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The mid-term effect of grandchildren and children motivation to quit rates of smokers

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ABSTRACT

We aimed to investigate the mid-term quit rates of smokers who were motivated to quit smoking directly by their children or grandchildren. Thousand one hundred and forty-eight smokers who had attended to the Ondokuz Mayis University smoking cessation clinic were investigated for their initial motivation for quit smoking. Among them 80 participants were accepted as study group who claimed that their primary motivation for smoking cessation was their children or grandchildren's wish to see them as non-smokers. 200 other smokers were accepted as control group randomly. An individualized therapy cessation technique was selected for each participant (combination of behavioral counseling, nicotine replacement therapy, and/or pharmacotherapy). All of the participants in both groups attended a standard quittance program. The smoking statuses of both groups were investigated at the end of 1st and 3rd month after. Although there was no difference between the sociodemographic and smoking features of the both groups the study group had a better quit rate after 1st (45% versus 35%) and 3rd (37% versus 29%) month compared to control group ($p<0.001$ respectively). To get motivation from grandchildren or children had an independent effect on cessation (O.R=1.094, 95%CI, $p<0.001$). The smokers who were motivated to quit by their children or grandchildren may have an increased chance of quittance.

1. Introduction

Smoking is one of the most important health care problems around the world (WHO, 2012). Smoking is a very complex problem for the primary care physician as this epidemic has very different facets. One of the main problems dealing with smoking for the primary care physicians is to motivate smokers for a behavioral change and initiate a cessation attempt. Transtheoretic Model (Prochaska and Norcross, 2010), explains the change of behavior in five steps each have different rate of importance (Precontemplation [not ready or thinking of change], contemplation [getting ready], preparation [ready], action, maintenance). The most important steps are considered as the first three steps. There are several broad factors effects smokers to take cessation decision just like increasing health problems contributed to their smoking, negative impact on their social relations, the legal prohibitions in society, or just the burden of economical cost for smoking (Ross, 2016). Until know the effect of social support on first three steps of Transtheoretic Model is not studied in detail. Many researchers gave social support a theoretical importance especially on the last step (Maintenance) of this model (Westmaas et al., 2010). The importance of

social support is investigated in different sources, terms and conditions (Burns et al., 2014). Social support is typically defined as "the social resources that persons perceive to be available or that are actually provided to them by nonprofessionals in the context of both formal support groups and informal helping relationships (Cohen., 2004). The researchers tries to find answers to two important questions in order to formulate the most effective type of support. First one is who can deliver best social support to the smokers and second one is what is the best way to do this is. Different people from the smokers social circle regarding to their emotional or intimate bond (spouse, partner, and "buddy" etc) is investigated (May and West, 2000). In the second topic integrated counselling, telephone calls and even computer assisted cessation is researched (Rindal et al., 2013).

In Turkish society being a parent and/or grandparent is a very important social role (Çelik et al., 2012). In this social role parents and grandparents may have positive intimate and emotional relationships with their descendant. This positive bond may have a very powerful effect on both sides' behavioral patterns (Roopnarine and Carter., 1992). It may not be a rare event that grandchildren and children get concern about their smoker parent's health outcomes. It is possible that they may motivate their parents with this emotional bond. So far the effect of children and grandchildren's motivation on their smoker parents are not studied in our country. We investigated the effect of children and grandchildren's motivation on their parent/grandparents smoking quittance rate in mid-term.

2. Materıals and methods

Design

The study was designed as a randomized case-controlled trial between May 2011 and December 2012. It was performed at the Ondokuz Mayis University (OMU) Medical Faculty Department of Family Practice Smoking Quittance Clinic, Turkey.

1148 smokers who had attended to the Ondokuz Mayis University smoking cessation clinic were asked to list their three prime motivation reason to quit smoking from most important to the lesser ones face to face by the researchers. Among these smokers who stated that their main motivation is related with their children or grandchildren in the first place were accepted as study group. Other smokers who didn't state any knowledge about their children and grandchildren motivation in their list is accepted as control group.

The criteria for inclusion in the study were willingness to take part and attendance at all sessions, age >18 years, intending to quit smoking within six months, Fagerstrom Nicotice Dependency Score>5 points, smoking more than 10 cigarettes a day, not being on any psycho-regulatory medication (antidepressant, anxiolytic or antipsychotic), not having any psychiatric illnesses, not being pregnant or breast-feeding and applying all the program session content for three months. A total of 80 smokers in the study group (out of 98 smokers) who meet inclusion criteria were accepted as study group. Among 1050 smokers 880 of them met study's' inclusion criteria. Two hundred control cases were selected randomly from them. Every fourth patient were selected from the list which were organized by their alphabetic surname order.

At the beginning of their program, each participant in the study and control subgroups was asked to respond to the Fagerstrom Test for Nicotine Dependence (FNDT). A full physical examination is performed and their anthropometric measurements were recorded. After that every smoker was applied our clinics standard cessation program which were described elsewhere in detail (Yalçın et al., 2012). At the end of 1st month and 3rd smoking status of patients was established by self-report and assessment of carbon monoxide (CO) with an inhaler. Participants who relapsed on just one or two occasions were not excluded from the study. Participants with readings of ≤10 ppm CO were regarded as smoking-free. The smoker who didn't attended to clinic between these two time schedules were called by telephone and invited to clinic to confirm their condition. 12 smokers in the study group and 42 smokers in the control group were called by phone. The cessation rate of two groups were compared with each other.

Tools

Fagerstrom Test for Nicotine Dependency

The FNDT is a six-item self-report scale frequently used around the world to determine levels of nicotine addiction (Hearton et al., 1991). Although the test is actually modified from the Fagerstrom Tolerance Questionnaire, it has better internal consistency and is more easily answered. In terms of the overall logic of this test, it is based on number of cigarettes smoked and length of smoking-free periods. The instrument yields a dependency score between 0 (low) and 10 (high).

Statistical Analyses

The cessation rates of both groups were regarded as independent variables. The relations between demographic, smoking features and results of the items were investigated using the Chi-Square test, Pearson correlation analysis, the Independent Samples T-Test and Two-way Repeated Measures ANOVA. Minitab version 10 was used for power analyzes and the two proportions test. All the remaining statistical analyzes were performed on SPSS version 13.0. A p value of <0.05 was regarded as statistically significant.

3. Results

Demographic and Smoking Features

The demographic features of both groups were presented at Table 1. There was no difference between the genders of the participants compared with each group (x^2=0.754, p=0.125). The age of the participants in the study group was higher than the ones in the control group (t=1.845, p=0.002). They were 3 years older than the control group. Although there were single participants in the control group there were no dEifference in the marital status of the participants between two groups. However most of the participants were married within both of the groups (p<0.001 respectively).

Table 1. The demographic features of the two groups

Variables	Study Group N, %	Control Group N, %	p
Gender	Men= 48 Women= 32	Men= 120 Women= 80	>0.05
Age (Years)	39.22±27.25	36.19±51.14	=0.002
Marital Status Single Married Widow Divorced	 0, 0% 68, 85% 6, 7.5% 6, 7.5%	 10, 5% 165, 83.5% 12, 6% 11, 5.5%	 <0.05
Total education year (Mean)	8.75±1.8	8.8±1.0	>0.05

The smoking and their treatment features were presented in Table 2. There was no difference between the mean score of FNDT, package/year and mean of former quits attempts of study and control group (t=0.421, p=0.245; t=0.987, p=0.785; t=0.514, p=0.624 respectively). There was no difference between the treatment method ratio of the both groups were received (x^2=0.712, p=0.524).

Table 2. The Smoking and treatment features of the both groups

	Study Group	Control Group	p
FNDT* (Mean)	5.84±2.32	5.67±1.78	>0.05
Package/Year	24.2±2.4	22.1±3.9	>0.05
Mean number of quit attempts	1.7±1.3	1.8±1.5	>0.05
Cessation method that selected NRT only Bupropion+NRT Bupropion only Varenicline	 13, (16.5%) 23, (30.8%) 25, (32.3%) 29, (36.9%)	 35, (17.7%) 48, (24.0%) 52, (25.7%) 65, (32.6%)	

FNDT*: Fagerstrom nicotine dependency test score; **NRT**:** Nicotine replacement therapy

The total quit rate in the study group was 45% (n=36) at the end of the first month and 37% (n=30) at the end of the third month. The quit rate was 35% (n=70) at the end of the first month and 29% (n=58) at the end of the third month. The smokers at the study group had better quit rates at the end of the 1st month (x^2=2.568, p=0.008) and at the end of 3rd month (x^2=2.248, p<0.001). In a binary logistic regression model, it was seen that children and grandchildren motivation was an independent factor for quit smoking (O.R=1.094, 95%CI, p<0.001). The binary logistic regression model is presented at Table 3.

Table 3. The binary logistic regression model

	B	SE	Wald	P	Exp (B)	95%CI for Exp (B)
Study group*	0.745	0.320	5.741	0.001	1.094	0.998-1.458
FNDT**	0.025	0.30	3.245	0.085	0.954	0.869-1.010
Package/ year	0.120	0.047	6.407	0.01	0.887	0.808-0.973
Treatment method	0.029	0.026	1.178	0.278	1.029	0.997-1.084
Age	0.020	0.034	0.081	0.776	1.008	0.934-1.087

Study Group*: To get children or garndchildren motivation to quit smoking; **FNDT**:** Fagerstrom Nicotine Dependency Test Score

4. Discussion

In our study it is revealed that the motivation from children and grandchildren has a potent effect on quit rates of the smokers. For our knowledge this is the first study on this topic. In former studies the importance of social support from different resources just like partners, spouses and close friends are generally studied (Burns et al., 2014). Similar to our results there is evidence that social relations within a family member has also very strong effect on smoking addiction. Also this effect may be either positive or negative on smoking cessation. For instance Gibbons et al. (1996) showed that positive support from spouse's increases quit rates of the smokers at short term. It is also understood that the recurrence of the smokers was also correlated with negative support of the spouses. In this study this phenomena is explained as if the smokers can't find effective behavioral solutions to some long term withdrawal problems such as increased agitation and anger, spouses generally lose their sympathy for their partners 'cessation. They stop giving emotional support for cessation and prefer the person to smoke again in order to balance the same marital relationship. The importance of the content of structured and positive support from spouses is underlined by Mermelstein et al. (1983). They found that the smokers who received support from their spouses had better quit ratios compared with single smokers at 1st, 3rd and 6th months. However we investigated our patients at mid-term (1st and 3rd months). In another study it was also seen that the spouses (or partners) social support was perceived as efficient by the smoker at end of the 1st month after cessation (Cohen and Lichtenstein., 1990). These smokers claimed that this support was vital although there were indications of expectations influencing the effectiveness of received support, none of critical

analyses reached statistical significance.

In a recent Cochrane review it is underlined that the difficulty of investigating the effect of social support is comes from the topics nature and content (Park et al., 2002). In this review it was noted that the recent nine studies about social support of relatives (mostly spouses) in smoking cessation didn't support enough evidence for increasing smoking cessation rate mostly because of their design flaws. The odds ratio for self-reported abstinence at 6-9 months was 1.08 (CI 95%, 0.81-1.44); and at 12 months post-treatment was 1.0 (CI 95%, 0.75-1.34). Similar to these results we find odd ratio for cessation at three months as 1.094 (CI 95%, 0,998-1.458). Most of the studies that mentioned above are based on Partner Interaction Questionnaire (PIQ-20) which is a very effective and reliable tool measuring the negative and positive support of spouses. However Barrera et al. (1986) stated that the level of emotional support which involves providing empathetic, caring, and reassuring communication and its perception by smokers is very individualized. We didn't use PIQ-20 in our study for some reasons. First of all PIQ-20 is designed for spouses (or partners). Also this questionnaire is mostly investigated the effect and amount of social support after a smoker gave cessation decision.

The common point of participants in the study group was somehow their motivation was directly related with a child or grandchild. The nature, type or style of motivations that our study group get was very heterogeneous. The motivation type or style was mostly depended on the descendants' age. Some of the smokers in the study group (All man) stated that their wife was pregnant and the baby's delivery would be soon. They didn't want to give any harm to their unborn child and they want to be nonsmoker when the baby is born. Very young toddlers (Mostly grandchildren) tended to behave a negative attitude against their grandparents smoking. They mostly refused to socialize with their grandparents (refuse to kiss, play with or sit on the knee etc.) because of bad tobacco smell on the clothes. This was a very strong motivation for some grandparents. However the older children or grandchildren were mostly concerned about their parent's health status. During face to face interview these smokers stated that the most important sentence their children used to motivate them was "Dad/Mom I don't want you die, please stop smoking". This situation may be attributed to the education in pre-kindergarten and primary school about the smoking's effect on health. Educative television commercials underlining the negative effect of smoking on health may be also effective for public opinion about smoking. A decade ago before several prohibitions about smoking is taken as a policy around the world multimedia had a powerful effect on motivating children for smoking (Ford Jones., 2003). Today this media instrument can be used against smoking.

This study had some flaws. First of all we didn't investigated the content and nature of the motivation that the study group had received for the whole cessation period. As stated above the nature of this initial prime motivation nature may be very different from each other. Our knowledge about this nature and content was rather subjective however providing very important and powerful clues about the topic. Also we don't know the effect of this kind of motivation on the rate of smokers to give their decision to quit. What we learned from this study was the smokers who had this motivation had better cessation ratios compared to others. Primary care physicians may use this relation in order to motivate their patients. "What does your grandchild think about your tobacco smell?" or "What does your child think about your smoking?" might be good questions for motivating smokers in primary care. More quantitative and qualitative research is needed to understand the relation of this motivation with cessation properly.

Ethics

Approval for the study was granted by Ondokuz Mayıs Üniversity Ethical Board.

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