



Assessment of Effects of Education Provided to the Family Physicians on Home Visits in Primary Care Setting in Burdur Province in 2011 on Physicians' Knowledge, Skills and Attitudes

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ORIGINAL
INVESTIGATION

ABSTRACT

Objective: Home visit is an essential part of primary health care services. In Turkey, as is all over the world, need for home visits will increase with aging population. The number of studies carried out by physicians on home visits in Turkey is quite limited. In the present study, we aimed to make a favorable change in family physicians' knowledge and attitudes about home visits via an education on home visits.

Materials and Methods: The present study was conducted as a dissertation project. The universe of this study, which is a cross-sectional study, comprised all family physicians, who were working at Family Health Centers (FHCCs) affiliated to Burdur Provincial Directorate of Health and volunteer to participate in the study. A total of 72 family physicians, 37 being in the intervention group and 35 being in the control group, participated in the study. At the beginning of the study, a survey on home visits was performed in both groups; whilst the intervention group received education on home visits, the control group did not. The survey was repeated after three months and the intervention group underwent a core exam. Data obtained were transferred to the Statistical Package for the Social Sciences (SPSS) 18.0 statistics program and were analyzed. Intervention and control groups were compared. Additionally, pre- and post-education results of the intervention group were also compared.

Results: Of 72 physicians received the first survey, 39 (54.2%) reported that family physicians should perform home visits and 18 (25%) physicians reported that they should not, whereas 15 (20%) were undecided. Thirty-one (43.1%) of 72 physicians were in the opinion that they performed adequate number of home visits. There were 26 (36.1%) family physicians thinking that the number of home visits they performed was not adequate, whereas 15 (20.8%) family physicians were undecided. Although the number of physicians, who considered the number of home visits they performed adequate, increased after education, it was not statistically significant. Whilst 44.4% (n=32) of the family physicians were eager about home visits, 45.8% (n=33) were not. The rate of eagerness increased after the education.

Conclusion: Knowledge and skills of the family physicians were enhanced with the education on home visits as was expected. While the rate of eagerness about home visits was increased, expected increase in the rate of home visits was not achieved.

Key words: Family medicine, home visits, education, attitude

INTRODUCTION

Home visits are a kind of health care service that match with person-centered and family-oriented approach of family medicine, which enables assessment of patient in his/her own environment. The American Academy of Family Medicine defines home visits as "programmed observation visit to the patient's home performed by one or more members of a health team" (1, 2). Home visits are performed to assess persons that are unable to access to medical care regularly due to their chronic diseases, disabilities or transportation difficulties, to identify and meet health needs, to detect life style and behaviors that cause health risk and to give counseling within the context of health improvement and disease prevention, to assess living environment in terms of accidents and to take necessary precautions, and to allow physicians obtaining information about patient's life that cannot be otherwise obtained (1-3).

In the countries like the United States of America and the United Kingdom, where primary care is the core of health services, family physicians perform home visits mostly for elderly and children (2). Rapid increase in the number and rate of elderly, who are in need of health care services at the most but cannot access to health services due to disabilities, in population enhances the importance of home visits (4).

In Turkey, family medicine pilot implementation was started in September 2005 in Düzce and became nation-wide in 2011 (5). Since the implementation is new, there has been no research on family physicians' home visits in Turkey yet. In the study entitled "Evaluation of the organizational model of primary care in Turkey" performed by the World Health Organization (WHO) in 2007 in Eskişehir and Bolu to assess family medicine pilot implementation in Turkey, nearly half of the physicians participated in the study reported that they performed 1.7 home

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Table 1. Major types of home visits and the conditions or individuals that home visits are performed for

Type of visit	Content and indication of visit
Illness home visits	<ul style="list-style-type: none"> • Emergency conditions and accidents • Acute disease • Acute exacerbations of chronic disease
Dying patient home visits	<ul style="list-style-type: none"> • Terminal care • Pronouncement of death • Grief support
Assessment home visits	<ul style="list-style-type: none"> • Patients with polypharmacy or multiple medical problems • Selected cases decided to be consulted for diet and exercise • Patients excessively using health services • Individuals with immobility, social isolation, or suspicious abuse and neglect, • Recent catastrophic diagnoses for the patient and family • To assess the need for nursing home placement
Hospitalization follow-up home visits	<ul style="list-style-type: none"> • After acute illnesses, injury or surgical intervention • After hospitalization for control of chronic disease or acute exacerbations • Selected cases decided to be consulted for diet and exercise after surgical intervention • Parents with newborn

Derived from reference No. 2

visits in a day. The WHO reported that family physicians required adequate time, education and equipment to provide this service (6).

There occurred a decrease in home visits worldwide after the World War II. The reasons for such a decrease has been reported to be inadequate salary, limited time, perceived limited technical support, concerns about the risk of being sued, lack of physicians' training and practice, and institutional and personal prejudices (1, 2). Schwartzberg et al. (7) reported development of more favorable attitude and increase in the number of home visits with education given to the physicians on home visits.

Home visits are perceived, by mistake, as on-call patient visit at home. Although such visits are also among home visits, they account a small proportion of home visits. The American Academy of Family Physicians evaluates home visits under four main topics. These topics include illness home visits (emergency, acute, and chronic diseases), assessment home visits (excessive use of health services, polypharmacy and comorbidities, immobilization, suspicious abuse or neglect, social isolation, need for coordination with nursing homes or health care institutions), dying patient home visits (care of end-stage patient, to prepare family for death and provide grief support service), and hospitalization follow-up home visits (2, 8). These visits and indications are summarized in Table 1.

In the present study, it was primarily aimed to investigate whether family physicians working at primary care units are aware of their knowledge and social requirements concerning home visits. Secondly, it was investigated whether an education given to the family physicians on home visits provided favorable improvement in family physicians' knowledge and attitudes concerning home visits and on recommending diet and exercise to the selected patients during these visits.

MATERIALS and METHODS

This study was conducted as a dissertation project. Primarily, it was approved in September 2011 by Akdeniz University Faculty of Medicine Ethics Committee being considered scientifically and ethically appropriate, and then necessary permissions were obtained from the Ministry of Health to carry out the study at 33 Family Health Care Centers (FHCCs) affiliated to Burdur Provincial Directorate of Health and the study was started. The universe of the study, which is a cross-sectional study, consisted of all family physicians, who were working at FHCCs affiliated to Burdur Provincial Directorate of Health and volunteer to participate in the study.

At the time the study was started, there were a total of 78 physicians working at 33 FHCCs affiliated to Burdur Provincial Directorate of Health. Using sample size calculation table, it was planned to reach to at least 70 physicians at the significance level of alpha 0.05 and with a 5% error. A total of 73 family physicians from 33 FHCCs accepted to participate in the study. A 21-question survey including explanations and demographic data was structured to apply to the participants both before and after education to assess their knowledge, attitude and opinions on home visits. During pre-preparation phase of survey questions, the survey was applied to 20 family physicians working in Antalya province and their opinions were obtained. The survey was consulted with the department of Biostatistics and Medical Informatics for the validity and reliability of test results and the survey questions took their final form in line with the recommendations.

Statistical analysis

In order to prevent interaction between the groups, the FHCCs that had similar features but were apart from each other were di-

chotomized as the intervention and control groups. The control group consisted of 35 physicians and the intervention group consisted of 37 physicians. Thirty-seven family physicians in the intervention group received 2-day education on home visits. The survey was then re-performed in both educated and uneducated groups approximately 3 months after education. Additionally, educated group underwent a "core" exam including 6 questions about decision to perform/not perform home visits and why home visits should be or should not be performed. Data were transferred to the Statistical Package for the Social Sciences (SPSS) 18.0 (SPSS Inc., Chicago, IL, USA) statistics program and were analyzed.

In case the parametric test assumptions were provided, the difference between the means of independent two groups was analyzed by "Student's t-test", the difference between the means of dependent two groups was analyzed by "Difference between matched pairs test", and the difference between more than two groups was analyzed by "Variance Analysis". In case the parametric test assumptions were not provided, nonparametric alternatives of these tests ("Mann-Whitney U", "Wilcoxon Signed-Rank" and "Kruskal Wallis" tests) were used. Additionally, the relation between continuous variables was analyzed using "Spearman's Correlation Coefficient". Categorical data were analyzed by "Chi-Square Significance Test". The difference between dependent groups was analyzed by McNemar's test.

Data were evaluated at alpha 0.05 significance level, within 95% confidence interval, and with 5% relative accuracy; and a $p < 0.05$ was considered statistically significant.

In order to identify differences in the analyses, 95% significance level (or $\alpha = 0.05$ error) was used.

RESULTS

Of the participants, 81.9% were male and 18.1% were female. The age group ranged between 33 and 57 years with a mean age of 42.22 years. Marital status was married in 93.1% and single in 6.9%.

It was determined that the physicians in the study group were working at primary health care for at least 2 months and for at most 340 months and the mean working period was 157.28 months. The physicians were working as family physicians for a mean of 34.93 months at the FHCCs, where they were working during the study period. The lowest and highest populations that the physicians provided health service for were 250 and 4,100. It was determined that each physician provided health service for a mean of 3,314.99 individuals. Of the family physicians, 70.8% provided health service for more than 3,000 individuals.

Of 72 physicians received the first survey, 39 (54.2%) reported that family physicians should perform home visits and 18 (25%) physicians reported that they should not, whereas 15 (20%) were undecided. In the second survey, only one in the control group changed the answer "family physicians should not perform home visits" to "should perform home visits". This was not found to be significant ($p = 1.00$). In the educated group, 6 of 12 physicians, who said "no" or "undecided", changed their answer to "yes" in the second survey. The rate of those saying "yes" increased; however, this was not found to be statistically significant ($p = 0.125$).

Thirty-one (43.1%) of 72 physicians were in the opinion that they performed adequate number of home visits. There were 26 (36.1%) family physicians thinking that the number of home visits they performed was not adequate, whereas 15 (20.8%) family physicians were undecided. Although the number of physicians, who considered the number of home visits they performed adequate, increased after education, it was not statistically significant.

The question "in which age group home visit is necessary" was responded as 0-6-year age group by 20% and as over 65 years by 88.6% of the control group. In the intervention group, these rates were 5.4% and 100%, respectively.

With regard to the questions on the purposes of home visits, 37.8% of the intervention group agreed with "illness visit" before education, whereas this rate increased to 86.5% after education ($p = 0.000$). Before education, 78.4% of family physicians agreed that the purpose of home visits was "to assess the factors that threaten health and safety at home", whereas this rate increased to 97.3% after education ($p = 0.016$). When the rates of physicians agreed on the purposes of home visits regarding assessment of the patients not adhering to treatment within his/her living environment, assessment of the caregiver of bedridden patient, and supporting dying patient and relatives were compared before and after education, a statistically significant difference was determined (Figure 1).

Whilst 44.4% ($n = 32$) of the family physicians were eager to perform home visits, 45.8% ($n = 33$) were not. The answers of the control group showed no change in the second survey; however, the answers of 12 out of 23 physicians who responded as "no" or "undecided" in the first survey changed to "yes" after education. This was found to be statistically significant ($p = 0.003$).

In the first survey, among the family physicians, home visits were performed once in a week by 45.8%, twice in a week by 12.5%, and for more than twice in a week by 9.7%. Whilst the rate of those performing home visits once or twice in a month was 13.9%, the rate of those never performing home visits was 5.6%. In the intervention group, 54.1% of family physicians reported that they performed home visits before the education, whereas this rate reduced to 40.5% after education. This was attributed to the contradiction in the term "home visit". Nonetheless, the rate of those performing home visit twice in a week increased to 27% from 16.2% and the rate of those performing home visit for more than twice in a week increased to 13.5% from 8.1%. Whilst the rate of those performing home visit once-twice in a month increased to 5.4% from 2.7%, the rate of those expressed as "other" decreased to 10.8% from 13.5% and the rate of those never performing home visit decreased to 2.7% from 5.4% (Figure 2).

The reasons reported by family physicians for not performing adequate number of home visits included lack of sufficient time (95.8%), inadequate salary (68.1%), concerns about malpractice (41.7%), lack of knowledge on home visits (40.3%), and opinion that home visits would not be beneficial (30.6%). Other reasons reported by 20.8% included being on duty, inadequate number of personnel, excessive polyclinic burden with guest patients in addition to the usual polyclinic population, home visits' not being considered important or being abused by household, unnecessary home calls by people misinformed by the media, and safety concerns.

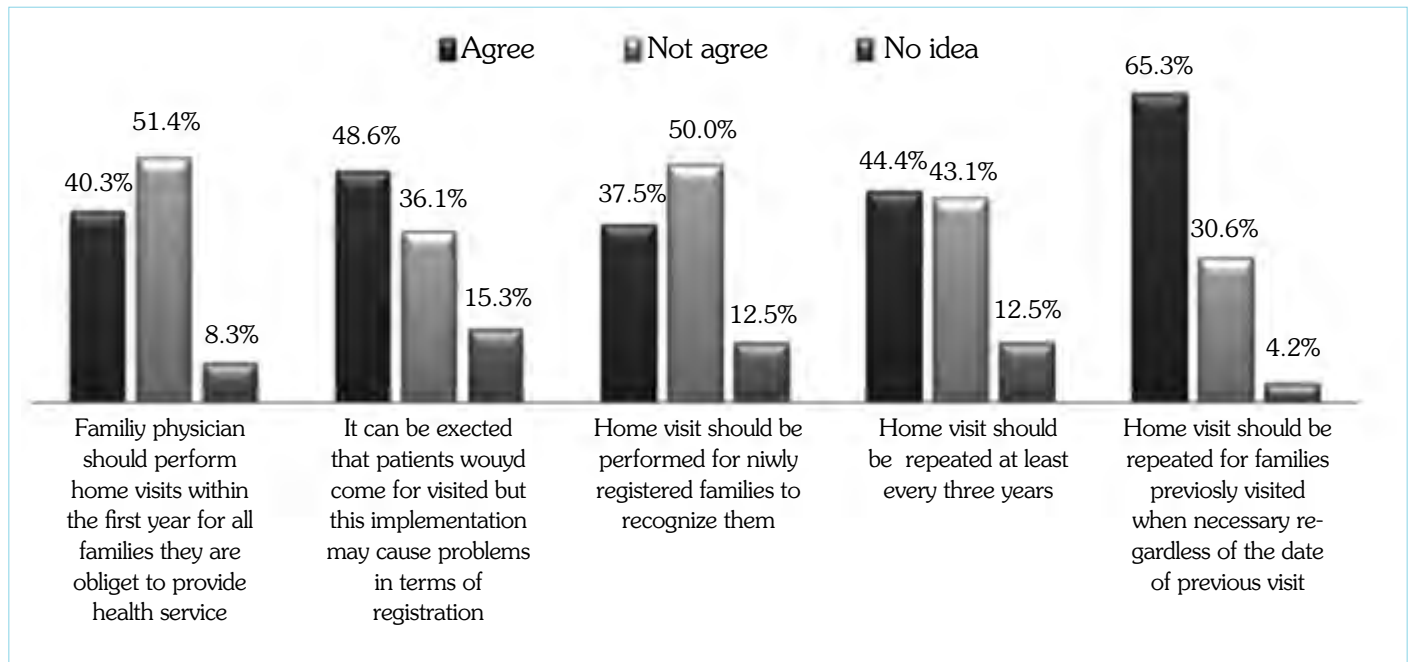


Figure 1. Opinions of physicians about frequency and necessity of home visits

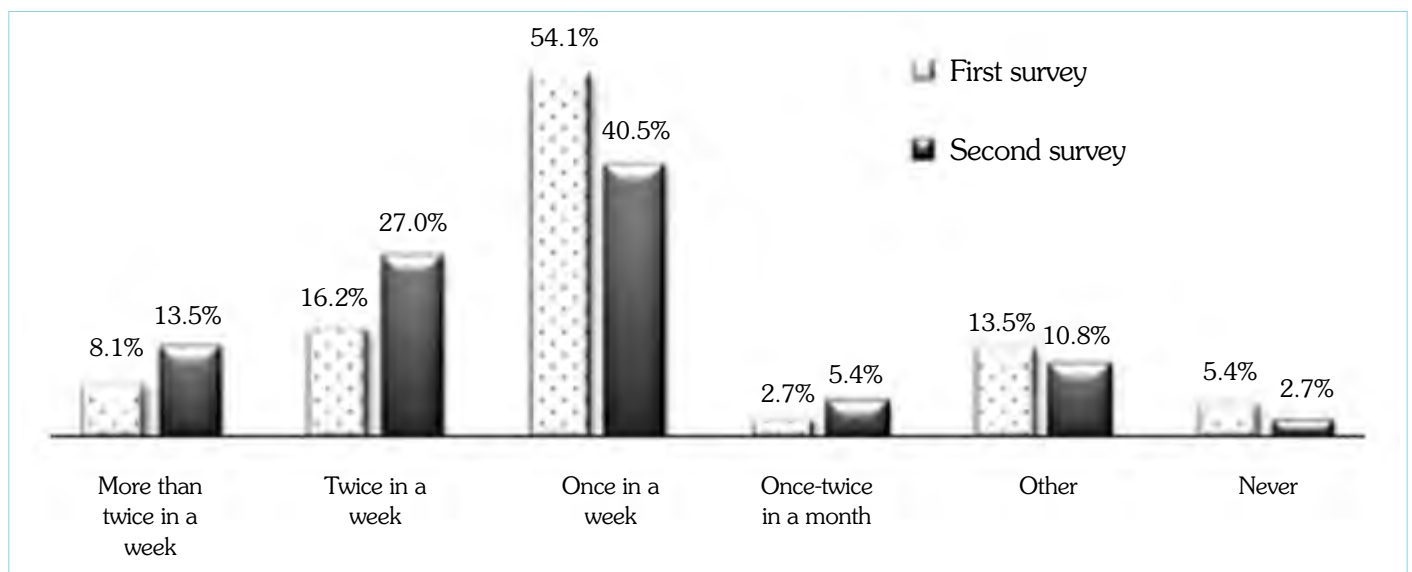


Figure 2. Comparison of rates of home visits before and after education in the intervention group (n=37)

Comparing the answers given by the control group to the case questions in the first and second survey, no statistically significant difference was determined for any of the questions. In the intervention group, comparisons between before and after education revealed statistically significant differences for the questions 10, 12, 15, 17 and 19. Although, there was proportional increase in case questions in the intervention group, this was not found to be statistically significant.

The rate of performing home visits according to the affiliated population was compared. The rates were 66.7%, 66.7%, and 68.6% for family physicians providing health service for a population of 0-2500, 2501-3000, and over 3000, respectively.

The rate of physicians expressing that they performed adequate number of home visits was 64% in those working at primary care

setting for more than 15 years and 31.9% in those working at primary care setting for or less than 15 years; the difference was statistically significant (p=0.009).

Whilst 85.1% of the physicians working at primary care setting for less than 15 years expressed that “family physicians have to perform home visits according to the regulations and directives of R.T. Ministry of Health”, this was agreed by 64.0% of the physicians who was working for more than 15 years (p=0.040).

Of the family physicians working at primary care setting for less than 15 years, 40.4% agreed that family physician had to evaluate the family with newborn in terms of home safety, whereas this was agreed by only 16.0% of the physicians working for more than 15 years (p=0.034).

DISCUSSION

In the present study, a total of 72 family physicians, of whom 13 (18.1%) were female and 59 (81.9%) were male, were achieved. Similar studies reported lesser, same, or higher number of physicians (7, 9-13).

The intervention (n=37) and control (n=35) groups were compared in terms of responses given by the family physicians to the first survey, and no statistically significant difference was generally determined indicating that the groups had similar characteristics. The rate of those thinking that family physicians should perform home visits was 54.2%. Family physicians in the USA and Europe agree that home visits are an important part of family practice; however, the number of home visits performed is inadequate (1, 14).

When the intervention and control groups in terms of responses given to the second survey were compared, it was observed that education had made a favorable change in the intervention group (Figure 2).

The rate of those expressing that family physicians should perform home visits was 54.2%. In the present study, the rate of satisfaction of family physicians with the number of home visits they performed was 43.1%. Keenan et al. (14) evaluated attitudes of physicians and found that 75% of the physicians considered home visits necessary. From Collage of Family Physicians of Canada, McWhinney et al. (15) reported that 93% of physicians considered home visits to be important for selected patients. In the study conducted by Philbrick et al. (16), 75% of the physicians considered home visits beneficial. In the present study, this rate increased to 81.1% after education from 67.6% before the education. A proportional increase was determined; however, it was not found statistically significant ($p=0.125$). Post-education rates were close to the results of similar studies (14, 15).

In the intervention group, 32.4% of the family physicians considered the number of home visits they performed adequate after the education; this rate was 40.5% before the education ($p=0.508$). The reason for such a decrease was thought to result from their learning that detecting a patient at home or response to emergency call did not mean home visit.

Of the family physicians participated in the study, 44.4% reported that they had not adequate knowledge and skill on home visits. Whilst this rate was 45.9% before the education in the intervention group, it was found to be 76.7% after the education ($p=0.013$). It was thought that this increase as well resulted from awareness concerning their lack of knowledge on home visits after the education.

Of the family physicians, 94.4% reported that individuals over the age of 65 years needed home visits. Whilst this rate was 88.6% in the control group, it was found to be 100% in the group received the education ($p=0.051$). Kersnic et al. (17) evaluated the patients received home visits and found that the visits were mostly performed for elderly and females. Peppas et al. (18) carried out a study in Greece and reported that 47.8% of home visits were performed for individuals over the age of 65 years. Keenan et al. (14) reported that home visits were performed for geriatric patient group at a rate of 92%. Snijder et al. (19) emphasized that home visits in Germany were mostly performed for elderly and that, con-

sidering demographic change, the number of home visits should increase for elder patients.

In the present study, the question "which of the followings are among the purposes of home visits?" was asked to the family physicians. Of the physicians, 45.8% marked the option "illness home visit", 73.6% marked the option "to assess the factors threaten health and safety at home", 70.8% marked the option "to evaluate the patient not adhering to treatment within his/her living environment", 48.6% marked the option "to evaluate the caregiver of bedridden patient", and 20.8% marked the option "to provide support for dying patient and for the relatives". In the intervention group, the rate of those marked the option "illness home visit" increased to 86.5% after the education from 37.8% before the education ($p=0.000$), the rate of those marked the option "to assess the factors threaten health and safety at home" increased to 97.3% after the education from 78.4% before the education ($p=0.016$), the rate of those marked the option "to evaluate the patient not adhering to treatment within his/her living environment" increased to 97.3% after the education from 70.3% before the education ($p=0.002$), the rate of those marked the option "to evaluate the caregiver of bedridden patient" increased to 94.6% after the education from 56.8% before the education ($p=0.000$), and the rate of those marked the option "to provide support for dying patient and for the relatives" increased to 81.1% after the education from 21.6% before the education ($p=0.000$). Such an increase after the education was extremely significant.

Thirty-two (44.4%) of the family physicians participated in the study expressed that they were eager to perform home visits. In the intervention group, whilst the rate of eagerness for performing home visits was 37.8% before the education, it increased to 67.6% after the education ($p=0.003$). Theile et al. (9) reported that family physicians in Germany traditionally maintained home visits; however, they considered this as an obligation. Keenan et al. (14) evaluated family physicians' and internal diseases specialists' attitudes on home visits and reported that 65% of family physicians and 44% of internal diseases specialists considered home visits applicable. McWhinney et al. (15) determined that physicians' eagerness to perform home visits increased after the education about home visits given to the family physicians. In the present study, the rate of eagerness also increased after the education ($p=0.003$).

With regard to the rate of physicians performing home visits, it was determined that 45.8% performed once in a week, 12.5% performed twice in a week, and 9.7% performed more than twice in a week; the mean rate of physicians performing home visits once in a week was 68%. Hayton et al. (12) evaluated family physicians' attitudes concerning home visits in a two-week study and determined that 84% of the physicians performed home visits. In the study conducted by Ingram et al. (11) to investigate family physicians' attitudes concerning home visit and influencing factors, 53% of the physicians reported that they performed home visits. Bergeron et al. (20) conducted a study in the Northern America, in which 58% of the physicians reported that they performed home visits. In the same study, it was found that 24% of the physicians performed home visits for at least 5 times in a week. In the present study, the rate of those performing home visits for more than twice in a week was found to be 9.7%. It was determined that 32% of the

physicians either never or rarely performed home visits. Whilst this rate was 78.4% before the education in the intervention group, it increased to 81.1% after the education; however, it was not statistically significant ($p=1.000$).

The reasons expressed by the physicians for not performing adequate number of home visits were lack of sufficient time at a rate of 95.8%, inadequate salary at a rate of 68.1%, concern about malpractice at a rate of 41.7%, lack of knowledge on home visits at a rate of 40.3%, opinion that home visits would not be beneficial at a rate of 30.6%, and other reasons at a rate of 20.8%. Other reasons included working at units with night shift, lack of personnel, excessive polyclinic burden due to guest patients in addition to population burden, underestimation or abuse of home visits by patients and relatives living in the house visited, unnecessary home calls by misinformed people via media, and safety concerns. Unwin et al. (1, 2) reported the main reasons for decrease in the number of home visits as inadequate salary, restricted time, perceived limited technical support, concerns about risk of being sued, physicians' lack of education and practice, and institutional and personal prejudices. Theile et al. (9) expressed that maintenance of this tradition in terms of continuity of home visits could be ensured by appropriate financial promotions. Bergeron et al. (20) reported that an increase by 50% could occur in the number of current home visits by providing appropriate economic balances. Keenan et al. (14, 21) conducted two separate studies and reported strong dissatisfaction among physicians about repayments made for home visits. Hayton et al. (12) also reported that limited time and financial inadequacy were the limiting factors for home visits. Pereles et al. (22) expressed that limited time and inadequate repayment were the main reasons for physicians' ineffective home visits.

When the physicians were questioned about their opinion on more effective home visits, they primarily stated that population and workload should be decreased; secondly, they implied the necessity of performing home visits suitable with its purpose, and thirdly, they stated necessity of identifying mission and borders of home visits. Boling et al. (10) expressed that physicians regularly performing home visits less complained about workload. In the present study, the number of population that family physicians were obliged to provide health service for did not influence the number of home visits statistically, as well. The rates of performing home visits were 66.7%, 66.7%, and 68.6% for family physicians providing health service at least once in a week for a population of 0-2500, 2501-3000, and over 3000, respectively. The rates were quite close to each other. The present study found that the population for which the health service was provided did not influence the rate of performing home visit. Nevertheless, it was striking that some physicians expressed that establishing a separate unit for home visits and providing health services at health care centers were necessary but that home visits were not. Keenan et al. (14) reported that 80% of the physicians thought it was necessary to establish home care offices.

The present study determined that the physicians over the age of 40 years performed higher number of home visits as compared to the physicians under the age of 40 years. It was found that 79.5% of the physicians over the age of 40 years and 54.5% of the physicians under the age of 40 years performed home visits at least once

in a week ($p=0.024$). Although it was not statistically significant, it was determined that male physicians performed higher number of home visits than female physicians. The rate of performing home visits at least once in a week was 71.2% for male physicians and 53.8% for female physicians ($p=0.324$). Whilst 64.0% of the physicians working at primary care for more than 15 years thought that they performed adequate number of home visits, this rate was found to be 31.9% for the physicians working for less than 15 years ($p=0.009$). Schwartzberg et al. (7) found that male physicians performed higher number of home visits.

Warburton et al. (23) conducted a study in New Jersey with family physicians to develop resident improving programs and found that family physicians' attitudes concerning home visits showed no difference between young and old physicians.

In the present study, it was determined that the rate of correct answers given to all of 10 case questions in the questionnaire increased after the education. The rate of 100% correct answer was achieved for 1 question; proportional increase in 5 questions was found to be statistically significant; however, increased proportions in 4 questions were not found to be statistically significant. The core exam, which was performed to measure family physicians' skills in deciding to perform or not to perform home visit, consisted of 6 case questions. Whilst a success rate of 51.4% was obtained for 1 question in the core exam, the success rates ranged between 73% and 100% for the other questions.

In the present study, it was observed that education enhanced the physicians' knowledge on home visits. The core exam performed after the education revealed that the physicians had adequate skills to decide performing home visits and to manage the visit. The physicians participated in the study expressed that their knowledge concerning home visits was enhanced after the education as compared to before the education and that they became more skillful on this subject ($p=0.013$). Eagerness of physicians for performing home visits significantly increased after the education ($p=0.003$). Nevertheless, the number of home visits was not increased as much as expected after the education ($p=1.000$). Schwartzberg et al. (7) observed that eagerness to perform home visits and attitudes concerning home visits favorably changed and their skills on performing and managing home visits were enhanced after the education. In that particular study, it was reported that the goals were achieved in terms of enhanced awareness about home visits and change in physician's attitude and behavior. They reported that precisely designed education programs would significantly influence physicians' attitudes and that home visit should be a part of medical education programs and residency (7).

Whilst 45.9% of the physicians considered themselves sufficient in terms of performing home visits before the education, this rate increased to 76.7% after the education ($p=0.013$).

In the present study, the rate of correct answer given by the family physicians to all of 10 case questions in the questionnaire increased after the education. Whilst the rate of correct answer was 100% for 1 question, proportional increase in 5 questions was found to be statistically significant. There were six case questions in the core exam performed to measure family physicians' skills in deciding to perform or not to perform home visit. The success rate

was 51.4% for 1 question in the core exam, whereas the success rates ranged between 73% and 100% for other case questions.

CONCLUSION

The education given to the family physicians provided statistically significant increase in the physicians' knowledge on home visits. With regard to the results of core exam, the physicians were considered sufficient in deciding to perform home visit and manage the visit. It was observed that the physicians found it necessary to make recommendations on exercise and diet and to follow-up in selected patients and thought that they could obtain favorable results; however, they did not practice. Although physicians were statistically significantly more eager to perform home visits after the education ($p=0.003$), this did not increase the number of home visits as much as expected. In other words, it was not significantly projected on their attitudes about the subject ($p=1.000$).

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Akdeniz University School of Medicine.

Informed Consent: N/A.

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