Studying the Effect of the Unplugged Prevention Programme on Children Whose Mothers Report Drinking More Than Weekly

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INTRODUCTION: The foreign studies indicate that parental substance use makes it more likely that their children will engage in risk behaviour. Risk behaviour may be positively influenced by prevention programmes. **AIM:** The aim of this research project was to assess whether the Unplugged prevention programme has the desired effect on drinking among children at the age of approximately 15 years. The study addresses any differences in the effects on the children that depend on whether their mothers drink more than weekly. We regarded drinking as a sign of risk behaviour engaged in by children from families where the mothers use alcohol more or less than weekly. **METHODS:** The data of the children who were exposed to the prevention programme was compared to that of the children who did not participate in the programme. **RESULTS:** The Unplugged prevention programme was found to have no statistically measurable effect on drinking among children who came from families where the mother uses alcohol more than weekly. Children from the families where the mother reported using alcohol weekly or less frequently than that and who had been exposed to the Unplugged prevention programme were found to be less likely (by 63%) to report drunkenness in the last 30 days.

Keywords | Alcohol – Prevention – Children – Mothers Drinking with Greater Frequency

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1 INTRODUCTION

Substance use among children has seen some changes in recent years which include lower rates of drinking and tobacco use. According to the ESPAD international survey from 2015, there was a major drop in alcohol use among the 16-year-old respondents in comparison with 2011. The figures under study involved the prevalence of drinking during the past 12 months and 30 days. The rates of risky drinking also declined. The average age of the onset of alcohol use has been on the rise in recent years. The drink of choice is beer, followed by spirits (Mravčík et al., 2016). The declining trends in substance use observed between 2011 and 2015 continued in 2016 (Chomynová et al., 2016).

While the above studies suggest positive trends in substance use among children, they should not stop us from developing prevention programmes. Czech children rank high in international prevalence studies and the figures reported by these projects continue to raise concerns. The cornerstone of the development of prevention programmes was the articulation of quality standards which also account for the evaluation of activities. Each well-planned and effective prevention programme should include an evaluation element (Miovský et al., 2011). This work seeks to contribute to the body of papers on the evaluation of prevention programmes and highlight the importance of that component.

2 THEORETICAL BACKGROUND

Children's and adolescents' substance use is associated with a wide range of adverse consequences, including early termination of school attendance, disruption of family relationships, and criminal offending and delinquency. It should also be pointed out that substance use at an early age is a common cause or circumstance of adolescents' deaths, including suicides, accidents, and violent acts (Kim & Dickstein, 2013).

In terms of the onset of alcohol use, the period between 11 and 14 years of age is significant for a number of reasons. The majority of those who consume alcohol (whether in problematic or socially acceptable ways) had their first drink at that age. The majority of those who struggle with alcohol dependency report having had their first drink at the age of 13, while the majority of those who have issues with alcohol use in adulthood report having had their first drink when they were 14. During this period of life, people also seem to show the greatest sensitivity to preventive interventions. It can be explained by the possibility of influencing individuals' psychological development, which is marked by unprecedented changes at that age. In addition, interventions can have a bearing on a number of social changes that also occur (Dooley & Prause, 2008).

2.1 Risk factors for drinking among children and adolescents

Individual risk factors for early drinking include family behaviour and attitudes towards the use of alcohol and other addictive substances and poor and inconsistent family and household management (for example, a lack of maternal involvement in activities with children, poor discipline within the family, and low parental expectations of children's education are reported). Other risk factors include conflicts in the family, poor ties with the family and among the family members, early and persistent behavioural problems, poor academic performance and dropping out of school, low levels of engagement or commitment to school, social exclusion from the class, friendship with and admiration for drug-using peers, feelings of alienation and rebelliousness, attitudes showing admiration of drug use, and the early onset of a drug career (Hawkins et al., 1992). Parental drinking as a risk factor for children's alcohol use has been addressed by various studies. Some of them explored the topic of children being initiated into drinking by their parents at home. Van der Vorst (2010) noted that this may be more harmful than previously believed. Other studies suggest that parental drinking is a risk factor for the early onset of alcohol use (Seljamo et al., 2006). On the other hand, Jiang Yu (2003) found that parental drinking per se had no significant effect on children's alcohol use.

2.2 The Unplugged prevention programme and evaluation of preventive programmes in the Czech Republic

In addition to drug supply reduction, prevention, including drug demand reduction as its integral part, constitute the key drug policy tools in many developed countries and their communities. These elements are also the cornerstones of the Czech national drug strategy. The core objectives of demand reduction include scaling up the availability of prevention programmes and improving their effectiveness. In the Czech Republic, prevention programmes have seen dramatic development and changes in the last 25 years. As in other helping professions, prevention efforts aimed at risk behaviour are generally underpinned by evidence-based approaches (Jurystová et al., 2009).

Unplugged is a school-based prevention programme aimed at tackling substance use. It targets sixth-graders, generally aged from 11 to 14 (this age range may vary from country to country).

Students who completed the Unplugged programme in the sixth grade then receive the n-Prevention programme in the next grade. This follow-up programme in the seventh grade consists of four lessons. Providing more of a general background, the first two lessons cover social norms, social beliefs, refusal skills, and gender-specific differences. The other two lessons address neurological aspects and the effects of substance use (Gabrhelík et al., 2014).

One study focusing on evaluation of the Unplugged programme looked into its effectiveness in terms of smoking cannabis. The study reported a measurable and statistically significant positive effect on regular use. The difference was observable immediately after the intervention, three months after the intervention, and at a 24-month follow-up. Three months after the intervention smoking was reported by 1.3% of the respondents from the experimental group (exposed to the prevention programme), in comparison to 4.4% of the respondents in the control group. Two years later, smoking was reported by 18.6% of the respondents from the experimental group and 23.8% of those from the control group (Novák et al., 2011).

Other Czech researchers sought to evaluate prevention programmes in the Prague 6 District. The main objective of this project was to compare the outcomes of basic prevention and a community prevention programme. The study found a positive effect of the interventions implemented as part of the programme on risky alcohol use among children (Miovský et al, 2006).

3 AIM OF THE RESEARCH

To find whether there is an association between the effect which the Unplugged prevention programme interventions have on children on the one hand and their mothers' frequency of alcohol use on the other hand.

4 HYPOTHESES

1. The Unplugged programme interventions are effective in reducing drunkenness in the last 30 days among children whose mothers drink more than weekly.
2. The Unplugged programme interventions are effective in reducing the 30-day prevalence of alcohol use among children whose mothers drink more than weekly.
3. The Unplugged programme interventions are effective in reducing drunkenness in the last 30 days among children whose mothers do not drink more than weekly.
4. The Unplugged programme interventions are effective in reducing the 30-day prevalence of alcohol use among children whose mothers do not drink more than weekly.

5 STUDY SAMPLE AND DATA COLLECTION AND ANALYSIS METHODS

Schools were randomly selected as part of the Unplugged project. The schools were stratified according to their affiliation with a city district/region and size. Subsequently, the schools were randomly assigned to one of three groups (Control, Experiment 1 – exposed to Unplugged, and Experiment 2 – exposed to Unplugged and another follow-up prevention programme, i.e. n-Prevention). The randomisation finally yielded a sample of 70 schools from the study population of 565 schools in Prague, Brno, the Brno-Country District, and the Tišnov and Přerov areas. In Prague there were 33 middle schools and six lower secondary schools (six- and eight-year grammar schools) that participated in the study. In Brno there were 22 middle schools and one lower secondary school. The last area that was subjected to randomisation was that of Přerov and the surrounding municipalities, from which five middle schools and three lower secondary schools were recruited.

The sample comprised students in the sixth grades of middle schools and first-year students at lower secondary schools who participated in, and entered, the Unplugged project in the 2013/2014 academic year. In total there were 2,571 students and 1,931 of their parents. This sample was further tested until the 2016/17 academic year, inclusive. Girls accounted for 51% of the total number of the students. The most frequent age of the children was 11. The most frequent age of the parents was 40–49, followed by the 30–39 age range. Parents' questionnaires for matching were completed between the first and second waves of the collection of the children's questionnaires. Together, all the data collection waves yielded a total of 15,289 questionnaires. Another processing stage resulted in the exclusion of questionnaires with nonsensical input. 10,102 questionnaires were matched to provide pairs. As we were looking for data self-reported by mothers, we continued by processing children's questionnaires matched with parents' questionnaires completed by mothers. There were 8,338 such questionnaires, i.e. 82.5% of all the matched ones.

The Czech adaptation of the European Family Empowerment questionnaire – both the adolescents' and parents' versions – was used to assess the Unplugged programme. The children whose parents had signed a consent form to approve of the former's participation in the study were asked to complete the questionnaires. The students completed the questionnaires online in school. They did so as users identified by codes. One code was assigned to them and the second was created by themselves. The parents were given the questionnaires at a parent-teacher meeting and it was up to them whether they filled them in or not.

In this study, we worked with mothers' answers concerning their frequency of alcohol use. In the parents' questionnaire, the relevant question read: "How often do you drink alcohol?" For the purposes of our analysis, we used the response "weekly" as a clear-cut threshold. One group thus comprised the mothers who did not drink alcohol at all or did so once per week or less, at a maximum. The other group consisted of the mothers who reported engaging in alcohol use more frequently than weekly, i.e. twice per week or more often.

The effects of the prevention programmes were measured by the prevalence of drinking among the students (dependent variable). Specifically, the students were assessed for the prevalence of alcohol use in the last 30 days and drunkenness in the last 30 days. The data was analysed by means of statistical modelling on the basis of the GEE (generalized estimation equation) correlation analysis in the SPSS program.

6 RESULTS

The relevant measure looked for in the mothers who had completed the study questionnaires was their frequency of drinking. The respondents were asked to identify with one of seven options. The first option – no alcohol use – was chosen by 10.7% of the respondents, 25.6% of the mothers reported drinking less than once a month, 21.4% reported drinking monthly and 26.2% weekly. More frequent alcohol use, i.e. 2–4 times a week, was indicated by 11.2%, while daily or almost daily drinking was reported by 2% of the respondents. In total, 2.9% of the respondents chose the "I don't know" option.

We pooled the ratings for the question "How often do you drink" included in the parents' questionnaire. The responses "Never" to "Weekly" were aggregated under one variable. The responses involving the frequencies "Twice a week" to "Daily" were aggregated under another variable. The "don't know" responses were not included in the data. We thus made a clear-cut distinction between the mothers, dividing them into those who drank alcohol at a frequency higher than weekly and those who did not.

6.1 The effect of the prevention programme on the 30-day prevalence of children's alcohol use

Table 1 summarises the data pertaining to the children of the mothers who reported drinking frequencies ranging from non-using up to weekly alcohol use (inclusive). The data for the second group of the children of the mothers who reported using alcohol more than weekly is provided in *Table 2*. Those children who had completed the Unplugged and n-Prevention programmes came under the first group (Group 1). The children who had only completed the Unplugged programme were assigned to the second group (Group 2). The children who had completed neither of the above programmes comprised the control group (Group 3). We thus compared the data of the children who had completed the Unplugged programme (alone or in combination with the follow-up n-Prevention programme) with the control group consisting of children who had been exposed to no intervention. Statistical significance levels were not reached for any of the variables under study. The values ranged from Sig. = 0.126 to Sig. = 0.979 (*Table 1* and *Table 2*).

The Unplugged programme seems to have no statistically relevant effect on children's drinking in the last 30 days; the calculations did not produce any statistically significant levels. Hypotheses 2 (The Unplugged programme interventions are effective in reducing the 30-day prevalence of alcohol use among children whose mothers drink more than weekly) and 4 (The Unplugged programme interventions are effective in reducing the 30-day prevalence of alcohol use among children whose mothers do not drink more than weekly) were not corroborated.

6.2 The effect of the prevention programme on children's drunkenness in the last 30 days

Dividing the adolescent respondents into those with drinking and non-drinking mothers, we found that Unplugged

Table 1 | The effect of the prevention programme on the 30-day prevalence of alcohol use among children whose mothers do not report drinking more than weekly

Parameter Estimates										
Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-.028	.1783	-.377	.322	.024	1	.876	.973	.686	1.379
[group=1]	.003	.1050	-.203	.209	.001	1	.979	1.003	.816	1.232
[group=2]	-.032	.0972	-.222	.159	.107	1	.744	.969	.801	1.172
[group=3]	0	.	.	.	.	.	.	1	.	.

Table 2 | The effect of the prevention programme on the 30-day prevalence of alcohol use among children whose mothers report drinking more than weekly

Parameter Estimates										
Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	.411	.4459	-.462	1.285	.851	1	.356	1.509	.630	3.616
[group=1]	-.387	.2528	-.882	.109	2.342	1	.126	.679	.414	1.115
[group=2]	-.032	.2417	-.506	.442	.018	1	.895	.968	.603	1.555
[group=3]	0	.	.	.	.	.	.	1	.	.

Table 3 | The effect of the prevention programme on drunkenness in the last 30 days among children whose mothers do not report drinking more than weekly

Parameter Estimates										
Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-1.663	.3360	-2.322	-1.005	24.509	1	.000	.189	.098	.366
[group=1]	-.009	.1881	-.378	.359	.002	1	.961	.991	.685	1.432
[group=2]	-.474	.1885	-.843	-.104	6.312	1	.012	.623	.430	.901
[group=3]	0	.	.	.	.	.	.	1	.	.

Table 4 | The effect of the prevention programme on drunkenness in the last 30 days among children whose mothers report drinking more than weekly

Parameter Estimates										
Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	-1.538	.8466	-3.197	.122	3.299	1	.069	.215	.041	1.129
[group=1]	-.418	.5571	-1.510	.674	.564	1	.453	.658	.221	1.961
[group=2]	-.478	.4333	-1.328	.371	1.218	1	.270	.620	.265	1.449
[group=3]	0	.	.	.	.	.	.	1	.	.

was effective in the non-drinking mothers' children (Sig. = 0.012). The probability of such children becoming drunk in the last 30 days was 62.3% lower (Exp(B) = 0.623). Such a probability was lower in the children who had completed the Unplugged programme (*Table 3*).

The Unplugged programme interventions seem to have no statistically measurable effect on the occurrence of drunkenness among children whose mothers show alcohol use at a frequency exceeding weekly drinking (*Table 4*). Hypothesis 1 (The Unplugged programme interventions are effective in reducing drunkenness in the last 30 days among children whose mothers drink more than weekly) was not corroborated.

Children who had completed the Unplugged programme and whose mothers did not report drinking at a frequency in excess of weekly use were 62.3% less likely to have experienced drunkenness in the last 30 days. Hypothesis 3 (The Unplugged programme interventions are effective in reducing drunkenness in the last 30 days among children whose mothers do not drink more than weekly) was corroborated.

7 DISCUSSION

Our study focused on maternal drinking frequency as a quality of parenting. Our research concerned alcohol as a substance of choice, as, historically, alcohol has a long cultural tradition in the Czech Republic. It is therefore no exaggeration to include in the statistical model calculations the data collected from children aged 11½.

The main objective of this work was to study the effects of the Unplugged prevention programme interventions (whether in combination with the n-Prevention programme or alone) on children's drinking depending on their mothers' frequency of alcohol use. The children's data was divided into two groups: 1) that pertaining to children whose mothers were non-drinkers or used alcohol from monthly up to weekly and 2) that pertaining to children whose mothers reported drinking more frequently than weekly, specifically twice per week to daily. The prevalence of alcohol use among the children in the last 30 days was looked for. The question that was relevant asked about any alcohol use by the children. The second measure under study among the children was the occurrence of drunkenness in the last 30 days, i.e. alcohol intoxication as subjectively perceived by the children.

Our results don't support the findings of Novák (2011), who showed a statistically significant effect of the programme on the prevalence of smoking cannabis among children. Because our results don't show effect of the programme on the prevalence of alcohol drinking. Miovsky (2006) found an effect of the prevention programme on the experimental group in that the students who had been exposed to the intervention drank a greater volume of alcoholic drinks, but with a low alcohol percentage. We found a lower probability of drunkenness among the children who had completed the Unplugged programme and whose mothers did not report drinking at a frequency in excess of weekly use.

A large-scale metaanalysis of evaluations of Dutch prevention programmes found that the interventions yielded no significant effect on high-risk school children as regards

smoking, drinking, and drug use (Onrust et al., 2016). We found a significant effect on the reduction of the probability of drunkenness among the children whose mothers did not report drinking at a frequency in excess of weekly use.

Unplugged is a prevention programme featuring interventions aimed at modifying attitudes, developing substance refusal skills, and shaping normative beliefs. It has been noted that the effects of such interventions may show with some delay; for certain indicators, the effects may be stronger with the time that has lapsed since the baseline testing (Gabrhelík et al., 2016). Positive effects of the interventions or their statistically measurable effect may thus be observable in the future instantiations of the data collection.

One limitation of our study was the 55% response rate as regards parents' questionnaires. This made it impossible to match all the children's questionnaires with their parents' counterparts and, accordingly, caused gaps in the data reflecting the parents' perspectives on their family lives. Only the children's questionnaires that could be matched with their parents' ones were processed in the next stage. These matched questionnaires were then screened for pairs, in which the parents' questionnaire had been completed by the mother for herself. For the purposes of our study, it was important to obtain the mothers' self-reports about the frequency of their drinking. Together, all the waves of the study yielded a total of 15,289 questionnaires. After all the irrelevant data had been excluded, the final sample consisted of 8,336 questionnaires.

Another limitation of the study may involve the quality of the questionnaires returned by the parents, or mothers. The questionnaires may have been more likely to be returned by those mothers associated with socially more healthy settings, where participation in children's educational process (attendance at teacher-parent meetings) and research into school-based prevention is seen as a benefit and social norm. Therefore, mothers facing socio-economic issues and, hence, being more likely to engage in substance use may have been under-represented in the study. Drinking at a frequency exceeding weekly alcohol use was reported by 13.2% of all the mothers.

The choice of the statistical method may also be a limitation. Finally, the repeated administration of the same questionnaires to the same children may have caused the respondents to grow impatient and provide untrue responses.

8 CONCLUSIONS

Researchers suggest that the Unplugged programme interventions may not be sufficient for high-risk children and recommend that they should be reinforced with additional types of specific targeted interventions. The programme should last longer than one academic year. We suggest that children should not be divided into groups according to their mothers' drinking.

Authors' contributions: Tomáš Jandáč is the main and corresponding author. Jaroslav Vacek suggested the data analysis methods. Lenka Šťastná supervised the study and was involved in the drafting of the Discussion and Conclusion sections. All the authors approved the final version of the manuscript.

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