

Young adults' health beliefs and safety concerns regarding the use of electronic cigarettes: Evidence from Eastern Europe

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Background and objectives

Despite no conclusive evidence on their safety, electronic cigarettes (e-cigarettes) are being marketed as a safer alternative to regular cigarettes. Recent studies show that awareness and ever trial of e-cigarettes has doubled among adults and young people, from 2008 to 2012¹. Although current smokers of conventional cigarettes represent the majority of e-cigarette users among young people, studies show that, from 2011 to 2013, the intention to use and experimentation with e-cigarettes has also increased in never smoking youths². The majority of young people who use e-cigarettes report positive health beliefs associated with this behavior. More specifically, studies show that up to 90% of those who use e-cigarettes believe that they can reduce the harms related to conventional smoking³. Also, other studies found that current smoker's use of e-cigarettes is not correlated with their intention to quit, but mostly with their beliefs that e-cigarettes are safer than conventional cigarettes⁴. In this context, it is essential to understand young adults' health beliefs regarding the use of e-cigarettes. The aim of this study is to assess concerns regarding the use of e-cigarettes in a sample of smoker and non-smoker Romanian and Moldovan young adults.

Methods

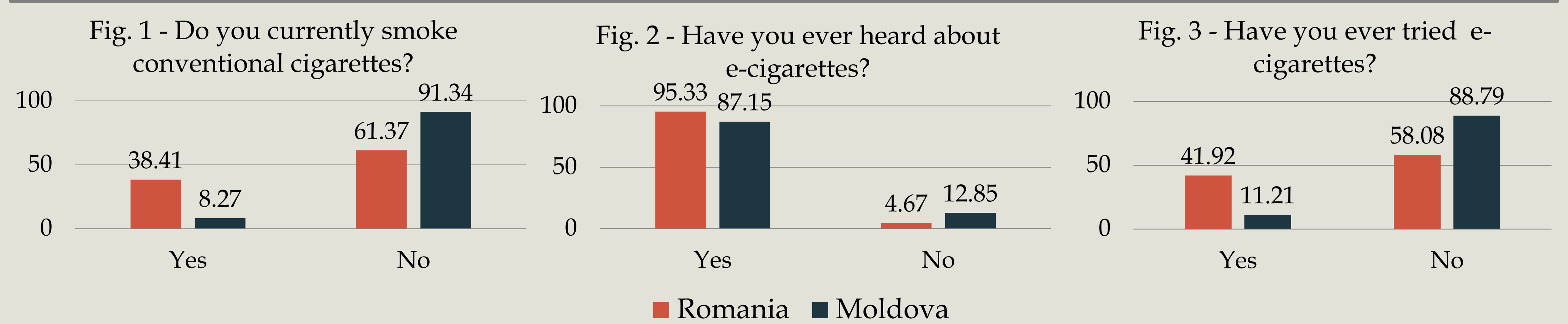
Participants and procedure. A cross-sectional, internet-based survey was conducted between January and December 2013 in three medical and non-medical state universities in Romania and Moldova. In total, 720 university students (Romania n=466, Moldova n=254) participated in the study. Two online, secured versions of the study questionnaire were set up, one for each country involved in the study, and their links were disseminated by email to undergraduate, graduate, and post-graduate students, who were invited to fill in the web-based survey via the official electronic mailing system of the universities or via their formal and informal student online groups. Students received three reminders over a period of nine weeks regarding the invitation to participate in the study. Students were required to sign an electronic informed consent.

Measures. The web-based questionnaire was used to assess students' demographics characteristics (gender, age, university affiliation); self-reported conventional cigarette smoking status (smoker, non-smoker); electronic cigarettes awareness and use, measured using two dichotomous questions: 1) "Have you ever heard about e-cigarettes" (yes/no) and 2) "Have you ever tried an electronic cigarette, even one puff?" (yes/no); and health-related beliefs regarding the use of e-cigarettes, in terms of their regulation or ban by governmental agencies; the safety of their use, especially the safety of their flavored liquid; their addictive nature; their potential to attract children and adolescents; and the safety of the exposure to the vapor produced during the use of e-cigarettes.

Analysis. We used descriptive statistics to describe the study sample and logistic regression models to assess the differences among smokers and non-smokers regarding safety concerns related to the use of e-cigarettes.

Results

Out of the 720 students who filled out the survey, approximately 75% were females (73.18% in Romania and 77.17% in Moldova) and 49% were attending medical universities (23% in Romania and 100% in Moldova). The mean age of the sample was 21.5 years (SD=2.43). The sample's smoking behavior and awareness and ever trial of e-cigarette is reported in Fig. 1-3.



A statistically significant relationship has been found between regular cigarette use and experimentation with e-cigarettes ($\chi^2_{(2)}=187.667, p<.001$). When compared with regular cigarette users, non-smokers think that e-cigarettes can lead to dependence ($p=.021$), are attractive for children ($p<.001$), and should be completely banned ($p<.001$). The results of the logistic regression show that experimentation with e-cigarettes is more likely among smokers of conv. cigarettes in both countries; however, there are differences in the two countries in smokers and non-smokers' opinions regarding the regulation of e-cigarettes and their safety.

		RO	MD
		OR [95% CI]	OR [95% CI]
Experimentation with e-cig	No	Ref	Ref
	Yes	8.43 [4.67-15.22]*	51.27 [4.91-534.82]*
E-cig should be regulated	No	Ref	Ref
	Yes	.96 [.46-1.99]	88.8 [3.08-2559.44]*
	I don't know	1.77 [.86-3.66]	39.80 [1.42-1113.63]*
Is it safe to use e-cig?	No, much more dangerous than reg. cig	Ref	Ref
	No, as dangerous as regular cig	.37 [.13-.1.09]**	7.93 [.19-326.63]
	No, but less dangerous than reg. cig	.26 [.01-.75]*	2.31 [.06-81.94]
	Yes, absolutely safe	.33 [.01-11.86]	.000
	I don't know	.32 [.11-.94]*	1.24 [.02-74.78]
E-cig are addictive	Yes, but less addictive than regular cig	.63 [.26-1.51]	.06 [.06-.63]*
	Yes, as addictive as regular cig	.75 [.39-1.84]	.30 [.04-2.28]
E-cig solutions do not contain harmful substances		.98 [.83-1.51]	1.16 [.80-1.68]
E-cig smoke is not harmful for others		1.06 [.93-1.20]	1.18 [.73-1.71]
E-cig distribution should be banned		.79 [.69-.91]*	1.14 [.84-1.56]
Children and adolescents could be tempted to try e-cig		1.00 [.89-1.12]	.61 [.41-.91]*
Cox & Snell R Square		0.278	0.252
Nagelkerke R Square		0.381	0.547

*p statistically significant at a 95% level; **p statistically significant at a 90% level

than conv. cig.) are more likely to be smokers of regular cigarettes. On the other hand, RO students who hold the same beliefs (as compared to those who believe that e-cigs are much more dangerous as conv. cig.) are less likely to be smokers of conv. cigarettes. In terms of their addictiveness, when compared with those who believe e-cigs. are not addictive, both RO and MD students who consider e-cig to be less addictive or as addictive as conventional cigarettes are less likely to be smokers of conventional cigarettes.

Conclusions

The results of the study show differences between smokers and non-smokers' health beliefs regarding the safety of e-cigarettes. More specifically, when compared with conventional cigarette users, non-smokers think that e-cigarettes can lead to dependence ($p=.021$), are attractive for children ($p<.001$), and should be completely banned ($p<.001$).

Public health professionals could capitalize on the non-smoker young adults' safety concerns regarding the use of e-cigarettes, to inform interventions deterring the uptake of these products.

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