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## Engaging adolescents in developing health education interventions: a multidisciplinary pilot project

Irene Psaroudakis<sup>1</sup>, Filippo Quattrone<sup>2</sup>, Lara Tavoschi <sup>2</sup>, Erica De Vita<sup>2</sup>, Silvia Cervia<sup>1</sup>, Rita Biancheri<sup>1</sup>, Pietro Luigi Lopalco<sup>2</sup>

<sup>1</sup> Department of Political Science, University of Pisa, Pisa, Italy

<sup>2</sup> Department of Translational Research and New Technologies in Medicine and Surgery, University of Pisa, Pisa, Italy

**Correspondence:** Lara Tavoschi, via San Zeno 37, 56123 Pisa, Italy, Tel: +39 348 366 6817, Fax: +39 050 2213575, e-mail: [lara.tavoschi@unipi.it](mailto:lara.tavoschi@unipi.it)

Adolescents engagement is fundamental to develop dedicated educational interventions. We piloted non-standard sociological methodology to assess risk perception, information sources and perceived educational needs of a group of Italian adolescents focusing on three infectious diseases. Three high-school classes students participated in a World Café event. A thematic analysis was performed. Participants showed lack of knowledge on diseases prevention. Family and school were key health information sources and social media considered unreliable. Future interventions preferences included interactive and informal sessions. We showed the utility of non-standard sociological methods to assess health knowledge among adolescents and enhance the design of dedicated interventions.

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### Introduction

Adolescents are considered a population at higher risk for some infectious diseases such as sexually transmitted infections and meningitis.<sup>1</sup> They have, however, reduced perception of infective risk, lack of knowledge on infectious disease prevention and reluctance in accessing mainstream primary care services.<sup>2–4</sup> According to a recent study, health literacy is linked to adolescents' health behaviours<sup>5</sup> and would need to be increasingly considered as part of school curriculum.

The World Health Organization has identified in adolescents' health literacy and participation in planning, monitoring and evaluation of health services two of the key standards to improve their quality of care.<sup>4</sup> Yet, evidence on reproducible models involving adolescents in the design of educational interventions is limited and is recognized as a research gap.<sup>6</sup>

Among existing traditional methods (e.g. focus group, questionnaire and interviews) few have been applied to participatory research with adolescents.<sup>6</sup> However these may be complex and potentially biased by pre-existing professional knowledge.<sup>7,8</sup> Non-standard qualitative methods, such as the World Café, has proven to be a more suitable instrument in participatory research for its potential to generate insights

minimizing barriers and has been successfully used in different healthcare settings targeting diverse populations, although seldom with adolescents and youth.<sup>7–9</sup> World Café is a simple conversational process used to engage people in meaningful group dialogue on complex issues, where all participants are regarded as experts of their own lived experience and experiential knowledge.<sup>8</sup>

Here, we report the results of a multidisciplinary pilot project, integrating public health and sociological competencies to assess the suitability of world café as a participatory health research method for youth. We engaged Italian high-school adolescents to inform the design of a school-based health education intervention on the prevention of infectious diseases, by assessing their perception of risk, sources of information and perceived educational needs towards human immunodeficiency virus (HIV), human papilloma virus (HPV) and meningococcal meningitis (MM).

### Methods

Two high schools in Pisa (Italy) were invited to take part in a 1-day World Café event on infectious disease prevention; three classes participated with a total of 39 students, 23 females and 16 males,

aged 14–16 years old. A café ambience was created to facilitate conversation.<sup>7</sup> Three infectious diseases relevant to adolescent health, namely HIV, HPV and MM were chosen as ‘indicator diseases’ and investigated. Students were informed of the scope of the activity and randomized in nine groups (one per each table) of four or five people each, to minimize daily dynamics of social interaction and to mix pupils from different classes. To allow participants to contribute on all topics, three 20-min discussion rounds were organized (additional and more detailed information on the methodology could be found in the Supplementary data). A project team member acted as ‘table host’ to moderate the discussion. Participants were encouraged to write down disease-related keywords and these were used to stir the conversation.

Three main themes were explored for each disease: (i) perception of risk, (ii) sources of information and (iii) perceived educational needs. A qualitative analysis was performed based on table hosts’ reports and participants’ written contributions. Using a thematic analysis approach, the collected data have been interpreted following the identification of semantic codes by disease: the semantic units detected allowed the reconstruction of a conceptual

framework (see the Supplementary data). Ethics approval was not required for this study, as per ethics committee regulation. (University of Pisa Ethics Committee regulation is available here: <https://alboufficiali.unipi.it/wp-content/uploads/2017/12/regolamento.pdf>) Data were collected and analyzed anonymously.

## Results

The thematic analysis yielded the conceptual framework about the participants’ perception and awareness on HIV, HPV and MM presented in Table 1. The perception of risk and level of awareness among participants were different for the three diseases explored, but especially the perception of risk for all the diseases studied was low in our analysis. In general, students had more information about HIV than other diseases. HIV was perceived as a social issue, and participants considered themselves as a group at increased risk and highlighted the need for more information about access to test for minors. However, they reported inaccurate information on the disease, such as failure to recognize groups at higher risk or differences between HIV infection and acquired immunodeficiency

**Table 1** Thematic analysis

Thematic analysis Main semantic units	HIV	HPV	Meningococcal meningitis
<b>A. Risk perception</b>			
Young people as a risk group	-Awareness, youth are ‘the most affected category’		
Perceived barriers to HC service	-Access to HIV test (parents’ consent required for minors)		
Prevention	-Importance of condom, but difficulty in obtaining it -Importance to know own and partners’ health status, but challenges to access HIV test (see above) and to broach the subject with partners. -Confusion between contraceptive method choice and HIV protection	-Despite recognized as important, prevention of HPV infection is considered inadequate -HPV as a feminine matter -Prejudices	-Notion of importance to avoid closed places (but unawareness of the rationale). -Importance of vaccine and of vaccination status awareness.
Vaccine		-Awareness of the importance of vaccine, but only for girls.	-Awareness of the importance of vaccines (outbreaks in Tuscany), but unawareness of the rationale.
Attention	-Multidimensional concept: self-protection against both sexual-disease and unwanted pregnancy and selection of the partner (choice seen as a way to prevent the disease)		
<b>B. Awareness of disease</b>			
Misinformation	-Lack of knowledge of the antiretroviral therapy and difference between HIV and AIDS, but awareness of life expectancy improvement; -awareness of the knowledge gap, but lack of interest in some participants.	-Lack of specific information on HPV, its routes of transmission and symptoms.	-General lack of information, that may result in missed opportunities for vaccination.
Stereotypes	-Homosexuals, socially deprived people, people originating from Africa were considered the main reservoir of the disease.	-Socially deprived people, people from underdeveloped countries and with sexual promiscuity were considered the main reservoir of the disease	
Gender stigma		-Feminine issue -Lack of knowledge among males	
<b>C. Feeling towards the disease</b>			
Fear	- Cause of death and social exclusion, limiting life.	-Cause of death (linked to cancer)	-Cause of death (fear increased by media)
Saturation	-Associated with frequent school-based information campaigns.		
Embarrassment		-Stronger than for HIV	
Marginalization	Social exclusion	Social exclusion	
<b>D. Sources of info</b>			
Lack of info		-Unawareness, specifically in young males	-Only information about vaccination
Social media and internet	-Social media are perceived as a source of unreliable news -Scientific websites are perceived as influential but inadequate for adolescents (formal and incomprehensible language)	-Lack of information	Unreliable news
Traditional media	-TV series	-Minimal engagement in health campaign	-Sensational news

syndrome (AIDS; Table 1). MM and HPV-related diseases were scarcely known by participants and primarily associated to vaccination. HPV was considered to affect only women.

Primary groups (family and school) were reported to be the main sources of information, more than group of peers (friends), while parents were fundamental in influencing immunization choices. Healthcare personnel were not regarded as a possible source of health-related information due to reported inadequate dialogue with the doctor (low interactional quality). Social media were not considered as reliable tools to obtain information, but rather as a source of fake news.

Students generally wanted to increase their knowledge about diseases they may be at risk of acquiring. Adolescents recognized the importance of the school, but asked for tailored and more interactive approaches to health education in this setting. Working in small groups with experts was perceived positively and considered more interesting than standard lecturing. Students encouraged the use of visuals, infographics and epidemiological data pertinent to their geographical area. A number of different interlocutors (doctor, teacher, educated peer, testimonial and patients) were deemed important; however, participants reported a need for empathy, personal involvement and attention to adolescents' experience in order to establish an interactive dialogue.

## Discussion

This pilot study aimed at exploring perception of risk, sources of information and perceived educational needs regarding communicable diseases among Italian high-school students, focusing on three 'indicator diseases'. Our findings show that the level of knowledge (e.g. symptoms, transmission routes) has proved slightly better for HIV and risk perception among this population group may be low,<sup>3</sup> irrespective of the disease studied. We also described the presence of stereotypes (albeit disease-specific) and barriers experienced by adolescents to obtain accurate information or to access healthcare services<sup>2</sup> (e.g. HIV testing services).

While primary groups were recognized as a key source of information, participants considered as inadequate traditional sources of communication (media, health campaigns) and professionals. This could be explained by the reported unmet need for tailored and adolescent-friendly information as well as low level interest in exploring reliable sources. According to published evidence,<sup>5</sup> adolescents' health literacy was positively associated to parents' education and income, while no meaningful relationship was reported with use of media or internet-based sources. In line with these findings, participants considered social media as unreliable, with particular relevance for MM. This was probably due to a recent disease outbreak that occurred in Tuscany in 2015–17<sup>10</sup> that led to anxiety among the residents and stepped up demand for vaccination.

Although derived from a single-centre pilot study, our findings clearly indicate the need to engage adolescents in the design of school-based interventions to improve their impact. We can't rule out that table hosts' perceptions and approaches may have influenced the discussion or the information recorded in ways that are challenging to account for.

This study confirmed that non-standard sociological methods are acceptable and may be used to effectively engage adolescents in participatory health research.<sup>9</sup> The World Café is a low cost and easily reproducible technique that can help exploring sensitive topics and obtaining youth's personal opinion, assessing, at the same time, young population needs. In particular, we showed important knowledge gaps related to infectious diseases among a group of Italian urban adolescents and identified preferences for future health education initiatives.

## Supplementary data

Supplementary data are available at *EURPUB* online.

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*Conflict of interest:* The authors have no conflict of interest to declare.

## Key points

- This pilot project showed the value of non-standard methodology (World Café) in engaging adolescents.
- The integration of medical and sociological competencies was essential in the development of the approach and in conducting data analysis and interpretation.
- World Café is an innovative, reproducible and low cost approach to assess perception of infectious diseases-related risk and educational needs among adolescents and to plan the design of dedicated health education interventions.

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