

Implementation of the “Unplugged” School-based Prevention Programme in Nigeria: Results of Process Evaluation

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ABSTRACT

Process evaluation can improve the quality of program implementation and the achievement of program outcomes. This paper aims to describe the fidelity of implementation of the school-based prevention program 'Unplugged' in Nigeria, i.e., the degree to which the intervention was delivered as intended, and the satisfaction of teachers and students. The program aims to prevent tobacco, alcohol, and substance use and consists of 12 standardized units, one-hour each, delivered by class teachers. Sixteen schools implemented the program. Eleven schools, 33 classes, 27 teachers, 993 students provided process evaluation data. Eighty-two percent of classes implemented the entire program, with lower rates of activities implementation at the beginning and at the end of the program. Each unit took on average 55 minutes. More than 90% of teachers perceived high students' interest for units 1, 4, 5, 8, and 9, high interactivity for units 1, 2, 8, and 9, and declared high comfort in implementing most units. About 80% of teachers reported an improvement in knowledge, teaching skills, and relationships with students due to the

program. More than 75% of students declared the program changed their way of seeing themselves, was helpful to answer questions about themselves, and improved their relationships with mates and teachers. About 95% of students reported an increase in knowledge of the consequences of substance use. Students declared Unplugged educative, informative, helpful, impacting on change, interesting and suggested the program should be spread to other schools.

Keywords: Process evaluation; fidelity of implementation; satisfaction; Unplugged; Nigeria.

INTRODUCTION

Process evaluation is used to monitor and document program implementation, and the satisfaction of the implementers and the receivers in order to improve the quality of the implementation and the program outcomes. It is recognized that the level of implementation affects the outcomes of health promotion and prevention programs (Dusenbury, 2003; Durlak, 2008), therefore verification of implementation has become incorporated into the standards of evidence in prevention (Gottfredson, 2015). Suggested elements for process-evaluation plans include fidelity and adherence (i.e., the degree to which an intervention is implemented as intended by the program developers); dose (i.e., the level of implementation of the program, often thought as the number of sessions delivered and received); adaptations (i.e., the degree to which the program's methods and content are modified to make the intervention developmentally and culturally relevant); quality of delivery (i.e., the degree to which the intervention is delivered in a manner likely to have an

impact on goals and objectives); student responsiveness and engagement or interactivity (i.e., the degree to which participants are appropriately involved in intervention tasks); and finally reach, recruitment, and context (Dusenbury, 2003; Saunders, 2005; Steckler, 2002; Combs, 2022). Comments from the implementers and the participants are also considered essential to identify critical steps and build improvement strategies and can be used to understand the reasons for the effect or of the lack of effect of a program (Baranovsky, 2000; Steckler, 2002; Bouffard, 2003).

'Unplugged' is a school curriculum developed and evaluated in the multicentric European trial EU-Dap (European Drug Addiction Prevention, www.eudap.net). It consists of 12 standardized units, one-hour each, delivered by class teachers to adolescents of curricular grades corresponding to 12- 14 years of age (Table 1). It combines social competence and social influence approaches: social competence refers to the social, emotional, and cognitive skills and behaviors that children need for successful social adaptation (Rose-Krasnor, 1997; Dirks, 2007), whilst

social influence is a concept extensively studied since the '50s (Deutsch, 1955; Kelman, 1958) referring to the way in which individuals adjust their behavior to meet the demands of a social environment. In Europe, the Unplugged program was effective in reducing tobacco, cannabis, drunkenness

episodes, and alcohol-related problems (Faggiano, 2008; Faggiano, 2010; Caria, 2011).

In 2013, the United Nations Office on Drugs and Crime (UNODC), jointly with the collaboration of the Government of Nigeria, implemented a large-scale project funded by the European Union

Table 1. The 12 Unplugged units, their activities, goals and comments from process evaluation in Nigeria

| UNIT | TITLE | ACTIVITIES | GOALS | COMMENTS FROM PROCESS EVALUATION |
|------|---|---|--|---|
| 1 | Opening UNPLUGGED | Presentation programme, group work, contract management, homework | <i>Introduction to the programme, setting of the objectives and rules for the lessons, reflecting on knowledge on drugs</i> | <ul style="list-style-type: none"> - Spacious environment is needed for group work - Sparse papers and students' handbooks can be useful - Set enough time for the unit - Support is needed for students with low writing and learning levels |
| 2 | To be or not to be in a group | Situation play, plenary discussion, game | <i>Clarification of group influences, dynamics, and expectations</i> | <ul style="list-style-type: none"> - Spacious environment is needed for group work - Set enough time - Can be difficult for students playing a negative role in the role-play |
| 3 | Choices-alcohol, risk and protection | Plenary discussion, group work, collage, game | <i>Information on different factors influencing drug use</i> | <ul style="list-style-type: none"> - More data and information on alcohol effects - Set enough time - More activities to maintain students' interest |
| 4 | Your beliefs, norms and information: do they reflect reality? | Presentation, plenary discussion, group work, game | <i>Fostering critical evaluation of information, reflection on differences between own opinion and actual data, correction of norms, achieving realistic estimation of peer drug use</i> | <ul style="list-style-type: none"> - More data and information - Simplify the data presented - Set enough time |
| 5 | Smoking the cigarette drug - inform yourself | Quiz, plenary discussion, game, feedback | <i>Information on effects of smoking, differentiation of expected vs. real effects and short-term vs. long-term effects, discussion on why people smoke even though they know damaging effects</i> | <ul style="list-style-type: none"> - Set enough time |
| 6 | Express yourself | Game, group work, plenary discussion | <i>Adequate communication of emotions, distinguishing between verbal and nonverbal communication</i> | <ul style="list-style-type: none"> - Set enough time - More activities to maintain students' interest - More activities interesting for girls |
| 7 | Get up, stand up | Plenary discussion, group work, role play | <i>Fostering assertiveness, respect for others, stand up for rights</i> | <ul style="list-style-type: none"> - Set enough time |
| 8 | The Socialite | Role play, game, plenary discussion | <i>Recognition and appreciation of others' positive qualities, acceptance of positive feedback, practising and reflection on getting into contact with others</i> | <ul style="list-style-type: none"> - Set enough time - Set enough papers |
| 9 | Drugs - get informed | Group work, quiz, game | <i>Information on effects and risks of drug use, and on sources of accessible information on drugs</i> | |

(EU) to support Nigeria's efforts in fighting drug production, trafficking, and use, and in curbing related organized crime, including counterfeit narcotics and psychotropic substances, a key outcome related to promoting healthy

lifestyles in schools, families, and communities. The project was organized in partnership with the Federal Ministry of Education (FMOE), the National Drug Law Enforcement Agency (NDLEA), and the National Agency for Food and Drug

Administration and Control (NAFDAC). Within the project, the prevention program 'Unplugged' was implemented and tested through a randomized controlled trial. Results of the trial showed that Unplugged significantly reduced the prevalence of recent alcohol use, reduced marijuana use among younger pupils, increased beliefs on harmful consequences of drug use, corrected the excessive perception of peers' substance use, and improved class climate (Vigna-Taglianti, 2021).

This paper SET OUT To describe the fidelity of implementation of the Unplugged program in the intervention schools participating in the project in Nigeria, and the satisfaction of teachers and students with the program.

METHOD

Thirty-two schools extracted from a list of 60 federal schools available to participate in the project and provided by the Federal Ministry of Education (FMOE) of Nigeria, were randomly allocated to intervention (Unplugged program) and control arm (usual curriculum). Sixteen schools (1790 pupils) were allocated to the intervention arm and were invited to fill in the process evaluation forms.

The participation in the project was submitted to the internal review board of each school. Schools informed parents of their participation in the study and asked for their consent. Students were informed about the objectives of the study and provided assent to participate before filling out

the pre-test questionnaire.

To monitor program implementation and fidelity, the class teacher was asked to fill in a self-completed form for each Unplugged unit. The form included information on the date of implementation of the unit, students participating, the time needed and the activities implemented, an assessment of students' interest, interactivity level, how comfortable the teacher felt teaching the unit, and comments on the work of the unit.

To monitor teacher satisfaction with the program, the class teacher was asked to fill in a questionnaire at the end of the program. The questionnaire included items on overall satisfaction, things the teacher liked the most and the least, perceived improvement of drug prevention knowledge and teaching skills, perceived improvement of relationship with students and group climate, the usefulness of the teacher handbook, of the training and of the help desk service, the intention to conduct Unplugged the year next, and any comment and suggestions. To monitor student satisfaction with the program, an evaluation session was scheduled at the end of the last Unplugged unit. Students were asked to fill in a self-completed anonymous paper questionnaire including items on overall satisfaction, things and units the pupil liked the most and the less, if the program helped to answer questions about oneself, if changed the way to see oneself, the perceived improvement of knowledge on consequences of using cigarettes, alcohol and other drugs, the perceived improvement of the relationship with

mates and teachers, if the pupil would you like to have a similar program again, and any suggestion or comments.

The forms used to assess program implementation, teachers', and students' satisfaction were previously developed by the European study group and used for process evaluation in the EU - Dap replication trials (www.eudap.net). A pilot study was conducted in 2 classes of a school in Abuja in May 2015. The results of the pilot phase were taken into account to finalize the adaptation of the forms.

The process evaluation was performed between December 2015 and May 2016.

Eleven out of sixteen intervention schools (69%) participated in the process evaluation. Data on program implementation were available for 33 classes. Satisfaction questionnaires were filled by 27 teachers and 993 students (60% of follow-up participants and 72% of those participating to both baseline and follow-up evaluation surveys of the randomized controlled trial). The sample of process evaluation respondents was similar to non-respondents as regards gender, age, family composition,

cigarettes smoking, cannabis use, and school climate indicators. However, it included a higher proportion of past month alcohol users, and a lower proportion of pupils of high socioeconomic level, i.e., those having several cars and several computers in the family. Moreover, no process monitoring data were received from some geopolitical zones: FCT, South West and Lagos. Therefore, the implementation and satisfaction data are not representative of these territories.

RESULTS

Fidelity of Implementation

Twenty-seven classes (81.8% of those providing data on units' implementation) implemented the entire program (12 units), 2 classes (6.1%) implemented 11 units, one (3.0%) implemented 10 units and 3 classes (9.1%) implemented 9 units.

Six units, that is unit 3 (Choices-alcohol, risk, and protection), 5 (Smoking the cigarette drug), 6 (Express yourself), 7 (Get up, stand up), 8 (The Socialite), and 9 (Drugs - get informed) were

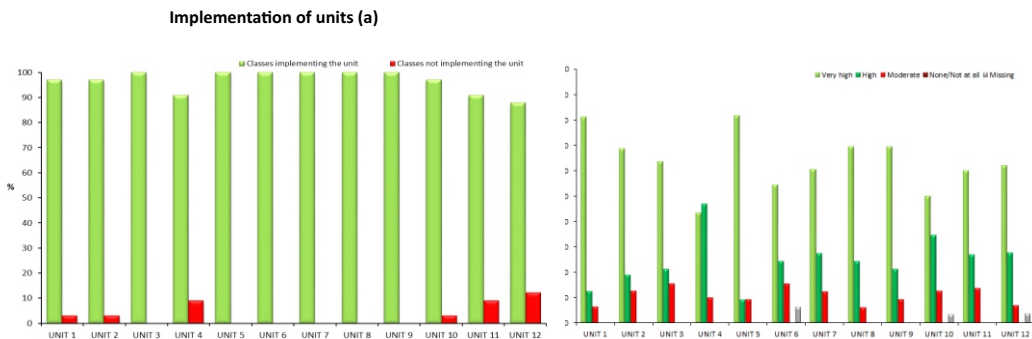


Figure 1. Implementation of units and indicators of implementation's success

implemented by 100% of classes providing data (Figure 1a). Three units, that is, Units 1 (Opening), 2 (To be or not to be in a group), and 10 (Coping competencies) were implemented by 97% of the classes. Units 4 (Your beliefs, norms, and information) and 11 (Problem-solving and decision making) were implemented by 90.9% of classes, and unit 12 (Goal setting) by 87.9% of classes. The rate of implementation of the units was lower at the beginning and at the end of the program. Half of the teachers filling out satisfaction forms declared the program was time-consuming and the time allocated was not enough: this could explain the problems encountered in completing the last three units. Another comment frequently reported was the need to have more materials: this could explain the difficulties encountered in the implementation of unit 4 focused on drug use data.

The implementation of the units took an average of 55 minutes. The units requiring the highest duration were Unit 2 (59 minutes) and Unit 3 (58 minutes), and those requiring the least duration were Units 7 and 9 (about 53 minutes).

Teachers provided some comments and suggestions for a better

implementation of the program (Table 1). For all units, they suggested setting enough time for the implementation, and for the units that include group works and role plays to have a spacious environment. Papers and students' handbooks can be useful, in addition to the Unplugged workbook. The teachers should be prepared to support students with low writing and learning levels. More data and information on drugs are asked, and in the case of statistics on use, a simplification of the data presented is suggested. Special attention should be played to maintain students' interest, to involve girls, and to explain the objectives of the units especially when students are asked to play a negative role in the role-plays. Teachers reported good experience in celebrating the end of Unplugged with special biscuits or meals.

Students' interest was perceived as very high or high by more than 90% of teachers in the case of Units 1 (Opening), 4 (Your beliefs, norms, and information), 5 (Smoking the cigarette drug), 8 (The Socialite) and 9 (Drugs - get informed) (Figure 1b). Units 6 (Express yourself) and 10 (Coping competencies) were perceived by the teachers as those with the lowest level of students' interest.

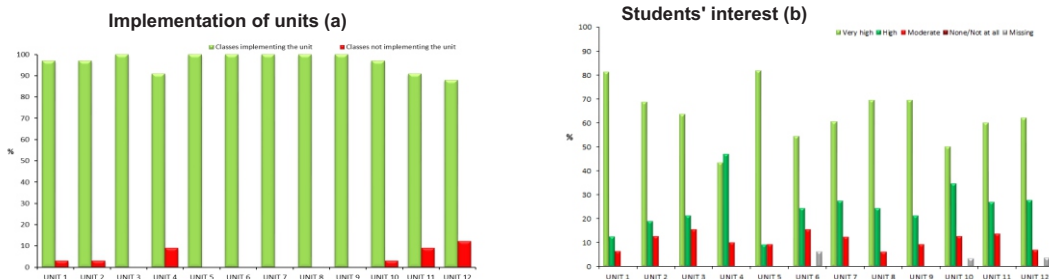


Figure 1. Implementation of units and indicators of implementation's success

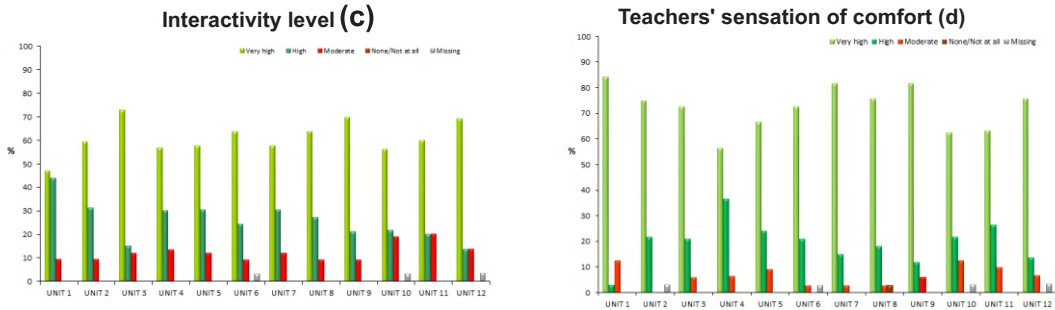


Figure 1 . Implementation of units and indicators of implementation's success

Interactivity level was judged very high or high by more than 90% of teachers in the case of Units 1 (Opening), 2 (To be or not to be in a group), 8 (The Socialite), and 9 (Drugs - get informed) (Figure 1c). Unit 10 (Coping competencies) and 11 (Problem-solving and decision-making) were considered of moderate levels of interactivity respectively by 18.8% and 20% of the teachers.

For all Unplugged units, except Units 1 (Opening), 10 (Coping competencies), and 12 (Goal setting), more than 90% of teachers reported a very high or high comfort level in the implementation (Figure 1d). One teacher reported no comfort at all in implementing Unit 8 (The Socialite).

Perceived Outcomes of Program Participation

More than 80% of teachers declared an improvement of knowledge about drug prevention due to their participation in the project, and 78.8% an enrichment of their teaching skills. About 80% of teachers perceived an improvement in the relationship with the students and in group climate. The Teacher's Handbook was considered very supportive in conducting the

Unplugged units by 57.6% of the teachers, and supportive by 21.2% (overall 78.8%).

More than 90% of students considered Unplugged very helpful to answer questions about themselves and their choices and more than 80% declared the program changed the way of seeing themselves. About 95% of students perceived an improvement in knowledge of the consequences of using cigarettes, alcohol, and drugs. Eighty percent of students perceived an improvement in their relationship with mates, whilst the relationship with teachers was reported as improved by a slightly lower proportion of students (76.9%). All the students would like to have a program like Unplugged again in later school years.

Students' Comments

About ninety percent of students filling out the satisfaction questionnaire provided comments or suggestions. Comments were mostly positive. Students declared Unplugged educative, informative, helpful, impacting on change, and interesting and suggested the program should continue and spread to other schools. Some of them expressed words of thanks and blessing.

Negative comments regarded the

need to add activities both external and internal to the program and to add more information and material. Four percent of pupils suggested it would be better organized and only 1.4% of pupils declared it not useful or not interesting.

DISCUSSION

To our knowledge, this is the first study conducted in Nigeria to evaluate the effectiveness and the process outcomes of a school-based program for preventing the use of tobacco, alcohol, and drugs among adolescents. The analysis of process evaluation data showed that the program was feasible and obtained good results in terms of the satisfaction of teachers and students. The large majority of classes implemented the entire program. A very high proportion of teachers perceived high levels of students' interest, interactivity, and comfort in implementing Unplugged units. Most teachers reported an improvement in knowledge of drug prevention, an enrichment of teaching skills, and improvements in the relationship with students. Students considered Unplugged very helpful to answer questions about themselves, declared the program changed the way of seeing themselves, and improved their relationships with mates and teachers. Most students reported an increase in knowledge of the consequences of substance use.

Implementation rates of Unplugged units were very good and higher than reported in previous studies on the same curriculum (van der Kreeft, 2009;

Medeiros, 2016), and on other prevention curricula (Ennett, 2011; Trigwell, 2015; Bast, 2019). Since only 70% of schools provided process evaluation data, we acknowledge the possibility that this result could be due to self-selection of the most motivated teachers and classes. However, the differences emerging from the analysis of respondents vs non-respondents do not actually support this hypothesis. On the other side, if the sample of participating classes was instead representative of the overall sample, as it appears, this would demonstrate that a good implementation of a 12-unit prevention program is possible and that teachers in developing countries are highly motivated to implement a program if well-designed material is provided. Moreover, it is well known that evidence-based prevention programs are often not implemented as they were designed (Dusenbury, 2003; Lynas, 2017; Schaap, 2018), so this result is particularly reassuring. Finally, since the level of implementation affects the outcomes of prevention programs (Dusenbury, 2003; Durlak, 2008; Bast, 2019), the good implementation rate could partly explain the effectiveness results observed in the randomized controlled trial (Vigna-Taglianti, 2021). Indeed, when restricting the intervention classes to those implementing at least 9 units, a better result in terms of reduction in the prevalence of past 30 days alcohol users was observed. For alcohol use at least once in the past 30 days, the model estimated an adjusted OR=0.54 (95%CI: 0.38-0.77) vs the adjusted OR=0.72 (95%CI: 0.53-0.98) obtained for the

entire sample of intervention vs control pupils; for regular alcohol use (6 or more times), adjusted OR=0.52 (95%CI: 0.31-0.86) vs adjusted OR=0.66 (95%CI: 0.44-1.00); and for daily alcohol use (20 or more times), adjusted OR=0.48 (95%CI: 0.24-0.97) vs adjusted OR=0.62 (95%CI: 0.35-1.08). For these analyses, we replicated the methods used in the original effectiveness paper (Vigna-Taglianti, 2021). These results support the importance of maintaining fidelity in the implementation of this kind of school-based prevention program in order to obtain the highest benefit.

Lower rates of implementation were observed at the beginning and at the end of the program. The first could be due to difficulties in starting the program, however once started, the implementation of units and activities was good. The second could be due to difficulties experienced by the teachers at the end of the school year, with delays in completing the regular school curriculum likely influencing the implementation of other activities. Similar difficulties were observed in the European trial and in the evaluation study conducted in Brazil (van der Kreeft, 2009; Medeiros, 2016). This suggests that schools adopting the program need to undertake special efforts at the beginning of the school year to schedule the units taking into account all possible difficulties that can occur.

The implementation of the units required on average 55 minutes, more than the standard lesson time of 50 minutes foreseen, but less than what was experienced in other contexts (e.g.,

60 minutes in the European trial, 64 minutes in Brazil) (van der Kreeft, 2009; Medeiros, 2016). Shortage of time to implement this kind of intervention is a recognized factor associated with lower fidelity of implementation (Combs, 2022), therefore this result should be taken into account in scaling up the program in the country.

The improvement of the relationship with students and of group climate perceived by the large majority of teachers during the implementation of Unplugged, and confirmed by students, is a commonly reported finding, since the first European trial. This result from process evaluation is consistent with the statistically significant improvement in class climate observed in the intervention vs control pupils both in the Nigeria trial (Vigna-Taglianti, 2021) and in the EU-Dap trial (Giannotta, 2014) and reported also for other school-based interventions (Hawkins, 2001; Catalano, 2004; Wenzel, 2009). Coherent with previous literature showing that school climate and school bonding are protective factors against substance use (Catalano, 2004; Wenzel, 2009), in the present Nigeria trial the improvement of class climate mediated the effect of the Unplugged program on alcohol use (Vigna-Taglianti, 2021), but this did not appear to be related with the fidelity of implementation.

As regards students' outcomes, despite being self-reported and not compared with the control group, the increase in knowledge on the consequences of substance use appears of particular importance and re-assuring. According to the data collected in the baseline survey preceding the start of the program,

indeed, knowledge of the health consequences of use was quite low among these students, indicating a need for information and health awareness (Vigna-Taglianti, 2019).

This study has some limitations. Only a sample of participating schools, teachers, and students provided process evaluation data, and no data at all were received by FCT, South West, and Lagos. It is possible that the sample of teachers and students filling the process evaluation forms were those more motivated, and so positively selected. Some outcomes were self-perceived and self-reported by the same teachers who conducted the program: it is possible that these results were positively biased. On the other side, the study has some strengths: it was conducted on a large sample of students. The student questionnaire was anonymous, and this should ensure the sincerity of answers. Some data reported by teachers and students were confirmed by the formal comparison of the same indicators in intervention and control pupils in the randomized controlled trial.

Process evaluation should be always included in projects evaluating the effectiveness of interventions. Difficulties in implementing the foreseen activities as emerged from process evaluation can be taken into account and solved with appropriate interventions in the next round of implementation, so increasing fidelity. Comments of teachers and students can be useful to improve the quality of the implementation, likely improving the expected outcomes. Results of the

process evaluation should be always back reported and discussed with the involved teachers, building together strategies for improvement.

The results of this study, together with the outcome results, will inform decision makers for the program dissemination in Nigerian schools by providing data on the program's feasibility and acceptability as well as possible suggestions to achieve good fidelity.

CONCLUSIONS

In conclusion, Unplugged reached in Nigeria good results in terms of implementation and satisfaction of teachers and students. Process evaluation should be always performed to improve the quality of prevention interventions, ensure program outcomes and inform decision-makers for a successful implementation of the program.

Lesson learned

Lower rates in the implementation of the activities occurred at the beginning and at the end of the program. This can suggest problems in starting the program and difficulties in completing it. In the first case, coordinators and trainers should support schools and teachers in planning the start. In the second case, by monitoring the units' implementation month by month, coordinators and trainers could identify difficulties and help the teachers to timely re-organize the calendar. Each unit took an average of 55 minutes: this should be taken into account in the future implementation of the program in

Nigeria. Teachers suggested having spacious environments for group work, providing papers for students, and carefully setting the time needed for the unit. Coherently with Nigerian culture and habits, both teachers and students suggested having biscuits or meals to celebrate the useful experience at the end.

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Contributors

Federica Vigna-Taglianti designed and conceptualised the Unplugged Nigeria trial and the present study. Peer van der Kreeft and Federica Vigna-Taglianti trained data manager, trainers and teachers. Harsheth Kaur Virk, Ann Ogbonna, Glen Prichard and Akanidomo Ibanga devised the project, implemented the study and coordinated the field work. Akanidomo Ibanga and Juliet Pwajok collected data. Federica Vigna-Taglianti, Ifeoma Nneka Emelurumonye, and Marta Alesina drafted the paper. Ifeoma Nneka Emelurumonye, Laura Donati and Emina Mehanović carried out the statistical analysis. All authors provided critical revision, contributed to and approved the final manuscript.

Declaration of interest

None to declare.

Ethical statement

The study was conducted following the principles of the Declaration of Helsinki. The protocol of the study including details on the study design, materials, instruments, randomization and procedures was submitted to the Institutional Review Board of the Federal Ministry of Education. Small amendments to the procedures were requested and applied. Schools informed parents of the participation in the study.

Students were informed about the objectives of the study and provided assent to participate before filling the pre-test questionnaire. The questionnaire was anonymous; once filled, the students deposited it in a box only the researchers had access to.

Data availability statement

The dataset used for the analyses includes records of anonymous questionnaires filled in May 2016 by secondary school students and teachers who participated in the Nigeria Unplugged project: 993 student questionnaires and 27 teacher questionnaires including information on satisfaction with the participation in the Unplugged prevention program.

Data are available under request.

Federica Vigna-Taglianti is responsible for the data.

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