Knowledge and attitude relating to exercise prescription of family medicine research assistant and specialist physicians who are working in Ankara

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ABSTRACT

Aims: Depending on the principle "exercise is medicine", physicians are encouraged to prescribe exercise for treating chronic diseases. In this study, we aimed to evaluate Family Physicians' exercise prescription (EP) knowledge and practice level, as well as the patient feedback through their perspective.

Methods:145 research assistant and specialist physicians of Family Medicine branch in Ankara participated in our descriptive cross-sectional study. They answered a self-produced questionnaire that consisted of 6 sections and 15 questions; mainly presenting their approach.

Results: There was statistically significant difference between participants' EP frequency and learning EP at medical faculty and Family Medicine specialty training ($Z=-2,25$ $p=0.024$, and $Z=-3,67$ $p<0.001$, respectively); whereas learning at medical congresses or courses had no such effect. There was statistically significant difference between physicians' thought of necessity and implementation regarding EP ($p<0.001$). A high percentage of participants (n=102, 70.3%) pointed out that the patients behave and comment as their expectations are not met when they prescribe only or primarily exercise; 127 (80.6%) remarked that patients have difficulty in adapting to EP. Many require a new guideline that is more appropriate for the lifestyle and abilities of the people in this nation and easily-applicable in primary health care centres (n=60, 41.4%). There was statistically significant correlation between the participants' own exercising and prescribing exercise frequencies ($r=0.169$, $p=0.042$).

Conclusions: The curriculum of medical faculties should include standardized EP lessons. Also, considering the quality of contents; patients' expectations and maladaptation problems should be examined in detail and new practicable guidelines should be developed.

Introduction

Most chronic diseases arise from an unhealthy lifestyle, increasing mortality and morbidity. World Health Organization reported the global causes of mortality; including high blood pressure (13% of deaths), smoking (9%), high blood glucose (6%), physical inactivity (6%) and obesity (5%), respectively (1). Physical inactivity is the fourth risk factor in order, but ahead in importance as it is changeable.

Regular physical activity is associated with various health benefits (2): decreases depression risk (3), blood pressure (4), glycosylated hemoglobin level (5), cardiovascular morbidity and mortality (6); also affects mental health positively (3) and helps to prevent Alzheimer disease enhancing cognitive functions in the elder (7). Taking advantage of them, the principle "exercise is medicine" has been developed. Medical communities agree that physical activity is as effective as drugs in the treatment of most chronic diseases (8). Also, exercise prescription (EP) has an important role in the primary, secondary and tertiary prevention of chronic diseases (9).

A research in Canada revealed that the diagnosis and treatment of physical inactivity-induced diseases cost approximately 6.8 billion dollars per year (10). As this is a huge amount, centralizing exercise in the management of these diseases is a considerable step. Because exercise costs null. Then, how to recommend and prescribe exercise is the next step.

Family Medicine physicians are the chief part of primary health care, as they can reach every segment of the society (11). If they emphasize the importance of physical activity to the patients in detail and follow up the results, awareness will increase accompanying effective outcomes (12). Orrow et al. concluded that the physical activity level of sedentary adults increases in a 12-month period as the result of such an approach (13). In addition, patients appreciate cost-effective interventions as well as primary health care providers (11). But, convincing them to EP may sometimes overextend the physicians. This can affect the preference rate of EP in clinical practice. Also, the knowledge level of physicians about EP is another criterion of preference.

Our aim in this study is to analyze factors affecting Family Medicine physicians' level of knowledge, behaviours and atti-

tudes related to EP.

Methods

This research is a descriptive cross-sectional study. Principally, it was presented to the local ethics committee of a teaching and research hospital from the same province and the protocol, which is described below, started after the approval.

A total of 145 research assistants and specialist physicians of Family Medicine branch from Ankara, who agreed to participate in this study and signed an informed consent form, were included. One of the authors (IS) interviewed with the participants face to face and filled a self-produced verbal questionnaire about EP between the dates of 1 March and 1 June of 2016.

The questionnaire consisted of 6 main sections and a total of 15 questions. Participant's sociodemographic characteristics were investigated in the first section. The educational stage in which the physician was trained about EP was in the second section. The investigator analyzed whether the participant took lessons about EP during medical faculty and specialty training or only listened to lectures about EP during medical congresses and courses. Frequency of prescribing exercise and the basic items of the prescription for outpatients were in the third section. Feedbacks from patients through the participant's perspective was in the fourth section. Participant's general idea about existing guidelines for EP and using rate were in the fifth section. Participant's own exercising frequency was in the last section.

Statistical Package for Social Sciences (SPSS) for Windows v20 (IBM SPSS Inc., Chicago, IL) program was used for the statistical analyzes. The compliance of numerical data to normal distribution was analyzed graphically by Shapiro-Wilk test. Numeric variables complying with normal distribution were indicated as mean ± standard deviation, whereas not complying with normal distribution were indicated as median [Interquartile Range (IQR) (minimum-maximum)].

Categorical variables were indicated numerically as percent (%). Variables between two groups were compared by Mann Whitney U test; but between three or more groups by Kruskal Wallis H test since there was no numeric variable complying with normal distribution. Relations between the parameters were analyzed by Spearman's correlation and the categorical variables were compared by Chi-square test. $p<0.05$ value was considered to be statistically significant in analyzes.

Results

Sociodemographic characteristics of the participants are shown in Table 1.

The majority of participants (n=135, 93.1%) confirmed that chronic diseases can be regulated in early stages by recommending exercise. These chronic diseases are presented in Table 2. Other chronic diseases which are not shown in the table and mentioned by few participants are chronic obstructive lung disease (n=4, 2.8%), metabolic syndrome (n=2, 1.4%), addiction therapy (n=2, 1.4%), neurological diseases (n=2, 1.4%), polycystic ovary syndrome (n=1, 0.7%), and chronic bowel syndrome (n=1, 0.7%) respectively.

Nearly one-fifth of participants (n=31, 21.4%) expressed that they learned about EP in medical faculty education, 38 (26.2%) in specialty training on Family Medicine, and 28 (19.3%) in medical congresses or courses. The prescribing exercise median values of participants are as follows: overall 25% (IQR:40, min:0 - max:100); who learned at medical faculty 40% (IQR:40, min:0 - max:90); who learned at Family Medicine specialty 40% (IQR:26, min:0 - max:90).

Table 1: Sociodemographic characteristics of participants

		n	%
Sex	F	104	71.7
	M	41	28.3
Age (year)	25-29	89	61.4
	30-39	40	27.6
	> 40	16	11.0
Duration in the profession (year)	1-4	91	62.8
	5-9	28	19.3
	10-14	11	7.6
	> 14	15	10.3
Degree	Research assistant physician	117	80.7
	Specialist physician	28	19.3

F: Female, M: Male

Table 2: Chronic diseases which are believed to be regulated by exercise

Chronic disease	n	%
Obesity	141	97.2
Prediabetes / diabetes mellitus	140	96.6
Hypertension	127	87.6
Existence of cardiovascular risk factor	126	86.9
Musculoskeletal system diseases	14	9.7
Hyperlipidemia	11	7.6
Psychiatric diseases	7	4.8
Rheumatic diseases	5	3.4

Table 3: Participants' thoughts and behaviors about which criteria should be considered while prescribing exercise

Exercise prescription criteria	Thought		Practice			
	n	%	n	%	χ^2	P
Type of exercise	142	97.9	124	85.5	25.176	< 0.001
Duration of exercise	143	98.6	122	84.1	4.195	0.04
Frequency of exercise	139	95.6	118	81.4	17.892	< 0.001
Intensity of exercise	116	80	81	55.9	31.548	< 0.001
Suitable environment for exercising	78	53.8	38	26.2	25.163	< 0.001
Suitable auxiliary tool for exercising	52	35.9	19	13.1	22.549	< 0.001
Suitable ground for exercising	46	31.7	18	12.4	25.055	< 0.001
Suitable accessory for exercising	55	37.9	20	13.8	31.261	< 0.001

Table 4: Physicians' opinions about causes of maladaptation to exercise		
Factors affecting patient's adaptation to the prescript	**n**	**%**
1. Patient's capacity cannot tolerate the prescript	49	33.8
2. Physician does not confirm that patient understood the prescript correctly	46	31.7
3. Modifying lifestyle is not easy	34	23.4
4. Patient does not believe the benefits of exercise but thinks that drugs are more effective	32	22.1
5. Patient has no leisure time for exercising	11	7.6
6. Patient does not care about his/her disease	4	2.8
7. There are not suitable environmental conditions for exercising	3	2.1
8. Physician cannot prescribe appropriate exercise for the patient	3	2.1
9. Patient does not listen to the physician well	1	0.7
10. Physician does not tell about the importance of exercise enough	1	0.7

There was statistically significant difference between prescribing exercise frequency and learning at medical faculty and Family Medicine specialty training (Z=-2,25 p=0.024, and Z=-3,67 p<0.001, respectively). No statistically significant difference was found between prescribing exercise frequency and learning at medical congresses or courses (Z=-0,441 p=0.659).

Data of participants' thought about which criteria should be considered while prescribing exercise and how many of them are implemented in daily clinical practice are given in Table 3. There was statistically significant difference between the thought of necessity and implementation regarding to EP (Table 3).

High percentage of participants (n=102, 70.3%) pointed out that the patients behave and comment as their expectations are not met when they prescribe only or primarily exercise, and 127 (80.6%) remarked that patients have difficulty in adapting to the prescribed exercise program. Physicians' opinions about this maladaptation problem are given in Table 4.

Few participants (n=22, 15.2%) mentioned that they use existing guidelines, and 28 (45.9%) commented that the existing guidelines are practicable for the physician and adaptable for the patient. Many require a new guideline that is more appropriate for lifestyle and abilities of the people in this nation, and easily-applicable in primary health care centres (n=60, 41.4%). Nearly half of the participants (n=74, 51%) did not answer the question about existing guidelines.

Participants' own exercising frequency is shown on Table 5. There was statistically significant correlation between the participants' own exercising and prescribing exercise frequencies (r=0.169, p=0.042).

Table 5: Physicians' own exercising frequency		
Exercising Frequency	**n**	**%**
Everyday	7	4.8
Five or six days a week	1	0.7
Three or four days a week	35	24.1
Two days a week	29	20.0
One day a week	23	15.9
One day a month	6	4.1
Never or rarely	44	30.3

Discussion

Exercise prescription is important in the regulation of chronic diseases as it has been concluded in several studies and highlighted by various medical societies (14,15). But it was not investigated and analyzed at which educational stage the physician learned about EP, there is lack of this knowledge in the literature. In our study, we found that the prescribing exercise frequency of physicians who learned at medical faculty or specialty training is in higher rate. Thus, it is important to add EP lessons to the curriculum of medical faculty and specialty trainings. This may eliminate the physicians' diffidence about EP and agreement with "drugs are more efficient" idea (15). We consider that the mind perceives earlier periods of education on any branch as basic, permanent and convincing. Vallance et al showed that EP lessons obtained in the first and second year of medical faculty education is more effective than that in the third and fourth year (16). So, the preference rate in clinical practice may be associated with the acceptability of mind.

This paper reported that learning EP at medical congresses or courses has not a positive effect on prescribing exercise frequency rate. But we consider that discussing on a previously learned topic at medical congresses or courses may have an extra plus effect. This idea also emphasizes the requirement of medical faculty curriculum revision.

Physicians need a new guideline that is appropriate for lifestyle and abilities of Turkish people. They use existing national guidelines in a low rate and think that these guidelines do not include practical information for both the physician and the patient. New guideline(s) will also facilitate EP if the maladaptation rate of the patients decreases. Physicians who did not answer this question are probably unaware of the existing ones. More researches and detailed data are needed for an accurate interpretation.

Petrella et al. conducted a similar study in Canada including 13,166 participants (17). According to results, 15.8% of the participants were prescribing exercise to patients in a written form, whereas 69.8% verbally (17). The interrogator item of our questionnaire was "What percentage of patients do you prescribe exercise a day?". Fundamentally, it should be investigated whether the appropriate exercise for the patient and his/her disease was prescribed as written information form. But we did not check whether our participants prescribe exercise verbal-

ly or in a written form in another question. So the participants might have included their individual verbal recommendations under this headline.

In our study, the questionnaire was not detailed enough to evaluate the causes of low EP frequency rate. According to Vallance et al., physicians have such an opinion that interviewing with patients in a motivational way is a different sense of art and requires special ability (16). Thus, convincing the patient of EP may be difficult for some physicians. They concluded that physicians also have not enough information about recommending lifestyle modification (16). Not only is an ability enough to achieve this goal; combining it with sufficient knowledge should be the principal approach. Identifying and eliminating the other potential causes will increase EP frequency rate too.

While prescribing exercise; items of type, duration, frequency, intensity and aim should be considered rather than just saying "you should exercise, you should walk more" (18). Most physicians think that these criteria should be included in EP, but they do not exhibit this thought in their own clinical practice generally. This dilemma may said to be arising from lack of knowledge and time (15).

Most physicians pointed out that patients are not satisfied when they prescribe exercise, because patients expect drugs. This may be one other cause of low EP frequency rate. National health organizations often manage public spots, advertisements and informative sessions about the importance and necessity of exercise. However, the society - and so patients - are still not aware enough. Efforts should focus on more creative and noticeable promotion.

As the result of current literature review, there is no study presenting the correlation between physicians' own exercising and prescribing exercise frequency rates. This paper reported statistically significant difference between these two items. The exercising ones experience the factors affecting exercising negatively, and so have an opportunity to provide feasible keys for patients rather than theoretical recommendations. They can deliver the messages to their patients in empathic feelings, this may increase the patients' confidence; breaking the vicious cycle between the physician and the patient. In addition, we have no knowledge about the medical history of the participants. Having a chronic disease that benefits from EP may be a determining factor for exercising. The involved parameters of our study should be compared between physicians who have such a chronic disease and who do not.

Consequently, our study includes participants from only one province. But large sample sizes representing this nation will provide more accurate results. Also, studies including physicians of other branches may help to form a general approach.

The curriculum of medical faculties should include standardized EP lessons. New practical guidelines, referral schemes and objective measurement tools for long term follow up are necessary. Considering the business tempo of primary health care providers, these materials should be applicable within a few minutes. Also, they should be introduced to physicians properly. Public Health Institution organize multidisciplinary workshops occasionally. More attempts should be planned for more advance in this direction.

This study aimed to research physicians' EP knowledge, behaviors and factors affecting them. Also the results enable them to evaluate themselves from multiple perspectives. In addition, the causes of some problems involving patients' maladaptation to EP are still unclear. Different studies should be designed to analyze and solve them.

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The first and second authors (EA and OK) have contributed equally to the study.

Conflict of interest

The authors declared they do not have anything to disclose regarding conflict of interest with respect to this manuscript.

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