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Research Article

Health-related Quality of Life Among Smokers in Yogyakarta Province, Indonesia

Susi Ari Kristina[1]*, Dwi Endarti[1], Anna Wahyuni Widayanti[1], Mentari Widiastuti[2]

[1]*Management and Community Pharmacy Division, Department of Pharmaceutics, Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia*
[2]*Department of Pharmacy, Bethesda Hospital, Yogyakarta, Indonesia*

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ABSTRACT

Background: Smoking is considered as the leading cause of many diseases and has detrimental effects on health. However, little is known about impairment of health related quality of life associated with smoking and level of nicotine dependence in Indonesian population. Methods. Data obtained from questionnaire survey among Yogyakarta city and Sleman district population. A number of 561 male respondents was selected by convenience sampling. WHO-QoL BREF consisted of 26 questions with 4 dimensions was delivered by trained interviewer. Nicotine dependence was measured using Fagerstorm scale consisted of 6 items. Age, education level, job status, physical activity was also being asked to respondents. Data was analyzed descriptively and association between smoking status, nicotine dependence level, and sociodemographic factors with health-related quality of life was investigated. Results. Overall, an estimated 58.1% of adults aged >15 years were current smokers and 41.9% were non-smokers. Current smokers had significantly poorer HRQoL than those who never smoked. Additionally, those who had high nicotine dependence were had more impaired HRQoL compared to low and moderate level of nicotine dependence. Respondents with low education, not employed, and physically inactive reported poorer HRQoL than their counterparts. Conclusions. There are relationships between smoking and HRQoL impairment. Lower HRQoL also reported among those who had high nicotine dependence, and others sociodemograhic factor. Awareness among health professionals about smoking as health risk behavior needed to be raised and smoking cessation interventions should be provided as potential efforts of tobacco control.

Keywords: Health-related quality of life, smokers, nicotine dependence, Indonesia

INTRODUCTION

It is well established that smoking has detrimental effects on physical health. Smoking has been identified as cause of cancer, lung disease, respiratory problems, coronary heart disease, and stroke[1].Therefore, tobacco use is considered the single most important avoidable cause of premature morbidity and mortality in the world[2,3]. With an estimated 67% of Indonesian population are active smokers[4], tobacco use has been identified as the leading preventable cause of mortality, resulting in 7% of all deaths[5]. Notably, smoking poses serious economic implications as well, accounted for USD 1,309 million of mortality costs in 2013 and responsible for 1,2 million years lost productivity[5]. Given the harmful effect of smoking on health, many previous researches described the associations between smoking and poor physical health[6,7]. Although it is well known that smoking is a risk factor for poor health, we know of no recent studies have examined the associations of smoking status with health-related quality of life in Indonesian sample. Research in this area has been largely conducted in western countries[8-10]. Yet, examining the associations among smoking, health behaviors, health-related quality of life, and nicotine dependence particularly important for identifying behaviors and conditions linked with smoking that may further diminish the health of smokers in the Indonesian population. Our study objective was to examine the association between smoking status, nicotine dependence, and sociodemographic with health-related quality of life (HRQoL). We hypothesized that smokers is associated with low HRQoL.

METHODS

Data sources

Between October 2013 to March 2014, trained interviewers administered HRQoL questions in the City of Sleman and Yogyakarta, with total population of 1.5 million. A sample size of 526 men respondents without comorbidities was selected by convenience sampling consisted of individuals aged 15 to 60 years. We only recruited men smokers because of high smoking rates among men in Indonesia[4]. Smoking status was determined by asking respondents, “Have you smoked at least 100 cigarettes in your entire life?” and “Do you now smoke cigarettes every day, some days, or not at all?” Current smokers were defined as those who reported having smoked > 100 cigarettes during their lifetime, and who currently smoked every day or some days. Former

**Author for Correspondence*

Table 1. Demographic characteristics of respondents

Sociodemographic variables	N (%)
Age	
15-30	376 (67)
30-45	172 (30.7)
45-60	13 (2)
Education level	
Lower than high school	395 (70.4)
Higher than high school	166 (29.6)
Employment status	
Unemployed	325 (57.9)
Employed	236 (42.1)
Physical activity	
Low level of physical activity	376 (66.9)
High level of physical activity	186 (33.1)
Smoking status	
Non smoker	235 (41.9)
Smoker	326 (58.1)
Nicotine dependence	
No dependence (non-smoker)	235 (41.9)
Low	35 (6.2)
Low to moderate	101 (18.0)
Moderate	65 (11.6)
High	126 (22.3)

smokers were those who had smoked > 100 cigarettes in their lifetime, but did not smoke currently. Persons who had smoked < 100 cigarettes in their lifetime were considered to have never smoked. Persons who had ever smoked were then asked questions covering 6 items for identifying the level of nicotine dependence called fagerstorm test[11]. The items include questions as follows: 1). How soon after waking do you smoke for first cigarette, 2). Do you find it difficult to refrain from smoking in places where it is forbidden,3). Which cigarette would you hate to give up, 4). How many cigarette a day do you smoke, 5). Do you smoke more frequently in the morning, 6). Do you smoke even if you are sick in the bed most of the day. Nicotine dependence was categorized as low dependence (score 1-2), low to medium dependence (score 3-4), moderate dependence (score 5-7), and high dependence (score 8+). Former smokers and never smoker were combined in our analysis because of limited number in former smokers.

HRQoL measurement

We use World Health Organization Quality of Life Brief version (WHOQoL-BREF) for quality of life measurement. The WHOQoL-BREF was developed as an abbreviation of the WHOQoL-100 to provide a short form quality of life assessment[1 2]. It was developed by the WHO through a multi-center field trial situated within 23 countries. This tool is a self-report questionnaire which consists of 26 items, each item indicating one aspect of life that is considered to have a contribution to a person's quality of life. Twenty-four items measure four broad domains, namely physical health (e.g. mobility, pain and discomfort; 7 items), physchological health (e.g. body image and appearance,

Table 2. Relationship between sociodemographic characteristics with smoking status

Socio-demographic characteristics	Non smoker	Current smoker	P-value
Age			<0.001*
15-30	175 (46.54)	201 (53.46)	
30-45	50(29.07)	122 (70.93)	
45-60	10(76.92)	3 (23.08)	
Education level			<0.001*
Lower than high school	154(38.99)	241 (61.01)	
Higher than high school	81(48.80)	85 (51.80)	
Employement status			<0.001*
Unemployed	27(8.57)	288 (91.43)	
Employed	99(72.26)	38 (27.74)	
Physical activity			<0.001*
Low level	95(25.27)	281 (74.73)	
High level	140(75.68)	45 (24.32)	

*significant at p< 0.05

negative feelings, self-esteem; 6 items), social relationships (e.g. personal relationships, social support; 3 items) and environment (e.g. financial resources, health and social care, physical environment; 8 items). Two other items measure the overall perception of quality of life and general health. In four of WHOQoL dimension (Physical, psychological, social, and environment) the highest score (100) is achieved when no limitations or disabilities are observed. The WHOQoL-BREF employs a 5-points scale (1 to 5) with a higher score indicating a higher level of self-perceived quality of life. The WHOQoL is available in Indonesian version and has been validated in Indonesian setting[13].

Statistical analysis

Descriptive statistics were run for the variables of interest include smoking status, HRQoL, level of nicotine dependence, and sociodemographic characteristics. Differences in HRQoL scores for current smokers and non-smokers were initially compared using Mann whitney test for the equality of mean. Chi-square test was performed to investigate the difference between HRQoL scores, smoking status, nicotine dependence, and demographic characteristics. A power of 80% and a probability of 95% was performed to test the differences.

RESULTS

Demographic characteristics

A response rate of 80 % (561/700) was achieved. Demographic characteristics of respondents are presented in Table 1. Overall, an estimated 58.1% of adults aged >15 years were current smokers; and 41.9% considered as never smoked. As age increased, the prevalence of current smoking increased, from 53.46% among those aged 15 to 30 years to 70.93% among those aged 30 -45 years. Among those aged 45-60 years, the prevalence of current smokers decreased (Table 1). Moreover, persons with more than a high school education were significantly

Table 3. Relationship between sociodemographic factors and smoking status with HRQoL

Variables	HRQoL dimensions				
	Physical (mean, SD)	Psychological (mean, SD)	Social (mean, SD)	Environment (mean, SD)	Total (mean, SD)
Smoking status*					
Current smokers	59.21 (7.12)	62.91 (13.19)	61.35 (14.48)	56.18 (12.38)	59.91 (7.88)
Non smokers	75 (6.36)	66.81 (12.28)	63.62 (15.12)	59.81 (12.38)	66.32 (9.18)
Nicotine dependence*					
No dependence (non smoker)	61.26 (4.31)	61.19 (15.32)	59.76 (17.79)	54.73 (10.01)	59.23 (9.11)
Low	60.30 (4.64)	66.35 (13.45)	63.02 (12.51)	55.65 (11.01)	61.32 (6.87)
Low to moderate	58.75 (5.26)	65.35 (13.59)	66.50 (14.76)	57.89 (15.50)	62.12 (9.12)
Moderate	59.61 (8.87)	59.98 (10.87)	57.47 (12.91)	56.47 (10.43	58.38 (5.74)
High	48.46 (10.06)	56.79 (14.28)	50.64 (8.52)	46.87 (9.21)	50.69 (5.58)
Age*					
15-30	66.70 (9.76)	64.58 (13.06)	62.45 (15.28)	57.78 (12.61)	62.88 (9.08)
30-45	72.58 (12.11)	66.02 (13.27)	68.59 (14.09)	62.02 (11.33)	67.30 (8.32)
45-60	63.48 (11.06)	64.35 (12.74)	61.49 (13.64)	57.20 (12.31)	61.64 (8.83)
Education level*					
Lower than high school	65.05 (10.20)	64.21 (13.08)	60.76 (14.44)	57.28 (13.04)	61.82 (9.00)
Higher than high school	67.75 (10.55)	65.35 (12.64)	65.96 (14.97)	58.70 (11.06)	64.44 (8.82)
Physical activity*					
Low level of physical activity	62.84 (9.65)	63.31 (13.06)	61.21 (14.67)	56.86 (12.26)	61.06 (8.29)
High level of physical activity	71.97 (9.01)	67.04 (12.38)	64.51 (14.80)	59.41 (12.82)	65.73 (9.63)
Employement status*					
Unemployed	60.50 (8.67)	62.35 (12.87)	63.21 (13.68)	56.60 (12.73)	60.67 (8.06)
Employed	72.70 (8.08)	65.87 (12.04)	62.60 (1.58)	59.11 (12.07)	65.7 (9.57)

*significant at p< 0.05 for HRQoL total

less likely to currently smoke (51.80%) than those with less than a high school education (61.01%) (p <0.01). Finally, those unemployed or unable to work were most likely to be current smokers (91.43%) while employed persons were least likely (27.74%). Those who had limited physical activity were also more likely to smoke (74.73% than those with physical activity (24.32%).

Relationship between sociodemographic factors, smoking status, and health-related quality of life (HRQoL)

As Table 3 indicates, those who currently smoked were significantly more likely than those who never smoked to have impairments in all dimensions of the HRQOL measures examined (physical, psychological, social, environment). The lowest dimension score among current smokers was environment (56.18 ±12.38), followed by physical (59.21±7.12), social (61.35±14.48), and psychological (62.91±13.19). Respondent who have high nicotine dependence were more likely to have impaired HRQoL on 4 measures. Those who at age 30-45 years were more likely than young age to have low scores of HRQoL. In addition, respondent who have high education, employed, and to be physical active were significantly more likely to have better HRQoL scores (Table 3).

DISCUSSION

This is the first study of Indonesian adults reporting the HRQoL among smokers and sociodemographic factors. The relationship between smoking, sociodemographic and impaired physical health is confirmed by the findings of this study. Overall an estimated 58.1% of adults were current smokers and 41.9% were non-smokers. Current smokers had significantly poorer HRQoL than those who had never smoked. Specifically, compared those persons who never smoked, current smokers are more likely reported fair/poor general health, physical, psychological, social, and environment. This study was consistent with recent studies findings that the physical component score showed a graded deterioration of HRQoL with an increasing number of cigarettes smoked daily (P=.01)[7,14]. After 26-years follow up study by Strandberg 2008, never smokers lived longer than heavy smokers, and their extra years were of better quality[15]. There was a clear dose response relationship between the level of dependence and worsening quality of life for all smokers. The findings of this study showed that the HRQoL among men smokers with high dependence had the lowest score of HRQoL (50.69±5.58) compared to low (61.32 ±6.87), low-moderate (62.12±9.12), and moderate dependence (58.38±5.74). Interestingly, respondents at low-moderate dependence had better HRQoL than low dependence. This abnormality can be assumed that smoking among Indonesian considered as enjoyable activity and resulted relaxation effect [(16)]. In recent articles found that younger adults were less likely to ever smoke daily, but those who did smoke daily had the highest risk of becoming dependent, compared with older subjects[10,17]. HRQoL deteriorated with an increase in daily cigarette smoked in

a dose dependent manner. Respondent who at age >45 years were more likely to have poor HRQoL (61.64±8.83) than younger age, 61.88±9.08, and 67.30±8.32 for age group 15-30 years and 30-45 years consecutively. Our result shows anomaly that age 14-30 years had impaired HRQoL than olders. This finding was consistent with Martinez study that respondents in young ages also had poorer HRQoL than those who not smoked[6]. Those who have higher education, employed, and physically active is also frequently associated to have better HRQoL. It was indicate that multiple factors are associated with HRQoL such as health status, health behavior, demographic factors and level of dependence[9]. These results reveal that smoking was associated with physical inactivity and being associated with lower HRQoL. The difference score between low level and high physical activity was 4 points HRQoL score. Most notably, these results reveal that in addition to being associated with lower HRQOL, smoking among men is also associated with physical inactivity. Consistent with other studies, current smokers were significantly more likely than who never smoked to be physically inactive, to report frequent sleep impairment, to report frequent pain, and eat less fruits and vegetables[18]. A study assessed the association between obesity, weight loss measures, and HRQoL using a large, nationally representative data set showed that diet and exercise were associated with better HRQoL scores, whereas smoking was associated with deterioration in HRQoL[19]. Moreover, exercise stage is associated with self-perceived quality of life. The three areas most strongly related were physical functioning, general health perceptions, and vitality[20]. This study has several limitations. First, the study was cross-sectional and sample was still limited in number, therefore, causality cannot be inferred. Second, these analysis are based on self-reported data, and therefore these results could be influenced by reporting biases[21]. However, our survey has been interviewed by trained data collectors and seem to be valid and high reliability. Since it is first study, the number of variables investigated was still limited only sociodemographic factors, smoking status, and nicotine dependence with low number of respondents. This study did not estimate the association between HRQL and smoking with also assessing physical comorbidities, therefore adjustments could not be made for these factors. These results point out that smoking was associated with deterioration in HRQoL. Health professionals should view smoking as a health risk behavior leading to morbidity and mortality. Furthermore, smoking cessation services for patients who smoke should be provided and nationally initiated as part of tobacco control efforts.

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