-analyses demonstrate a connection between adolescent social media use and depression.[15161718]

This study aimed to enhance adolescent health by measuring the degree of knowledge of FPs on adolescent health services and generating projects for the missing areas in the future.

2. Materials and methods

2.1. Study Design:

The study was descriptive cross-sectional research. The target population consisted of registered members (n=2200) of the Family Medicine Association, which holds a nationwide membership. The survey explored family physicians' knowledge and attitudes toward adolescent health.

2.2. Sampling Method:

A questionnaire was distributed to 2200 participants via e-mail and Family Medicine Association communication channels. The sample size was determined based on a 95% confidence level, a 5% error margin, and an assumed population proportion of 50%. The goal was to reach a minimum of 328 respondents from this pool of 2200 FPs.

2.3. Survey Instrument:

Given the absence of validated scales in the field during the study period, a comprehensive literature review was conducted, leading to the creation of the survey instrument. The questionnaire comprised a demographic information section and a segment containing 19 Likert-type questions. The demographic section encompassed questions about physicians' parental status, years of professional experience, post-graduate education in adolescent health, and frequency of interactions with adolescent patients. The Likert-type question segment assessed family physicians' perceptions and attitudes towards various aspects of adolescent health, including risk behaviors, health screenings, communication, sexuality, family relationships, substance/alcohol use, nutrition, exercise, and mental well-being assessment.

Data Collection: The survey, in the form of a Google Forms questionnaire, was disseminated through a series of announcements between January 5, 2021, and April 30, 2022

2.4. Data Analysis:

Statistical data analysis was performed using the Statistical Package for the Social Sciences (SPSS) for Windows 25.0 package application. Percentage values were used to interpret frequency, one of the descriptive statistics for the information obtained. We used the Chi-square test to ascertain the relationship between two categorical variables. In the study, $p<0.05$ was accepted as the level of statistical significance, and data were evaluated using this level of significance.

The study received approval from the Ethics Committee of İzmir Ekonomi University (Decision date: 21.12.2021, Number: B.30.2.IEÜSB.0.05.05-20-147).

3. Results

There were 344 participants accepted to participate and answered the questionnaire. The questionnaire had a 15,63% response rate.

Women comprised 56.4% of the participants (n=194); one individual did not state their sex. The average age of the participants was 38.77 (min: 25, max: 80, SD: 10.08) years. The participants' rate of having children was 61.9% (n=213). The average occupational work years was 17.22 among the 214 physicians who responded (min: 1 max: 40 SD: 9.10). Table 1 shows the descriptive data.

Two hundred fifteen (62.5%) of the FPs who participated in the survey said they had encountered adolescent patients, and 129 (37.5%) said they had not. Of those who met adolescent patients, 75.8% said they met at least one adolescent patient daily (n=163).

Living conditions affected the perspective of "wellness." For example, FPs living in city centers (77%) thought they should undergo follow-up measurements periodically, although the adolescents were at healthy ages. FPs living in the villages/suburbs thought communicating with adolescents was more demanding than with other patient groups.

Table 2 provides detailed information on the participants' opinions on the hypotheses related to their knowledge of and attitudes toward adolescent health by sex, age, and place of residence.

When the sex-related responses to the propositions were examined, female FPs agreed with the following propositions more

than male FPs: "Physical activity and nutritional status are among the situations that should be questioned in interviews," "There is no need to recommend a special physical activity to adolescents since they are already in an active age period," "It is necessary to question their eating habits," and "Questions in adolescent interviews are open-ended and non-judgmental sentences ($p<0.05$).

The participants were divided into three age groups for age evaluation: 25-34 years, 35-44 years, and over 45 years. It is harder for some patient groups to develop a relationship with their physician, and it is inappropriate to inquire about technology addiction during interviews. Female FPs aged 25-44 agreed with these propositions more than male FPs, statistically significant. It was an exciting finding that older FPs thought that younger adolescents' risky behavior was less regarding "talking about suicidal thoughts." FPs aged over 45 years reported that talking about suicidal thoughts would be a reason that suicide attempts could occur more quickly.

Income was found to be statistically associated with the statement, "Family relationships are important in the evaluation of people in this period" ($p<0.05$). Interestingly, the low-income group of FPs thought more about how important family relations were.

There is a statistical correlation between having children and the idea that "questions should be asked with one-word answers to the target to get answers in the adolescent age group" ($p<0.05$). It was seen that 30.2% of those without children and 28.8% of those with children strongly agreed with this statement.

Table 1

Participants' Distribution Based on General Characteristics

Characteristics		n	%
Age ($\bar{X}$: 38,77; SS: 10,08) (min:25, max:80)	25-34	147	42,7
	35-44	95	27,6
	45 and more	102	29,7
Sex	Female	194	56,4
	Male	150	43,6
Income	Good	117	34,0
	Mediım	197	57,3
	Bad	30	8,7
Settlement	Urban	298	86,6
	Rural	46	13,4
Having child/children	Yes	215	62,5
	No	129	37,5
The number of children*	1	90	42,3
	2	104	48,8
	3	15	7,0
	4	4	1,9
Working duration in profession (year)*	($\bar{X}$: 17,22; SS: 9,10) (min:1, max:40, n:214)		
Status of education in post-graduate adolescent health *	Yes	76	35,3
	No	139	64,7
How frequently do adolescent apply to your outpatient clinic? *	Every day, at least one patient	163	75,8
	Every week, at least one patient	32	14,9
	Every month, at least one patient	9	4,2
	Monthly, fewer than one patient	11	5,1
Adolescent age is defined correctly *	Doğru	43	20,0
	Hatalı	172	80,0

*n<344

Table 2

Distribution of Participants' Opinions on Propositions Regarding Knowledge and Attitudes Towards Adolescent Health by Sex, Age, and Place of Residence

		Sex		Age			Place of Residence	
		Female	Male	25-34	35-44	45+	City	District
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Adolescents are more prone to risky behaviors	I do not agree at all	0 (0.0)	1 (0.7)	0 (0.0)	0 (0.0)	1 (1.0)	1 (0.3)	0 (0.0)
	Disagree	21 (10.8)	16 (10.7)	10 (6.8)	12 (12.6)	15 (14.7)	29 (9.7)	8 (17.4)
	Undecided	6 (3.1)	6 (4.0)	3 (2.0)	7 (7.4)	2 (2.0)	12 (4.0)	0 (0.0)

	I quite agree	101 (52.1)	79 (52.7)	91 (61.9)	45 (47.4)	44 (43.1)	158 (53.0)	22 (47.8)
	Totally agree	66 (34.0)	48 (32.0)	43 (29.3)	31 (32.6)	40 (39.2)	98 (32.9)	16 (34.8)
	Test and p Values	χ2=1.605, p=0.900		χ2=17.316, p=0.014*			χ2=4.401, p=0.366	
Discussing sexually transmitted diseases with adolescents can have negative consequences	I do not agree at all	112 (57.7)	75 (50.0)	71 (48.3)	56 (58.9)	60 (58.8)	166 (55.7)	21 (45.7)
	Disagree	50 (25.8)	42 (28.0)	43 (29.3)	26 (27.4)	23 (22.5)	80 (26.8)	12 (26.1)
	Undecided	23 (11.9)	20 (13.3)	21 (14.3)	10 (10.5)	12 (11.8)	35 (11.7)	8 (17.4)
	I quite agree	7 (3.6)	9 (6.0)	7 (4.8)	3 (3.2)	6 (5.9)	13 (4.4)	3 (6.5)
	Totally agree	2 (1.0)	4 (2.7)	5 (3.4)	0 (0.0)	1 (1.0)	4 (1.3)	2 (4.3)
	Test and p Values	χ2=3.573, p=0.472		χ2=7.702, p=0.453			χ2=4.845, p=0.263	
Physical activity and nutritional status are among the conditions that should be questioned in interviews	I do not agree at all	2 (1.0)	4 (2.7)	1 (0.7)	2 (2.1)	3 (2.9)	5 (1.7)	1 (2.2)
	Disagree	8 (4.1)	6 (4.0)	6 (4.1)	6 (6.3)	2 (2.0)	13 (4.4)	1 (2.2)
	Undecided	2 (1.0)	2 (1.3)	2 (1.4)	1 (1.1)	1 (1.0)	4 (1.3)	0 (0.0)
	I quite agree	41 (21.1)	51 (34.0)	44 (29.9)	25 (26.3)	23 (22.5)	76 (25.5)	16 (34.8)
	Totally agree	141 (72.7)	87 (58.0)	94 (63.9)	61 (64.2)	73 (71.6)	200 (67.1)	28 (60.9)
	Test and p Values	χ2=9.462, p=0.039*		χ2=6.423, p=0.595			χ2=2.223, p=0.638	
To get answers to questions in the adolescent age group, targeted questions with one-word answers should be asked	I do not agree at all	38 (19.6)	30 (20.0)	27 (18.4)	20 (21.1)	21 (20.6)	54 (18.1)	14 (30.4)
	Disagree	42 (21.6)	36 (24.0)	36 (24.5)	26 (27.4)	16 (15.7)	68 (22.8)	10 (21.7)
	Undecided	46 (23.7)	27 (18.0)	38 (25.9)	15 (15.8)	20 (19.6)	68 (22.8)	5 (10.9)
	I quite agree	44 (22.7)	38 (25.3)	29 (19.7)	24 (25.3)	29 (28.4)	70 (23.5)	12 (26.1)
	Totally agree	24 (12.4)	19 (12.7)	17 (11.6)	10 (10.5)	16 (15.7)	38 (12.8)	5 (10.9)
	Test and p Values	X2=1.769, p=0.781		χ2=9.777, p=0.281			χ2=5.896, p=0.201	
There are no regular check-ups that need to be done because there is a period of life when people are healthy	I do not agree at all	146 (75.3)	111(74.0)	108 (73.5)	73 (76.8)	76 (74.5)	230 (77.2)	27 (58.7)
	Disagree	35 (18.0)	25 (16.7)	27 (18.4)	19 (20.0)	14 (13.7)	49 (16.4)	11 (23.9)
	Undecided	3 (1.5)	6 (4.0)	2 (1.4)	0 (0.0)	7 (6.9)	7 (2.3)	2 (4.3)
	I quite agree	3 (1.5)	7 (4.7)	6 (4.1)	1 (1.1)	3 (2.9)	6 (2.0)	4 (8.7)
	Totally agree	7 (3.6)	1 (0.7)	4 (2.7)	2 (2.1)	2 (2.0)	6 (2.0)	2 (4.3)
	Test and p Values	χ2=7.758, p=0.095		χ2=11.814, p=0.132			χ2=10.670, p=0.019*	
Family relationships are important in the evaluation of people in this period	I do not agree at all	1 (0.5)	3 (2.0)	1 (0.7)	1 (1.1)	2 (2.0)	4 (1.3)	0 (0.0)
	Disagree	4 (2.1)	6 (4.0)	5 (3.4)	3 (3.2)	2 (2.0)	8 (2.7)	2 (4.3)
	Undecided	5 (2.6)	2 (1.3)	2 (1.4)	4 (4.2)	1 (1.0)	7 (2.3)	0 (0.0)
	I quite agree	41 (21.1)	46 (30.7)	40 (27.2)	19 (20.0)	28 (27.5)	72 (24.2)	15 (32.6)
	Totally agree	143 (73.7)	93 (62.0)	99 (67.3)	68 (71.6)	69 (67.6)	207 (69.5)	29 (63.0)
	Test and p Values	χ2=7.925, p=0.079		χ2=5.811, p=0.675			χ2=2.647, p=0.550	
Difficulties experienced by adolescents in their educational life should be questioned in patient interviews	I do not agree at all	2(1.0)	6 (4.0)	3 (2.0)	2 (2.1)	3 (2.9)	7 (2.3)	1 (2.2)
	Disagree	8 (4.1)	8 (5.3)	6 (4.1)	5 (5.3)	5 (4.9)	14 (4.7)	2 (4.3)
	Undecided	18 (9.3)	9 (6.0)	11 (7.5)	9 (9.5)	7 (6.9)	24 (8.1)	3 (6.5)
	I quite agree	57 (29.4)	51 (34.0)	49 (33.3)	30 (31.6)	29 (28.4)	89 (29.9)	19 (41.3)
	Totally agree	109 (56.2)	76 (50.7)	78 (53.1)	49 (51.6)	58 (56.9)	164 (55.0)	21 (45.7)
	Test and p Values	χ2=5.685, p=0.226		χ2=1.972, p=0.988			χ2=2.485, p=0.635	
Questioning about substance abuse and smoking may encourage these behaviors	I do not agree at all	116 (59.8)	81 (54.0)	77 (52.4)	56 (58.9	64 (62.7)	173 (58.1)	24 (52.2)
	Disagree	46 (23.7)	40 (26.7)	39 (26.5)	28 (29.5)	19 (18.6)	78 (26.2)	8 (17.4)
	Undecided	18 (9.3)	12 (8.0)	19 (12.9)	5 (5.3)	6 (5.9)	23 (7.7)	7 (15.2)
	I quite agree	6 (3.1)	11 (7.3)	6 (4.1)	5 (5.3)	6 (5.9)	14 (4.7)	3 (6.5)
	Totally agree	8 (4.1)	6 (4.0)	6 (4.1)	1 (1.1)	7 (6.9)	10 (3.4)	4 (8.7)
	Test and p Values	χ2=4.031, p=0.405		χ2=13.155, p=0.099			χ2=7.225, p=0.101	
Mood assessments of adolescents should be done routinely during interviews	I do not agree at all	2 (1.0)	5 (3.3)	2 (1.4)	3 (3.2)	2 (2.0)	7 (2.3)	0 (0.0)
	Disagree	8 (4.1)	7 (4.7)	6 (4.1)	3 (3.2)	6 (5.9)	12 (4.0)	3 (6.5)
	Undecided	14 (7.2)	14 (9.3)	15 (10.2)	9 (9.5)	4 (3.9)	21 (7.0)	7 (15.2)
	I quite agree	49 (25.3)	45 (30.0)	40 (27.2)	29 (30.5)	25 (24.5)	79 (26.5)	15 (32.6)
	Totally agree	121 (62.4)	79 (52.7)	84 (57.1)	51 (53.7)	65 (63.7)	179 (60.1)	21 (45.7)
	Test and p Values	χ2=4.793, p=0.311		χ2=6.883, p=0.548			χ2=6.471, p=0.137	
Questioning suspected adolescents about suicidal thoughts	I do not agree at all	98 (50.5)	63 (42.0)	68 (46.3)	44 (46.3)	49 (48.0)	144 (48.3)	17 (37.0)
	Disagree	43 (22.2)	37 (24.7)	37 (25.2)	29 (30.5)	14 (13.7)	66 (22.1)	14 (30.4)
	Undecided	33 (17.0)	21 (14.0)	21 (14.3)	13 (13.7)	(19.6)	47 (15.8)	7 (15.2)

facilitates the emergence of this behavior	I quite agree	12 (6.2)	15 (10.0)	14 (9.5)	6 (6.3)	(6.9)	25 (8.4)	2 (4.3)
	Totally agree	8 (4.1)	14 (9.3)	7 (4.8)	3 (3.2)	(11.8)	16 (5.4)	6 (13.0)
	Test and p Values	χ2=7.185, p=0.126		χ2=15.552, p=0.049*			χ2=6.351, p=0.163	
There is no need to recommend a special physical activity for adolescents as it is an active age period	I do not agree at all	153 (78.9)	91 (60.7	101 (68.7)	71 (74.7)	72 (70.6)	214 (71.8)	30 (65.2)
	Disagree	28 (14.4)	40 (26.7	36 (24).5	19 (20.0)	13 (12.7)	57 (19.1)	11 (23.9)
	Undecided	2 (1.0)	8 (5.3)	4 (2.7)	2 (2.1)	4 (3.9)	9 (3.0)	1 (2.2)
	I quite agree	7 (3.6)	5 (3.3)	5 (3.4)	1 (1.1)	6 (5.9)	8 (2.7)	4 (8.7)
	Totally agree	4 (2.1)	6 (4.0)	1 (0.7)	2 (2.1)	7 (6.9)	10 (3.4)	0 (0.0)
	Test and p Values	χ2=16.853, p=0.001*		χ2=15.513, p=0.036*			χ2=5.511, p=0.187	
It is necessary to question eating habits	I do not agree at all	3 (1.5)	4 (2.7)	1 (0.7)	4 (4.2)	2 (2.0)	7 (2.3)	0 (0.0)
	Disagree	8 (4.1)	4 (42.7)	8 (5.4)	2 (2.1)	2 (2.0)	11 (3.7)	1 (2.2)
	Undecided	2 (1.0)	8 (5.3)	3 (2.0)	5 (5.3)	2 (2.0)	9 (3.0)	1 (2.2)
	I quite agree	36 (18.6)	39 (26.0)	39 (26.5)	19 (20.0)	17 (16.7)	64 (21.5)	11 (23.9)
	Totally agree	145 (74.7)	95 (63.3)	96 (65.3)	65 (68.4)	79 (77.5)	207 (69.5)	33 (71.7)
	Test and p Values	χ2=9.995, p=0.035*		χ2=11.969, p=0.126			χ2=0.697, p=0.965	
In adolescent interviews, questions should be open-ended and non-judgmental	I do not agree at all	2 (1.0)	4 (2.7)	3 (2.0)	1 (1.19	2 (2.0)	6 (2.0)	0 (0.0)
	Disagree	4 (2.1)	11 (7.3)	9 (6.1)	4 (4.2)	2 (2.0)	13 (4.4)	2 (4.3)
	Undecided	0 (0.0)	4 (2.7)	3 (2.0)	0 (0.0)	1 (1.0)	2 (0.7)	2 (4.3)
	I quite agree	32 (16.5)	32 (21.3)	31 (21.1)	19 (20.0)	14 (13.7)	54 (18.1)	10 (21.7)
	Totally agree	156 (80.4)	99 (66.0)	101 (68.7)	71 (74.7)	83 (81.4)	223 (74.8)	32 (69.6)
	Test and p Values	χ2=14.808, p=0.003*		χ2=7.622, p=0.443			χ2=4.814, p=0.246	
Skin problems are a common condition	I do not agree at all	1 (0.5)	5 (3.3)	2 (1.4)	0 (0.0)	4 (3.9)	5 (1.7)	1 (2.2)
	Disagree	6 (3.1)	5 (3.3)	6 (4.1)	4 (4.2)	1 (1.0)	9 (3.0)	2 (4.3)
	Undecided	5 (2.6)	8 (5.3)	4 (2.7)	5 (5.3)	4 (3.9)	13 (4.4)	0 (0.0)
	I quite agree	57 (29.4)	54 (36.0)	45 (30.6)	35 (36.8)	31 (30.4)	93 (31.2)	18 (39.1)
	Totally agree	125 (64.4)	78 (52.0)	90 (61.2)	51 (53.7)	62 (60.8)	178 (59.7)	25 (54.3)
	Test and p Values	χ2=8.756, p=0.061		χ2=8.729, p=0.345			χ2=3.459, p=0.428	
Establishing a patient-physician relationship with adolescents is more difficult than with other patient groups	I do not agree at all	19 (9.8)	12 (8.0)	8 (5.4)	4 (4.2)	19 (18.6)	28 (9.4)	3 (6.5)
	Disagree	29 (14.9)	34 (22.7)	26 (17.7)	21 (22.1)	16 (15.7)	61 (20.5)	2 (4.3)
	Undecided	34 (17.5)	16 (10.7)	21 (14.3)	16 (16.8)	13 (12.7)	39 (13.1)	11 (23.9)
	I quite agree	70 (36.1)	58 (38.7)	53 (36.1)	53 (36.8)	40 (39.2)	106 (35.6)	22 (47.8)
	Totally agree	42 (21.6)	30 (20.0)	39 (26.5)	19 (20.0)	14 (13.7)	64 (21.5)	8 (17.4)
	Test and p Values	χ2=6.054, p=0.197		χ2=21.653, p=0.006*			χ2=11.835, p=0.016*	
Technology addiction is a topic that should not be questioned in interviews	I do not agree at all	106 (54.6)	68 (45.3)	79 (53.7)	50 (52.6)	45 (44.1)	153 (51.3)	21 (45.7)
	Disagree	20 (10.3)	25 (16.7)	18 (12.2)	14 (14.7)	13 (12.7)	37 (12.4)	8 (17.4)
	Undecided	9 (4.6)	6 (4.0)	8 (5.4)	5 (5.3)	2 (2.0)	13 (4.4)	2 (4.3)
	I quite agree	23 (11.9)	21 (14.0)	22 (15.0)	12 (12.6)	10 (9.8)	39 (13.1)	5 (10.9)
	Totally agree	36 (18.6)	30 (20.0)	20 (13.6)	14 (14.7)	32 (31.4)	56 (18.8)	10 (21.7)
	Test and p Values	χ2=4.537, p=0.341		χ2=15.936, p=0.043*			χ2=1.559, p=0.817	
Test anxiety is a point to be included in the interviews	I do not agree at all	3 (1.5)	3 (2.0)	1 (0.7)	2 (2.1)	3 (2.9)	6 (2.0)	0 (0.0
	Disagree	8 (4.1)	8 (5.3)	7 (4.8)	7 (7.4)	2 (2.0)	15 (5.0)	1 (2.2
	Undecided	12 (6.2)	8 (5.3)	9 (6.1)	7 (7.4)	4 (3.9)	16 (5.4)	4 (8.7
	I quite agree	50 (25.8)	47 (31.3)	48 (32.7)	25 (26.3)	24 (23.5)	81 (27.2)	16 (34.8
	Totally agree	121 (62.4)	84 (56.0)	82 (55.8)	54 (56.8)	69 (67.6)	180 (60.4)	25 (54.3
	Test and p Values	χ2=1.975, p=0.755		χ2=9.592, p=0.274			χ2=2.747, p=0.586	
Since the growth and development process is very rapid, it is not necessary to monitor height and weight during this period	I do not agree at all	130 (67.0)	105 (70.0)	93 (63.3)	69 (72.6)	73 (71.6)	207 (69.5)	28 (60.9)
	Disagree	26 (13.4)	28 (18.7)	30 (20.4)	12 (12.6)	12 (11.8)	49 (16.4)	5 (10.9)
	Undecided	13 (6.7)	3 (2.0)	7 (4.8)	6 (6.3)	3 (2.9)	15 (5.0)	1 (2.2)
	I quite agree	9 (4.6)	7 (4.7)	11 (7.5)	0 (0.0)	5 (4.9)	12 (4.0)	4 (8.7)
	Totally agree	16 (8.2)	7 (4.7)	6 (4.1)	8 (8.4)	9 (8.8)	15 (5.0)	8 (17.4)
	Test and p Values	χ2=7.246, p=0.124		χ2=16.684, p=0.029*			χ2=10.810, p=0.020*	
Counseling on contraceptive methods is an appropriate health service for this age group	I do not agree at all	8 (4.1)	15 (10.0)	7 (4.8)	9 (9.5)	7 (6.9)	6.0	10.9
	Disagree	15 (7.7)	18 (12.0)	20 (13.6)	7 (7.4)	6 (5.9)	9.4	10.9
	Undecided	38 (19.6)	22 (14.7)	36 (24.5)	12 (12.6)	12 (11.8)	17.1	19.6
	I quite agree	53 (27.3)	41 (27.3)	38 (25.9)	29 (30.5)	27 (26.5)	27.2	28.3
	Totally agree	80 (41.2)	54 (36.0)	46 (31.3)	38 (40.0)	50 (49.0)	40.3	30.4
	Test and p Values	χ2=7.745, p=0.101		χ2=19.071, p=0.014*			χ2=3.007, p=0.552	

*p<0.05

4. Discussions

In our study, 344 individuals responded to 19 5-item Likert-type questions that probed FPs' knowledge and attitudes toward adolescent health. FPs, who are the 'gatekeepers' of healthcare for all age groups, must be aware of the needs and peculiarities of each age group in their daily practice.[19]

The group of FPs who had children thought that "target-aimed and/or not open clause questions were more efficient" than the group of FPs who did not have children. This finding needs to be studied further to reveal the root reason for to search sex differences among different professions and dominant cultures. We did not assess whether the FPs' child/children were adolescents; it could be another research question.

Female physicians' knowledge about physical activity, eating habits, asking open-ended questions, and being non-judgemental was significantly better than in the male FPs, and it was interesting that there were no statements that were assessed as "favorable/appropriate" about adolescent health among male FPs. [20]

FPs aged 25-34 years were more aware of counseling for risky behaviors among adolescents. The root reasons for this finding could be evaluated by qualitative studies.[21,22] The 35-44-year-old group reported that a physical activity plan was needed for adolescents more than the other groups. This age group also thought weight and height follow-ups should be performed more than the other FP groups. Follow-up for adolescents and other individuals is essential according to family medicine discipline [232425]. From the lifestyle medicine perspective, these data could be used to improve the community's health.[26,27]

Interestingly, the opinion "addiction to technology should be asked" was the lowest in the group aged 45 years and over; this decreased with age among the FPs. These kinds of addiction may not be well known by the physicians in this group.[28,29] This topic could be added to lifelong learning and continuing medical education. [30,31,32]

As the age of the FPs increased, they thought communication with adolescents was difficult. From patient-centeredness as a core value of family medicine, communication skills, and motivational interview techniques are needed 35 to reach that target group.

The statement, "Contraception methods should be a part of counseling for adolescents," was more acceptable among older FPs; acceptance rates increased as the ages increased.[33,34,35] This was also an exciting finding.

Interestingly, the low-income group of FPs thought more that family relations were essential. Living conditions also affect the perspective about "wellness." For example, although the adolescents were at healthy ages, the FPs who lived in city centers (77%) thought they should undergo follow-up measurements periodically. FPs living in villages/suburbs thought communicating with adolescents was more challenging than with other patient groups.

In our study, female FPs were statistically significantly more likely than male FPs to question their patients' eating habits, mobility, and physical activity. Numerous socioeconomic and behavioral traits in the pediatric population have been found to indicate that older, female, non-English speaking, urban children, as well as those with lower socioeconomic status (SES) and neighborhood social capital, have lower levels of physical activity.[36] Accordingly, for the wellness of the population, this topic is crucial. Stanford et al. reported that "compared with those who did not meet the guidelines or were overweight or obese, physicians and medical students with a normal BMI and who met the moderate and vigorous USDHHS guidelines were more likely to feel comfortable advising their patients about physical activity.[37] Lifestyle medicine (e.g., physical activity, healthy diet, stress management) could help patients and FPs.

According to studies, adolescents are frequently affected by sexually transmitted diseases (STDs), and their awareness of STDs is insufficient.[19,35] Adolescents disproportionately affected by the disease continue to be at risk for sexually transmitted infections (STIs), a significant cause of morbidity. Many infections in this at-risk population are asymptomatic but still carry a high risk of long-term consequences.[38] In our study, 35% of FPs said that discussing STDs with adolescents would have a negative impact. This percentage was statistically significantly higher among FPs who had not received training on adolescent health. Adolescent STIs are a particular concern for primary care providers. To lower the prevalence, complications, and transmission of STIs in the adolescent population, primary care providers must improve adherence to their recommendations for screening, treatment, and immunization.[38] Physical fitness, nutrition, and growth were the three most significant concerns in research on teenage healthcare objectives from the viewpoints of youth (13-18 years). Although 70% and 66% of respondents reported that they wanted to discuss STDs and contraception difficulties, respectively, these topics were only discussed 18% and 22% of the time.[39] From this perspective, it may be easier for FPs to proceed through interviews, beginning with topics that adolescents are most interested in and progressing to specific topics that are thought to be more challenging to discuss (e.g., STDs, depression, alcohol-substance use) after a healthy communication has been established.

Ozkul et al. published that FPs evaluated that adolescents over 15 years were at higher risk than those younger. Those risks included smoking, having an accident, fighting, and substance use. They stated that follow-ups should also contain height-weight measurements, weight change, blood pressure measurements, and question exercise.[40] In our study, FPs stated that the topics that needed to be discussed with adolescents the most were those related to physical activity and nutrition, family relationships, exam anxiety, and skin issues.[40] Jones et al. stated that, in a survey of 104 parents, 87% were interested in a parenting program in primary care. From the parents' perspective, it was deemed highly important to seek help on communication (65%) and conflict management (50%) from the list of parenting difficulties. However, it was focused mainly on sexuality (77%), mental health (75%), alcohol (50%) and drugs (74%). The parents/caregivers were looking for advice. The study by Jones et al. discovered that parents recognized several rewarding and challenging aspects of raising adolescents and were willing to seek help on various parenting issues through primary care settings.[41]

A sedentary lifestyle, poor diet, smoking, and risky drinking are four interrelated health risk behaviors that are thought to have origins in childhood and adolescence in the USA. These dangers are linked to the leading causes of disease, disability, the cost of medical care, and early death.[42,43] Most residents believed that adolescent preventive and clinical services were covered by their field in a study on the attitudes and education of pediatrics, family medicine, and obstetrics-gynecology (Ob-Gyn) residents about adolescent health that was conducted in the USA. To refer youths to drug abuse treatment programs and address physical and sexual abuse, assistants from all three fields needed more training and experience in mental health issues48. Additionally, pediatric residents reported a lack of training and experience in sexual health services. In contrast, Ob-Gyn residents reported a lack of training and experience in preventive counseling and general health services.[44]

4.1. Limitations of the Study:

Due to the lack of an existing valid and reliable scale in the literature to assess physicians' knowledge and attitudes towards

Adolescent Health, the questions were developed by researchers through a literature review.
Although the participating physicians were from various regions across the country, the information regarding the specific provinces where the participants practiced was not collected, which resulted in the inability to stratify the data.
In the Discussion section, while highlighting the gaps in these areas due to the limited availability of similar studies for comparison, the discussion of findings is constrained by the need for more comparable literature.

5. Conclusions

Community health is improved by raising the level of expertise in adolescent health among FPs, who offer services to all age groups of society without distinction regarding disease and ongoing health. The training of all FPs about adolescent health can positively contribute to the quality of the healthcare services offered, mainly because it has been determined that post-graduate education positively affects knowledge and attitudes.
Our country has limited studies on adolescent health because it is a new field of specialization. FPs, who constitute the entry point of the health system, should increase their knowledge in this field.

Statement of ethics

The study received approval from the Ethics Committee of İzmir Ekonomi University (Decision date: 21.12.2021, Number: B.30.2.IEÜSB.0.05.05-20-147).

Conflict of interest statement

Author declare that they have no financial conflict of interest with regard to the content of this report.

Funding source

The authors received no financial support for the research, authorship, and/or publication of this article.

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