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Post-Project Grant Report, Research, Education, Advocacy and Direct Service (READS Grants Program) American Association for Cancer Education (AACE)

Project Title: Smoking Prevention Program in Poland

Principal Investigator: Łukasz Moskal MD

Co-Principal Investigator: Konrad Reszka MD

Co-Investigator: Urszula Staszek-Szewczyk MD, PhD

Co-Investigator: Jagoda Łaba MD

Co-Investigator: Krzysztof Szewczyk MD, PhD

Consultant/Mentor: Darren Starmer BN, MEdStds (Hons), PhD, FEACE, FAACE

Consultant/Mentor: Radosław Tarkowski MD, PhD

Consultant/Mentor: Charles Moore MD, FAACE

Co-Investigator/Mentor: Kathleen Heneghan PhD, MSN, RN, FAACE

Research assistants – data translation, student education and data collection: Members of Student's Oncology Science Club

Narrative Section

Background

Based on the WHO Europe report, 29% of adults in Poland smoke. Moreover, tobacco smoking and second-hand exposure increase the number of oncological and respiratory and cardiovascular diseases. According to the National Cancer Register, nicotine addiction is the leading cause of preventable death in Poland, accounting for 35% of cancer deaths. The economic costs of tobacco-dependent illnesses in Poland will amount to billions of USD in the coming years, including medical treatment, work absences, and disability pensions.

The data show that 64% of boys and 53% of girls in the age range of 13-15 have initiated smoking. Furthermore, 80% of school personnel suggest the need for smoking prevention programs. According to The Global Youth Tobacco Survey (GYTS), over 65% of the younger generation involuntarily inhale tobacco smoke in their homes or other public places. Studies have shown a correlation between starting smoking at the elementary school level and the number of smokers among adults.

Smoking prevention is considered one of the most effective methods to reduce the number of deaths caused by tobacco-related diseases and second-hand smoke exposure. This can be achieved through educating people, preferably at the elementary school level. However, despite the various developments in elementary school curricula, there is a lack of education focused on the common methods of tobacco and nicotine use in Poland.

This community-based tobacco prevention intervention was offered to 7th-8th grade students from the Tadeusz Mazowiecki Elementary School in Tyniec Mały, Poland and used the Tobacco Prevention curriculum developed by Toolkit Team from Stanford University. The curriculum was translated into Polish by the members of Students Scientific Association of Oncology (SSAO) at Wroclaw Medical University. The standardized program aims to prevent the use of tobacco and nicotine products among elementary school students. It utilizes models such as the Information, Motivation, and Behavioral Skills Model (IBM), the Theory of Planned Behavior, and the Positive Youth Development Framework.

Research, Education, Advocacy, and Direct Service (READS Grant Program) was founded by the American Association for Cancer Education (AACE) and launched in 2019.

Two years later for the first time in history, the grants committee awarded a group of junior investigators, who were affiliated with the SSAO and located outside North America. The awarded project was titled "Smoking Prevention Program in Poland."

Not to be forgotten, the Russian invasion of Ukraine at the beginning of 2022 created the biggest refugees' crisis in recent decades making Poland a major destination country. Strong presence of Ukrainian students was observed within Polish School System, including Lower Silesia region. Considering the issue of nicotine addiction in Ukraine and the ongoing Smoking Prevention Program, special workshops were organized for Ukrainian students. These workshops utilized the One-Session Sample Curriculum developed by the Toolkit Team.

Primary objectives:

1. Discouraging students from smoking.
2. Promoting anti-nicotine lifestyle.
3. Assessing the feasibility of US standardized curriculum within the Polish School System.

Secondary objectives:

1. Developing awareness among Polish medical students about epidemiology and prevention research studies.

Materials & Methods

All 7th and 8th grade students from the Tadeusz Mazowiecki Elementary School in Tyniec Mały, Poland were invited. Educational intervention was based on the Tobacco Prevention Toolkit from Stanford University. The five-Session Curriculum and single-Session Curriculum were chosen, translated and applied for Polish and Ukrainian Students respectively. Moreover, Polish medical students were subject to evaluation on the basis of awareness about epidemiology and prevention research study through engagement in program introduction. Necessary databases and questionnaires were generated in Research Electronic Data Capture (REDCap). Institutional Review Board (IRB) approval was granted from the Wroclaw Medical University Institutional Review Board (Ref: KB - 474/2020). Additionally, Polish speaking students in chosen elementary school were evaluated one and two months after program completion.

Results

1. *Study group characteristics:*

Table 1. Characteristics of study group.

Parameter		Population
Average age – yr.		13.4
Gender	**Male**	56 (44.09%)
	Female	65 (51.18%)
	Other	6 (4.73%)
Grade	**7th grade**	75 (59.06%)
	8th grade	52 (40.94%)
Physical activity	**Four days a week**	36 (28.35%)
	Five days a week	31 (24.41%)
Active smoker		1 (0.79%)
Students after smoking initiation		19 (14.96%)
Smoking friends	**0**	66 (51.97%)
	1	20 (15.75%)
	3	14 (11.02%)
Smoking parents	**One smoking parent**	30 (23.62%)
	Both smoking parents	7 (5.51%)
Smoking relatives	**None**	31 (24.41%)
	Less than half of smoking relatives	75 (59.06%)

Participant demographics are shown in Table 1.

The majority of the students were engaged in physical activity. Only one person (female) was active smoker, had 15 smoking friends and more than half of her relatives were smokers. More than 50% of students indicated their friends as non-smokers. Thirty students (23.62%) had at least one smoking parent. Seventy-five percent of participants (59.06%) reported that less than half of their relatives were smokers [Table 1].

The majority of students with non-smoking parents (90%) had not tried cigarettes (p=0.021). Conversely, approximately 43% of students with one smoking parent had experimented with smoking. However, only 24% of participants whose parents both smoked had tried cigarettes. Experimentation with cigarettes was significantly more common among boys than girls (17.86% vs. 9.23%; p=0.019).

Most students (74.02%) were unsure whether their teachers were smokers. There was no relationship between cigarette usage and knowledge about smokers among teachers. However, students who have tried smoking more frequently reported that their teachers are also smoking.

There was a statistically significant relationship between experimentation with smoking and the number of smoking friends ($p=0.001$). All students with 12 or more smoking friends have tried cigarettes. A similar correlation was found between the number of smoking relatives and experimentation with smoking. Most of the respondents who have already tried cigarettes have more than half of their relatives smoking ($p=0.012$).

The majority of students who play sports daily never smoked (95.65%). Experiences with cigarettes were more prevalent, but not statistically significant in the group of students who exercise three times a week (30%) and two times a week (25%).

Effects of the program on smoking prevalence and intentions:

At the beginning of the project, 47.62% of respondents declared they will never try smoking, while 39.68% indicated that they may try smoking in the future. Only 1.59% of students were sure they will smoke in the future. Smoking intention decreased after the program completion. Of the students who declared they will never smoke, 81.58% upheld this decision, while 50% of respondents who were sure about smoking in the future responded 'I may try smoking one day' in the post-test. Whilst not statistically significant, the percentage of students declaring they were unlikely to try smoking increased between the pre-test and second follow-up (19.2% vs. 25.76%). The number of students who smoked over the past 30 days were similar at each stage.

After program completion, the number of parents who smoked remained similar, as did the percentage of smoking relatives ($p=0.193$).

The frequency of physical activity among students was observed to increase (13.39% in pre-test vs. 27.27% in second follow-up), although this change was not significant.

Knowledge about smoking:

Following the workshops, there was a significant increase in students' knowledge about e-cigarettes, vapes, JUULs, and puff bars ($p<0.001$). A similar effect was observed regarding knowledge about tobacco dependence ($p=0.023$) and the number of toxins in popular liquids ($p=0.012$). There was a trend towards an increase in the number of correct answers regarding knowledge about the long-term effects of e-cigarettes, vapes, JUULs, and puff bars; however, these were not statistically significant (54.03% vs. 56.18% vs. 57.65% vs. 60.61%; $p>0.05$).

Moreover, the number of respondents who shared gained knowledge with their families, friends and colleagues between first and second follow-up increased [Table 2].

Table 2. Students' empowerment to discuss the topic with others.

Parameter	Follow-up 1	Follow-up 2	P-value
Discussion with family	25.76%	30.59%	0.049
Discussion with friends	11.76%	39.39%	<0.001
Discussion with colleagues	10.59%	22.73%	0.045

Opinions on Smoking Prevention Program:

A significant number of students rated the Smoking Prevention Program positively. More than 42% were satisfied with program's workshops and activities. Approximately 50% of students think that the program should be implemented in all Polish schools. Nearly 44% of the participants reported feeling more confident to reject the offer to smoke.

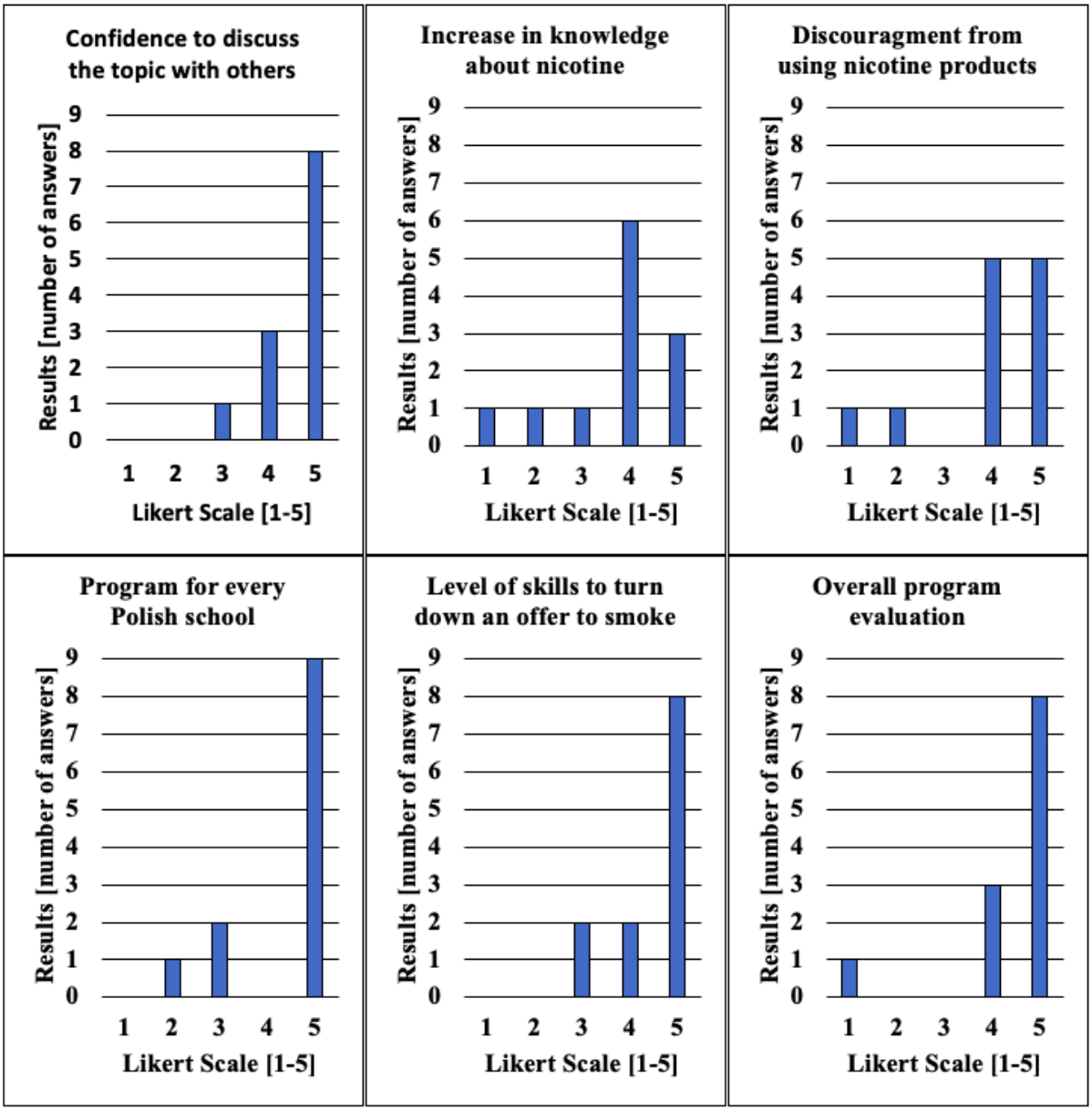
Motivation to quit smoking:

Program completion significantly boosted student's motivation to quit smoking (30.30% vs. 50%; p=0.023). There was statistically significant increase in confidence regarding the possibility of quitting smoking, with 54.29% of participants in the pre-test in comparison to 66.67% in the follow-up assessment (p=0.012).

2. All teenagers from Ukraine who met the inclusion criteria and had parental consent were invited. Consequently, 12 students (4 females, 8 males) from 6-8th grade and aged 12-15 joined the session. Eleven participants (91.7%) were non-smokers, however 25% already tried cigarettes. Moreover, seven students (58.3%) were from smoking-free families, but 5 participants (41.7%) declared at least one smoking parent. Physical activity most commonly comprised three days each week (58.3%). Upon program completion, only three participants (25%) were not willing to discuss the presented topic with others. In comparison to pre-test, increased knowledge was reported regarding the amount of nicotine in JULLs (25% vs. 50%), number of toxins in JUULs (8.3% vs. 83.3%), second-hand smoking (41.7% vs. 66.7%),

nicotine (25% vs. 50%) and negative consequences of e-cigarettes/vapes/JUUL/Puff bar (75% vs 100%). Moreover, participants declared increase in confidence in discussing smoking with others and skills to turn down an offer to smoke, as well as decrease in smoking intention [Figure 1]. Completion rate of pre- and post-test was 100%.

Figure 1. Example of questions from our questionnaire with a use of Likert Scale [1 "minimum" – 5 "maximum"]



3. Twenty junior investigators associated with Students Scientific Association of Oncology were invited to join the program. Nevertheless, due to personal reasons one student resigned and subsequently 19 individuals were evaluated (4 men, 15 woman) in the age range of 20-28

years. Ten investigators (52.6%) worked with the young generation in the past of whom 3 members (15.8%) had experience in cancer education. Respondents' biggest concern before the start of the project was the fear that elementary school students would not approve the program (15; 78.9%). High quality of workshops (14; 73.7%) and interactive classroom activities (11; 57.9%) were main advantages while duration of program (6; 31.6%), repetitive information between sessions (5; 26.3%) and inadequate topics to Polish tobacco regulations (5; 26.3%) represented main disadvantages of the initiative. Investigator found instructions easily understandable (18; 94.7%), felt prepared for workshops (17; 89.5%) and would recommend program for all elementary schools in Poland (19; 100.0%) as well as for teachers interested in the topic (19; 100.0%). In their opinion, materials were easy to understand and thought-provoking (17; 89.5%), activities and exercises were stimulating (16; 84.2%) and they would like their children to join the course in the future (19; 100.0%). All researchers were satisfied with joining the program (19; 100.0%). After program completion, concerns from pre-workshops period were well founded according to 14 respondents (73.7%), but grant fulfilled hopes and expectations of almost all investigators (18; 94.7%). Completion rate of requested questionnaires was 100.0% (19 individuals).

Strengths and Limitations

The use of a validated curriculum along with oversight and mentorship by a large group of experienced cancer educators is a strength of the program. The main limitation of this project is the use of a single school with a relatively small study population. The results only measure the short-term outcomes of the program and my not be generalizable to the rest of the Polish population. However, this pilot program would provide valuable insight and inform decisions around the benefits and feasibility of implementing a national program.

Conclusions

Tobacco addiction is a universal problem, both in Polish and Ukrainian societies. The program met stated aims and was positively received. Educational intervention has a potential to decrease number of smoking-related illnesses and tobacco-dependent cancers in the future. Smoking Prevention Program sets new trends in public health and bridges existing gap within Polish School System.

Program dissemination

The Smoking Prevention Program was registered in the ClinicalTrials.gov database (NCT05488743). Preliminary results of the project were presented during the 2022 International Cancer Education Conference in College Park, USA. Data regarding Ukrainian students were discussed at the 34th Annual Scientific Meeting of the European Association for Cancer Education in Wroclaw, Poland. Conclusions based on the personal experience of junior investigators will be discussed during the 2023 International Cancer Education Conference in Toronto, Canada. Moreover, all collected data were submitted to the Journal of Cancer Education in the form of two letters to the editor and one original paper.

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