

PREVENTION PROGRAM OF USE/ABUSE OF ALCOHOL IN SCHOOL-AGED ADOLESCENTS: STOP TO THINK

Programa de prevenção do uso/abuso de álcool para adolescentes em contexto escolar: parar para pensar

Programa de prevención del uso/abuso de alcohol en escolares adolescentes: Parar Para Pensar

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ABSTRACT

Objective: To assess the impact to the intervention program Stop to Think on the prevention of alcohol use/abuse among school-aged adolescents. **Methods:** It is a quasi-experimental study, with pre- and post-test, 178 participants, 7th grade, experimental group (n = 70) subject to intervention and control group (n = 108) without intervention. The Alcohol knowledge Questionnaire, Alcohol Expectancy Questionnaire, Social Skills Rating System were used. **Results:** The experimental group showed a positive evolution of knowledge and expectations about alcohol, perception of peer alcohol use and reported consumption ($p < .05$). **Conclusion:** The program proved to be effective in stabilizing alcohol consumption, increasing knowledge, stabilizing the positive expectations, and in the perception of peer alcohol use. Further research should be developed and follow-up should continue to consolidate these findings.

Keywords: Primary Prevention; Alcohol Abuse; Adolescents; School Health.

RESUMO

Objetivo: Avaliar o efeito do programa Parar Para Pensar na prevenção do uso/abuso de bebidas alcoólicas de adolescentes em contexto escolar. **Método:** Realizou-se estudo quasi-experimental, com pré e pós-teste, com 178 participantes, estudantes no 7^o ano escolar; o grupo experimental (n = 70) foi sujeito à intervenção durante um ano, e o grupo de controle (n = 108) não sofreu intervenção. Foram utilizados o Questionário de Conhecimentos Acerca do Álcool; Questionário de caracterização dos consumos; Escala de Expectativas Acerca do álcool e Escala de Aptidões Sociais. **Resultados:** Constatou-se que os adolescentes submetidos ao programa apresentaram evolução positiva nas seguintes variáveis: frequência do consumo e ocorrência de episódios de embriaguez; e, ainda, melhorou os conhecimentos, as expectativas acerca do álcool e a percepção do consumo pelos pares ($p < .05$). **Conclusão:** O programa foi eficaz na estabilização do consumo, no aumento dos conhecimentos, na estabilização das expectativas positivas e na percepção do consumo pelos pares. Sugerem-se novos estudos e manutenção de *follow-up* para consolidar os resultados encontrados.

Palavras-chave: Prevenção primária; Abuso de álcool; Adolescentes; Saúde escolar.

RESUMEN

Objetivo: Evaluar el resultado del programa en la prevención del uso/abuso de bebidas alcohólicas en los adolescentes dentro de un contexto escolar. **Métodos:** Estudio seme-experimental que ha contado con un pretest y un postest, 178 participantes, grupo experimental (n = 70) sujeto a la intervención y un grupo de control (n = 108) que no estuvo sujeto a ninguna intervención. Se utilizó un cuestionario de Conocimientos, Escala de Expectativas Acerca del alcohol y Escala de Aptitudes Sociales. **Resultados:** Grupo experimental muestra una evolución positiva de los conocimientos, de las expectativas acerca del alcohol, de la percepción del consumo en las parejas y del consumo declarado ($p < .05$). **Conclusión:** El programa resultó eficaz en la estabilización del consumo de alcohol, en el aumento de los conocimientos, en la estabilización de las expectativas positivas y en la percepción del consumo en las parejas. Para finalizar, se propone realizar nuevos estudios y continua con el seguimiento para consolidar los resultados encontrados.

Palavras-clave: Prevención Primaria; Abuso Alcohol; Adolescentes; Salud Escolar.

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INTRODUCTION

The recognition of the problems associated with alcohol consumption at an early age has been noted in recent years through studies on health behaviors and lifestyles of children and adolescents. This phenomenon takes contours whose problematic is both complex and upsetting, since it is a crucial stage of development due to their biological, psychological and social vulnerability, with implications for the present and future health of the individual. In particular in what concerns risk behaviors, including unprotected sex, the use of other substances, violence, accidents, among others^{1,2}.

The proportion of young people with harmful and hazardous consumption patterns has grown in the last decade²⁻⁵. For most individuals, the first consumer experiences tend to occur in the beginning of adolescence, in social situations. European studies indicate that 9 out of 10 adolescents from 15 to 16 years of age has already consumed alcohol, and that the initiation of alcohol consumption is on average at twelve and a half years^{5,6}, likewise national and local studies meet these results^{7,8}. On the other hand, the alcohol is, from all the psychoactive substances, the most commonly used by adolescents and the most commonly used in abuse^{3,6,7}.

The latest recommendations for the reduction of alcohol-related harms, include strategies to reduce supply (control measures) associated with demand reduction strategies, including the development of prevention programs, culturally adapted, and directed to the most vulnerable groups, in particular adolescents^{3,9}. However, in Portugal, these programs are incipient in particular in the field of planning, coordination and evaluation.

The studies conducted in this area value the development of protective factors, including knowledge about alcohol, expectations about alcohol, social skills and perceptions about consumption by their peers⁹⁻¹³, whose contributions of the scientific evidence integrate the intervention program, Stop To Think, which is presented here.

The intervention program "Stop to Think" was built based on the results of a systematic review of literature⁹, assessed on the basis of the results of the study of contextualized evaluation of the alcohol consumption phenomenon among students of the 3rd cycle⁸, and integrating also the suggestions of the experts consulted.

Thus, and according to the social cognitive theory, the psychological factors that determine health behaviors and the strategies to promote healthy behaviors (or change) are emphasized, without losing sight that human behavior results from reciprocal and constant interaction of the personal factors, social influences and behaviors.

The integration of all the contributions made possible the construction of the organized model of the intervention program "Stop to Think" which is presented below (Figure 1).

Considering the importance and priority to the prevention of problems related to the use/abuse of alcohol (U/AA) especially in adolescents, the aim was to evaluate the effect of the intervention program "Stop to Think" (StT) in the prevention of the use/abuse of alcohol (U/AA) in adolescents that attend 7th grade.

METHODOLOGY

Study design: Quasi-experimental, with pre (t_0) e post (t_1) test with control group.

$$\begin{array}{l} GE \ t_0 \ X \ GE \ t_1 \\ GC \ t_0 \ GE \ t_1 \end{array}$$

Hypotheses

The adolescents that attend the 7th grade, subject to the intervention StT present positive developments in knowledge about alcohol; expectations about alcohol, in social skills, in the perception of the peers consume comparatively with those who are not subject to intervention.

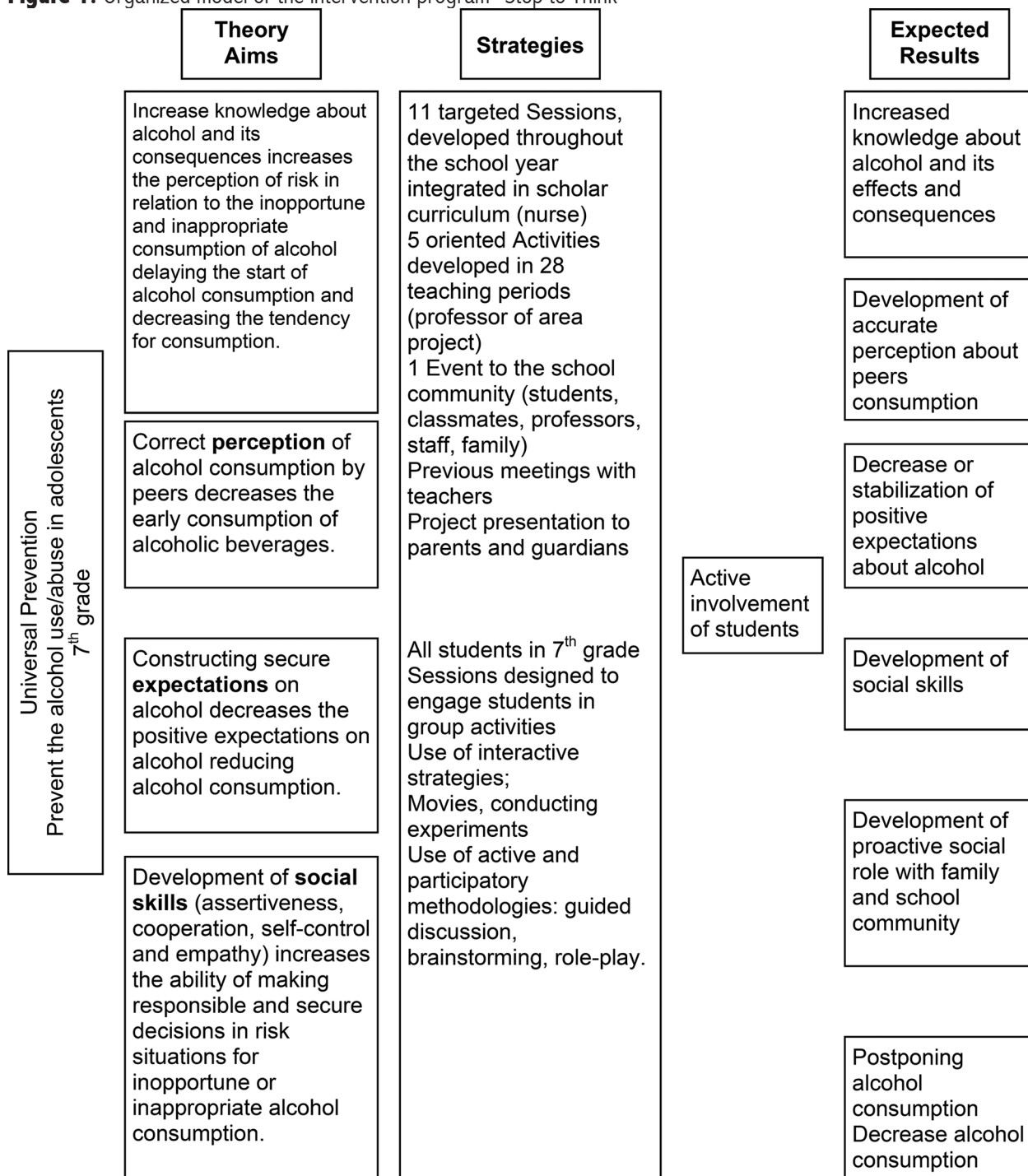
The adolescents that attend the 7th grade, subject to the intervention StT have a lower proportion (in the evolution) of the frequency of consumption of alcoholic beverages (wine, beer, spirits and other beverages as "champagne"), present a lower proportion (in the evolution) of the occurrence of episodes of drunkenness, and begin the experience of alcohol consumption to a lesser extent, compared with those who are not subject to the intervention.

Participants

The study was conducted in two schools of Portugal, in the urban area of the city of Coimbra. Two independent groups were constituted with participants in the 7th grade, the experimental group (EG), subject to the intervention program integrated into the school curriculum (StT), and the control group (CG), which was not subject to the intervention.

The initial assessment t_0 (beginning of the school year) included 212 participants: 77 in the experimental group and 135 in the control group. In the final evaluation t_1 (end of the school year), the sample included 178 subjects: 70 in the experimental group and 108 in the control group, because it was not possible to join the two parts of 7 questionnaires of the EG and 27 questionnaires of the CG due to "mistake" of the respondent in the code reference, and/or lack of completion of the questionnaire on the second moment.

Figure 1. Organized model of the intervention program “Stop to Think”



The sample was constituted by 178 students attending the 7th grade, of both sexes (53.90% feminine and 46.10% masculine) with a median age of 12.12 years (SD = .74).

The study of comparability of the groups, in the initial evaluation, showed no statistically significant differences between the groups, except in knowledge about alcohol, and global expectations about alcohol and as a factor of escape to negative emotional states (dimension III), in which the experimental group was in a more favorable situation. So, we calculated various measures of correlation

between the variables under study and it was conducted a subsequent study of control, using covariates in the statistical analysis.

Variables

The independent variable consists of the StT program that integrates the following components: knowledge about alcohol; expectations about alcohol; social skills, and perception of peer consumption. The program consists of 11 sessions (12 classes/90 minutes) that were developed by the Nurse and 5 complementary activities (14 classes/90

minutes), performed by the teacher. The interventions were developed with interactive methodologies in classroom context, for which was built a manual that integrates the rational and all procedures related to the interventions.

In addition to the socio demographic variables, the following dependent variables were included: knowledge about alcohol; positive expectations about alcohol; social skills, perception regarding the peer's consumption; characterization of consumption.

Instruments

Socio-demographic questionnaire and of consumption characterization; Questionnaire of knowledge about alcohol (QCaA)⁸, a dichotomous instrument, with 20 items that assesses the useful knowledge about alcohol; Positive Expectations about alcohol Scale - adolescents version (EePaA-A/AEQ-A)¹⁴, a Likert type scale that assesses four domains of expectations (Facilitator of the relationship with others, stimulation and tension reduction, Escape negative emotional states and social behavior alteration and sexual activation); Questionnaire of Social Skills Assessment (QAAS/SSRS: students version)¹⁵ a Likert type scale that includes four dimensions (Empathy, Cooperation, Assertiveness, Self-control).

Reliability of the instruments: in the sample, these instruments revealed, in t_0 and t_1 , good reliability, with Cronbach's alpha values higher than 0.75. The dimensions Cooperation, Assertiveness and Self-control of social skills scale are exceptions, as they revealed Cronbach's alphas ranging from 0.58 to 0.64 but with corrected item-total correlation values ranging between 0.2 and 0.6, so no item of the instrument was removed from the analysis.

Procedures

The program was submitted and supported by the General Directorate for Innovation and Curriculum Development of the Ministry of Education of the Portuguese Government, edictal dispatch n° 25 995/2005 (2nd series). It was approved by the External Review Committee of the Health Sciences Research Unit - Nursing; and by the institutions where the study was conducted, and in each phase of the study the ethical principles underlying were met and it was asked a written informed consent to participants and their parents/guardians. Compensation sessions targeted at students from School B (control) were also developed, as they did not enjoy of the StT intervention program the following year.

The pre-test took place in both groups at the beginning of the school year in September. The experimental group was subjected to StT intervention for one academic year and the control group followed the usual program of activities. The post-test took place in the two schools at the end of the school year.

We used different statistical measures, chi-square test to assess differences between groups in the variables in which suits their use; the Kolmogorov-Smirnov (KS) test, to verify the normality of the distributions; the Levene test to check the homogeneity of variances; the t -test for independent and paired samples and the calculus of repeated measures (General Linear Model - GML Repeated Measures), to assess the progress of the participants in the experimental and control groups for the intervallic variables under study; Z test for difference between proportions for evaluating the difference in evolution, McNemar's test for assessing evolution in the dichotomous variables under study; and also the Sign test to evaluate the evolution of the ordinal level variables. Considered the statistically significant for $p < 0.05$.

RESULTS

In summary, in what concerns the differences in the evolution of the groups, we highlight the following results:

The EG presents a significant increase in knowledge about alcohol ($p = .000$), whereas in the CG there are no differences ($p = .630$), and the difference is significant in the evolution of knowledge between the groups ($p = .002$), indicating a positive effect of the StT intervention.

Regarding the expectations about alcohol, on overall and in all its dimensions, as shown in Table 2, the results related to the evolving expectations on the experimental group indicate stabilization and/or reduction, while in the control group there was a statistically significant increase reflecting a negative trend in the CG. The difference in the evolution of the expectations between the groups is significant ($p < 0.05$), indicating a positive trend towards the stabilization and/or decrease, as a result of the intervention StT.

Regarding Social Skills, the experimental and control groups, evolved in the same direction and there were no statistically significant differences ($p > .05$).

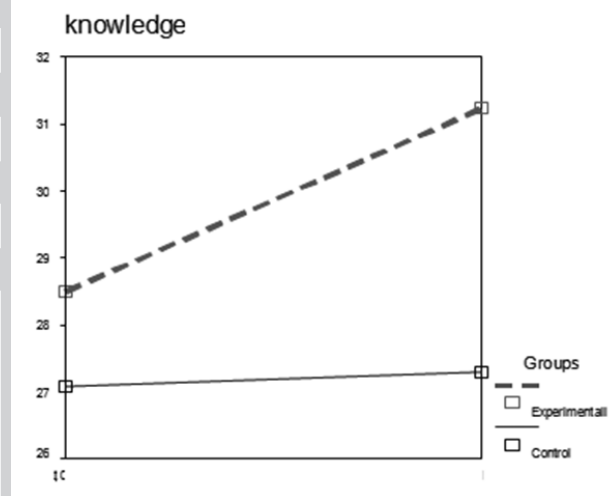
Also the results for the consume perception by peers show that the experimental group presented stabilization in the perception of frequency and in the occurrence of episodes of drunkenness, while the control group increased significantly the perception of frequency and the perception of consumption by peers ($p = 0.023$) and the perception of the occurrence of drunkenness in peers ($p = 0.002$). In addition, the difference in the evolution between groups was statistically significant ($p < 0.05$).

In what concerns the beginning of the experimentation of the consumption of alcoholic beverages both groups evolved in the same direction and without statistically significant difference ($Z = 0.999$; $p = .317$).

Regarding the frequency of consumption of different alcoholic beverages, the experimental group showed stabilization of consumption of wine ($Z = 2,328$; $p = 0.019$), beer

Table 1. Comparison of groups regarding the evolution of knowledge about alcohol

Knowledge about alcohol	Experimental Group (n = 70)		Control Group (n = 108)		Differences between groups
	Mean	SD	Mean	SD	
Initial Evaluation (t ₀)	28.50	3.34	27.09	3.43	t = -2.699 p = .008
Final Evaluation (t ₁)	31.23	6.40	27.30	4.18	t = -4.549 p = .000
Evolution	t = 3.659		t = .483		a) F = 10.042 p = .002 h ² = .054
	p = .630		p = .000		Power = .883



a) Analysis of repeated measures, considering the difference in the evolution between the experimental and control group

Table 2. Comparison of groups regarding the evolution of expectations about alcohol and in its global dimensions

Facilitator of the relationship with others	Stimulating and tension reduction factor	Escape to negative emotional states	Change of social behavior and sexual activation	Global expectations
F = 6.642 p = .011	F = 12.482 p = .001	F = 5.551 p = .020	F = 26.701 p = .000	F = 16.914 p = .000

(Z = 2,312; $p = 0,020$), and spirits (Z = 3,327; $p = 0,000$); it also presented stabilization in drunkenness episodes (Z = 1,995; $p = 0,004$). While in the control group there was a significant increase ($p < 0,05$). In addition, the results related to the evolution of both groups, experimental and control, indicate that the differences are statistically significant ($p < 0,05$).

In what concerns the occurrence of episodes of drunkenness, the control group presented 6 new cases, while the experimental group did not present any new case, without statistically significant differences of evolution within the group. However, in the evaluation of differences in evolution between groups, the results show statistically significant differences (Z = 1,995, $p = 0,004$), in favor of the experimental group.

DISCUSSION

In relation to the knowledge about alcohol, the results indicate that only the adolescents subject to the intervention program StT show a significant increase, suggesting its positive effect on the evolution of knowledge. These results are consistent with other studies^{10,12}.

Although knowledge about alcohol by itself is not sufficient to change behaviors, it is required to construct an accurate perception of the risks effects associated with alcohol consumption. It should also be emphasized the perception of risk as an important predictor of early alcohol consumption highlighting its interference in informed decision-making¹⁰.

In what concerns expectations about alcohol, the results indicate that adolescents subject to the intervention StT show a positive trend on expectations, specifically on the stabilization of expectations about alcohol as a facilitating factor in the relationship with others (dimension I) and of the expectations as a factor of escape from the negative emotional states (dimension III); and also the decrease of expectations as a stimulating factor and tension reduce (dimension II) and of the expectations as an factor of change on social behavior and sexual activation (dimension IV); suggesting thus an effect of the intervention program StT in the positive evolution of the expectations about alcohol globally and in its dimensions.

The expectations about alcohol play an important role on the early consumption, increasing and becoming more stable with age and therefore more resistant to change^{14,16,17}. So, considering that is during adolescence, particularly in its early stages, that the majority of individuals starts drinking, the efficacy of the StT program should be noted, since in its absence the expectations about alcohol show a marked increase.

The results concerning expectations as a facilitating factor of the relationship with others, reflect stabilization of the anticipation of the positive effects of increased interpersonal power, such as "be" in the group and with persons of the opposite sex and reflect also the stabilization of expectations that alcohol promotes positive feelings and favors being comfortable with others, especially to feel sexier, braver and creative. These results may reflect the understanding on the part of the adolescents, who were subject to the program, that the facilitation of interpersonal relationships is not due to the pharmacological effects of alcohol but the result of socio emotional processes themselves, including the emotional attachment and group affiliation, which psychophysiological modulation is mediated by the endogenous opioid system.

In the Portuguese sociocultural context, alcohol is an integral part of celebrations and festivities. Very often, the initial consumption experiences occur in the family context, especially on festive occasions. Considering that the consumption of alcoholic beverages starts, for most individuals, at very early ages, in a permissive familiar and social context that favors consumption, it becomes necessary to integrate in the prevention programs of alcohol use/abuse these important predictors of the beginning of alcohol consumption.

In terms of expectations as a factor of stimulation and tension reduction results are particularly important because some studies have reported the association of expectations as a factor of relaxation and tension reduction with problematic alcohol consumption^{14,16}.

In this context, considering that adolescents are in a stage of developmental vulnerability, those expectations can interfere with the processing of the mechanisms of

dealing with the different events of life, including through the use of maladaptive strategies triggering mechanisms of negative reinforcement.

It is known that alcohol consumption affects brain function and consequently the expression of emotions and behaviors, these in turn are influenced by the expectations and context^{16,18}.

Alcohol acts as a depressor of the central nervous system (CNS) interfering with the operation of neurotransmitter systems, enhancing the action of gamma-amino butyric Acid (GABA), a significant inhibitory neurotransmitter and inhibiting the action of glutamate, an important excitatory neurotransmitter. These actions interfere as a depressant of cognitive and motor functioning. However, the alcohol also has effect on the increase of the activity of certain brain areas, namely in the release of endorphins, which induces a transient state of euphoria, and may indeed enhance the desire to consume alcohol. It can also stimulate the release of dopamine, responsible for the activation of the dopaminergic reward system.

Regarding the expectations as a factor of escape negative emotional states, the results reflect the stabilization of the anticipation of physical and psychological changes induced by alcohol that provide leakage or escape the negative situations. Considering that these expectations refer to a domain that could cause problematic behaviors, including the intentional experiences of drunkenness as an escape of the negative emotional states becomes necessary to value and invest in the development of problem solving skills, especially during adolescence because this is a favorable period for its acquisition.

Finally, with regard to the effect of StT in expectations about alcohol as a factor of behavior change and sexual activation, the results suggest a decrease in anticipation of positive effects in the modification of social and emotional behavior, including those associated with the "good" humor, sexual stimulation and increased pleasure and disinhibition in several contexts, especially on festive occasions.

It is known that one of alcohol effects on the body (.4 g/l to .6 g/l of alcohol in the blood) is decreased sexual stimulation, and that expectations about alcohol are implicated in the increase of sexual stimulation^{8,15,16}.

Regarding social skills, the results presented in the previous chapter, do not show effects of the intervention program StT in any dimension: cooperation, empathy, assertiveness and self-control.

StT was not effective in the development of social skills, suggesting the questioning of the nature of its contents and methodologies used. The discussion of these results cannot be oblivious to the stage of development in which adolescents are. Adolescents selected are in the transition to middle adolescence. Thus, considering that in this developmental stage occurs the integration process of

representations of self and "objects", from which are part of the alternation of progressive and regressive movements, being expectable a certain discontinuity.

This development stage is also characterized by the loss of the "children world", and there are common difficulties in sharing and rules breach, attempting to "stretch" the limits that are placed. It implies thereby the rethinking of the adolescence place in parent's dependence and other authority figures such as teachers.

Although the results of this study do not reflect the positive effects of the program on adolescent's social skills, it is considered that this component should integrate use/abuse of alcohol prevention programs because adolescents need to learn to deal with the risk situations.

Regarding the perceptions about habitual consumption of alcoholic beverages by peers, the results indicate a positive evolution in the experimental group, converted in the stabilization of the perception of consumption and occurrence of episodes of drunkenness in peers. These results are consistent with some studies in the same domain, stressing the importance of use/abuse of alcohol preventive programs that integrate social norms component^{10,12,13}.

In reference to the characteristics related to alcohol consumption, translated by the experience of alcohol consumption, frequency of consumption of different alcoholic beverages and episodes of drunkenness, the results indicate a positive evolution reflected in the stabilizing of the frequency of various alcoholic beverages consumption (wine, beer and spirits) and the stabilization of episodes of drunkenness. These results are consistent with those obtained in some studies^{9,11} that found positive effects of intervention programs in the frequency of alcohol consumption in adolescents.

The evidence does not allow to say that StT had a positive effect on the initial experiences of consumption, because there was an increase in the proportion of adolescents in both groups, 18.6% in GE and 25% in GC, whose evolution difference is not significant. However, the increase of the experiments is lower in adolescents subject to StT and can be considered a major clinical-educational effect of the intervention program StT. Similarly, the results of some studies with interventions in this area, also indicate an increase in consumption experiences during the intervention period¹¹.

It is known that there is a tendency for individuals to have their first alcohol consumption experience in adolescence, given its accessibility and social permissiveness, and therefore is difficult that adolescents reach adulthood without having experienced alcohol. In Portugal, the minimum legal age for buying alcohol is 16 years of age for beer and wine and 18 years of age for spirits.

Although the effects of the intervention program StT were not statistically significant in alcohol consumption experiences, they were significant in the frequency of beer,

spirits, and wine consumption, with exception for other beverages as "champagne". It is often associated with festive occasions, particularly in the family context, in which is usual to "toast" with this substance. On the other hand, beer and spirits are considered the drink of choice to consume among adolescents.

The stabilization of the frequency of alcohol consumption in adolescents reflects a positive effect of StT. This effect should be noted, since it is expected that alcohol consumption increase throughout life, particularly during adolescence, and also, it is considered that the expected alcohol consumption changes after intervention programs of this nature, are often late⁹.

Some of the limitations of the study, namely non-random distribution of subjects and the implementation process being developed by the investigator may compromise the principle of neutrality. Finally, in what concerns the assessment, despite the intervention has been developed intensively on a weekly basis and over a school year school, the needed follow-up upon completion of the intervention limits the conclusions about its preventive effects. In this sense, it is considered necessary further evaluation in order to verify the control and maintenance of the effects.

CONCLUSION

The positive effects of the intervention program on behaviors related to alcohol consumption and adolescents' drunkenness reflect important changes that could have an impact on the current and future development of the adolescent, and also be a positive influence in their interaction with others.

Regarding the positive effects of StT in knowledge and expectations about alcohol, and in the perception of consumer experiences by peers it is noted its interference as a mediator of alcohol consumption related behavior and drunkenness in adolescents. In what concerns the increased knowledge about alcohol stands out the possibility that it could affect the perception of risk in order to enhance their protection.

Taking into account the results it is considered that StT as a strategy for Health Education (HL) can be integrated in the delivery of community nursing care in universal prevention. It should be pointed out the importance of nurses in the process of planning, implementation and evaluation of intervention programs in the school context.

Finally, it can be concluded that this study represents a contribution to the field of intervention programs to prevent alcohol use/abuse in Portugal, in line with the recent recommendations of WHO on this matter, it is recommended to continue this program of alcohol prevent use/abuse (StT) through the development of reinforcement sessions embedded in the school curriculum in subsequent academic years and their evaluation.

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