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RESEARCH ARTICLE

THE EFFECT OF SMOKING CESSATION ON QUALITY OF LIFE IN SMOKERS OF KURNOOL DISTRICT

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Abstract:
Smoking is a well-known cause of many diseases associated with high mortality, morbidity and disability but only a few studies have investigated how smoking affects other aspects of health such as health-related quality of life. Health-related quality of life reflects a person's self-rated perception of aspects of health, such as limitations in physical functioning, pain, vitality, mental health problems and related role and social functioning. In general, the most important reason to give up smoking is concern about one's health. Knowledge of the impact of smoking cessation on health-related quality of life may be important in encouraging smokers to quit, since possible beneficial effects on quality of daily living may be seen readily. Associations between smoking behavior and quality of life were more pronounced for mental health than for physical health. Amount of smoking and time since quitting show a dose-response relationship with morbidity and mortality risk. (Wilson et al. 1999)Few studies have investigated the relationship between smoking and health-related quality of life and the results are not consistent. The aim of this study is to explore the association between smoking and health-related quality of life

Keywords: Smoking , health, cessation, health-related quality of life.

Introduction

Cigarette smoking is one of the strongest contributors to the risks of cardiovascular diseases, including coronary heart disease, stroke, sudden death, peripheral artery disease, and aortic aneurysm (Jonas, M. A., Oates, J. A., Ockene, J. K. and Hennekens, C. H. et al., 1992). It adversely affects endothelium dependent vasodilatation, inflammation, lipid profile (cigarette smokers have higher levels of total blood cholesterol, triglycerides, and low density lipoprotein cholesterol (LDL-C), and lower levels of high density lipoprotein cholesterol (HDL-C) (Craig WY, Palomaki GE, Haddow JE. et al., 1989), fibrinolysis, platelet function, and thrombotic factors (Ambrose JA, Barua RS. e t al: 2004). Accordingly, cigarette smoking increases the incidence of hypertension and insulin resistance (Bowman TS, Gaziano JM, Buring JE, Sesso HD., et al., 2007; Attvall S, Fowelin J, Lager I, Von Schenck H, Smith U. et al 1993). In general, the most important reason to give up smoking is concern about one's health. The beneficial effects of giving up smoking on morbidity and mortality have been widely known for many years. Considerable reductions in the risk of cardiovascular diseases occur immediately after the discontinuation of cigarette smoking (Minami, J., Ishimitsu, T. and Matsuoka, H. et al., (1999)). In contrast, the effects of smoking cessation on other aspects of health status, such as the quality of life, are less well described. Health-related quality of life reflects a person's self-rated perception of aspects of health, such as limitations in physical functioning, pain, vitality, mental health problems and related role and social functioning. Knowledge of the impact of smoking cessation on health-related quality of life may be important in encouraging smokers to quit, since possible beneficial effects on quality of daily living may be seen readily.

Several studies investigated the relation between smoking behaviour and health-related quality of life, suggesting that cigarette smoking relates to poor quality of life. Associations between smoking behaviour and quality of life were more pronounced for mental health than for physical health.

The study of association between smoking behaviour and health-related quality of life, in a cross-sectional study among the general Kurnool population aged 20-59 years without history of tobacco-related chronic diseases. We focused on the effect of time since quitting and amount of smoking on the difference in quality of life between ex- and current smokers.

Material and Methods:

Study Population:

Study conducted among 20-59 years old men and women of Kurnool. Subject without information on health-related quality of life or smoking behaviour or on the covariates age, gender, educational level, and town of investigation, were excluded from the analyses. Furthermore, we excluded subjects with history of cancer, myocardial infarction, cerebro-vascular accidents, asthma, or COPD or with missing values on these variables.(Janzon E, Hedblad B, Berglund G, Engstr Get al., 2004) The final study population consisted of 100 men and 60 women. All subjects gave their written informed consent. Data were collected by means of a self-administered questionnaire. The health-related quality of life was measured by the standardized questionnaire, which was adapted from the standardized Health Survey.

The questionnaire included 36 items, 1 item on health change in the past year and 35 items on eight dimensions of quality of life: physical functioning (10 items), role functioning limitations due to physical problems (4 items), bodily pain (2 items), general health (5 items), vitality (4 items), social functioning (2 items), role functioning limitations due to emotional problems (3 items), and mental health (5 items).

The subjects rated each item on 2-, 3-, 5-, or 6-point scale. The total score for each dimension was calculated according to the method described by the Medical Outcomes Trust and ranged from 0 to 100.

Subjects were classified as never, ex-, or current smokers. The group never smokers consisted of subjects who had never smoked (90%), subjects smoking less than 1 cigarette a month (3%) and subjects who smoked between 1 cigarette a month and one cigarette a day (7%). Ex-smoked were classified in three categories of time since quitting: subjects who quit smoking < 5 years, 5-9 years, or ≥ 10 years ago. Within these three categories, ex-smokers were further categorized as ex-light (1-9 cigarettes per day), ex-moderate (10-19 cigarettes per day), or ex-heavy (≥ 20 cigarettes per day) smokers, based on the amount of smoking in the past. Current smoking was defined as currently smoking at least 1 cigarette a day. In concordance with ex-smokers, we further categorized current smokers as light, moderate, or heavy smokers.

Educational level, as an indicator of socioeconomic status used as a covariate, was divided into three categories, according to the highest achieved level of education: low (intermediate secondary education or less), intermediate (intermediate vocational or higher secondary education), and high (higher vocational or university education).we excluded subjects with history of cancer, myocardial infarction, cerebro-vascular accidents, asthma, or COPD or with missing values on these variables

Statistical analysis:

We calculated mean scores for the eight dimensions of quality of life and for the physical and mental component summary among never, ex-, and current smokers, adjusted for age, gender, educational level, and town of investigation, using multivariate analysis of variance. we used linear regression modeling to test for a dose-response relationship of quality of life with time since quitting and amount of smoking in the past among ex-smokers and, consequently, with amount of current smoking among current smokers. Finally, linear regression modeling was used to test for a possible trend in the difference in the quality of life between ex- and smokers with time since quitting and amount of smoking.

Data were analyzed using the GLM-procedure of SAS version 6.12. In all analyses, adjustments were made for age, gender, educational level, and town of investigation. Two-tailed p values below 0.05 were considered statistically significant.

Results:

Table 1 shows characteristics of the study population. Crude mean scores on the eight health-related quality of life dimensions ranged from 66 to 91, from 67 to 90, and from 63 to 88 among never, ex-, and current smokers, respectively. Except for bodily pain ($p<0.0001$), adjusted mean scores on the quality of life dimensions did not significantly differ between never smokers and ex-smokers .Current smokers reported lower scores

than never smokers for all eight dimensions ($p<0.001$), and lower scores than ex-smokers for all dimensions ($p<0.05$) except bodily pain .Difference in mean scores between never and ex-smokers on the one side and current smokers on the other side were most pronounced for dimensions concerning.

Mean scores of eight dimensions of quality of life among never, ex-, and current smokers, adjusted for age, gender, educational level, and town of investigation. The physical component summary score among never smokers was higher compared with ex-($p<0.05$) and current smokers($p<0.001$), the mental component summary among current smokers was lower compared with both never and ex-smokers ($p<0.0001$). the covariates age, gender, educational level, and town of investigation, did not interact with these associations.

Among smokers, however, the inverse association between amount of smoking and mean quality of life scores was stronger and was apparent for all dimensions and the two component summaries (Table 2). In general, associations were stronger for dimensions reflecting mental health than for dimensions reflecting physical health. The strongest associations were observed for role limitations due to emotional problems (among ex-smokers, $\beta=0.60$, $p=0.10$ for every extra 5 years since quitting; $\beta= -1.11$, $p<0.05$ for every extra 10 cigarettes per day smoked in the past; among smokers, $\beta= -3.60$, $p<0.0001$ for every extra 10 cigarettes per day smoked currently). The covariates age, gender, educational level, and town of investigation interacted with a few of these associations. However, no consistent pattern could be observed.

An increase in time since quitting did not result in a significant increase in the difference in quality of life between ex- and current light, moderate (except for physical functioning, p trend<0.05), nor heavy smokers (except for mental health, p trend<0.01). Furthermore, the difference in quality of life between ex- and current smokers significantly increased with increasing amount of smoking for all (p trend<0.05), but three dimensions (vitality, role limitations due to emotional problems, and mental health), among short-term quitters, and for all (p trend<0.05), but one dimension (role limitations due to emotional problems) among long-term quitters. No trend with amount of smoking could be observed among subjects who had quit 5-9 years ago. Again, differences in quality of life score between ex- and current smokers were more pronounced for dimensions reflecting mental health, especially for role limitations due to emotional problems, compared with dimensions reflecting physical health. The covariates age, gender, educational level, and town of investigation interacted with a few associations, but again, a consistent pattern could not be observed.

Discussion

In this study among subjects without history of tobacco-related chronic diseases, ex-smokers experienced a better health-related quality of life than current smokers, which was more pronounced for mental health than for physical health dimensions. Amount of smoking showed a dose-response relationship with quality of life among ex- but especially among current smokers. Time since quitting was only weakly related to quality of life among ex-smokers. Finally, in general, the difference in quality of life between ex- and current smokers significantly increased with increasing amount of smoking. No trend in the difference in quality of life was observed with time since quitting.

Conclusion :

Based on the available literature, we hypothesized that

1. ex-smokers experience a better quality of life than current smokers;
2. differences in quality of life between ex- and current smokers are more pronounced for dimensions reflecting mental health than for dimensions reflecting physical health;
3. time since quitting and amount of smoking show a dose-response relationship with quality of life among ex- and current smokers, analogous to morbidity and mortality;(Iso H, Date C, Yamamoto A, Toyoshima H,Watanabe Y, Kikuchi S, et al., 2009)and
4. The difference in quality of life between ex- and current smokers increases with increasing time since quitting and increasing amount of smoking.(Kawachi I, Colditz GA, Stampfer MJ, Willett WC, Manson JE, Rosner B, et al.1994)
5. study among subjects without physical and mental disease, only nicotine-dependent smokers show impairment in the mental dimension of HRQOL

Table 1 Characteristics of the study population (% (absolute number) or mean ±sd).

	Never smokers	Ex-smokers	Current smokers
N	58	42	60
Age	38.0±11.3	44.2± 9.2	40.2± 10.3
Gender(% Men)	50 (29)	76.1(32)	65(39)
Educational level			
Low	43.1(25)	42.8(18)	51.6(31)
Intermediate	32.7(19)	26.1(11)	31.6(19)
High	24.1(14)	30.9(13)	16.6(10)
Town of investigation Kurnool	58	42	60
Time since quitting[a]			
<5 years	NA	26.1(11)	---
5-9 years	NA	19 (8)	NA
≥ 10 years	NA	54.7(23)	---
Amount of smoking[a,b]			
Light	NA	28.5(12)	21.66(13)
Moderate	NA	30.9(13)	41.66(25)
Heavy	NA	40.4(17)	36.6(22)
Dimensions of quality of life			
Physical functioning 6	91± 14	90 ±15	88± 17
Role limitations physical	85± 29	84± 31	82 ±32
Bodily pain	82 ±21	79± 22	78± 23
General health	75± 16	74± 17	71±18
Vitality	66± 17	67± 17	63± 18
Social functioning	87± 20	86± 20	83±23
Role limitations emotional	85± 30	86± 30	78± 35
Mental health	75±15	76±15	71±18
Physical component summary	52± 7	51± 8	51± 8
Mental component summary	49± 9	50±9	47±11

NA, not applicable. [a] Added absolute numbers among ex-smokers are lower than total number of ex-smokers due to missing values on time since quitting (12 subjects) and amount of smoking (23 subjects). [b] Among ex-smokers, amount of smoking in the past; among current smokers, amount of current smoking.

Table 2 Association[a](coefficient; p) between health-related quality of life and time since quitting and amount of smoking among ex- and current smokers.

	Ex-smokers				Currents smokers	
	Time since quitting		Amount of smoking		Amount of smoking	
	β[b]	P	β[c]	P	β[c]	P
Physical functioning	0.33	0.07	-0.73	0.002	-1.83	<0.0001
Role limitations physical	-0.12	0.75	-0.93	0.07	-3.03	<0.0001
Bodily pain	0.05	0.84	-0.62	0.09	-2.50	<0.0001
General health	0.46	0.02	-0.54	0.044	-2.22	<0.0001
Vitality	0.43	0.03	-0.63	0.03	-2.30	<0.0001
Social functioning	0.42	0.10	-0.60	0.07	-2.02	<0.0001
Role limitations emotional	0.60	0.10	-1.11	0.05	-3.60	<0.0001
Mental health	0.41	0.01	-0.31	0.19	-1.76	<0.0001
Physical component summary	0.02	0.85	-0.26	0.03	-0.81	<0.0001
Mental component summary	0.27	0.01	-0.24	0.11	-1.12	<0.0001

Adjusted for age, gender, educational level, and town of investigation.
[b]For every 5 years since quitting. [c] Fro every extra 10 cigarettes smoked per day.

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