

Research Article

Doctors, Teachers, Students, Film-Makers, and Journalists Allied in Cardiovascular Prevention

Volpe Roberto^{1,3*}, Jan Natasa², Volpe Massimo^{1,4}, Bellotti Paolo¹, Ceve Matija⁵ and Bugliosi Rita³

¹Italian Society for Cardiovascular Prevention (SIPREC), Italy

²Slovenian Heart Foundation (SloHF), Italy

³National Research Council of Italy (CNR), Italy

⁴Department of Clinical and Molecular Medicine, Sapienza University of Rome, Sant'Andrea Hospital and IRCCS Neuromed, Italy

⁵Clinical Department of Vascular Diseases, University Medical Centre Ljubljana, Italy

*Corresponding author

Volpe Roberto, Italian Society for Cardiovascular Prevention (SIPREC), National Research Council of Italy (CNR), Tel: 00393396629345, Email: roberto.volpe@cnr.it or drustvo-zasrce@siol.net

Submitted: 16 February 2021

Accepted: 18 March 2021

Published: 22 March 2021

Copyright

© 2021 Roberto V, et al.

OPEN ACCESS

Keywords

- Healthy lifestyle
- High-School students
- Alliance
- Video production

Abstract

Poor eating habits are one of the main causes of the high prevalence of overweight and obesity in many European children. The project, aimed at encouraging and spreading a healthier lifestyle amongst Italian and Slovenian high school students, was carried out with the Support of The Italian Society for Cardiovascular Prevention (SIPREC), the Slovenian Heart Foundation (SloHF), and the European Heart Network (EHN) and involved high schools and their staff. During the project, we organized seminars on healthy lifestyle for students, which were evaluated through a questionnaire on healthy lifestyle administered before and after the seminars. Moreover, nowadays since adolescents often use video and images to express themselves on social media, an important part of the project were the seminars by film-makers on how to make short videos. Participating students integrated their knowledge of healthy lifestyle (e.g. healthy nutrition, physical activity, not smoking) into making short videos which were evaluated by the national (Italian and Slovenian) juries. The results of the survey (a +57.8% improvement in the Italian students' knowledge and a +15.0% improvement in the Slovenian students' knowledge that was already quite high before the seminars), the high standard of the short films and the positive answers to the endline satisfaction survey indicate the good level of students' education, and the effectiveness of the methods used. What is more, we believe that making short videos as a way of disseminating key messages on healthy lifestyle on social media amongst peers, is an innovative and effective approach when addressing young people, using a language and style that young people, from different countries, can easily understand and relate to. Therefore, in order to reach broader audience, the short films have been subtitled in English.

RATIONALE

A healthy lifestyle, which includes a balanced diet, appropriate physical activity, and not smoking, reduces the risk of cardiovascular diseases and cancer [1,2]. Therefore, it is important to make the right choices about how to stay healthy and to help prevent non-communicable diseases. The Mediterranean Diet is one of the dietary styles that contributes to wellbeing [3] and it is a cornerstone of the outstanding record of longevity amongst the Italians and accounts for the good ranking of Slovenia [4]. However, in recent years, the adherence to this healthy diet is decreasing even in Mediterranean countries [5,6] where, moreover, there is a worrying increase of overweight subjects and in the rate of obesity, especially among Italian adolescents, though less so among Slovenian adolescents (Table 1) [7]. Furthermore, the data of the European Heart Network (EHN) show that Italian children are among those who do less physical activity and who smoke more, while Slovenian children rank somewhere in the middle of European countries (7). All this could threaten the health of the next generations, who are at greater risk of premature death than their parents [8].

AIM

The task of the Italian Society for Cardiovascular Prevention (SIPREC) and the Slovenian Heart Foundation (SloHF), who are active both on national and European level within the EHN, is to promote healthy lifestyle in order to protect public health, especially in the area of cardio-vascular diseases. One of the important target groups are adolescents, who are notoriously more vulnerable and defenseless and more exposed to aggressive

Table 1: Ranking position of Italy and Slovenia in Europe (out of 40 countries) based on the prevalence in the 15-year population of overweight/obesity, physical activity, smoking.

	Italy	Slovenia
overweight/obesity in boys	5 th	23 rd
overweight/obesity in girls	24 th	24 th
moderate-vigorous physical activity ≥1 hour per day - boys	39 th	19 th
moderate-vigorous physical activity ≥1 hour per day - girls	36 th	31 st
smoking - boys	3 rd	12 th
smoking - girls	1 st	15 th

marketing [9]. Besides, SIPREC's and SloHF's task is also to combat socio-economic and cultural inequalities, since obesity is not only linked to an unhealthy personal lifestyle or metabolic diseases, but can also depend on other aspects, including income (junk food generally costs less than healthy alternatives, and cost is a big barrier to the adoption of healthier diets), education, and training [10-12]. Therefore, cooperation with schools is of prime importance, including researching new strategies that may involve students directly too. Since nowadays young people are very familiar with digital technology, we thought that working on short films could be an innovative method for promoting good lifestyle choices, including healthy diet, physical activity and not smoking.

PROJECT

The study ran for 10 months (from September 2019 to June 2020) in order to allow for the sequential execution of all phases. The project began with preparatory meetings between experts in nutrition and cardiovascular prevention of SIPREC and SloHF and the science and physical education teachers from the participating Italian and Slovenian high schools. We organized two interactive seminars for the students for each participating high school. The seminars were aimed to provide guidelines to help students to adopt correct eating and lifestyle habits. Our selected target group was 16-17-year-old students. There were 128 Italian participating students from 5 high schools and 86 Slovenian participating students from 2 high schools. Italian students came from 2 high schools in Rome (the scientific lyceum Keplero and the classic lyceum Orazio, 45 students), 2 high schools in Bari (the scientific lyceum Hack and the classic lyceum Orazio Flacco, 44 students), and 2 high schools in Genoa (the technical-professional institute Duchessa di Galliera and the scientific lyceum King, 39 students). Slovenian students came from 2 high schools, one in Ljubljana (Gimnazija specialized in arts, SVŠGUGL, 29 students) and one in Maribor (II. Gimnazija, 57 students).

We measured the impact of seminars on healthy lifestyle using a qualitative approach: in Italy, the questionnaire consisted of 30 multiple choice questions and in Slovenia, the questionnaire consisted of 20 multiple choice questions. The questionnaire has been different, because the food habits of the 2 Countries have some difference that we have taken into consideration.

The same national questionnaire was distributed amongst participating students before the first seminar and after the second seminar.

In a third and fourth theory-and-practice seminar, a mentor-film-maker, taught the participating students how to shoot a short film. The acquired technical skills have enabled the students to make short videos up to 4 minutes. Using this method, they have been able to express their (newly-gained) knowledge on healthy lifestyle. For greater motivation of the students, the short films were also entered national video-competitions, judged by a national panel consisting of SIPREC prevention experts, national journalists and film directors, for Italy; and for Slovenia, SloHF prevention experts, national journalists and film directors.

At the end of the project, to measure the impact of the whole project a "Endline satisfaction survey" consisting of 6 questions

was distributed to the participating students. However, we have received answers only from the Italian students because the Slovenian students have not been able to submit their responses due to the COVID-19 pandemic. In fact, the main activities were carried out up until the middle of March 2020. In the last months of the project we conducted the analysis of the survey, selected the winning short films, and subtitled these films.

RESULTS

The results of the questionnaire of 30 questions at multiple choice on eating and lifestyle administered to the Italian students at the beginning of the first seminar and repeated at the end of the second seminar, show a poor baseline score (average score of 15.7/30) which improved markedly at final test repeated at the end of the second seminar: 24.8/30, with a +57.8% of improvement of knowledge (Table 2).

The results of the 20 question, multiple choice questionnaire on eating and lifestyle administered to the Slovenian students at the beginning of the first seminar and repeated at the end of the second seminar, show a good baseline score (average score of 74.3%; 14.86/20) that improved at the final test done at the end of the second seminar: 17.86/20, with a 15.00% improvement of knowledge (Table 3). In Slovenia, students learn a lot about a healthy lifestyle in primary school. In the first and second year of high school, the Biology programme focuses on the human body and healthy lifestyle.

After the seminars with the film maker, the Italian students made 11 short films (of up to 4 minutes) that convey in images what they have learned about a healthy lifestyle. Three films, one made by the Orazio high school, Rome ("Tg 2nd L", second L class), one by the Orazio Flacco high school, Bari ("EA(I)T", second D class) and one by the Galliera high school, Genoa ("Surprise call", third S class) received the highest score from the Italian jury.

Table 2: Results of the questionnaire of 30 multiple choice questions on healthy lifestyle administered to the Italian students at the beginning of the first educational seminar and repeated at the end of the second educational seminar.

	Number of students	Baseline score (out of 30)	Final score (out of 30)	Percentage improvement of knowledge
Rome	45	15.5	25.2	+62.6
Bari	44	14.3	24.0	+67.8
Genoa	39	15.9	25.4	+59.7
All Italian schools	128	15.7	24,8	+57.8

Table 3: Results of the questionnaire of 20 multiple choice questions on healthy lifestyle administered to the Slovenian students at the beginning of the first educational seminar and repeated at the end of the second educational seminar.

	Number of Students	Baseline score (out of 20)	Final score (out of 20)	Percentage improvement of knowledge
Ljubljana	29	15.2	18.1	+14.5%
Maribor	57	14.5	17.6	+15.5%
All Slovenian schools	86	14.85	17.85	+15.0%

“Tg 2nd L” is a news report about arrest of a gang of junk-food traffickers and includes interviews with a police officer and with an academic nutritionist, who explains the benefit of a healthy diet (Figure 1).

“EA(I)T” is a symbolic video with a boy that is “losing his way” and is at the mercy of junk food. However, his friends help him to get back to eating well and feeling good (Figure 2).

In “Surprise call” a girl challenges her boyfriend to continue following a healthy lifestyle, and not a trendy but unhealthy one, just to follow his friends (Figure 3).

After the seminars with the film maker, the Slovenian students made 7 short films (up to 4 minutes) where they expressed the knowledge they have acquired about healthy lifestyle. The national jury rewarded two short films, one from the High school specialized in arts, SVŠGUGL Ljubljana (video “Don’t smoke” which talks through a cat - a cat has 9 lives, but you don’t) (Figure 4) and the second one from the II. Gimnazija, Maribor (video “It’s a healthy lifestyle” which talks about a fun, healthy ways of spending free time) (Figure 5).

The top 3 films from Italy and the top 2 films from Slovenia have been subtitled in English to facilitate dissemination on YouTube and on the SIPREC’s and SloHF’s websites.

When the COVID-19 pandemic is over, the winning films will be presented and projected during a dedicated session at the national congress/meetings of SIPREC and SloHF and at the Annual Meeting of EHN. We also planned trips for teams of the winning films. For the Italian students, a visit to the 2020 Genoa Science Festival and/or to the Naples Science Museum was



Figure 1 Video “Tg 2nd L” made by the Orazio High School, Rome, Italy.

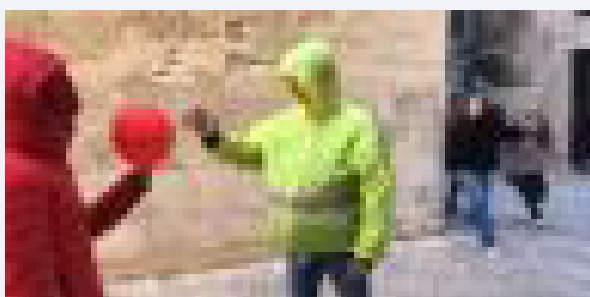


Figure 2 Video “EA(I)T” made by the Orazio Flacco High School, Bari, Italy.

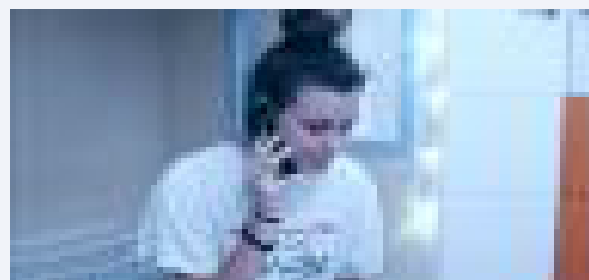


Figure 3 Video “Surprise call” by the Duchessa di Galliera High School, Genoa, Italy.



Figure 4 Video “Don’t smoke” by SVŠGUGL, High School, Ljubljana, Slovenia.



Figure 5 Video “It’s a healthy lifestyle” by II. Gimnazija High School in Maribor, Slovenia.

planned. For the Slovenian students, a visit to the Adventure Park GEOSS, located in the vicinity of the geometric center of Slovenia (Slivna), was planned. Unfortunately, due to the COVID-19 pandemic, these trips were cancelled, and the prizes took the form of a gadget (USB flash drives for all the students who took part in the video making, and to the teachers involved in the project).

Regarding the end line satisfaction survey: 88% of the Italian students appreciated the project (originality of the teaching methodology, working together with other students, acting and/or working as film-makers); 88% made some lifestyle changes on diet (above all more vegetables, fruit, legumes, fish and whole grains, less fats, desserts and fast food, and less sugar and salt) and more physical activity, but only 20% reduced smoking (although as much as 55% of students already did not smoke); 35% started to read nutrition labels; 47% started to persuade family and

friends to improve their lifestyle. Regarding the takeaways from the project, 88% of participants have introduced some new healthy lifestyle, 71% have increased their knowledge, 24% have discovered working together and 18% have learned how to make a film (while most of the students devoted themselves to acting).

DISCUSSION AND CONCLUSION

Alliances are fundamental to improving the efficiency of cardiovascular prevention policies [13]. In order to reach out to the students and to work on preventive and healthy lifestyle with the teachers, it has been particularly important to cooperate with schools. The results of the questionnaire administered after the seminars (a +57.8% improvement in the Italian students' knowledge and a +15.00% improvement of the Slovenian student' knowledge that was already quite high before seminars), indicates the good level of education of the students. Educating students about healthy lifestyle will also improve their health when they become adults [14]. Moreover, in a fast-paced world, where adolescents spend a large amount of time on social media, using video and images to express themselves, the technique of using short film by educated and trained students to exchange information and views on healthy lifestyle and eating habits, is innovative, well accepted by students (as shown in the positive answers to the endline satisfaction survey) and strategically important: the content was thought up and developed by adolescents for adolescents (peer-to-peer learning), using a language and style that young people from different countries easily understand and relate to [15]. Additionally, subtitled the films into English will be beneficial for dissemination the content on a larger scale as well, through social media (e.g. YouTube, Facebook). Moreover, while the posting of the results of the project on web-sites of SIPREC and SloHF and the publication in national and international medical journals will enhance outreach to the scientific community. Thanks to the active involvement of the Press Office of the CNR, the SIPREC and the SloHF, we will disseminate the results to the general public through traditional media.

In conclusion, in accordance with The United Nations' Convention on the Rights of the Child, we believe our comprehensive approach could offer a practical way to help ensure the best conditions for children and adolescents to grow up healthy [16] and, moreover, become the living proof and disseminators of healthy lifestyle.

Italian working group

Volpe Roberto, Italian Society for Cardiovascular Prevention (SIPREC) and National Research Council of Italy (CNR), Rome; Volpe Massimo, SIPREC, Rome; Bellotti Paolo, SIPREC, Genoa; Bugliosi Rita, CNR, Rome; Guaragnella Nicoletta, CNR, Bari; Caruso Angelo, Image & Light, Rome; Stagnaro Valentina, Genoa; Lancia Paola, Keplero High School, Rome; Arena Stefano and Donnici Rosangela, Orazio High School, Rome; Ingegno Agnese, Orazio Flacco High School, Bari; Trabace Ilaria, Hack High School, Bari; Ricchini Alice and Secondo Francesco, Duchessa di Galliera High School, Genoa; Rizzerio Rita, King High School, Genoa.

Slovenian working group

Jan Nataša, Cevc Matija, Pretnar Tadeja, Plesničar Ana,

Strojnik Maša, (Slovenian Heart Foundation team); Ribič Igor (film maker, jury); Janez Hace (Siddharta, jury); Ciril Gale (journalist, jury); Alenka Smuk (teacher, SVŠGUGL - Gimnazija specialized in arts, Ljubljana); Polona Kiker and Mateja Krumpak (teachers, II. Gimnazija, Maribor).

FUNDING

Funding was granted for the project from the European Heart Network, Brussels.

ETHICAL APPROVAL AND INFORMED CONSENT

Before starting the study, the protocol has been submitted to the participant schools. The teachers and students were informed by an informed sheet which described the procedures in detail. Participation in the project was on a voluntary basis. The respect of privacy for the management of personal data has been guaranteed by the fact that all data collected have been treated in total anonymity and have been analyzed in aggregate form in compliance with the EU Regulation (GDPR 2016/679). Each participant and parents received clarifications of doubts of any kind, through the provision of the researcher's contacts. The possibility of withdrawing in any time was guaranteed.

STATEMENT

All the Authors have seen and approved the manuscript being submitted, have contributed significantly to the work, attest the originality, validity and legitimacy of the data and its interpretation, and agree to its submission to this Journal. The Authors attest that the work is not under consideration for publication elsewhere.

ACKNOWLEDGEMENT

The Authors thank Sarah Marchant for support in drafting the English version.

REFERENCES

1. Chen GC, Tong X, Hu JY, Han SF, Wan ZX, Qin JB, et al. Whole-grain intake and cardiovascular, cancer, and total mortality: a systematic review and meta-analysis of prospective studies. *Am J Clin Nutr.* 2016; 104: 164-72.
2. Arnold M, Pandeya N, Byrnes G, Renehan AG, Stevens GA, Ezati M, et al. Global burden of cancer attributable to high body-mass index in 2012: a population-based study. *Lancet Oncol.* 2015; 16: 36-46.
3. Estruch R, Ros E, Salas-Salvado J, Covas MI, Corella D, Aros F, et al. Primary prevention of cardiovascular disease with Mediterranean diet. *N Engl J Med.* 2013; 368: 1279-1290.
4. Global, regional, and national age-sex-specific mortality and life expectancy, 1950-2017: A systematic analysis for the Global Burden of Disease Study, 2017. *The Lancet.* 2018; 392: 1684-735.
5. Archero F, Ricotti R, Solito A, Carrera D, Di Bella R, Prodam F, et al. Adherence to the Mediterranean Diet among School Children and Adolescents Living in Northern Italy and Unhealthy Food Behaviors Associated to Overweight. *Nutrients.* 2018; 10: 1322-1334.
6. Naja F, Hwalla N, Hachem F, Abbas N, Al Zahraa Chokor F, Kharroubi S, et al. Erosion of the Mediterranean Diet among Adolescents: Evidence from an Eastern Mediterranean Country. *Br J Nutr.* 2021; 125: 346-356.
7. Wilkins E, Wilson L, Wickramasinghe K, Bhatnagar P, Leal J, Luengo-

- Fernandez R, et al. European Cardiovascular Disease Statistics, 2017. Brussels, Belgium: Logstrup, European Heart Network. 2017; 1-188.
8. Raleigh VS. Trends in life expectancy in EU and other OECD countries. Why Are Improvements Slowing? OECD Health Working Papers. 2019.
 9. Gornitza CP. Obesity isn't an unstoppable trend -here's what we can do differently In: The World Economic Forum Annual Meeting. 2020.
 10. Kern DM, Auchincloss AH, Steher MF, Diez AV, Moore LV, Kanter GP, et al. Neighborhood prices of healthier and unhealthier foods and associations with diet quality: evidence from the Multi-Ethnic Study of Atherosclerosis. *Int J Environ Res Public Health*. 2017; 14: 1394.
 11. World Health Organization Regional Office for Europe: European Food and nutrition Action Plan 2015-2020. In Proceedings of the 64th Session Regional Committee for Europe. WHO Regional Office for Europe, Copenhagen, Denmark, 15-18 September 2014.
 12. Portuguese consumers' attitudes towards food labelling (2017). Copenhagen: World Health Organization; 2018 Jun.
 13. Volpe R, Predieri S, Cianciabella G, Daniele GM, Gatti E, Magli M, et al. EWHETA (Eat Well for a Healthy Third Age) Project: novel foods to improve the nutrition in the elderly people. *Agin Clin Exp Res*.
 14. Marathe PH, Gao HX, Close KL. American Diabetes Association standards of medical care in diabetes. *J Diabetes*. 2017; 9: 320-324.
 15. Pierce JS, Aroian K, Caldwell C, Ross JL, Lee JM, Schifano E, et al. The ups and downs of parenting young children with type 1 diabetes: crowd sourcing study. *J Pediatr Psychol*. 2017; 42: 846-860.
 16. United Nations Convention on the Rights of the Child. Adopted and opened for signature, ratification and accession by General Assembly resolution 44/25 of 20 November 1989 that entered into force 2 September 1990, in accordance with article 49.

Cite this article

Roberto V, Natasa J, Massimo V, Paolo B, Matija C, Rita B (2021) Doctors, Teachers, Students, Film-Makers, and Journalists Allied in Cardiovascular Prevention. *Ann Public Health Res* 8(1): 1105.