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Subjective Assessment of Health in People with Varying Degrees of Nicotine Addiction

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Abstract

Introduction: *Subjective population health indicators, including subjective health assessment, are strongly correlated with health promoting behaviors of the population. SRH (self-rated health) determinants, such as lifestyle factors (including smoking) and specific health conditions, are important for targeted prevention and can help healthcare professionals prioritize education, intervention disease prevention, and health promotion.*

Aim: The aim of the study was to assess the subjective health status of smokers, including the assessment of subjective health status among people with varying degrees of nicotine addiction (i.e. those who are strong and less addicted to nicotine).

Material and methods: *The study covered smokers of Piotrków district in 2015. The research tool was a questionnaire. For the purposes of this study, smokers were distinguished among those who were less addicted to nicotine and those who were highly addicted to nicotine, using the Fagerström test. The study received a positive opinion from the Bioethics Committee of the Medical University of Lodz (RNN/243/15 /KE).*

Results: *117 people smoking cigarettes from Piotrków County took part in the study. It was found that 49.5% of the respondents assessed their health as fairly good, 38.5% as good, only 1.7% believed that their health was bad. People strongly addicted to nicotine constituted 8.5% of all smokers; people less addicted to nicotine accounted for 18.8% of the respondents. In the group of smokers strongly addicted to nicotine, the majority assessed their health as fairly good (60.0%), and good (30.0%). In the group of smokers less addicted to nicotine, 59.1% assessed their health as good, and 40.9% as fairly good.*

Conclusions: *SRH can be a simple, quick, and inexpensive measure to monitor health in a variety of populations, including people with varying degrees of nicotine addiction.*

Key words: *subjective health assessment, smoking tobacco, nicotine addiction.*

Introduction

People often treat their health as a natural thing that does not require any efforts on their part, and when a disease appears, they reject the idea of participating in its development [1]. Health-related quality of life (HRQL) concerns aspects of life that are related to health, as well as all activities aimed at maintaining it, in an objective and subjective dimension [2].

Subjective population health indicators, including subjective health assessment, are strongly correlated with health promoting behaviors of the population, influencing the decisions made in the field of therapy and having a direct or indirect impact on the behavior of individuals [3].

Self-Rated Health (SRH) was found to be an important and reliable health indicator based on a simple question asked of respondents to assess their current general health [4]. The conducted research shows evidence of a relationship between health self-assessment and morbidity, mortality, lifestyle, and socio-demographic factors [5, 6, 7, 8]. SRH determinants, such as lifestyle factors (including smoking) and specific health conditions, are important for targeted prevention and can help healthcare professionals prioritize education, intervention disease prevention, and health promotion [9].

Smoking is one of the anti-health behaviors, having a detrimental effect on human health, causing various diseases after many years [10]. Smoking is also a well-known major cause of early mortality and preventable morbidity [11]. WHO (the World Health Organization) recognizes smoking as a global, long-term health problem with over 7 million deaths annually [12]. WHO estimates that in 2018 in Poland, about 37% of men and about 26% of women smoked cigarettes, and the forecasts predict that in 2025 it will be approximately 26% of men and 16% of women, respectively [13]. In 2019 over one-fifth of Poles (21%) admitted to smoking (daily) addiction [14]. Estimated data on tobacco smokers place Poland slightly above the average European level, and the downward trend in the percentage of smokers observed in the last few years has been stopped [15].

Smoking cessation reduces the risk of developing cardiovascular diseases, respiratory diseases, cancer, and other chronic diseases resulting from this addiction, and after a few years, it even completely equalizes it with that of people who have never smoked [16]. Although over 80% of smokers say they want to quit, only 7% are successful annually. However, quitting smoking even for a while is a health benefit, because a day without a cigarette is a day when your health is not damaged. The health effects are determined not only by the number of cigarettes smoked but to a greater extent by the duration of the addiction [1].

Education and public awareness of the effects of tobacco consumption, as well as nationwide smoking cessation interventions, are key to reducing the demand for tobacco [17]. Minimal anti-smoking intervention during a medical visit, consisting of the identification of a smoking patient and providing them with professional help to quit smoking, can help reduce the percentage of smoking.

The aim of the study was to assess the subjective health status of smokers, including the assessment of subjective health status among people with varying degrees of nicotine addiction (in those who are strongly and less addicted to nicotine).

Materials and methods

A cross-sectional study was conducted in 2015. A detailed description of the study area has been published elsewhere [18]. The study included all smokers from the Piotrków County who gave their written consent to participate in the study. The study was approved by the Bioethics Committee of the Medical University of Lodz (project identification code: RNN/243/15/KE).

The research tool was a questionnaire. The study included current daily smokers (smokers of one or more cigarettes a day in the last 30 days) and occasional smokers (smokers less frequent than daily). For the purposes of this study, among smokers, people who were less addicted to nicotine and those who were strongly addicted to nicotine were distin-

guished using the Fagerström test [19]. A person who is highly addicted to nicotine was defined as the current every day smoker who smokes more than 20 cigarettes a day, lights the first cigarette up to 30 minutes after waking up, the hardest thing is to give up the first cigarette in the morning, smokes even when sick. The person less addicted to nicotine was a current daily smoker who did not meet the criteria for being heavily addicted.

The respondents were asked to assess their health condition on the basis of the question "assess your current health condition" and the answers were received: "good", "fairly good", "rather bad", "bad".

Results

The study involved 117 people who smoked cigarettes in the Piotrków County and were referred to a doctor to encourage them to quit smoking.

56% of the respondents were women, 44% men. Daily smokers accounted for 90.6% of all respondents. The most frequent smokers were people aged 50–59 (32.5%), while the least numerous group (8.5%) were those aged 40–49. 47.9% of the studied population were married persons, 23.9% single persons: single/unmarried.

The respondents with secondary education constituted 38.5%, and those with higher education – 29.9%. Most of them (60.7%) were employed, and every 5th person was a pensioner. The monthly net income per person in a family was above PLN 1000 to PLN 1500 (25.6%) for every fourth person and over PLN 1500 to PLN 2000 for every fifth person (Table 1).

Table 1. Characteristics of the studied population (N=117)

Variable	N	%
Sex		
• female	65	56.0
• man	52	44.0
Age (years)		
• <30	14	12.0
• 30–39	28	23.9
• 40–49	10	8.5
• 50–59	38	32.5
• ≥60	27	23.1
Marital status		
• bachelor/miss	28	23.9
• married	56	47.9
• divorced	18	15.4
• widower/widow	15	12.8
Education		
• basic	2	1.7
• basic vocational	21	17.9
• average	45	38.5
• post-secondary	14	12.0
• higher (bachelor's degree)	10	8.5
• higher (master's)	25	21.4
Professional status in the last 12 months		
• salaried employee	71	60.7
• self-employed person	11	9.4
• a person running a farm	3	2.6
• pupil/student	2	1.7
• housewife	15	12.8
• annuitant	8	6.8
• pensioner	7	6.0
• unemployed		
Monthly net family income per person		
up to 500 PLN	11	9.4
• over 500 to 700 PLN	9	7.7
• over 700 to 1000 PLN	18	15.4
• above 1000 to 1500 PLN	30	25.6
• above 1500 to 2000 PLN	26	22.2
• above 2000 to 2500 PLN	13	11.1
• above 2500 PLN	10	8.6
Subjective health assessment		
• good	45	38.5
• pretty good	58	49.6
• rather bad	12	10.2
• bad	2	1.7

Smoking tobacco		
• Yes, everyday	106	90.6
• Yes, less than every day	8	6.8
• No	3	2.6
Number of years of regular smoking daily		
• <5 years	12	10.3
• ≥5 years	105	89.7
How many cigarettes do you smoke during the day		
• less than one cigarette a day	4	3.4
• one cigarette a day	0	0
• 2 to 5 cigarettes a day	6	5.1
• 6 to 10 cigarettes a day	27	23.1
• 11 to 20 cigarettes a day	61	52.1
• more than 20 cigarettes a day	19	16.3
How soon after you wake up do you smoke your first cigarette?		
• in the first 5 minutes	26	22.2
• after 6–15 minutes	31	26.5
• after 16–30 minutes	23	19.7
• after 31–60 minutes	16	13.7
• after more than 60 minutes	19	16.2
• no data	2	1.7
Do you find it difficult to refrain from smoking in non--smoking public places?		
• Yes	32	27.4
• No	85	72.6
Which cigarette is the most difficult for you to give up		
• in the first morning	59	50.4
• any other	57	48.7
• no data	1	0.9
Do you smoke more cigarettes in the morning than in the rest of the day?		
• Yes	29	24.8
• No	88	75.2
Do you smoke cigarettes even when you are so sick that you are lying in bed?		
• Yes	62	53.0
• No	55	47.0
Have you tried to quit smoking in the last 12 months?		
• Yes	24	20.5
• No	82	70.1
• No data	11	9.4

Intention to quit smoking		
• I intend to quit smoking within the next month	77	65.8
• I'm considering quitting in the next 12 months	27	23.1
• I'll quit smoking, but not in the next 12 months	5	4.3
• I'm not going to quit smoking	1	0.85
• I don't know	6	5.1
• No data	1	0.85
During a visit to a doctor or other health care representative in the last 12 months, have you been asked if you smoke?		
• Yes	61	52.1
• No	50	42.8
• No data	6	5.1
Were you advised to quit smoking during a visit to a doctor or other health care representative in the last 12 months?		
• Yes	54	46.2
• No	50	42.7
• No data	13	11.1
Are you concerned about the harmful effects of smoking on your health?		
• I am very concerned	48	41.0
• I'm a little concerned	57	48.7
• I'm not too concerned	11	9.4
• I'm not at all concerned	1	0.9

When asked about subjective health status, 49.6% of respondents assessed their health as fairly good, 38.5% as good, and only 1.7% believed that their health was bad. When asked "are they concerned about the harmful effects of smoking on their health?" 41.0% of respondents replied that they were very concerned and 48.7% a little concerned. Women assessed their health better: as good (37.0%) and fairly good (50.8%), compared to men who assessed their health as good (40.4%) and fairly good (48.1%). 9.6% of men assessed their health condition as rather bad, and 1.9% as bad. People who assessed their health condition as good were mostly from the age group of 30–39 (12.8%), married (21.4%), with secondary or higher education (12.8% and 15.4%), who are employed (29.0%). Among the subjects who assessed their health condition at a fairly good level, the majority were aged 50–59 (18.8%), married (21.4%), with secondary or higher education (23.0% and 13.7%), who are employed (29.0%) (Table 3).

In the group of daily smokers, 89.7% were smokers for 5 years and longer. Every second respondent (52.1%) smokes from 11 to 20 cigarettes a day, 16.3% smokes more than 20 cigarettes a day. 68.4% light their first cigarette during the day immediately after waking up (up to 30 minutes). Most of the respondents (72.6%) did not find it difficult to refrain from smoking in public places where smoking is forbidden.

Half of the smokers (50.4%) find it hardest to quit their first cigarette in the morning. Every fourth person smokes cigarettes in the morning than in the rest of the day. 53.0% smoke cigarettes even when they are sick and in bed. Only every fifth (20.5%) of the respondents tried to quit smoking in the last 12 months, but 65.8% declared their intention to quit smoking within the next month. To the question: "during a visit to a doctor or other health care representative in the last 12 months, where you asked if they smoke?" more than half (52.1%) gave a positive answer, and to the question: "were they advised to quit smoking during a visit to a doctor or other health care representative in the last 12 months?" 46.2% answered in the affirmative. The study identified smokers who were less addicted to nicotine and those who were highly addicted to nicotine using the Fagerström test. People strongly addicted to nicotine constituted 8.5% of all smokers; 40.0% of which were women and 60.0% men. The most numerous group were people aged 60 and more (40.0%). People less addicted to nicotine accounted for 18.8% of the respondents, 54.5% were women, and 45.5% were men. The most numerous group were people under the age of 30 (27.3%). A detailed description of the respondents who are less and strongly dependent on nicotine, taking into account socio-demographic characteristics, is presented in Table 2.

In the group of smokers strongly addicted to nicotine, the majority assessed their health as fairly good (60.0%), and as good (30.0%), none of the respondents assessed their health as bad. In the group of smokers less addicted to nicotine, 59.1% assessed their health as good, and 40.9% as fairly good. None of the less addicted respondents assessed their health as rather bad and bad.

70.0% of those who are heavily addicted to nicotine are somewhat concerned about the harmful effects of smoking, and 45.5% of those less addicted. Among the less addicted, 45.5% are very concerned about the harmful effects of smoking on health, while in the group of highly addicted people it is only 10.0% of the respondents (p=0.05).

Every second highly addicted person was asked during a visit to a doctor or other health care representative in the last 12 months whether they smoke tobacco, and 60.0% of respondents were advised to quit smoking during such a visit. In the group less addicted to nicotine, 59.1% were asked by health care workers in the last 12 months whether they smoke, and every second person (50.0%) was advised to quit smoking in the last 12 months (Table 2).

Table 2. Characteristics of the less addicted and strongly addicted to nicotine subjects

Variable	Less addicted N=22 (%)	Strongly addicted N=10 (%)	p-value*
Sex			
• female	12 (54.5)	4 (40.0)	p=0.226
• man	10 (45.5)	6 (60.0)	
Age (years)			
• <30	6 (27.3)	-	-
• 30–39	5 (22.7)	1 (10.0)	p=0.291
• 40–49	1 (4.6)	2 (20.0)	p=0.200
• 50–59	5 (22.7)	3 (30.0)	p=0.300
• ≥60	5 (22.7)	4 (40.0)	p=0.197
Marital status			
• bachelor/miss	8 (36.4)	1 (10.0)	p=0.114
• married	11 (50.0)	3 (30.0)	p=0.180
• divorced	1 (4.5)	3 (30.0)	p=0.073
• widower/widow	2 (9.1)	3 (30.0)	p=0.138
Education			
• basic	-	-	-
• basic vocational	2 (9.1)	3 (30.0)	p=0.138
• average	7 (31.8)	5 (50.0)	p=0.190
• post-secondary	1 (4.6)	-	-
• higher (bachelor's degree)	3 (13.6)	-	-
• higher (master's)	9 (40.9)	2 (20.0)	p=0.173

Professional status in the last 12 months			
• salaried employee	15 (68.2)	4 (40.0)	p=0.103
• self-employed person	2 (9.1)	3 (30.0)	p=0.138
• a person running a farm	-	-	-
• pupil/student	2 (9.1)	-	-
• housewife	-	-	-
• annuitant	2 (9.1)	3 (30.0)	p=0.138
• pensioner	1 (4.5)	-	-
• unemployed	-	-	-
Monthly net family income per person			
• up to 500 PLN	-	-	-
• over 500 to 700 PLN	3 (13.6)	-	-
• over 700 to 1000 PLN	3 (13.6)	2 (20.0)	p=0.344
• above 1000 to 1500 PLN	9 (41.0)	3 (30.0)	p=0.264
• above 1500 to 2000 PLN	2 (9.1)	3 (30.0)	p=0.138
• above 2000 to 2500 PLN	3 (13.6)	-	-
• above 2500 PLN	2 (9.1)	2 (20.0)	p=0.289
Subjective health assessment			
• good	13 (59.1)	3 (30.0)	p=0.099
• pretty good	9 (40.9)	6 (60.0)	p=0.185
• rather bad	-	1 (10.0)	-
• bad	-	-	-
During a visit to a doctor or other health care representative in the last 12 months, have you been asked if you smoke?			
• Yes	13 (59.1)	5 (50.0)	p=0.266
• No	8 (36.4)	5 (50.0)	p=0.232
• No data	1 (4.5)	-	-
Were you advised to quit smoking during a visit to a doctor or other health care representative in the last 12 months?			
• Yes	11 (50.0)	6 (60.0)	p=0.262
• No	10 (45.5)	3 (30.0)	p=0.223
• No data	1 (4.5)	1 (10.0)	p=0.444
Are you concerned about the harmful effects of smoking on your health?			
• I am very concerned	10 (45.5)	1 (10.0)	p=0.050
• I'm a little concerned	10 (45.5)	7 (70.0)	p=0.137
• I'm not too concerned	2 (9.0)	2 (20.0)	p=0.289
• I'm not at all concerned	-	-	-

*Fisher's exact test was used

Table 3. Subjective health status assessment and characteristics of the studied population

Variable	Subjective health assessment			
	good N (%)	pretty good N (%)	rather bad N (%)	bad N (%)
Sex				
• female	24 (37.0)	33 (50.8)	7 (10.7)	1 (1.5)
• man	21 (40.4)	25 (48.1)	5 (9.6)	1 (1.9)
Age (years)				
• <30	9 (7.8)	5 (4.3)	-	-
• 30–39	15 (12.8)	11 (9.4)	2 (1.7)	-
• 40–49	6 (5.1)	4 (3.4)	-	-
• 50–59	8 (6.8)	22 (18.8)	6 (5.1)	2 (1.7)
• ≥60	7 (6.0)	16 (13.7)	4 (3.4)	-
Marital status				
• bachelor/miss	15 (12.8)	9 (7.7)	4 (3.4)	-
• married	25 (21.4)	25 (21.4)	6 (5.1)	-
• divorced	2 (1.7)	14 (12.0)	-	2 (1.7)
• widower/widow	3 (2.6)	10 (8.5)	2 (1.7)	-
Education				
• basic	1 (0.9)	-	1 (0.9)	-
• basic vocational	6 (5.1)	7 (6.0)	6 (5.1)	2 (1.7)
• average	15 (12.8)	27 (23.0)	3 (2.6)	-
• post-secondary	5 (4.2)	8 (6.8)	1 (0.9)	-
• higher (bachelor's degree)	6 (5.1)	4 (3.4)	-	-
• higher (master's)	12 (10.3)	12 (10.3)	1 (0.9)	-
Professional status in the last 12 months				
• salaried employee	34 (29.0)	34 (29.0)	3 (2.6)	-
• self-employed person	5 (4.2)	5 (4.2)	1 (0.9)	-
• a person running a farm	-	-	-	-
• pupil/student	1 (0.9)	2 (1.7)	-	-
• housewife	1 (0.9)	1 (0.9)	-	-
• annuitant	2 (1.7)	10 (8.5)	3 (2.6)	-
• pensioner	1 (0.9)	1 (0.9)	4 (3.4)	2 (1.7)
• unemployed	1 (0.9)	5 (4.2)	1 (0.9)	-

Monthly net family income per person				
• up to 500 PLN	5 (4.2)	6 (5.1)	-	-
• over 500 to 700 PLN	4 (3.4)	3 (2.6)	2 (1.7)	-
• over 700 to 1000 PLN	7 (6.0)	7 (6.0)	2 (1.7)	2 (1.7)
• above 1000 to 1500 PLN	9 (7.7)	18 (15.4)	3 (2.6)	-
• above 1500 to 2000 PLN	6 (5.1)	17 (14.5)	3 (2.6)	-
• above 2000 to 2500 PLN	9 (7.7)	3 (2.6)	1 (0.9)	-
• above 2500 PLN	5 (4.2)	4 (3.4)	1 (0.9)	-

Discussion

To our knowledge, this is one of the first studies on SRH in people with varying degrees of nicotine addiction. No significant link was found in our study of smoking and self-assessed health. It was shown that 49.5% of the surveyed smokers assessed their health as fairly good, 38.5% as good. Our results (although statistically insignificant in most cases) showed that in the group of smokers heavily dependent on nicotine, the majority assessed their health as fairly good (60.0%) and as good (30.0%), while in the group of smokers less addicted to nicotine, the majority assessed their health as their health condition as fairly good (40.9%) and good (59.1%). None of the respondents in both groups assessed their health condition as bad. Similarly, in a study by Jurewicz et al., no relationship was found between cigarette smoking and SRH [9]. The situation is different in other literature, which suggests such a relationship [20]. Moreover, in our study, women rated their health as good (37.0%) and fairly good (50.8%), compared to men who assessed their health as good (40.4%) and fairly good (48.1%). Only 9.6% of men assessed their health condition as rather bad, and 1.9% as bad. In the study by Jurewicz et al., in the self-assessment of health conditions, 11% of respondents declared poor health. Men more often assessed their health condition as bad (15%) compared to women (8.5%), which was also similar to the results of

the study conducted in Estonia [9, 21]. Among people assessing their health condition subjectively at a good level, people in the 30–39 age group (12.8%) prevailed, at a fairly good level in the 50–59 age group (18.8%), at a rather poor level in the group age 50–59 (5.1%). This is consistent with other studies conducted in the UK, Denmark, and Iceland, where the self-esteem of health deteriorates with age [22, 23, 24]. The results of our study are statistically insignificant, but the sample size was small, so further research in this area is necessary.

Our study additionally assessed respondents awareness of the harmful health effects of smoking. It was found that 41% of the smokers surveyed were very concerned and 48.7% were somewhat concerned about the harmful effects of smoking, while the majority (70%) of the group heavily addicted to nicotine were only slightly concerned about the harmful effects of smoking. Driezen et al. in a study conducted in Bangladesh showed that smokers' concerns about health risks significantly influenced their chances of quitting smoking: smokers who were very worried about their health were nearly 9 times more likely to plan to quit than smokers who weren't worried at all. The results from International Tobacco Control Bangladesh revealed that smokers who were moderately concerned were more than 4 times more likely to quit, while smokers who were only slightly worried about their health were 3.9 times more likely to quit [25].

Lanari et al. showed that people with poor health are more likely to quit smoking during the observation period, which means that current smokers report worse health than never-smokers or former smokers [26]. Other research confirms that smoking is associated with worse overall health. Smokers perform worse on SRH in the long term compared to nonsmokers, and the size of this estimate has grown at a declining pace [27].

Smoking has been found to be the most important risk factor for SRH, with patterns of this association being involved in assessing the effects of long-term smoking [28, 29].

In our study, every second person with a strong addiction was asked at the doctor's in the last year whether they smoke, and 60% of them were

advised to quit smoking during such a visit. In the group less addicted to nicotine, 59.1% were asked by health care workers over the past year whether they smoke, and every second person (50%) was advised to quit smoking. Differently, in the study of Kaleta et al., where it was shown that hardcore smokers who visited health care workers were less often asked about smoking or were advised to quit smoking compared to non-hardcore smokers [30].

It is necessary to conduct education, shape pro-health attitudes, and motivate smokers to fight the addiction. SRH can play a role here as an important screening tool to identify people at risk.

Our current study has several strengths. There has not been such a study so far. For the first time, the study was conducted among the socially disadvantaged adult rural population. The limitation of the study is a small group of the population. In addition, the study used a cross-sectional design that tends to be observed at one point in time, making it impossible to observe changes over longer periods of time. The study was limited to the population of Piotrków County, which may limit the generalization of the results to the population of Poland.

Conclusions

SRH can be a simple, quick, and inexpensive measure to monitor health in a variety of populations, including people with varying degrees of nicotine addiction.

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