

The Role of Teachers in the Correction of Descriptive Normative Beliefs

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BACKGROUND: Given that normative beliefs are associated with the use of addictive substances, their correction is necessary in prevention. **AIMS:** The main aim of our research was to examine the association between participating in the Unplugged programme and the correction of descriptive normative beliefs in the short and long term among schoolchildren in the Slovak Republic. It also looked into the moderating effect of gender in these relationships. **DESIGN AND MEASUREMENTS:** In the 2013/2014 school year, the Unplugged programme was implemented in the Slovak Republic. The study was a cluster randomized controlled trial with data collection immediately before the implementation of the programme (T1), three months after its implementation (T2), and 12 (T3) and 18 months (T4) after. Participation in the programme was monitored through three categories: an experimental group with committed teachers, an

experimental group with uncommitted teachers, and a control group. The experimental group was exposed to a drug prevention programme consisting of 12 lessons. **SAMPLE:** The research sample consisted of 497 schoolchildren (mean age 11.5, 40.4% boys). **RESULTS:** Participation in Unplugged in the group with committed teachers was associated with the probability of having a lower level of normative beliefs regarding the number of friends who get drunk at least once a week in the short and long term in comparison with the control group. However, no relationship was found between participating in Unplugged and a lower level of normative beliefs in the group with uncommitted teachers. The results also show gender-specific differences in descriptive normative beliefs. **CONCLUSIONS:** In addition to participation in a prevention programme, the correction of normative beliefs requires the role of a committed teacher.

Keywords | Drug prevention – Descriptive normative beliefs – Unplugged programme – Schoolchildren – Fidelity – Teachers' commitment

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● 1 BACKGROUND

The field of drug abuse prevention in the school environment has made significant progress in recent decades in identifying factors that support and inhibit the onset of drug use and the development of interventions (Dusenbury et al., 2003). Drug use is the consequence of social influence from peers or from the media (Botvin, 2000). Interventions that are based on social impacts and aim to develop personal and interpersonal skills using interactive techniques and include normative learning components have been found to be more effective than others (Gianotta et al., 2014). An effective approach to drug prevention consists of several components, including normative education that targets the correction of the misperception that most people use drugs (Botvin, 2000).

Descriptive normative beliefs concern an individual's convictions about other people's actions (Göckeritz et al., 2010). In the case of drug use, descriptive normative beliefs are related to the perceived quantity and frequency of peers' drug use (Cialdini et al., 1991). Schoolchildren are often convinced that the use of addictive substances is more frequent than is really the case. This overvaluation occurs regardless of whether they are close friends, best friends, or typical or average pupils. These descriptive norms and their misperception might be a strong predictor of drug use (Larimer et al., 2004). Many studies have pointed to the relationship between normative beliefs and various forms of risky behaviour (Olds et al., 2005; Olds & Thombs, 2001). These false normative beliefs are related to substance use and their correction can have an impact on personal substance use (Lewis & Neighbors, 2006). Pupils who were convinced that their peers used alcohol to a high degree reported higher alcohol consumption (McAlaney et al., 2015; Padon et al., 2016). Normative beliefs are also a significant predictor of one's future drinking behaviour (Sher, Bartholow, & Nanda, 2001). A perception that the prevalence of smoking among peers is high contributes to an increase in smoking among teenagers (Ellickson et al., 2003; Primack et al., 2007). Descriptive normative beliefs are also a significant predictor of frequent marijuana use (Buckner, 2013).

The correction of normative misperceptions can be achieved through providing students with information about the prevalence of drug use (Botvin, 2000). When pupils' own beliefs are confronted with the real frequency of drug use, it leads to a correction of their beliefs and can subsequently reduce the use of addictive substances (Moreira, Smith, & Foxcroft, 2009). Effective access to social norms should reflect the correction of the discrepancy between self-belief and other people's behaviour (Borsari & Carey, 2003). Studies have confirmed that preventive programmes can reduce the use of addictive substances if they include the correction of normative beliefs (Borsari & Carey, 2000; Walters & Neighbors, 2005). However, some studies have not confirmed the association between correcting misperception and a reduction of drug use (Wechsler et al., 2003; Clapp et al., 2003).

It is important to note that it is not only the component of normative education included in the preventive pro-

gramme which is important, but also the way in which the programme is implemented. The fidelity (the quality of implementation and adherence to its principles) of a prevention programme is a potential moderator of the relationship between interventions and their expected results and can greatly influence the results of a preventive programme (James Bell Associates, 2009; Carroll et al., 2007). The examination of the fidelity of a preventive programme is a broad concept that includes many components that need to be addressed. Among other things, it is necessary to pay attention to the teachers, who play a central role in implementing the prevention programme among schoolchildren (Midford, 2002). The consistent training of teachers to implement the programme is crucial to its success. It provides teachers with the knowledge and skills necessary for implementing the programme and contributes to their greater commitment to the programmes (Mihalic, Fagan, & Argamaso, 2008). Teachers who have undergone detailed training implemented programmes better in terms of implementation fidelity than those who had not undergone the training (Parcel et al., 1991; McCormick et al., 1995). Moreover, trained teachers continued to implement the programme a year later, unlike teachers who were not trained but had only received the programme implementation materials (McCormick et al., 1995). The encouragement and support of teachers in preventive programmes contribute to their professional development and maintenance of their commitment, both at the organizational level and beyond (Durlak & DuPre, 2008). The organizers of the programme should offer strong methodological support to programme implementers (teachers) because the fidelity of programme implementation is also influenced by the approach of the programme organizers and coordinators and the entire methodological team (Mihalic, Fagan, & Argamaso, 2008).

Teachers' attitudes towards the programme, their interest, and the ways in which they participate in the programme are indicators of fidelity (James Bell Associates, 2009). In order for a programme to be effective, teachers must make efforts to implement it. Teachers should see the importance of implementing the programme. The structure and content of the programme must motivate and inspire them (Han & Weiss, 2005). It is also necessary to maintain the technical side of the programme, such as distributing the necessary materials, providing feedback, and monitoring and educating facilitators (Wandersman et al., 2008). The feedback provided by teachers during the implementation is an important source of information. As a result of this feedback, it is possible to monitor the participation of schoolchildren in the preventive programmes, the level of the teachers' interest in the prevention, and the implementation of the educational components that are an essential part of the programme (Schultes et al., 2014).

● 2 AIMS

The main aim of our research was to examine the association between participating in the Unplugged programme (which was monitored by the teacher's commitment) and

the correction of descriptive normative beliefs (alcohol use, drunkenness, and smoking cigarettes) in the short and long term among schoolchildren in the Slovak Republic. It also examined the moderating effect of gender in these relationships.

● 3 DESIGN AND MEASUREMENTS

3.1 Research Design

The Unplugged programme is a school-based universal prevention programme that is currently used by many countries in Europe. The Unplugged programme is primarily designed for 12–14-year-old schoolchildren (Kreeft et al., 2009). The main aim of the programme is the prevention of drugs such as alcohol, cigarettes, and illicit drugs. In particular, it aims to reduce the number of schoolchildren who start using addictive substances and delay their first contact with drugs, as well as delay the transition from experimentation to regular use (Širůčková et al., 2012). The curriculum consists of 12 lessons arranged at approximately three-week intervals. The programme is implemented during the teaching process. Each lesson lasts 45 minutes and is thematically focused. The programme's content is organized into three categories – information and attitudes, interpersonal skills, and intrapersonal skills. The primary principle of the programme is the Comprehensive Social Influence approach (CSI) – the impact of the social environment. In prevention programmes, it takes into account the overall impact of family, school, and peers. The influence of the social environment can be both positive and negative (Jurystová & Miovský, 2010). The combination of different methods used by the programme leads to the development of personal and social skills and to the perception of social norms, which thus corrects false normative beliefs and attitudes (Miovský et al., 2012).

During the 2013/2014 school year (September/December), the Unplugged programme was implemented once a week in the Slovak Republic. The programme was taught by teachers who underwent a three-day training course. This course focused on the process of implementing the programme, interactive work with schoolchildren, and the methodology needed for work with social competences.

In order to monitor the fidelity of the implementation of the programme, the teachers were asked to provide feedback after each lesson by completing a short online questionnaire. If the teachers did not provide any feedback, both the implementation and the quality of the performance of the programme were questioned.

The verification of the effectiveness of the Unplugged programme in Slovakia had an experimental design. The data was obtained prior to the implementation of the programme (T1) and three months (short-term) after its implementation (T2), as well as 12 months (T3) and 18 months (long-term) (T4) after.

3.2 Research sample

The research sample was selected using stratified random selection. Sixty primary schools from all over Slovakia participated in the research. The schools were randomly included into experimental (a group with intervention) and control groups (a group without intervention). The experimental group comprised thirty schools (20 of which were in a group with committed teachers and 10 schools in a group with uncommitted teachers) and there were another thirty schools in the control group. A total number of 1295 schoolchildren participated in the research. However, those schoolchildren who did not participate in all four waves of data collection were excluded from the data analyses. Ultimately, the research sample consisted of 497 schoolchildren, whose average age was 11.5 years (40.4% of the sample were boys).

On the basis of the amount of feedback sent by the teacher during the implementation of the programme, the schoolchildren in the experimental group were divided into two groups: a group with committed teachers (teachers who sent more than six sets of feedback) and a group with uncommitted teachers (teachers who sent fewer than six sets of feedback). Finally, participation in the Unplugged programme in this study was monitored through three categories: an experimental group with committed teachers (n=160), an experimental group with uncommitted teachers (n=83), and a control group (n=254).

3.3 Measures

Descriptive normative beliefs regarding the number of friends who smoke cigarettes, use alcohol, and get drunk at least once a week were measured by selected individual items from the questionnaire of the international study ESPAD (Hibell et al., 2011). The wording of the selected items was as follows: *How many of your friends would you estimate smoke cigarettes? How many of your friends would you estimate drink alcoholic beverages? How many of your friends would you estimate get drunk at least once a week?* These items were rated on a five-point scale (1=nobody, 5=everybody).

3.4 Statistical Processing

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that schoolchildren would report lower/higher normative beliefs about the number of friends using addictive substances (smoking cigarettes, alcohol use, and drunkenness).

The models contained three independent variables: gender, descriptive normative beliefs at T1 (before the implementation of the programme), and participation in the Unplugged programme with three categories (the experimental group with committed teachers, the experimental group with uncommitted teachers, and the control group as a reference group).

Descriptive normative beliefs (regarding the number of friends smoking cigarettes, using alcohol, and getting drunk) at T2, T3, and T4 were used as dependent variables in the regression models. For the purpose of this study, descriptive normative beliefs were dichotomized using the visual binning method into two approximately equal groups (higher versus lower levels of normative beliefs) and controlling the process visually (Pallant, 2011).

The results were processed in SPSS 21.

● 4 RESULTS

Descriptive statistics of the dependent variables (descriptive normative beliefs regarding the number of friends who use alcohol, get drunk at least once a week, smoke cigarettes, and use marijuana or hashish) are presented in *Table 1*.

Several logistic regression models (at T2, T3, and T4) were created to determine the association between participation in the Unplugged programme and descriptive normative beliefs regarding alcohol use, drunkenness, and smoking cigarettes. Because of the unequal distribution of the respondents in the categories of the dependent variable no

	Experimental group								Control group			
	Committed teachers				Uncommitted teachers							
	Almost none		Almost all		Almost none		Almost all		Almost none		Almost All	
	N	%	N	%	N	%	N	%	N	%	N	%
Alcohol use	101	63.9	57	36.1	56	68.3	26	31.7	169	67.3	82	32.7
Drunkenness	142	91.6	13	8.4	72	87.8	10	12.2	222	88.8	28	11.2
Smoking cigarettes	98	61.2	62	38.8	52	64.2	29	35.8	154	61.1	98	38.9
Using marijuana or hashish	153	96.8	5	3.2	76	92.7	6	7.3	237	94.4	14	5.6

Table 1 | Descriptive statistics of descriptive normative beliefs regarding the number of friends who use alcohol, get drunk at least once a week, smoke cigarettes, and use marijuana or hashish at T1 (before the implementation of the programme)

	Alcohol use			Drunkenness			Smoking cigarettes		
	OR	95% C.I.		OR	95% C.I.		OR	95% C.I.	
T2									
DNBT1	4.757***	3.161	7.158	8.483***	4.478	16.071	6.451***	3.263	12.755
Participation in Unplugged	(1) 0.854	0.562	1.291	0.515*	0.286	0.929	0.569	0.292	1.110
	(2) 1.183	0.604	2.317	0.995	0.428	2.316	0.760	0.268	2.158
Gender	1.772**	1.189	2.639	2.053**	1.216	3.468	1.134	0.616	2.088
T3									
DNBT1	3.595***	2.094	6.174	3.717***	1.990	6.942	3.451***	2.098	5.675
Participation in Unplugged	(1) 0.676	0.296	1.543	0.246***	0.113	0.538	1.303	0.784	2.165
	(2) 0.536	0.145	1.977	0.512	0.192	1.365	0.722	0.281	1.858
Gender	1.089	0.519	2.288	0.999	0.558	1.790	1.033	0.628	1.699
Participation in Unplugged	1.825	0.578	5.758	4.520**	1.612	12.671			
(1)*Gender									
Participation in Unplugged	6.379*	1.022	39.714	1.155	0.210	6.342			
(2)*Gender									
T4									
DNBT1	3.693***	2.306	5.917	5.821***	3.101	10.927	2.773***	1.767	4.353
Participation in Unplugged	(1) 0.786	0.471	1.131	0.746	0.472	1.178	0.959	0.594	1.548
	(2) 1.818	0.881	3.749	0.844	0.401	1.776	1.353	0.641	2.857
Gender	0.857	0.528	1.392	1.368	0.890	2.102	1.106	0.700	1.748

Table 2 | Binary Logistic Regression model of descriptive normative beliefs regarding the number of friends who use alcohol, get drunk at least once a week, and smoke cigarettes

T2: Three months after the implementation of the programme, T3: 12 months after the implementation of the programme, T4: 18 months after the implementation of the programme, (1): Participation in Unplugged in the group with committed teachers, (2): Participation in Unplugged in the group with uncommitted teachers, Reference group: Control group, (DNB T1): Descriptive normative beliefs before the implementation of the programme ; OR: odds ratio; CI: confidence interval; $p < 0.000***$, $p < 0.001**$, $p < 0.05*$

regression models were created for descriptive normative beliefs regarding the number of friends who use marijuana or hashish. The logistic regression models were created for smoking cigarettes, alcohol use, and drunkenness.

Table 2 shows the results of the logistic regression analyses with descriptive normative beliefs as the dependent variable during the three measurement points (T2, T3, and T4).

The binary logistic regression revealed that there was no significant association between participating in Unplugged and normative beliefs at T2, T3, and T4 in terms of the correction of normative beliefs regarding the number of friends who use alcohol.

At T2, the main effect of gender was confirmed (OR 1.772; 95% CI 1.189–2.629). The boys had a higher level of descriptive normative beliefs when compared to the girls. The whole regression model in T2 explained 14% to 18.9% of the variance and classified 70% of the cases correctly.

However, a significant moderating effect of gender was found at T3 in the experimental group with uncommitted teachers. The girls in the experimental group with uncommitted teachers had a lower level of descriptive normative beliefs regarding the number of friends who use alcohol in comparison with the boys in the group with uncommitted teachers (OR 6.379; 95% CI 1.022–39.714). However, it should be noted that the level of significance is low. The whole regression model at T3 explained 6.3% to 11.3% of the variance and classified 86.6% of the cases correctly.

On the basis of the results at T4, the relationship between Unplugged and normative beliefs regarding the number of friends who use alcohol was not confirmed. Moreover, no main effect of gender was found.

Table 2 also shows an association between descriptive normative beliefs regarding the number of friends who get drunk at least once a week and participation in the Unplugged programme. Three months after the implementation of the programme (T2), there was a significant association between Unplugged and normative beliefs, although only in the groups with committed teachers (OR 0.515; 95% CI 0.286–0.929). The groups with committed teachers had a lower level of descriptive normative beliefs in comparison with the control group. Moreover, a significant main effect of gender was identified (OR 2.053; 95% CI 1.216–3.468). Boys had a higher level of descriptive normative beliefs when compared to girls. However, there was no moderating effect of gender. The whole regression model in T2 explained between 11.3% and 19.1% of the variance and classified 83.9% of the cases correctly.

Similar results were found 12 months after the implementation of the programme. A significant association between participating in Unplugged and normative beliefs was found in T3 but only in the group with committed teachers (OR 0.246; 95% CI 0.113–0.538). The group with committed teachers had a lower level of descriptive normative beliefs in

comparison with the control group. There was no significant main effect of gender. However, a moderating effect of gender was found (OR 4.520; 95% CI 1.614–12.671). The girls in the experimental group with committed teachers had a lower level of descriptive normative beliefs in comparison with the boys. The whole regression model explained between 7.6% and 11.5% of the variance and classified 77.5% of the cases correctly. Despite the significant results in T2 and T3, no significant relationship between participating in Unplugged and normative beliefs was found, and neither was a moderating effect of gender found in T4. Participation in Unplugged 18 months after the implementation of the programme was not associated with descriptive normative beliefs regarding the number of friends who get drunk at least once a week.

Surprising results were obtained in relation to normative beliefs regarding smoking. Participation in Unplugged was not associated with descriptive normative beliefs regarding the number of friends who smoke cigarettes in the second (T2), third (T3), or fourth (T4) measurement. Neither was there any significant moderating effect of gender in either measure (see *Table 2*).

● 5 DISCUSSION

This study highlights the varied outcomes in the correction of normative beliefs about the number of friends who indulge in risky behaviour. The aim of the study was to examine the relationship between participating in the Unplugged programme and the correction of descriptive normative beliefs in the short and long term with respect to the approach of teachers. Significant results were shown regarding the correction of normative beliefs about the number of friends who get drunk at least once a week in the short and long term (T2, T3). However, this was only demonstrated in the group with committed teachers. Participation in the Unplugged programme in the group with committed teachers was associated with the probability of a lower level of normative beliefs. This corresponds to the claims that it is necessary to monitor fidelity during the programme implementation process. The way prevention programmes are implemented is a key component of their effectiveness (Durlak & DuPre, 2008).

However, the findings show that the Unplugged programme was not associated with the correction of normative beliefs about the number of friends who smoke cigarettes in the short and long term. These results may reflect the acceptability of smoking cigarettes at this age. Smoking seems to be a part of the daily life of many young people because of the high lifetime prevalence of smoking (Kraus & Nociar, 2016).

The results also show gender-specific differences in descriptive normative beliefs. Three months after the implementation of the programme, the girls had a lower level of descriptive normative beliefs regarding the number of friends who use alcohol and who get drunk at least once a week. Previous studies verifying the effectiveness of the

Unplugged programme point to the different impact that the programme has on boys and girls (Gabrhelik et al., 2012; Novák et al., 2013; Vigna-Taglianti et al., 2009). Our study has also confirmed that the Unplugged programme can work differently for boys and girls. In girls, the programme may have a stronger effect in terms of correcting normative beliefs about the number of friends who use alcohol and who get drunk. This was demonstrated 12 months after the implementation of the programme. These differences may arise from many individual factors, from the interpersonal dimension as well as from the social environment in which the child moves (Novák et al., 2013). This finding supports the promotion of a gender-specific approach in the preparation and implementation of prevention programmes (Berinšterová & Orosová, 2017).

The monitoring of the implementation process is linked to the greater effectiveness of the preventive programme and affects not only behavioural indicators (substance abuse), but also possible mediators such as attitudes and beliefs (Dusenbury, 2003). Han and Weiss (2005) mentioned that it is necessary to investigate teacher-level factors associated with the level of implementation fidelity. These concern teachers' self-efficacy beliefs, professional burnout, teachers' beliefs about the acceptability of the programme, and the anticipated effectiveness of the programme. The monitoring and evaluation of the implementation of the programme is therefore essential to assessing its effectiveness. Without sufficient implementation data, it is not possible to document sufficiently how the programme was performed and how its results can be interpreted (Bloomquist et al., 2013). Monitoring the fidelity of an intervention that has been implemented can contribute to its improvement (Dusenbury, 2003). The implementation of low-fidelity programmes may be the reason why programmes do not provide the same results in practice and can lead to faulty

conclusions about the effectiveness of the intervention (Breitenstein et al., 2010).

The weaknesses of the study also have to be acknowledged. First, a single-item measure was used for descriptive normative beliefs regarding the number of friends who indulge in risky behaviour. Multiple-item indicators would have been more suitable. Furthermore, using the visual binning method as a tool to dichotomize the dependent variable is a potential limitation and certain inaccuracies resulting from this cannot be ruled out. While the correction of normative beliefs has been shown in relation to the teacher's level of commitment, it is also important to look at other indicators when examining the fidelity of the preventive programme and not only teachers' feedback. Our results show that teachers' commitment plays an important role in the correction of normative beliefs. However, we believe that teachers' feedback is not a sufficient indicator of implementation fidelity and in future research other aspects need to be addressed. Another important direction of the research is the inclusion of booster sessions when assessing the programme in the long run.

● 6 CONCLUSION

In summary, this study reports on the importance of the correction of normative beliefs regarding drunkenness through participation in the Unplugged programme. It was found that committed teachers may play an important role in the correction of normative beliefs and constitute a significant predictor of low descriptive normative beliefs regarding the number of friends who use addictive substances. Despite some limitations, the study contributes to the importance of monitoring the fidelity of the implementation of the programme according to the available literature.

Authors' contributions: Marcela Štefaňáková, Olga Orosová, and Anna Janovská designed the study and proposed the study design. Marcela Štefaňáková performed the statistical analysis and participated in the data interpretation and preparation of the manuscript. Marcela Štefaňáková designed the initial form of the manuscript. Marcela Štefaňáková conducted the literature review and summary of related work. Olga Orosová and Anna Janovská

supervised the statistical analysis and participated in the preparation of the manuscript. All authors contributed to the article and approved the final version of the manuscript.

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