ORIGINAL ARTICLE

Attitude Towards Anti-smoking Measures and Its Associated Factors Among Adults in Sub-urban Area, in Kuala Terengganu, Terengganu, Malaysia

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ABSTRACT

Introduction: General population across different countries have shown an overall support for anti-smoking measures that vary significantly by certain population parameters. However, characteristics of the public attitude in a community who has been exposed to prolonged awareness campaigns and smoke-free area legislation is unclear. Consequently, we investigate residents who reside next to Batu Buruk beach in Kuala Terengganu city which has been gazetted as a smoke-free area since 2017. **Methods:** The cross-sectional study involves self-administered validated questionnaires. Multiple linear regression with forward method was applied to identify significant factors associated with the attitude towards anti-smoking measures. **Results:** A total of 295 residents participated. Most of them were Malays (96.6%), married (64.4%), attained up to the secondary school level (45.4%) and employed (59.7%). The mean value of the total attitude scores was 181.86 (range: 70-200). Multivariate analyses revealed those having higher monthly income had a higher total attitude scores (adjusted b: 6.91, 95% CI: 2.15, 11.66), while current daily smokers had a lower total attitude scores towards anti-smoking measures than non-smokers (adjusted b: -23.30, 95% CI: -29.55, -17.05). These findings highlight comparatively stronger and more consistent support for anti-smoking measures that may vindicate high-stake investment and legislation against smoking. **Conclusion:** The novel evidence may also better-inform the strategy to expand the initiatives further through profiling the target population with heightened emphasis on the economic standing and prevalence of current daily smokers. Future research may adopt experimental design to establish causality relationship between predictors and outcomes revealed in this community. *Malaysian Journal of Medicine and Health Sciences* (2023) 19(4):207-213. doi:10.47836/mjmhs19.4.31

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INTRODUCTION

The world is facing a growing threat of tobacco smoking which is responsible for an extensive health-related complications. Smoking has been implicated as the most consistent causative agent for over 20 different types of cancer, lung diseases, inflammatory diseases, and more (1-5). Thus, the gravity of repercussions from smoking warrants a more robust and holistic public health intervention.

In response, the Malaysian government with the support from the Terengganu state government has gazetted Batu Buruk beach, one of the most prominent tourist attractions in Kuala Terengganu, as a smoking-free area (6). The legal measures were preceded by at least ten years of concentrated health promotions (Terengganu Bebas Asap Rokok – TBAR) to educate tourists and residences within the vicinity of Batu Buruk beach area on smoking and its impacts on health. TBAR is part of Malaysia's national strategic plan for tobacco control to support the WHO Framework Convention on Tobacco Control (WHO FCTC) (7). The article 8 of WHO FCTC mandates the subscribing nations to protect people from exposure to tobacco smoke (8). Pursuing this aspiration, Zainol Abidin, Zulkilfli, and Zainal Abidin (9) produced

a comprehensive review of smoke-free legislation in Malaysia. The 2016 report insightfully summarized the timeline of key events that symbolize Malaysia's legal move against smoking. These legislations include increasing the 25% increase in excise tax duty in 2007, four subsequent regulations amendments, and state-sanction smoke-free area which began in Melaka (Kem Melaka Bebas Asap Rokok - KeMBAR), followed by other states such as Penang (Penang Bebas Asap Rokok - PeNBAR), Kelantan (Inisiatif Kelantan Bebas Asap Rokok – IKBAR), and Johor (9). Therefore, TBAR at the popular tourist area Batu Buruk Beach is Terengganu's response to this agenda.

Supporting this initiative, Faculty of Medicine, Universiti Sultan Zainal Abidin (UniSZA), which is located within Batu Buruk beach area, has taken active roles in TBAR by investing various expertise, resources, and commitments as part of the larger efforts to champion the smoking-free agenda (10, 11). The TBAR campaigns penetrates the local community with volunteers' recruitment, training and leadership involved local schools and higher educational institutions with financial backing from the ministry of health and the ministry of education. These volunteers help to disseminate pamphlets, brochures and verbal explanation at strategic events and setting such as night market bazaar during Ramadhan, restaurants, and other public gathering that draw public attention. Commitment from the local authority meanwhile enabled prioritised large anti-smoking billboards at easy-to-see locations, while digital promotions have also been committed in official and non-official channels of television, radio, and social media. However, the concentrated efforts since early 2010s require strong public support among the local community for sustained achievement.

Hence, this study was conceived to measure the level of supportive attitude among the public around Batu Buruk beach area in Kuala Terengganu. To achieve this goal, this study was conducted to assess the attitude towards anti-smoking measures among residents of two localities situated next to the Batu Buruk beach.

MATERIALS AND METHODS

This research was conducted between June 9th to July 15th, 2019, among residents in Kampung Ladang Hospital and Kampung Ladang Sehat, Kuala Terengganu, Malaysia. All residents aged 18 years or older were invited to participate in this cross-sectional observational study. Anybody who were terminally ill or with cognitive impairment was excluded. The process of retrieving written consent for recruitment included a detailed explanation of the purpose, conduct, emphasis on confidentiality and voluntary participation.

The self-administered questionnaire was developed in Bahasa Melayu with items adapted from other studies (9, 10). A panel of public health specialist judged the prevalence of the questionnaire content employed in this study. To establish the face validity, a group of 28 people sharing similar profiles with potential participants of this study were asked to rate the difficulties of comprehending the questionnaire. To determine the construct validity and reliability of the revised questionnaire, a preliminary study was carried out among in Kg. Tanjung Paya in Kuala Terengganu. Exploratory factor analysis (EFA) was carried out to measure the latent constructs with items which carried factor loading of 0.40 or more were considered as good.

The final questionnaire incorporated 60 items, divided into three sections. Section A explored the socio-demographic characteristics, environmental smoking, and the respondents' smoking status. The smoking status of the respondent was defined according to Global Adult Tobacco Survey (11). A current daily smoker is a person who smokes any tobacco product every day, and a current occasional smoker is a person who uses at least one of the smoked tobacco products, not daily during the previous 1 month.

Section B consists of 40 statements with a five-level from "strongly disagree" to "strongly agree" Likert-scale response format. There were 6 items relate to attitude on advertising, promotion and public education, 10 items on restriction of tobacco sales to minors, 8 on price and taxation on tobacco products and 16 items on restriction of smoking. There was no negative statement. Reliability analysis of the questionnaire showed that Cronbach's alpha values for each sub-domain were 0.94, 0.98, 0.95 and 0.99 respectively. The overall Cronbach's alpha for attitude part was 0.98. The questionnaire was valid and reliable. Section C consisted of eight questions probing the source of information about anti-smoking measures among respondents.

The conduct of this study was approved by University Human Research Ethics (UHREC) [Reference No: UniSZA.C/UHREC/628-2 Jld.2 (1)] and Ethics Committee of Kampung Ladang Hospital and Kampung Ladang Sehat in Kuala Terengganu.

Statistical analysis

Data entry and analysis was done using SPSS version 25 (12). The socio-demographic data and the compliance of the anti-smoking measures were presented with frequency (%) for categorical variables and mean and standard deviation (SD) for numerical variables. To identify the potential significant related factors, simple linear regression was carried out. Variables with p value of <0.250 in univariable analysis were selected for multivariable analysis. Next, multiple linear regression with forward method was performed to identify the associated factors of the community attitude towards anti-smoking measures. Interaction and multicollinearity among significant variables were checked. Variables

with variance inflation factor (VIF) of more than 10 were assumed as having the problem of multicollinearity. The results were presented using crude and adjusted regression coefficient (b) and p value. The level of significance (α) of the study was set as less than 0.05.

RESULTS

Data were collected from a total of 295 residents from two villages: Kampung Ladang Hospital and Kampung Ladang Sehat, Kuala Terengganu. The mean age of the respondents was 39.04 (15.74) years, ranged 18 to 86 from the youngest to the oldest. By gender, 151 (51.2%) women and 144 (48.8%) men completed the survey. Most of the participants were Malay (96.6%) and married (64.4%). The proportion of respondents by the highest level of education was 9.8% for the primary school, 45.4% for the secondary school, and 44.7% for the higher education. The majority were employed (59.7%) and had an income of more than RM1000 per month (51.9%).

Out of total respondents, 163 respondents (55.3%) had smokers among their family members and 214 (72.5%) had smokers in their friends or colleagues. Among the respondents themselves, 52 people (17.6%) were current daily smokers and 9 (3.1%) were current occasional smokers (Table I).

Attitude towards anti-smoking measures

Regarding tobacco advertising and promotion, the respondents agreed that tobacco products should not be advertised at the front of a store (87.1%), on billboards and in the media (89.8%). Moreover, most respondents agreed that advertising tobacco products should be banned at sports and athletic events (92.5%) and should not be allowed to make cigarette smoking look relaxing or pleasurable (90.5%). Out of total, 266 (90.2%) respondents thought tobacco companies should not be allowed to offer promotional items (T-shirts or free cigarettes) to encourage the purchase of cigarettes. In this study, most people liked to ban tobacco advertisement completely and only a few people (4.4%) indicated otherwise.

Concerning the public education and sales, majority agreed that tobacco sales to children and adolescents should be strictly restricted (96.0%) and the pictorial warning labels about smoking hazards must be put on cigarette packages (94.2%). They thought parents should be educated about the dangers of second-hand smoke to children (97.0%) and physicians should educate their patients about the health risks of smoking (95.9%). Furthermore, the participants agreed that pregnant mothers should have to undergo training on health risks of smoking for themselves and their children (94.6%). They indicated the federal government needs to provide funding for anti-smoking measures (90.8%), to conduct more anti-smoking campaigns (e.g., the TAK NAK

Table I: Socio-demographic characteristics of the residents in Kampung Ladang Hospital and Kampung Ladang Sehat (n =295)

Sociodemographic characteristics	Frequency (%)	Mean (SD)
Age		39.04 (15.74)
Gender		
Male	144 (48.8)	
Female	151 (51.2)	
Marital Status		
Single	105 (35.6)	
Married/Divorced/Widow	190 (64.4)	
Ethnicity		
Malay	285 (96.6)	
Non-Malay	10 (3.4)	
Education level		
primary education	29 (9.8)	
Secondary education up to Form 5	134 (45.4)	
Tertiary education	132 (44.7)	
Occupation		
Unemployed	119 (40.3)	
Employed	176 (59.7)	
Monthly income		
< RM1000	142 (48.1)	
≥RM1000	153 (51.9)	
Presence of smoker in the family		
No	132 (44.7)	
Yes	163 (55.3)	
Presence of smoker in friends/Colleague		
No	81 (27.5)	
Yes	214 (72.5)	
Smoking status		
Non-smoker	234 (79.3)	
Current daily smoker	52 (17.6)	
Current occasional smoker	9 (3.1)	

SD=Standard deviation

campaign, TBAR) (96.9%) and to increase the number of non-smoking zones (91.8%). They rated the dangers of second-hand smoke should be publicized (96.6%) and liked to post a sign warning of the health hazards of smoking even in smoking allowable areas (94.9%).

About price and taxation, out of total, 256 (86.7%) most respondents support the government to increase capital gains by taxation. They agreed to raise taxes to discourage smoking (88.4%) and to reduce imports of tobacco products (89.5%). Additionally, they also agreed to increase the costs of advertising (89.2%) and price of tobacco products (85.7%). They thought the cigarettes should not be sold in loose form (individual sticks) (88.1%). They encouraged the restriction of sales tobacco products and cigarettes by licensed retailers only (89.4%) and encouraged higher fines on smoking-related offences (88.8%).

Prohibition of smoking at public places enjoyed overwhelming support from the respondents. These included schools (98.3%), universities (97.7%), hospitals/health care facilities (98.6%), workplaces (90.9%), airport (96.3%), public lifts (98.3%), public toilets (93.6%), place of worship (97.3%), public transport

terminals (94.6%), public transport vehicles (97.3%), air-conditioned restaurants (95.2%), government premises (96.0%), petrol station (97.2%), private office space (88.8%), hotels (95.2%) and shopping complexes (95.6%). The mean value (SD) of the total attitude scores towards anti-smoking measures were 181.86 (22.38) with minimum attitude score of 70 and maximum of 200.

Source of information about anti-smoking measures among the residents
They got the anti-smoking measure information mostly from television (93.2%), billboards (92.2%), posters (90.5%) and newspaper (86.4%). Besides, they noticed the information about anti-smoking measures on the internet (76.9%), the radio (72.9%), in the magazine (60.0%) and other media sources (2.0%).

Associated factors of total attitude scores towards anti-smoking measures among the residents
The univariate analysis using simple linear regression revealed that being female (crude b: 7.48, 95% CI: 2.42, 12.55; p=0.001), those with secondary education (crude b: -4.35, 95% CI: -9.48, 0.79; p =0.097), those with tertiary education (crude b: 6.59, 95% CI: 1.48, 11.70; p =0.012), those having monthly income of RM 1000 and above (crude b: 4.65, 95% CI: -0.46, 9.77; p =0.074), those having smokers in their friends or colleagues (crude b: -4.66, 95% CI: -10.39, 1.07; p =0.110) and being a current daily smoker (crude b: -21.94, 95% CI: -28.20, -15.69; p <0.001) were found to be significant associated with total attitude scores.

After controlling the confounders using multiple linear regression, the results showed that those having monthly income of RM 1000 and above (p =0.005) and being a current daily smoker (p <0.001) were found to be the significant related factors of total attitude scores towards anti-smoking measures. There was no interaction between the significant variables, and all these variables

had variance inflation factor (VIF) values of less than 10. Thus, no multicollinearity problem was detected. The statistical model was checked for the overall linearity by overlaying the residuals versus predicted values in a scatter plot. The values of residuals showed well distributed around the reference line of zero and had no peculiar shape in the scatter plot, indicating the linearity and equal variance between the predicted values and residuals. Additionally, the residuals were normally distributed overlaying the histogram displaying the normality of residuals.

The results of the final model implied that those having higher monthly income had higher total attitude scores (adjusted b: 6.91, 95% CI: 2.15, 11.66; p =0.005). On the other hand, regarding the smoking status, the current daily smokers had lower total attitude scores towards anti-smoking measures than non-smokers (adjusted b: -23.30, 95% CI: -29.55, -17.05; p <0.001) (Table II).

DISCUSSION

To our knowledge, this is the first study to measure public attitude towards anti-smoking measures and legislation among majority Malay residents who live next to the gazetted smoking-free area. At the mean score of 181.86 (22.38) out of 200, more than 90% approval for indoor ban in almost all public places, and more than 85% support for every proposal on tougher taxes and legislations, our study suggests the high-stake smoke-free city initiatives translate into a comparably higher degree of public support than the general population. For example, a 2019 nationwide report by Lim et.al (13) revealed 67.2% Malaysian adults supports for the overall ban on smoking, while only minority were supporting smoking prohibition in places like discos, casinos and bars. Likewise, the 2013 Georgian study by Bakhturidze et.al (14) reported only 51.3% of the country population support the overall ban of indoor smoking such as government buildings/offices, schools and youth

Table II: Association between socio-demographic characteristics and total attitude scores towards anti-smoking measures among the residents in Kampung Ladang Hospital and Kampung Ladang Sehat (n =295)

Variables	Simple Linear Regression		Multiple Linear Regression[b]	
	Crude *b* (95% CI)	*p* value	Adjusted *b*[a] (95% CI)	*p* value
Monthly income				
< RM1000	0.00		0.00	
≥RM1000	4.65 (-0.46, 9.767)	0.074	6.91 (2.15, 11.66)	0.005
Smoking status				
Non-smoker	0.00		0.00	
Current daily smoker	-21.94 (-28.20, -15.69)	<0.001	-23.30 (-29.55, -17.05)	<0.001
Current occasional smoker	-1.58 (-16.52, 13.36)	0.835	-6.08 (-19.82, 7.67)	0.385

[a]Multiple linear regression (Forward method was applied); [b]regression coefficient, R^2=16.5%
There were no interaction and multicollinearity problems detected. Assumptions of normality, linearity and equal variance were fulfilled.
The model reasonably fit well.

organisations (14). The studies in the United Kingdom and United States meanwhile reported higher public approval rating for the overall ban of smoking at 79.1% (15) and 81.6% (16) respectively, yet still considerably lower than our study. The highest support for smoking ban in public places among the general population perhaps can be attributed to Lausanne, Switzerland at 87% (17). The consistent findings of stronger support for anti-smoking measures among this community than the general population locally and other countries signal the possibility of meaningful impacts from the smoking-free initiatives.

Supporting this assertion is the multiple linear regression (MLR) which shows steady support of this community despite age, marital status, gender, ethnicity, being occasional smoker, and level of education. The high penetration of educational activities and promotion may have promulgated persistent message which results in the relatively uniform community's attitude against smoking. This is in contrast with the 2019 report among the Malaysian general population whose MLR analysis revealed that the supports were significantly lower among those who were from minority ethnicity, with limited knowledge of the health hazard from secondary-hand smoke, or without the primary education (13). Similarly, the bivariate and multiple logistic regression analysis in Hungary study (18) and Georgian study (14) demonstrated that the public support against smoking was significantly differ by age and level of education. Therefore, the high level and more reliable support demonstrated in this study suggest the possibility to push the barriers of public support attributable to ethnicity, level of education, age, and knowledge on smoking hazards through high investment on smoking-free health promotions and legislation.

Nonetheless, this study also shows significantly lower support among current daily smokers which is consistent across numerous other studies (11,13-17). From psychological perspective, the transtheoretical model of change posits that to cease smoking, current smokers' perception and attitude are complex where one may transition from the stages of precontemplation, contemplation, preparation, action, and maintenance, yet not necessarily in that order (19). Thus, being current daily smokers may signify pre-contemplation stage which explain the less favourable responses towards anti-smoking measures.

Interestingly, there is significantly less support among those with income less than RM 1000. Researching the related issue, Widome et al (12) conducted a survey among 2406 smokers aged 18 to 64 years old who were subsidized under the Minnesota Healthcare Program in United States (US). The influential 2015 study reported among these smokers, 77.4% did not gain the minimum income to meet their needs of living, 33.6% struggled to pay for healthcare, 38.4% could not afford a house,

and 40.8% would require financial support for food. Yet, despite these constraints, they all had a common trait of prioritizing paying for cigarette smoking which significantly added to the financial strains (12). Further illuminating evidence was shown by 2014 US Census which reported smokers were 80% more prevalent among those who lived at or below the poverty line (13). The pattern of evidence suggests smoking and low income are intimately related in a cause-consequence vicious cycle that has been reframed as a social drift pathway (14). The dilemma also explains why socioeconomically disadvantaged smokers are less likely to be successful in quitting (15). These cascades of event lead to diminished support despite prolonged exposure to intensive and systematic smoke-free initiatives. Therefore, we believe future comprehensive health promotions which incorporate strategies to combat poverty may prove synergistically meaningful to address smoking and its intrinsic connection with financial, health, and educational crisis.

The cross-sectional design of this study does not establish the causality connection between outcomes of this study with the context of smoke-free interventions this community has been exposed to. Nonetheless, the observational nature of this survey has limited the researchers to empirically control for key factors which may influence attitude against smoking such as the high prevalence of non-smokers among this community. However, the multivariable regression analysis with efficient forward method allows controlling the confounding factors and checking interaction terms among potential predictors which may beleaguer the conclusion for an analysis evaluating the associated factors of the attitude scores towards anti-smoking measures.

On the other hand, an experimental research design such as randomised controlled studies may produce stronger evidence for high-stake policy decision making than this study by substantiating causality via controlled group and randomization which eliminates systematic bias during recruitment. However, experimental research design for highly complex interventions such as smoke-free initiatives are commonly difficult to be conducted and may require resources beyond the scope of this study. Therefore, we believe the limitations of this study may return useful compensations in terms of of practicality and repeatability for similar study to be conducted at other smoke-free cities in Malaysia.

This is the first study to report a comparably higher and more reliable support for anti-smoking measures, and the persistent predictors that significantly vary this support, among community who had been subjected to targeted smoking-free campaigns and smoking-free area legislation for almost a decade. The gravity of this new understanding is twofold. Firstly, it serves as preliminary evidence that vindicates the outcomes of the smoke-

free area policies and legislation. The magnitude of this evidence is underpinned by the core expectation of the democratic process that public policy should be responsive to public opinion (16). Hence, policy-makers and public health advocates may capitalize this evidence to secure a long-term support among key stakeholders on smoke-free initiatives.

Secondly, the results may serve to better-inform the decision to expand the smoke-free city initiatives. Although evidence from studies among the general population suggests that the public supports may be significantly varied by age, ethnicity, level of education, and knowledge on smoking hazards, evidence from this study suggest strong investment in health promotions and educational activities may penetrate these barriers. Exposure to these campaigns for several years may explain why community of this study eventually delivers stronger supports that are relatively less influenced by these factors. Therefore, detailed profiling of the target population, educational strategies, and legal commitment to secure higher and more reliable support across segments of the community are crucial to engineer successful smoke-free initiatives.

CONCLUSION

Compared with studies among the general population, this study demonstrates a community which has been exposed with systematic campaigns and smoke-free area legislation gives stronger and more consistent support that is not significantly varied by ethnicity, level of education, age, and knowledge of health hazards related to smoking. However, status of current daily smoker and level of income remain as significant predictors of attitude for anti-smoking measures. These findings may serve to vindicate the existing smoke-free city initiatives and better-inform the strategy to expand the policy and legal commitments further. Future studies may opt for experimental design to establish the causality between health promotions and legislations with stronger and more reliable public support for anti-smoking measures.

REFERENCES

1. CDC. Smoking and Tobacco Use USA: Centers for Disease Control and Prevention; 2020. Available from: https://www.cdc.gov/tobacco/basic_information/health_effects/index.htm.
2. Forey BA, Thornton AJ, Lee PN. Systematic review with meta-analysis of the epidemiological evidence relating smoking to COPD, chronic bronchitis and emphysema. BMC Pulmonary Medicine. 2011;11(1):36. doi: 10.1186/1471-2466-11-36.
3. Furrukh M. Tobacco Smoking and Lung Cancer: Perception-changing facts. Sultan Qaboos University medical journal. 2013;13(3):345-58. doi: 10.12816/0003255.
4. Roy A, Rawal I, Jabbour S, Prabhakaran D. Tobacco and Cardiovascular Disease: A Summary of Evidence. In: Prabhakaran D, Anand S, Gaziano TA, Mbanya JC, Wu Y, Nugent R, editors. Cardiovascular, Respiratory, and Related Disorders. Washington (DC): The International Bank for Reconstruction and Development / The World Bank© 2017 International Bank for Reconstruction and Development / The World Bank.; 2017.
5. WHO. Tobacco Geneva, Switzerland: World Health Organization; 2021 [Available from: https://www.who.int/health-topics/tobacco#tab=tab_1.
6. Yusop Y, Yusoff H. SMOKE-FREE TERENGGANU BATU BURUK BEACH, KUALA TERENGGANU, TERENGGANU, MALAYSIA. Smoke-free: Linking Cities to Advance Tourism and Preserving our Heritage; Cambodia 2020.
7. MOH. Kenyataan Akhbar KPK 13 Mei 2018 – Sempena Southeast Asia Conference On Tobacco Control 2018 Kuala Lumpur: Ministry of Health Malaysia; 2018 [Available from: https://kpkesihatan.com/2018/05/13/kenyataan-akhbar-kpk-13-mei-2018-sempena-southeast-asia-conference-on-tobacco-control-2018/.
8. WHO. WHO Framework Convention on Tobacco Control (WHO FCTC) Geneva: World Health Organization Europe; 2023 [Available from: https://www.who.int/europe/teams/tobacco/who-framework-convention-on-tobacco-control-(who-fctc)#:~:text=The%20WHO%20Framework%20Convention%20on,the%20highest%20standard%20of%20health.
9. Zainol Abidin N, Zulkifli A, Zainal Abidin E. Smoke-Free Legislation in Malaysia: A comprehensive review. Asia Pacific Environmental and Occupational Health Journal. 2016;2:58-66.
10. Aliya S, Shamim AK, Ilyas MN, Saif UK, Nordin S, Atif AB. Prevalence of Smoking in Malaysian Adolescents: Are Strategies Enough to Counter Its Ill Effects? Asian Journal of Medicine and Biomedicine. 2017;1(1).
11. Mat Hassan N, Abdul Aziz A, Husain R, Daud N, Juhari SN. Association of prosocial behavior with ever smoking and alcohol drinking among school-going adolescents. Heliyon. 2020;6(7):e04530. doi: 10.1016/j.heliyon.2020.e04530
12. Widome R, Joseph AM, Hammett P, Van Ryn M, Nelson DB, Nyman JA, et al. Associations between smoking behaviors and financial stress among low-income smokers. Preventive Medicine Reports. 2015;2:911-5. doi: 10.1016/j.pmedr.2015.10.011.
13. A. Jamal ITA, E. O'Connor, B.A. King, J.B. Kenemer, L. Neff. Current cigarette smoking among adults - United States, 2005–2013. MMWR Morb Mortal Wkly Rep. 2014:1108-12.
14. Lund C, Cois A. Simultaneous social causation and social drift: Longitudinal analysis of depression and poverty in South Africa. Journal of Affective Disorders. 2018;229:396-402. doi: 10.1016/j.jad.2017.12.050

15. Kotz D, West R. Explaining the social gradient in smoking cessation: it's not in the trying, but in the succeeding. Tobacco Control. 2009;18(1):43. doi: 10.1136/tc.2008.025981

16. Bakhturidze GD, Mittelmark MB, Aarш LE, Peikrishvili NT. Attitudes towards smoking restrictions and tobacco advertisement bans in Georgia. BMJ Open. 2013;3(11):e003461. doi: 10.1136/bmjopen-2013-003461.