

Participation of people living in rural areas of Eskisehir province in field researches, and factors affecting their rates of participation

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ABSTRACT

OBJECTIVE: The aim of the study was to determine participation rates of people living in the rural area of Eskisehir in field researches, and the factors influencing this.

METHODS: This descriptive study was performed with 1,482 people aged 18 and above in two districts of Eskisehir. Data were collected with a 16 question questionnaire using the face-to-face interview technique. Data were analysed with descriptive statistics, chi-square test, logistic regression analysis, and factors affecting rates of participation in field researches.

RESULTS: The most important reason (46.9%) given by participating for participant in field researches was the intention of "helping the interviewer". The other reasons were; believing in the usefulness of the researches (35.0%), contribution to public improvement (14.9%) and taking pleasure in talking with various people (3.2%). The most important reason (34.6%) for not participating in field researches was "considering field researches a waste of time". The other important reasons for non-participation were unnecessarily long questions in the research questionnaire forms (32.7%) and being uninformed of the research results (31.9%). In logistic regression analysis, age was found to be an influential factor in participation rates.

CONCLUSION: Lower rates of participation in field researches cause bias. As far as possible high participation in field researches is important. For the achievement of higher participation rates in field researches, training courses must be provided to both research workers and the public.

Key words: Epidemiology; Eskisehir; field research; questionnaire; rural area.

Public health is a branch of science, and art whose objectives can be summarized as follows: protection of individuals from contracting a disease, prolongation of life, improvement of physical, and mental health, and increasing work power by im-

proving conditions of environmental health, providing health care information to individuals, precluding contagious diseases, diagnosing the diseases at their early phases, offering prophylactic therapy, establishing health care organizations, and flourish-



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ing social works so as to ensure healthy life for each individual as an outcome of social works [1]. Generally public health emphasizes collective actions realized to improve community health. Epidemiology is one of the tools used for improving public health, and it is used in various aspects of life [2].

Epidemiology was defined by Last as “investigation of distribution of health-related conditions or events, and their determinants in certain communities, and implementation of the outcomes of these studies for the prevention, and control of health problems” [3]. Epidemiology is not only interested in death, disease, and disability but it also deals with achievement of more favourable health state, and more importantly it concerns with ways of improving people’s health state. A population defined by its geographic location or by other means is the focus of an epidemiological study. Prevalently, for epidemiological studies, a population is selected from a definitive region or country living in a certain period of time [4]. Epidemiology is a science of methodology which encompasses investigation of both the distribution of diseases, and other health-related events in both clinical, and social health disciplines, and also their etiological factors, in addition to determination of research techniques which are benefited to determine optimal methods for their diagnosis, and treatment. Determination of public health state, demonstration of its requirements, and priorities, and planning services which will maintain healthy state of individuals can be only possible by defining the target population to be served. The way of getting acquainted with the community passes through researches, and field studies performed with the targeted community. Field researches are interventional type investigations which are performed with the intention to provide primary prophylaxis, namely to determine the effectiveness of any preventive method or service aimed at healthy people [5].

Field researches are very helpful methods of accumulating additional information which can not be gathered using health information, and surveillance systems as is the case in many developing countries [6]. Using field researches, some criteria concerning rate of effectiveness, relative effectiveness, rates of

maintainability, incidence, and complications can be formulated. In field researches, the group to be investigated, in other words, universe of the research is chosen which is called “reference population”. Sometimes all of the reference population is included in the epidemiological studies, occasionally a sample is selected for investigation which is termed as “sampling” [5]. In field researches, most of the time all individuals of a reference population can not be analyzed. Therefore, a sampling in which every individual in the reference population has a equal chance of participating in the study is selected. This method is more prevalently used in field researches. Accordingly, it is possible to refrain from selection bias. Even if sampling is selected properly, if individuals can not be reached or they don’t participate in the research as a whole, then research studies can yield erroneous results. This phenomenon is called “non-participation rate” which can create research bias [6]. Questionnaire survey is the most frequently applied method in field researches. These questionnaire surveys can be performed as face-to-face interviews, by sending mails or phone calls [7].

Many factors which cause inadequate participation or misleading results including characteristics of the people, and individuals, factors specific to questionnaire survey, and surveyors should be considered. Therefore attempts at preparation of the questionnaire forms, and training of the researchers have been made. However very scarce number of studies have analyzed attitudes of the public towards these questionnaire surveys, and their reasons for participation or non-participation [8]. Especially in Turkey very small number of studies have been performed. Particularly, from the perspective of managers of health care organizations, analysis of the factors influential on non-participation rates in field researches which will otherwise provide valuable information about the development of health improvement programs, and determination of their effectiveness, will make significant contributions on the conduction of field researches in the future. The aim of this study is to determine the participation rate of the people living in the rural areas of Eskisehir Province, and relevant effective factors in field researches.

MATERIALS AND METHODS

This is a descriptive study performed on people aged ≥ 18 years living in the county centers of Mahmudiye and Beylikova of Eskisehir Province in the year 2013. Mahmudiye county is situated in the southeastern region of Eskisehir, 53 km away from the city center. The county has a population of 8439 people, and 54.7% ($n=4622$) of them are living in the city center. Beylikova county is 77 km away from the city center, and situated in the eastern part of Eskisehir. The county has a population of 6789, and 48.1% ($n=3270$) of them [9] participated in the study. During the study period, interviews were made with 1947 accessible individuals living in the city center including those participating from county centers of Beylikova ($n=936$), and Mahmudiye ($n=1011$). The research was conducted with 1482 (76.1%) people who volunteered to participate in the study. The research data were retrieved from the implementation of the questionnaire forms containing 16 targeted items, and prepared using responses obtained by face-to-face interviews. The questionnaire form was prepared in two parts by the researchers in line with the literature information. The first part consists of questions related to the participants' sociodemographic features, whether they participate in the research, and their reasons for and against participation, while the second part constitutes questions about previous participation of the participants in a field search performed in their living place, and their reasons against participation. In the application of the research, the principles of Helsinki Declaration were taken into consideration, and before initiation of the questionnaire survey the aim of the study, the information about the researchers, and confidentiality of their personal information were explained to the participants, and their written, and verbal approvals were obtained.

For statistical evaluation of data, descriptive statistics, and for categorical variables chi-square test was used. In multivariate analysis, age, gender, educational level, marital status, and working status of the participants were evaluated in order to determine the factors effective on their non-participation in previous field researches performed in their

districts. The effects of these variables on rates of non-participation in field researchers were analyzed using logistic regression analysis, and estimated relative risks, and their 95% confidence intervals were calculated. In statistical analyses $p < 0.05$ was accepted as the level of significance.

RESULTS

The study subjects ($n=559/1482$; 37.7%) who volunteered to participate in the research did not want to give their names. Fifty-two percent ($n=770$) of the study participants were men. Mean age of the participants who gave their names was 45.8 ± 15.9 (min. 18, max. 94) years, while 59.6% ($n=870$) of them were younger than 50 years of age. As indicated by the participants themselves, educational level of most of the participants was secondary school or higher ($n=793$; 54.9%), and majority of them was married ($n=1095$; 76.1%). Besides, more than half of them were working in wage-earning jobs. Distribution of study participants based on some of their sociodemographic characteristics is given in Table 1.

TABLE 1. Distribution of the participants based on some of their sociodemographic characteristics

Sociodemographic characteristics*	n	%
Age groups ($n=1459$)		
<50 years	870	59.6
≥ 50 years	589	40.4
Gender ($n=1482$)		
Female	712	48.0
Male	770	52.0
Educational level ($n=1444$)		
Primary school or illiterate	651	45.1
Secondary school and higher	793	54.9
Marital status ($n=1438$)		
Single	343	23.9
Married	1095	76.1
Employment status ($n=1424$)		
Working in a wage-earning job	707	49.6
Not working in a wage-earning job	764	50.4

*Only participants indicating their demographic characteristics were included in the analysis.

TABLE 2. Distribution of the reasons of the participants favouring participation in previous field researches

Reasons for participation in previously performed field researches (n=671)	n	%
Helping the interviewer	315	46.9
Thoughts about the benefits of the research	235	35.0
Thoughts about beneficial contribution of the research to social development	100	14.9
Wanting to talk with different people	21	3.2

More than half of the participants (n=881; 59.4%) indicated that they had previously encountered field researches conducted by the academicians of medical faculties, and 77.4% (n=682) of them indicated that they had responded to the questions of the questionnaires. The most frequently (26.9%) indicated rationale asserted by participants for their participation in previously performed field researches in their living environment was their intention to help the researchers performing the questionnaire. (46.9%) followed by presumed beneficial effects of

the research (35.0%), favourable contribution of the questionnaire survey to the social development (14.9%), and taking pleasure in talking with different people (3.2%). Distribution of the reasons of study participants for their participation in field researches performed previously in their environment is presented in Table 2.

The most frequently indicated three reasons of survey responders for not participating in previously performed field researches performed in their living environment were consideration of the questionnaire survey as waste of time (34.6%), longevity of the items of the questionnaire (32.7%), and being uninformed about the results of the research (31.9%). The distribution of the reasons of non-participation in previously performed field researches are given in Table 3.

In multivariate analysis of the study participants, the effect of age, gender, educational level, marital status, and working status on non-participation of the questionnaire responders in field researches was analyzed, and the non-participation rate of the individuals aged above 50 years of age was found to be 7.35 times higher when compared with younger par-

TABLE 3. Distribution of the reasons indicated by research participants for not participating in previous field researches performed in their region

Reasons for not participating in previously performed field researches (n=364)	n	%
Field researches are time-wasting attempts	126	34.6
Unnecessarily longer questionnaire items	119	32.7
Being uninformed about the results of the research	116	31.9
Selection of inconvenient timing, and place of the research	115	31.6
Time-consuming questions of the questionnaire	114	31.3
Unwillingness to talk with strangers	111	30.5
Conduction of the survey at home	108	29.7
Frequent implementation of research surveys	100	27.5
Inadequate explanation of the interviewer	98	27.0
Thoughts about the futility of the research questionnaire	97	26.7
The interviewer and the participant of the same gender	97	26.7
Concerns about the potential use of personal information gathered in the research for other purposes	97	26.7
Content of the questionnaire survey irrelevant to the participant	96	26.4
Inappropriate approach of the interviewer	93	25.6
Inappropriate physical appearance of the interviewer	90	24.7
Requirement for other applications	78	21.4

ticipants (59% CI; 2.87-18.81, $p < 0.001$). Estimated relative risks (ERRs), and confidence intervals (CIs) of the factors effective on the rates of non-participation of the questionnaire responders based on the results of the multivariate analysis are given in Table 4.

DISCUSSION

Generally, investigations performed on participation rates in epidemiological researches have been related to clinical researches, and scarce number of researches have been conducted on rates of participation in field researches. This research will contribute to the literature on the issue of participation in field researches, and relevant effective factors. The participation rate in this field research conducted in the rural area of Eskisehir Province was detected as 76.1 percent. The rate of participation in epidemiological studies reportedly ranged between 48, and 78.5 percent [10, 11, 12, 13]. In a study performed in Turkey, the researchers reported that 11% of the individuals closed the door to the interviewers without listening them, and 57% of the individuals agreed to participate in the research after listening the information given to them [14]. Bias can be created dependent on non-participation in epidemiological researches. Achievement of the lowest pos-

sible rates of non-participation is recommended to prevent creation of bias. Any known cut-off value does not exist for rates of non-participation in epidemiological studies. However some authors have advocated that non-participation rate in a research should be above 20 percent [15].

The study participants indicated that the most frequent reason of their participation in the previously performed field researches was their intention to help interviewers. This respond was followed by consideration of beneficial aspects of this research, and its contribution to social development. The least frequently asserted reason favouring participation was the desire to talk with different people. In a study performed in Italy, the participants stated their reasons for participation in cohort studies as making contribution to the research, and science [16]. In a study conducted in the USA, the participants expressed their most important reason of participating in clinical researches as their beneficial effects on health [17]. The outcome of our study is different from both of these studies which could be related priorly to different study designs of these two above-mentioned studies. Besides, our field of research was the training, and research area of ES-OGU Faculty of Medicine Department of Public Health where department of public health are mak-

TABLE 4. Distribution of estimated relative risks (ERR), and confidence intervals of the factors affecting on the rates of participation in field researches as assessed in multivariate analysis

Characteristics*	ERR	95% CI		p
		Min.	Max.	
Age (R: <50 years)				
>50 years	7.354	2.875	18.812	<0.001
Gender (R: Male)				
Female	1.687	0.793	3.590	0.175
Educational level (R: Primary school or illiterate)				
Secondary school and higher	0.488	0.218	1.094	0.082
Marital status (R: Single)				
Married	2.000	0.826	4.841	0.124
Employment status (R: Working in a wage earning-job)				
Not working in a wage earning-job	1.021	0.444	2.346	0.961

*Only participants indicating their demographic characteristics were included in the analysis.

ing frequent research studies. As a matter of fact nearly one third of our study participants indicated that they had been encountered field researches conducted by medical faculty physicians, and great majority (77.4%) of them responded the questions of our survey which also substantiated our assertion.

The most frequently asserted reasons for not participating in previously performed field researches were indicated as consideration of questionnaire survey as waste of time, unnecessarily longer questionnaire items, and being uninformed of the results of the research. In a study performed in the UK, as the most important reasons for not participating in the study were expressed by the participants as their inability to contribute to the researches, their reluctance to entertain strangers at their homes, and their unwillingness to respond to the questions related to their personal life [11]. In an investigation performed in Pakistan, as the most important reasons for non-participation, objections of the family members, and fear from interventional applications of the research outcomes were indicated [13]. In a study realized in Italy, the participants stated their reason for non-participation in cohort studies as unnecessarily long study periods [16]. In an investigation performed in China, the participants indicated their reasons of not participating in cohort studies as longer duration of the study, requirement for more information about the research, and their desire to decide to participate together with their families [18]. In an investigation in our country, the authors reported that brevity or longevity of the questions in the questionnaire forms designed to gather relevant data effected rates of participation in the study, and longer questions restricted participation rates. In the same study, it was demonstrated that if well-trained interviewers asked questions of the survey study, then non-participation rates decreased. It has been also revealed that if the interviewers who gathered data of the research by means of the questionnaires have adequate social skills, then they have a tendency to understand social behaviours, and interactions more fully. Besides, it has been also demonstrated that they can convince the participants to respond to the questions which effect the participation rate favourably [19]. In our research nearly one- fourth

of the participants indicated that the approach of the interviewers was not appropriate, and their physical appearance was not proper which effected participation rates unfavourably. All of these findings also reinforce the above-mentioned argument. The outcomes of our investigation resemble to those obtained in another study performed in our country, but contrary to the results reported in the foreign literature. This difference might stem from diversities in study designs. Since only a few number of investigations have been performed related to the rates of participation in field researches, outcomes of the clinical, and cohort studies were used to determine participation rates. For this reason different results have been observed. When outcomes of non-participation rates in our research are carefully evaluated, among reasons of not participating in the study, the thoughts of the participants, and content of the questionnaire forms were more predominant, while etiological factors related to the researchers were considered as a less important issues. In the light of our investigation, unnecessarily long questions are among the etiological factors adversely effecting rates of participation in field researches. Preparation of a questionnaire aiming at gathering data can be thought to be a simple procedure, however in fact it is a very difficult task. Incomplete application of the questionnaire survey for various reasons including unnecessary long questions, presumably boring questions, and types of the questions asked will directly effect rates of participation in the study. Therefore utmost care should be exercised while preparing questionnaire forms. Questions of the survey forms should be simple, clear-cut, and comprehensible. It should not contain inflicting, leading, time-consuming, and long questions. The items of the questionnaire should be prepared using terminologies which can be easily understood by the interviewers, and the participants. Before field researches, the questionnaire forms should be pre-tested for their applicability [6]. In our research, another important reason for not participating in the field research was participants'being uninformed about the study results. Therefore, after completion of the research, sharing the outcomes with public, and healthcare authorities will carry utmost impor-

tance for planning, and more effective conduction of healthcare services. Besides, sharing the research outcomes with the population of the region, and at least with the participants will increase rates of participation in field researches, and make important contributions as for community participation in health care services.

As a result of multivariate analysis performed, age was found to be an influential factor on participation. Participants aged 50 and over participated in field researches less frequently. In investigations performed in the USA, and UK, age was also reported as one of the effective factors on non-participation. Decrease in the incidence of participation in researches was associated with advanced age [11, 17]. Literature findings were in compliance with our outcomes which demonstrated decrease in rates of participation in researches with aging [20]. Besides in our research, lower rates of participation among elderly might stem from their unwillingness to talk with strangers. In a study conducted in the UK, as causes of non-participation in researches, inquiry of personal, and confidential information, reluctance to entertain strangers at one's home were put forth which also support our assertions [11]. In addition, mental capacities of the people deteriorate with aging which unfavourably effect their desire to participate in a research with resultant decrease in the number of responses given to the questions of the survey study. Similarly in an investigation performed in the UK, the reasons of not participating in a research were stated by participants as thinking themselves too old for taking part in survey studies, and feeling themselves inadequate as for their personal capabilities [11]. In the literature among other factors precluding participation in researches, gender, educational, and socioeconomical were cited [11, 14, 21, 22]. Any correlation between these variables, and non-participation rates was not found in our investigation which might be explained by the characteristic design of our investigation (field research), and the place where our research was conducted, namely rural are of Eskisehir Province. Indeed, other similar studies cited in the literature have been more frequently clinical, and cohort studies realized under clinical settings or urban areas.

In conclusion, our investigation on the rate of participation in field researches performed in the rural area of Eskisehir Province, and the relevant effective factors determined that the individuals participated in field researches so as to help the interviewer, while those not participating in the research most frequently thought that field researches were time-wasting, futile attempts. As an outcome of multivariate analysis, age of the participants was found to be a factor effective on participation in field researches performed in the rural area of Eskisehir Province. Elder patients are participating less frequently in field researches. Lower rates of participation in field researches induce creation of bias. This phenomenon can lead to erroneous research outcomes, and misleading statistical results. Therefore, it is important to keep rates of participation in field researches at a maximum level as possible. To that end as a priority, the interviewers conducting the research should be informed about the field researches, and field researches should be planned attentively, and accurately. Besides, information about the field researches should be provided to public authorities, and managers of the health organizations living in the region where field researches will be performed. This approach can effect participation rates in field researches favourably. Still, the people who will be subject to field research should be also informed. This informing process should encompass sharing the results before, during, and after completion of the research. Preparation, and application of the questionnaire forms which are the most important means of gathering data should deserve meticulous care. On this subject researchers who are the driving force of the field researches, and interviewers who will perform the survey should be trained. For sound conduction of field researches which is a very beneficial epidemiological method so as to gather important information in the field of health, training of especially healthcare managers, and workers carries utmost importance. This research performed in a rural area of Eskisehir Province has a critical importance in that it is one of the rarely performed investigations on this issue. Conduction of further studies on this issue conveys importance for their outcomes, and their contributions on this subject.

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REFERENCES

- Öztek Z, Üner S, Eren N. Halk sağlığı kavramı ve gelişmesi. In: Güler Ç, Akın L, editors. Halk sağlığı temel bilgiler. Ankara: Hacettepe Üniversitesi Yayınları; 2012. s. 3-24.
- Beaglehole R, Bonita R. Public health at the crossroads: achievements and prospects. Cambridge, Cambridge University Press, 2004.
- Last JM. A dictionary of epidemiology, 4th ed. Oxford, Oxford University Press, 2001.
- Bonita R, Beaglehole R, Kjellström T. Basic epidemiology. 2nd ed. Geneva, World Health Organisation, 2006.
- Tezcan S. Epidemiyoloji. In: Güler Ç, Akın L, editors. Halk sağlığı temel bilgiler. Ankara: Hacettepe Üniversitesi Yayınları; 2012. s. 95-156.
- Vaughan JP, Morrow RH. Manual of epidemiology for district health management. Geneva, World Health Organisation, 1989.
- Groves RM. Survey errors and survey costs. New York, John Wiley & Sons Inc., 1989. [CrossRef](#)
- Mfutso-Bengo J, Masiye F, Molyneux M, Ndebele P, Chilungo A. Why do people refuse to take part in biomedical research studies? Evidence from a resource-poor area. *Malawi Med J* 2008;20:57-63. [CrossRef](#)
- Adresedayalınüfus kayıtlarını sistemin sonuçları. Available at: <http://www.tuik.gov.tr/PreTabloArama.do?metod=search&araType=vt>. Accessed March 27, 2014.
- Curtin R, Presser S, Singer E. Changes in telephone survey nonresponse over the past quarter century. *Public Opin Q* 2005;69:87-98. [CrossRef](#)
- Williams B, Irvine L, McGinnis AR, McMurdo ME, Crombie IK. When "no" might not quite mean "no"; the importance of informed and meaningful non-consent: results from a survey of individuals refusing participation in a health-related research project. *BMC Health Serv Res* 2007;7:59. [CrossRef](#)
- Nechuta S, Mudd LM, Biery L, Elliott MR, Lepkowski JM, Paneth N; Michigan Alliance for the National Children's Study. Attitudes of pregnant women towards participation in perinatal epidemiological research. *Paediatr Perinat Epidemiol* 2009;23:424-30. [CrossRef](#)
- Rohra DK, Khan NB, Azam SI, Sikandar R, Zuberi HS, Zeb A, et al. Reasons of refusal and drop out in a follow up study involving primigravidae in Pakistan. *Acta Obstet Gynecol Scand* 2009;88:178-82. [CrossRef](#)
- Erdoğan N, Erdoğan İ. Araştırmalarda veri toplamaya ve bulgulara etki eden kirlenmiş bilinç üzerine bir inceleme. *Selçuk İletişim Dergisi* 2005;3:5-17.
- Ay P. Hata: Rastlantısal hata ve yan tutma. In: Topuzoğlu A, Ay P. Kanıtı dayalı tıp: klinik epidemiyolojik araştırmaların eleştirel değerlendirilmesi. İstanbul: Ege Yayınları; 2007.
- Vecchi Brumatti L, Montico M, Russian S, Tognin V, Bin M, Barbone F, et al. Analysis of motivations that lead women to participate (or not) in a newborn cohort study. *BMC Pediatr* 2013;13:53. [CrossRef](#)
- Halpern SD, Karlawish JH, Casarett D, Berlin JA, Townsend RR, Asch DA. Hypertensive patients' willingness to participate in placebo-controlled trials: implications for recruitment efficiency. *Am Heart J* 2003;146:985-92. [CrossRef](#)
- Qiu X, He J, Qiu L, Larson CP, Xia H, Lam KB. Willingness of pregnant women to participate in a birth cohort study in China. *Int J Gynaecol Obstet* 2013;122:216-8. [CrossRef](#)
- Alkaya A, Esin A. Item nonresponse reasons and effects. *GUJ Sci* 2005;18:577-89.
- Herzog AR, Rodgers WL. Age and response rates to interview sample surveys. *J Gerontol* 1988;43:S200-5. [CrossRef](#)
- Goldberg M, Chastang JF, Leclerc A, Zins M, Bonenfant S, Bugel I, et al. Socioeconomic, demographic, occupational, and health factors associated with participation in a long-term epidemiologic survey: a prospective study of the French GAZEL cohort and its target population. *Am J Epidemiol* 2001;154:373-84. [CrossRef](#)
- Pedersen P, Nohr EA, Søgaard HJ. Nonparticipation in a Danish cohort study of long-term sickness absence. *J Multidiscip Healthc* 2012;5:223-9. [CrossRef](#)