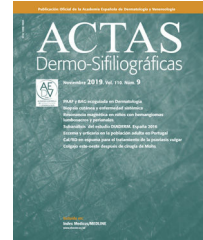




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CASE AND RESEARCH LETTER

[Translated article] School-based Educational Intervention to Prevent Sexually Transmitted Infections



Programa de intervención escolar para la prevención de las infecciones de transmisión sexual

To the Editor,

Sexually transmitted infections (STIs) are a broad group of diseases that include not only infectious processes but also neoplasms and immune disorders.¹ The prevalence of STIs is increasing due to the reappearance of diseases that were under control in the twentieth century and a widespread impact among individuals under 25 years of age,² with adolescents being the main risk group due to lack of care in sexual practice, excess confidence in themselves, and deep-rooted myths.³ In Spain, an increase in the incidence of gonococci, syphilis, and *Chlamydia trachomatis* was detected between 1995 and 2018, with a particularly marked increase between 2016 and 2018. By age and sex, the rates were higher in men and for those aged 20–24 years, followed by those aged 25–34 years, with an increase in the group aged 15–19 years compared with previous reports also apparent.⁴ The objective of this study consisted of analyzing the awareness of adolescents about STIs, implanting an educational program, and assessing its effectiveness.

A quasi-interventional study was conducted (before and after, with no control group) with an educational intervention in a group of students in their second year of the baccalaureate in 2 high-schools, one a private, religious college in Granada, Spain, and the other a state school in the province of Almería, Spain. Initially, the students filled out an ad hoc survey of their general knowledge of STIs. Subsequently, a talk and workshop were imparted (focused on those aspects that were most difficult for the youngest participants to understand and perceive⁴). One week later, the participants took the survey again. The epidemiological

characteristics were first described descriptively; subsequently, χ^2 and Fisher exact tests were applied for statistical analysis.

There were 79 students who participated (32 males and 47 females, aged between 16 and 18 years of age). Of all the surveys completed, 79 corresponded to before the educational intervention (53.7%) and 68 to after the intervention (46.3%). Some aspects of the pre-interventional survey should be highlighted: 98% of students listed HIV as an STI, but very few mentioned gonorrhoea and syphilis, and none mentioned *Chlamydia*, *Molluscum contagiosum*, or scabies. Fewer than 10% mentioned oral or anal sex as a transmission route. After analysis of the surveys before and after the educational intervention, we found an improvement in terms of knowledge acquisition for most items, such as increased mention of genital herpes (75.9% vs. 98.5%, $P < .0001$), scabies (44.3% vs. 97.1%, $P < .0001$), and genital warts (60.8% vs. 94.1%, $P < .0001$) as STIs. Our study demonstrated an increase in optimum responses with respect to anal (1.3% vs. 61.8%, $P < .0001$) and oral (7.6% vs. 72.1%, $P < .0001$) routes of transmission. Likewise, most students (70.9%) were aware before the intervention that STIs are always contagious, even in absence of symptoms. After the workshop, 95% gave the correct answer. There were no significant differences by sex.

Currently, most adolescents surveyed have basic notions about some STIs (AIDS, gonorrhoea, syphilis) and routes of contagion,^{5,6} and they also recognize the condom as the main preventive method (ruling out hormone contraceptives or the intrauterine device for this purpose). This last item reflects an improvement in the level of knowledge about prevention compared with data obtained from other studies on the use of the day-after pill,⁷ as a contraceptive method and also erroneously considered as preventive of STIs.⁸

With regards the mechanisms of sexual transmission, a non-negligible number of students mentioned saliva, air, or public baths, before the intervention. These data are in line with those obtained by Callejas Pérez et al.,⁹ who, regarding HIV transmission, found that students reported both sexual relationships and parental routes as well as saliva exchange or contact with an individual with HIV infection without exchange of body fluids as a mechanism of transmission.

Regarding the different signs and symptoms of STIs, more than 94% of those surveyed before the talk recognized the possibility of contracting an STI without clinical symptoms,

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the so-called asymptomatic patients, coinciding with the results of Tizón Bouza et al.¹⁰

We conclude that our intervention led to an improvement in acquisition of knowledge and attitudes toward STIs. The participants showed an increase in the recognition not only of different infections but also in the most frequent routes of contagion. Adolescents came to perceive themselves as a population at risk, and they recognized the opportunity to resort, when faced with doubts, to organizations specialized in these diseases, such as the STI centers spread throughout the country, and obtain information from campaigns designed by the Spanish Academy of Dermatology and Venereology (AEDV) for the control of STIs. This educational intervention could be used as a model for primary and secondary prevention of STIs among adolescents. It could be extended both geographically and in time, to allow study of attitudes and behavior, with knowledge of the extent of awareness and behaviors of the target population being necessary prior to the intervention. We should also mention the limitations of the study: lack of a control group and the limited number of patients, and the samples may not be representative of the target population. We believe that this type of educational intervention, although effective among baccalaureate students, should be undertaken at earlier ages, before starting sexual relations, when behavioral patterns and attitudes about sexuality have yet to fully form.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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