

PERCEIVED CESSATION TREATMENT EFFECTIVENESS AMONG SOCIALLY DISADVANTAGED LIGHT AND HEAVY SMOKERS

MAREK MILCARZ¹, DOROTA KALETA¹, LEOKADIA BĄK-ROMANISZYN², and KINGA POLAŃSKA¹

Medical University of Lodz, Łódź, Poland

¹ Department of Hygiene and Epidemiology

² Department of Nutrition in Digestive Tract Diseases

Abstract

Objectives: The aim of the current study was to assess the perceived treatment effectiveness and beliefs with respect to the best advisor who could conduct smoking cessation treatment or counseling among socially disadvantaged light and heavy smokers. This could be crucial for implementation of a successful smoking cessation intervention among this vulnerable population. **Material and Methods:** The current assessments were based on the data collected during the second wave of a cross-sectional study performed in the Piotrkowski District among 1668 adults aged 18–59, entitled to social aid from welfare institutions. Face-to-face interviews were conducted to collect the relevant data. **Results:** The current daily smoking status was declared by 31% of the participants. About 23% of the study sample (74% of daily smokers) admitted to being heavy smokers with a meaningful difference between men and women ($p < 0.05$). About 29% of the daily smokers indicated that medications/pharmacotherapy could be a good method for giving up the habit. Fifteen percent of the participants shared the opinion that a smoking cessation specialist is the best advisor for counseling, and only about 7% would choose a general practitioner or pharmacist, and even fewer a nurse, as a person who could provide help to smokers. There were no statistically significant differences in any of the evaluated perceptions between the light and heavy smokers ($p > 0.05$). **Conclusions:** A high share of heavy smokers among socially disadvantaged people, and their perception that medications/pharmacotherapy would be a good solution to quit smoking, underline the need for stronger support for this method, including relevant financing resources and training. However, this method should be applied along with behavioral counseling. *Int J Occup Med Environ Health.* 2019;32(4):527–36

Key words:

rural area, socially disadvantaged smokers, level of smoking, perceived treatment effectiveness, smoking cessation counseling, beliefs

INTRODUCTION

Despite the fact that harmful effects of tobacco have been well-established, the worldwide age-standardized prevalence of daily smoking in 2015 amounted to 25.0% in men and 5.4% in women [1]. Those percentages are much higher in the Central and Eastern European countries, including Poland where smoking on a daily basis was declared

by 27% of the adult population (including 34% of men and 21% of women) [2]. What is more, although a visible decline in the daily smoking prevalence over the last 25 years has been observed, the rate of progress for that reduction has not been consistent across genders (with small or even no decline among women) and social status (with people representing lower educational levels and socio-economic

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Corresponding author: Kinga Polańska, Medical University of Lodz, Department of Hygiene and Epidemiology, Żeligowskiego 7/9, 90-752 Łódź, Poland (e-mail: kinga.polanska@umed.lodz.pl).

status [SES] being at a higher risk of smoking) [1]. The results previously published by the authors, based on a cross-sectional survey conducted among social assistance beneficiaries, indicated that 37% of the respondents (including 30% of women and 53% of men) were current daily or occasional smokers with > 30% of them expressing willingness to quit. [3].

As pointed out by Twyman et al., there are many perceived barriers to smoking cessation in vulnerable populations, including individual and lifestyle issues, social and community barriers, living and working conditions, as well as cultural, socio-economic and environmental factors [4].

There is no doubt that tobacco dependence often requires interventions and multiple attempts at quitting. A combination of both behavioral counseling and pharmacological aids is pointed out in the current tobacco dependence treatment guidelines [5–7]. Several factors might be related to the decision not to use cessation services. Among them, the authors have recognized smokers' belief that quitting smoking is their personal responsibility, lack of necessity to seek treatment from medical professionals (as smoking is not recognized by smokers as an illness), lack of awareness of the available treatment, or misperceptions about the costs, safety and side effects of the offered medications [5,8–12].

The existing studies indicate that there are differences in the perceived cessation treatment effectiveness between light and heavy smokers [13]. For example, the analysis conducted by Nguyen et al. among the homeless has indicated that, on the one hand, light smokers were more likely to believe that group counseling would give them the greatest chance of quitting, and they were less likely to believe that medications could be helpful [13]. On the other hand, they did not differ from heavy smokers in terms of specific preferences related to a pharmacological intervention. Developing interventions in accordance with light and heavy smokers' expectations might be more cost-effective. However,

the indicated preferences can be country, region or community specific.

Despite the high smoking prevalence among the disadvantaged population in Poland, there is no previous research that would examine whether treatment preferences vary by the smoking level (measured as the number of cigarettes smoked daily) [3]. Such data could be crucial for introducing a successful smoking cessation intervention among this vulnerable population.

The aim of the current study was to assess the perceived treatment effectiveness and beliefs with respect to the best advisor who could conduct smoking cessation treatment or counseling among socially disadvantaged light and heavy smokers.

MATERIAL AND METHODS

Study design and population

The current assessments were based on the data collected during the second wave of a cross-sectional study performed in the Piotrkowski District (a rural area in central Poland, with one of the lowest indicators of social development and Health Index) in October 2016 – February 2017 (a year after the first wave). The description of the region and the study design have been previously presented in detail [3,14–16]. Briefly, following the inclusion criteria, the study population comprised socially disadvantaged adults aged 18–59, entitled to social aid from welfare institutions of the local government (defined as those whose monthly individual income threshold did not exceed 158 USD [128 USD for family members]). The second wave of the study was conducted in order to collect data on the potential changes in the respondents' lifestyles (including smoking) and to broaden the knowledge on some further factors that might influence selected health behaviors. Of 1817 adults who participated in the first wave, 1668 agreed to take part in the interviews carried out as part of the second wave of the study (91.8%).

The project received an approval from the Bioethics Committee of the Medical University in Lodz (No. RNN/243/15/KE).

Variables of interest

The questionnaire was intended to collect socio-demographic (gender, age, education, employment status and subjective assessment of monthly income), health status and lifestyle related data (including the smoking status and alcohol consumption), as described previously [3,14–16]. For the purpose of the present analysis, the current daily smokers (smoking at least 1 cigarette/day over a past 30-day period) were divided into 2 categories based on the number of cigarettes smoked per day (light smokers: < 10 cigarettes/day, heavy smokers: \geq 10 cigarettes/day). The daily smokers also provided information about the type of cigarettes smoked the most frequently.

Perceived cessation treatment effectiveness was assessed using the question: “Do you think the specific treatment options would give you the best chance for quitting smoking?” The following methods, similar as in other studies, were evaluated (in separate questions): group counseling, medications, both medications and group counseling, without medications or group counseling [13].

Additionally, the study participants were asked who the best advisor for performing smoking cessation treatment would be, with the following being evaluated (in separate questions): a specialist in smoking cessation, a general practitioner, a nurse and a pharmacist.

Statistical analysis

Statistical analysis was performed using the STATISTICA Windows XP version 10.0 (StatSoft Poland Inc., Tulusa, OK, USA) software package. Means and standardized deviations, as well as numbers, percentages and 95% confidence intervals (95% CI) were calculated. Statistical associations of the particular characteristics categories in

the analyzed subgroups of the respondents were assessed using the χ^2 test.

Perceived cessation treatment effectiveness, the best advisor who could conduct smoking cessation treatment and the χ^2 test of independence for the comparison between the light and heavy smokers were presented. All p values were 2-sided and $p < 0.05$ was applied to indicate statistical significance.

RESULTS

Description of the study population

The second wave of the study included 1133 females (68%) and 535 males (32%). The majority of the respondents were 30–49 years old, had a primary or vocational level of education (60%), were unemployed (60%) and assessed their monthly income as sufficient to cover basic needs only. The subjective health was rated by 70% of the respondents as fair or rather fair.

Description of the smoking status declared by the respondents

The current daily smoking status was declared by 31% of the study participants, including 23% of women and 48% of men ($p < 0.05$) (Table 1). Daily smokers and other participants (never smokers, former smokers and occasional smokers) differed also by age, educational level, subjective assessment of monthly income, health status and alcohol consumption ($p < 0.01$) (Table 1).

About 22.7% of the sample admitted to being heavy smokers with a meaningful difference between women (15.0% of the total population and 67% of the daily smokers) and men (38.9% of the total population and 82% of daily smokers), $p < 0.05$ (Table 2). There were statistically significant gender differences in the number and type of cigarettes smoked daily (with women smoking more frequently slim and menthol cigarettes but less frequently regular cigarettes when compared to men; $p < 0.05$).

Table 1. Characteristics of the study sample of the second wave of a cross-sectional study, involving persons entitled to social aid from welfare institutions, performed in the Piotrkowski District in October 2016 – February 2017

Variable	Participants						P
	total (N = 1 668)		daily smokers (N = 510, 30.6%)		others* (N = 1 158, 69.4%)		
	n	%	n	%	n	%	
Sex							< 0.01
women	1 133	67.9	255	22.5	878	77.5	
men	535	32.1	255	47.7	280	52.3	
Age							< 0.01
18–29 years	171	10.3	46	26.9	125	73.1	
30–39 years	718	43.0	195	27.2	523	72.8	
40–49 years	552	33.1	178	32.2	374	67.8	
50–59 years	224	13.4	90	40.2	134	59.8	
missing data	3	0.2	1	33.3	2	66.7	
Education							< 0.01
primary	425	25.5	184	43.3	241	56.7	
vocational	572	34.3	182	31.8	390	68.2	
secondary	562	33.7	133	23.7	429	76.3	
high	97	5.8	4	4.1	93	95.9	
missing data	12	0.7	7	58.3	5	41.7	
Employment status							0.08
permanent job	437	26.2	114	26.1	323	73.9	
temporary job	127	7.6	45	35.4	82	64.6	
disabled or retired	9	0.5	4	44.4	5	55.6	
student	3	0.2	0	0.0	3	100.0	
unemployed	1 082	64.9	345	31.9	737	68.1	
missing data	10	0.6	2	20.0	8	80.0	
Subjective assessment of monthly income							< 0.01
sufficient to cover all living needs plus may save a certain amount	46	2.8	11	23.9	35	76.1	
sufficient to cover all living needs	378	22.7	72	19.0	306	81.0	
sufficient to cover basic needs only	808	48.4	269	33.3	539	66.7	
not sufficient to cover even the basic needs	253	15.2	110	43.5	143	56.5	
declined response	43	2.6	11	25.6	32	74.4	
difficult to say	126	7.6	35	27.8	91	72.2	
missing data	14	0.8	2	14.3	12	85.7	

Table 1. Characteristics of the study sample of the second wave of a cross-sectional study, involving persons entitled to social aid from welfare institutions, performed in the Piotrkowski District in October 2016 – February 2017 – cont.

Variable	Participants						P
	total (N = 1 668)		daily smokers (N = 510, 30.6%)		others* (N = 1 158, 69.4%)		
	n	%	n	%	n	%	
Subjective health status							< 0.01
fair	605	36.3	160	26.4	445	73.6	
rather fair	566	33.9	165	29.2	401	70.8	
neither fair nor poor	305	18.3	110	36.1	195	63.9	
rather poor	133	8.0	51	38.3	82	61.7	
poor	34	2.0	17	50.0	17	50.0	
missing data	25	1.5	7	28.0	18	72.0	
Alcohol consumption							< 0.01
do not drink at all	730	43.8	177	24.2	553	75.8	
moderate drinking and heavy drinking	372	22.3	120	32.3	252	67.7	
missing data	566	33.8	213	37.6	353	62.4	

* Never smokers, former smokers and occasional smokers.

Perceived cessation treatment effectiveness and the opinion about the advisor who could conduct smoking cessation treatment and counseling

About 29% of the daily smokers interviewed selected medications/pharmacotherapy, and only 7% both medications/pharmacotherapy and counseling, as a good method for quitting the habit (Table 3). However, 16% of the smokers believed that unaided quitting attempts represented their best chance for quitting. Fifteen percent of the study participants shared the opinion that a specialist in smoking cessation would be a good advisor for treatment, and only about 7% would choose a general practitioner and a pharmacist, and even fewer a nurse (2.3%), as a person who could provide help to smokers. There were no statistically significant differences in any of the evaluated perceptions between the light and heavy smokers ($p > 0.05$).

DISCUSSION

Results of this cross-sectional study underline the high prevalence of daily smoking among the socially dis-

vantaged population from a rural area in Poland. What is more, about three-fourths of those who declared the current smoking status were classified as heavy smokers based on the number of cigarettes smoked per day. One-third of the respondents selected medications/pharmacotherapy, and a much smaller percentage both medications/pharmacotherapy and counseling, as a good method for quitting the habit. A specialist in smoking cessation was indicated as the best professional who could provide help to smokers, following a general practitioner and a pharmacist. It is also worth noting that the people who smoked < 10 cigarettes/day did not significantly differ from the heavy smokers with regard to the specific pharmacological intervention preferences or perceived the best advisor for smoking treatment. The results indicate that more attention should be paid to pharmacological aids, including relevant promotion, funding and training of professionals who could deliver that type of treatment.

The share of smokers among the social care beneficiaries from a rural district is higher than that for the general

Table 2. Smoking characteristics of the study sample of the second wave of a cross-sectional study, involving persons entitled to social aid from welfare institutions, performed in the Piotrkowski District in October 2016 – February 2017

Variable	Participants												P
	total (N = 1 668)				women (N = 1133)				men (N = 535)				
	n	%	M±SD	n	%	95% CI	M±SD	n	%	95% CI	M±SD		
Smoking status													
current daily smoker	510	30.6		255	22.5	20.1–24.9		255	47.7	43.5–51.9		< 0.05	
light smoker	132	7.9		85	7.5	6.2–9.3		47	8.8	6.4–11.2		> 0.05	
heavy smoker	378	22.7		170	15.0	12.9–17.1		208	38.9	34.8–43.0		< 0.05	
current occasional smoker	82	4.9		70	6.2	4.8–7.6		12	2.2	1.0–3.4		< 0.05	
never smoker	853	51.1		668	59.0	56.1–61.9		185	34.6	30.6–38.6		< 0.05	
former smoker	223	13.4		140	12.4	10.5–14.3		83	15.5	12.4–18.6		> 0.05	
Type of cigarettes smoked the most frequently by current daily smokers													
regular filter cigarettes	401	78.6		190	74.5	72.0–77.0		211	82.7	79.5–85.9		< 0.05	
non-filter	4	0.8		3	1.1	0.5–1.7		1	0.4	0.0–0.9		> 0.05	
hand-rolled	60	11.8		22	8.6	7.0–10.2		38	14.9	11.9–17.9		< 0.05	
slim	20	3.9		19	7.4	5.9–8.9		1	0.4	0.0–0.9		< 0.05	
menthol	23	4.5		20	7.8	6.2–9.4		3	1.2	0.3–2.1		< 0.05	
missing data	2	0.4		1	0.4			1	0.4				
Cigarettes smoked daily													
regular filter cigarettes			13.74±7.22				12.34±6.97				15.00±7.23	< 0.001	
non-filter			16.75±10.44				20.00±10.0				7.00#	-	
hand-rolled			17.63±9.14				16.61±10.9				18.23±7.95	> 0.05	
slim			9.10±5.85				9.05±6.00				10.00#	-	
menthol			10.17±4.57				9.85±4.59				12.33±4.62	> 0.05	

Information provided only for 1 person.

Table 3. Perceived cessation treatment effectiveness and the best advisor who can conduct smoking cessation treatment or counseling, according to the participants of the second wave of a cross-sectional study, entitled to social aid from welfare institutions, performed in the Piotrkowski District in October 2016 – February 2017

Variable	Participants								
	total (N = 510)		light smokers (N = 132)			heavy smokers (N = 378)			P
	n	%	n	%	95% CI	n	%	95% CI	
The best chance for quitting (yes)									
medications/pharmacotherapy	147	28.8	28	21.2	14.2–28.2	119	31.5	26.8–36.2	> 0.05
group counseling	21	4.1	9	6.8	2.5–11.1	12	3.2	1.4–5.0	> 0.05
both medications and counseling	37	7.3	13	9.8	4.7–14.9	24	6.4	3.9–8.9	> 0.05
without medications or counseling	82	16.1	34	25.8	7.0–28.4	48	12.7	9.3–16.1	> 0.05
The best advisor for smoking cessation treatment or counseling (yes)									
smoking cessation specialist	78	15.3	26	19.7	12.9–26.5	52	13.8	10.3–17.3	> 0.05
general practitioner	32	6.3	14	10.6	5.4–15.9	18	4.8	2.6–7.0	> 0.05
nurse	12	2.3	4	3.0	0.1–5.9	8	2.1	0.6–3.4	> 0.05
pharmacist	34	6.7	10	7.6	3.1–12.1	24	6.4	3.9–8.9	> 0.05
other	12	2.3	4	3.0	0.1–5.9	8	2.1	0.6–3.6	> 0.05

population in Poland, especially among men. Details regarding these differences, their interpretation and similarity to other studies in this field [17–23] have been published elsewhere [3]. As it was mentioned before, the current assessments were based on the participants from the second wave of the study. Comparing the data obtained within the first and the second waves of the study, there were no differences in the percentages of daily smokers (30.8% vs. 30.6%, $p > 0.05$). However, a smaller percentage of occasional smokers was observed in the subsequent interview (4.9 vs. 6.3, $p < 0.05$) [3]. This can be explained by the scope of the study which included some educational tools focusing on the most important risk factors for non-communicable diseases (including smoking). It could be suspected that some part of occasional smokers quit smoking after this educational campaign. However, underreporting cannot be excluded.

The study participants expressed their perception that medications/pharmacotherapy would be the best choice for quitting. This can be crucial not only from the perspec-

tive that pharmacological aid is recommended for heavy smokers (and in this study that kind of treatment was more frequent, though not significant, among the heavy comparing to light smokers) but also taking into the account daily barriers to cessation, including exposure to other smokers, high stress and difficult living, as well as working conditions among the socially disadvantaged people [4,24,25]. The authors' results indicate that more attention should be paid to pharmacological aids compliant with the population's expectations. That should cover relevant promotion, funding resources and training of professionals who can deliver that type of treatment. However, according to the existing tobacco dependence guidelines, pharmacological treatment should be combined with non-pharmacological cessation aids [5]. Further education in this field is necessary, considering the observation from this study that only 7% of the study participants indicated both types of treatment as the best chance for quitting. The observed percentages for this option are much smaller than those in the study by Nguyen et al. [13].

The socially disadvantaged participants shared the opinion that a specialist in smoking cessation would be the best advisor for treatment. Taking this into account, smoking cessation clinics need to be promoted more intensively, and should be easily accessible, at low or no costs, especially in the case of people with a lower SES. Additionally, the respondents felt as positive about pharmacists as cessation resources as they did about physicians. This can result from the fact that pharmacists are easily accessible and affordable. Such information is crucial for decision makers to put more effort in incorporating smoking cessation educations/campaigns in pharmacies. That needs to go in line with providing the information where the smokers can find more professional help in quitting, and increasing the role of general practitioners who could provide tobacco treatment.

This study indicated a prevalent perception that quitting without medications and counseling would yield the best results, with a higher, though not statistically significant, percentage expressing this opinion among the light than heavy smokers. This is in agreement with the results of the study conducted among homeless smokers [13]. Based on the existing research, the willpower, desire and commitment to quit are listed as requirements for successful quitting [5]. What is more, smokers frequently believe that they can quit smoking without any help, which exemplifies the values of their independence and self-reliance, and enables them to feel that they achieved something without aids [5]. In addition, as it was mentioned previously, some smokers did not recognize their habit as a disease and, thus, they did not think that any help in a form of nicotine replacement therapy (NRT) or other pharmacological aids, or behavioral counseling was needed. Finally, they can be insufficiently aware of the available methods of treatment. All of these perceptions underline the need for education on the cessation aids available and their place in therapy.

For the first time, information about perceived cessation treatment effectiveness and beliefs with regard to the pro-

fessional who could help in quitting smoking has been collected among social care beneficiaries from a rural district in Poland. That information is crucial for interventions and cessation programs among these socially disadvantaged people, with a strengthened promotion of pharmacotherapy to address cravings. It also needs to be pointed out that the authors obtained about a 50% participation rate in the first wave and > 90% in the second wave of the study. In addition, the interviewer-administered questionnaires, comparing to self-administered ones, produced higher values of sensitivity and specificity.

Limitations of the study, as mentioned in previous publications released by the authors, could be related to the cross-sectional study design, the lack of generalizability of the findings (as the study covered the disadvantaged people from one rural area in Poland) or the lack of verification of the smoking status (which is difficult to perform in big cross-sectional surveys) [3]. Taking into account that the data were based on self-reports, the response bias cannot be excluded. However, the likelihood of the response bias was assumed to be minimal since the survey was conducted as face-to-face interviews.

CONCLUSIONS

A high share of heavy smokers among socially disadvantaged people, and their perception that medications/pharmacotherapy would be the best choice for quitting smoking, underline the need for a stronger support for this method, including relevant financing and training. However, this method should be applied along with behavioral counseling.

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