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Review paper

# PREVENTION SCIENCE AS A BASE FOR SUBSTANCE ABUSE PREVENTION PLANNING – LESSONS LEARNED FOR IMPROVING THE PREVENTION

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***SUMMARY***

*Addiction prevention programs in Croatia are still not sufficiently scientifically based as recommended by both foreign and Croatian scholars in the field of science and research. In order to achieve this objective, it is necessary to invest in the development of programs, notably by (1) linking program activities with theoretical and research insights, (2) defining program activities on the basis of comprehensive needs assessment, and (3) planning and conducting program evaluations. Therefore, this paper will present principles and elements of effective risk behaviors prevention in general, as well as specific traits of programs and strategies aimed at substance abuse prevention. Those program characteristics which have been proved effective and which contain components of knowledge and information, but are also based on psycho-educational approaches, such as development of skills and healthy lifestyles, will be described according to all prevention levels, from the environmentally-based prevention strategy to universal, selective and indicated prevention.*

***Key words:*** *substances abuse/use, youth, prevention programs, characteristics of effective prevention*

## Prevention science as a base for substance abuse prevention planning

Substance abuse prevention is a subject which has lately been much debated among scientists and experts. Their interests range from researching the prevalence of substance abuse among children and youth (as well as adults), researching risk and protective factors, creating prevention programs and their implementation, as well as their evaluation, to, especially lately, the identification of standards for effective prevention programs in the field of substance abuse prevention as guidelines for creating and implementing new programs and improving the current ones.

The problem of substance abuse among children and youth is not insignificant in Croatia. Two biggest researches which have been conducted in the Republic of Croatia (International research Health Behavior in School-Aged Children (HBSC) supported by the World Health Organization - Regional Office for Europe (conducted by the Croatian Institute of Public Health in 2001-2002, 2005-2006 and 2009-2010) and international project - European School Survey Project on Alcohol and Other Drugs (ESPAD) conducted by the same Institute from 1995.) show a continuous increase of the number of children and youth experimenting and/or abusing addictive substances. Simultaneously, increasingly more programs aimed at substance abuse prevention among children and youth has been developed and/or implemented in Croatia.

Exactly because of the identified need to start with systematic investments in the field of child

and youth substance abuse, in ways that have been proven to be efficient, as well as because of the fact that addiction prevention programs of significantly different quality levels have been developed and implemented, while systematically failing to evaluate efficiency of the programs, the aim of this paper is to give an overview of investments (know-how) that have been made within prevention science aiming to prevent substance abuse, especially in relation to the identified risk and protective factors and evaluation researches which give clear guidelines for the creation of prevention programs in the field of substance abuse prevention.

Along with the aforementioned, we give the overview of quality standards established by the leading organizations in this field - United Nations Office on Drugs and Crime and European Monitoring Centre for Drugs and Drug Addiction. All of this gives clear guidelines to experts when creating interventions in the field of substance abuse preventions – need estimates, program creation (both in relation to structure and content), program implementation and evaluation planning. Consequently, with active implementation of knowledge and research results shown in this paper, the field of substance abuse prevention in Croatia can reach a new quality level.

**Prevention science**

The prevention concept, in the sense it is used in the area of public health, has been seriously considered since mid-1990s. It was not before 1980s and 1990s that the interest in general human development took a significant turn towards the research of causes and elimination of psychological disorders. This shift contributed to the beginning of prevention science development. Over the past forty years, prevention science has been developing at fast pace and prevention science has become the foundation for health education and health promotion as well as preventive interventions (Biglan et al., 2011).

The field of prevention science encompasses research about human development and social ecology, as well as the identification of factors and processes leading to positive or negative consequences with regards to health. Theories of human development are used in order to conceive interventions aimed at decreasing risk factors and strengthening protection factors on the level of the individual, family, school and/or community, as well as on the level of environment.

The main objective/thesis of prevention science is to act upon problems/disorders before they develop. This can be achieved by identifying possible factors and processes related to either positive or negative outcomes, their distribution in the population, assessment of efficiency of preventive interventions, and identification of optimal ways of disseminating preventive interventions.

The development and direction in which prevention science is developed can also be seen in ways of depicting prevention levels, i.e. prevention interventions. The “classic” division refers to the primary (the objective of which is to decrease the number of new cases of disorders or illnesses), secondary (the objective of which is to decrease the number of determined cases of disorders or illnesses in the population), and tertiary (the objective of which is to decrease the number of problems related to existing disorders or illnesses) prevention whereby the levels are defined in relation to the existence of disorders and/or illnesses (Commission on Chronic Illness, 1957). After that, Gordon (1987) proposed a new classification based on costs and benefits of the implementation of interventions in the target population consisting of universal interventions (strategies aimed at the entire population; potential benefits surpass costs of interventions), selective interventions (strategies aimed at subgroups with above-average risk for development of illnesses or disorders), and indicated interventions (strategies aimed at individuals identified to be at increased risk of disorders based on an individual assessment, but who currently display no symptoms). Several years later, the Institute of Medicine (1994) pointed out that prevention needs to be place in a wider context that would include not only the treatment, but also maintenance interventions when continued care is indicated. The term “prevention” remains reserved for interventions created in order to decrease the number of new cases. In a way, the somewhat modified Gordon’s model was accepted in which the target population became the basis for defining the level of interventions (O’Connell et al.2009). In its report, the Institute of Medicine defines the universal prevention and the selective prevention in the same way as Gordon did, while the definition of the indicated prevention was somewhat modified and included the high-risk population which despite the fact that it hasn’t been diagnosed any disorders, displays prominent factors warning about the development of disorders. Around 2000, this concept became insufficiently defined or “too narrow”, since dilemmas emerge

as to where prevention stops and treatment begins. Thus Greenberg and Weissberg (2001) point out that each treatment intervention is also dealing with prevention of the "deteriorated condition"; however, it should be completely clear that activities of preventing the deteriorated condition cannot be called "preventive interventions". Weisz et al. (2005) propose a model in which they also included health promotion, i.e. positive development strategies, the objective of which would be to strengthen forces (protective factors) in order to increase chances for the individual's positive development. This model includes the following (1) health promotion/strategies of positive development: the objective is to strengthen forces in order to increase chances for the positive development; (2) universal preventive strategies: they are aimed at risk factors in the entire population; (3) selective preventive strategies: aimed at identified groups since they share common risk factors; (4) indicated preventive strategies: aimed at youth displaying considerable symptoms, which however hadn't been diagnosed; and (5) treatment interventions: mostly aimed at those displaying symptoms which are diagnosed. In the background of this concept is the idea of the necessity of a wide approach for all problems, because targeting only risks for a certain problem leads to higher fragmentation of the system/department/services/programs, instead to integral (holistic) approach to the child/development (Kutash, Duchnowski and Lynn, 2006).

**Risk and protective factors for substance abuse**

With regards to the topic of this paper, substance abuse prevention in children and youth, it seems important to name risk and protective factors in substance abuse which have been identified so far. Before we proceed to the list of factors, it is necessary to stress the following (European Monitoring Centre for Drugs and Drug Addiction, 2010):

- different (or no) relevance in different cultures; context is very important,
- some factors change from risk to protective as a result of their interaction with other factors,
- some factors are relevant only in the presence of others,
- the combination of several of factors increases the risk; the presence of only one risk factor is not usually relevant.

The National Institute on Drug Abuse (National Institute on Drug Abuse NIDA, 2003) identifies as substance abuse-related factors of the child/young person early aggressive behavior occurring in certain environments the following: insufficient parental control, socializing with peers who use substances, availability of drugs in the community and poverty with regards to risk factors; or impulse control, parental control, academic competency of peers, "Anti-Drug" policies and attachment to neighborhood with regards to protective factors.

Among identified risk factors is also parental use of substances (Ivandić Zimić, 2010, Toledano, 2002, Simpson and Miller, 2002 according to Stone et al., 2012), positive parental attitudes towards the use and lack of attachment to the school (Catalano, 2012), rebellious attitude and early manifestations of risk behaviors (Hawkins, 2012), impulsiveness (Carrol, Anker and Perry, 2009), early childhood trauma or abuse (Hawke, Jainchill and DeLeon, 2000., Kilpatrick and Acierno, 2000) and many others.

With regards to conditions in Croatia, psychosocial consequences of war, unemployment, changes in the family structure and value system, and unfulfilled expectations of young people (Sakoman, Raboteg-Šarić and Kuzman, 2002) can be added to already known risk factors.

Among protective substance abuse-related factors are also listed parenting practices, which include ensuring positive affirmation; open displays of affection; involvement in the child's activities and overseeing the child's behavior; and consistent, but not too strict discipline, and are related to positive outcomes for the child – psycho-social adaptation, including academic competence, high self-esteem, positive relations with peers and less behavioral problems (Kotchick and Forehand, 2002, according to Ferić Šlehan 2008). Arthur and associates (2002) list the following protective substance abuse-related factors: opportunities and rewards for pro-social engagement in the community, school, and family; family devotion; spirituality; clear moral norms; connectedness with pro-social peers; possession and use of social skills and sociability.

Below is a comprehensive and detailed list of relevant factors in substance abuse (Table 1) compiled by the European Monitoring Centre for Drugs and Drug Addiction (2010).

Once again, risk and protective factors, as well as their strength may vary in different contexts, which is why it is important to take that fact into consideration in the process of planning preventive interventions.

**Table 1** *Risk and protective factors (European Monitoring Centre for Drugs and Drug Addiction, 2010)*

| Domain | Risk factors | Protective factors |
|---|---|---|
| Environmental/ contextual | High drug availability<br>Low socio-economic status<br>Drug-using peers<br>Delinquent peers | Pro-social adult friends<br>Pro-social peers<br>High socio-economic status |
| Family | Parental substance abuse and deviance<br>Low parental monitoring<br>Parental rejection<br>Parent–child attachment<br>Poor disciplinary procedures<br>Family conflict/divorce<br>Predisposition/addicted parents<br>Low parental expectations<br>Family disruption including employment | Absence of early loss or separation<br>Cohesive family unit<br>Parent–child attachment<br>High parental supervision and monitoring<br>Consistent, age-appropriate discipline<br>Adult monitoring and/ or supervision<br>Family problem-solving ability<br>Family members can communicate supportively<br>Significant attachment to pro-social adult<br>Family members value education |
| Individual biography | Early onset of deviant behavior, smoking and drinking<br>Early sexual involvement<br>Early onset of illicit drug use<br>Rapid escalation in substance use<br>Positive expectations an knowledge about substance use<br>History of behavior problems | Late onset of deviant or substance-using behaviors<br>Negative expectations and cognitions about substance use<br>Religious involvement |
| Personality | Strain/stress<br>Depression<br>Aggression<br>Impulsivity/hyperactivity<br>Antisocial personality<br>Sensation seeking<br>Mental health problems | High self-esteem<br>Low impulsivity<br>Easy temperament |
| Educational | Poor school performance<br>Low educational aspirations<br>Poor school commitment<br>Absence, truancy and drop-out<br>Little formal support | Good teacher relations<br>High educational aspirations<br>High parental educational expectations<br>High educational attainment<br>Good formal support in education |
| Neighborhood | Availability of drugs<br>Availability of firearms<br>Community norms tolerant of violence<br>Community norms tolerant of substance abuse<br>Low neighborhood attachment<br>Community disorganization<br>Transitions and mobility<br>Poverty | Access to quality prenatal<br>healthcare<br>Access to quality pediatric/ adolescent healthcare<br>Access to quality mental healthcare<br>Community norms against crime<br>Community norms against substance abuse<br>Community norms against violence<br>Neighborhood attachment and organization<br>Residential stability<br>Increase in jobs with a family wage |
| School | Antisocial behavior<br>Academic failure<br>Lack of commitment to school | Parent–teacher cooperation<br>Specialized instruction for at-risk students<br>School-work transition programs |
| Peer/individual | Alienation from mainstream<br>Favorable attitudes toward problem behavior<br>Friends engage in problem behavior<br>Early initiation in problem behavior | Committed to some form of pro-social ideology<br>Pro-social attitudes<br>Friends do not engage in problem behavior<br>Friends disapprove of problem behavior |

### Characteristics of effective substance abuse prevention programs – structure, content and process of development and implementation

Longtime evaluation researches into preventive interventions indicate efficiency of many preventive interventions (Gottfredson and Wilson, 2003); however, following this a logical question arises: "Which components of programs have contributed to that effectiveness?" The answer to this question would provide research evidence on which new preventive programs could be based; thus they would start from the initial phase of implementation with a greater chance for positive effects in the area of substance abuse prevention. Furthermore, Faggiano

(2012) states that it is possible to differentiate programs according to their efficiency levels, pointing out that the question is not only which program components are effective, but also how can components in their interacting ensure higher efficiency of the program in its entirety. Some components are effective only in the presence of others and that is an important question to which future evaluation researches into prevention will offer answers.

We gain evidence from prevention researches about characteristics and components of programs which contribute to effects in the area of substance abuse. Many meta-analysis and surveys which deal with evaluation of substance abuse programs have recently yielded evidence about concrete elements of those programs which make them effective (Dusenbury and Falco, 1995, Tobler et al., 1999, Tobler, 2000, Gottfredson and Wilson, 2003 according to Sloboda et al., 2009a; Cuijpers, 2002; Faggiano et al., 2005, Faggiano et al., 2008).

According to Buhler, Schroder and Silbereisen (2008), the characteristics of effective programs can refer to the program implementation (e.g. program's length, frequency, project size) and the program conceptualization (e.g. theoretic approach in the background, methods used in the program).

With regards to the program implementation, Tobler and associates (2000) in their meta-analysis which encompassed 207 universal substance abuse prevention programs concluded that the program type and size represent important efficiency predictors. Programs which are implemented within the framework of smaller projects, with the length between 11 and 30 lessons have a chance for greater effect. In the systematic overview of literature which included 3 meta-analysis and 27 surveys, Cuijpers (2002) singled out seven quality criteria for evidence-based programs, some of which are linked to the program implementation, such as joining forces with interventions in the community and adding the peer component in the program. This is not surprising, notably since many researches pointed out to the importance of peer influence on the use of substances, stressing that young persons who socialize with peers using substances are at greater risk of using them (Ennett and Bauman, 1993; Oetting and Beauvais, 1987; Wills and Cleary, 1999 according to Griffin et al., 2003). Furthermore, some surveys researched the program efficiency with regards to various program executors – experts, teachers, peers and others, and results of those surveys were different. Some surveys show that interventions led by peers can be equally, if not more, effective than those led by adults (Allott et al., 1999; Black et al., 1998; Cuijpers, 2002; McBride, 2003 according to Soole, Mazerolle and Rombouts, 2005). On the other hand, Gottfredson and Wilson (2003) found out that there are no considerable differences in program efficiency with regards to their leaders, while some authors (Tobler et al., 2000) stress that educated experts/professionals represent the most effective manner of providing preventive interventions.

Research have systematically demonstrated that the use of substances early in life is connected with various other risk behaviors and negative developmental outcomes in life, such as aggressive and delinquent behavior, poor health and mental health issues. Griffin and associates (2003) state that objectives of substance abuse prevention programs are most often targeting the prevention of the use of substances at young age or, at the least, the delay of the beginning of substance use. Soole, Mazerolle and Rombouts (2005) suggest that researches are not consistent in proving effects with regards to the age of program users. For example, Gottfredson and Wilson (2003), state that prevention programs the objectives of which are the delay of the initiation and the prevention of early consumption of substances show the strongest effects when they are intended for children and youth aged between 12 and 15 because experimenting and use of substances most often start in that period. On the other hand, some researches (Tobler et al., 2000, Porath-Waller et al., 2010 according to Gabrhelik et al., 2012) indicate the probability of stronger effect if the programs are applied in a later developmental phase (15 – 18) when the consumption of substances poses a greater problem. Botvin and Griffin (2003 according to Soole, Mazerolle and Rombouts, 2005) conclude that universal preventive programs are more effective at younger age; while stronger effect has been proved in case of selective and indicated programs if they are implemented in a later phase, when first signs of substance abuse start showing.

Another important question in the program implementation and its effect can be conducting program follow-ups (booster sessions) which are conceived with the aim of strengthening and upgrading the original program content and thus ensure a more lasting effect (Botvin and Griffin, 2003; Gottfredson and Wilson, 2003; McBride, 2003; Skara and Sussman, 2003; White and Pitts, 1998 according to Soole, Mazerolle and Rombouts, 2005). The research have been systematically providing evidence that program effects are sensitive to time and that the effect becomes weaker with

passing of time, which undoubtedly leads to the conclusion that program follow-ups which monitor developmental phases of children and youth are indispensible if a sustainable and lasting effect is desired.

With regards to the program effect in conditions of wider application of known and verified interventions, it is important to pay attention to fidelity of implementation for which Dusenbury and associates (2003 according to Sloboda et al., 2009b) set out several most frequent definitions: (1) strict adherence to methods and implementation which is subject to theoretical guidelines, (2) quantity and completeness of implementation, (3) quality of the program execution (the manner in which teachers execute the program), (4) degree to which the users are included, (5) differentiation of the program (degree to which parts of the program, according to which program types are differentiated, are present. Many researches speak about stronger effect of programs which succeed in maintaining high implementation fidelity, notably through additional program materials, trainings of the executors, and permanent technical and expert supervision support (Kam, Greenberg and Walls, 2003; Byrne, Barry and Sheridan, 2004, Botvin and Griffin, 2003 according to Soole, Mazerolle and Rombouts, 2005).

In addition to characteristics describing the structure and process of the program implementation, researches also provided evidence about components which refer to the conceptualization of preventive programs, i.e. theoretic foundation and content which will influence the higher probability of attaining the goal.

As can be seen from represented scientific researches and meta-analysis, the roots of the debate on effective program components lie in understanding the ways in which programs incite changes in individuals, social groups or social and physical environment which indirectly influences the behavior.

Petraitis, Flay, and Miller (1995 according to Amaro et al., 2001) categorized the key theories for explaining the substance abuse problems in five groups: cognitive-affective, social learning, conventional commitment and social attachment, intrapersonal (to which was added interpersonal), and comprehensive. The answer to the question of theoretic foundation of the program that will define the program content can be found in already described concept of risk and protective factors (Hawkins, Catalano and Miller, 1992 according to Hansen et al., 2007; Griffin et al., 2003). As stated by Hansen and associates (2007), some authors speak about risk and protective factors, and other about mediators and moderators; whereupon changeable risk and protective factors are considered mediators, while those that may influence the effect, but are themselves unchangeable are considered moderators. In any case, preventive interventions aim at changing some or several factors, which is indirectly reflected in the program content. In the analysis of the contents of 48 programs of substance abuse prevention which can be brought into connection with program efficiency, Hansen and associates (2007) identified 23 different content areas of preventive programs which they divided in four dimensions:

1. Components targeting the change of individual motivation or readiness to use psychoactive substances – attitudes, knowledge of consequences, normative beliefs, etc.
2. Components targeting development of personal competences – academic skills, decision-making and goal-setting skills, self-respect, etc.
3. Components conceived with the aim of developing social skills – communication skills, resilience skills and problem-solving skills in relationships, etc.
4. Components targeting the change of social characteristics and environmental characteristics – availability and access to psychoactive substances, class-leading skills, parenting skills, positive connectedness with peers, support and involvement in the community, etc.

Tobler and associates (2000) found that non-interactive methods of teaching about drugs or emotional skills show modest effects, while the effects become stronger the more the program is based on interactive teaching methods targeting the development of interpersonal skills. Cuijpers (2002) adds that effective components on the level of program conceptualization are the following: “social influences model”; orientation to norms, commitment to the “non-use”, intention of “non-use”; and foundation in living skills.

With regards to the program content on which the desired effect is based, some other surveys (Bruvold, 1993; Tobler and Stratton, 1997; Tobler et al., 2000 according to Rohrbach et al., 2005) single out interactive teaching techniques as effective and emphasize knowledge about social influences; however, they also add resilience skills and generic skills, i.e. competences.

Faggiano and associates (2008) found out that interventions in the area of emotional skills increase decision-making skills and enhance knowledge about psychoactive substances in comparison with knowledge-based interventions. This effect is further increased when interventions of skill development are added to interventions oriented to emotional skills.

Botvin and Griffin (2003 according to Soole, Mazerolle and Rombouts, 2005) reviewed 45 surveys as part of the evaluation of substance prevention programs which were introduced in school environment, and concluded that programs which are based on providing information about psychoactive substances, the approach which was popular in 1970s and 1980s, show very modest effect on behavior relating to the use of psychoactive substances. However, some surveys proved a somewhat stronger effect on knowledge and attitudes. Recently, it has become clear that informing about psychoactive substances as a method and content in preventive programs can be important, but in absence of other program components, methods and content this is not sufficient in order to realize the desired effect on such complex user behaviors like behaviors related to the use of psychoactive substances.

On the basis of studied characteristics of effective programs, another important analysis of preventive programs has offered efficiency principles which can be applied to, among others, substance abuse, and which depict methods, implementation and adequacy of programs for the population for which they are intended. This is the analysis of Nation and associates (2003) listing nine principles of efficiency which are linked with three key areas of prevention planning: (1) program characteristics, (2) adjusting the program to the population, and (3) program implementation and evaluation. Five out of nine principles are linked with program characteristics: comprehensiveness, including various teaching methods, sufficient program length, theoretic foundation, and opportunities for establishing and maintaining positive relations. In the sense of adjusting the program to the target population, temporal and socio-cultural adequacies are singled out as efficiency principles. In the third area, efficiency principles are educated staff and outcome evaluation.

The summary of presented research evidence is given in the following table. In Table 2 the key efficiency elements are divided in three groups – elements referring to the program structure, elements describing contents presented in programs, and elements describing processes linked with the program. Surveys attesting efficiency of substance abuse prevention program are ascribed to each efficiency element.

Although numerous, previously presented researches speak about many program components which ensure higher probability of positive program outcome, the main criticisms of preventive programs concern their targeting of a single risk behavior, in this case substance abuse. Some authors (Griffin et al., 2003) consider that preventive programs conceived in this way cannot fully meet the needs of all youth within the environment in which a program is implemented, notably if those youth are exposed to a wide range of risks.

Domitrovich and associates (2010) propose the implementation of different types of interventions from the continuum of preventive interventions, which would cover all needs of youth, while theoretic and research insights should be used in order to identify specific preventive models which can be integrated into as much as possible cost-effective and efficient strategies. In this way, according to those authors, theoretic and research insights have a potential to determine the content, processes and structure of preventive interventions on every risk level in order to ensure a stronger effect of the program. Determining and using "effective components" helps to avoid wasting of resources on conceiving and implementing "programs for each problem" and in that way interventions are oriented to a wider range of prevention objectives. This approach is coupled with the previously set standard of prevention science which speaks about necessity of a multi-component and coordinated approach to conceiving and implementing preventive interventions (Elias, 1995 according to Nation et al., 2003) which has then realized preconditions for achieving more important effects in attaining set objectives.

## Conclusion

The development of substance use prevention programs happened in several stages (Hansen, 1997 according to Springer, Hermann and Sambrano, 2002) in which the focus of the very intervention significantly changed: (1) programs based on common sense, ideology, or intuition; (2) theory–driven programs; and (3) data–driven programs. This third and current phase is "data-driven" by findings from etiologic research on risk and protective factors for substance use, and increasingly by systematic research on interventions and their effectiveness in

**Table 2** *Research evidence about effective program components*

| **PROGRAM STRUCTURE** | |
|---|---|
| **Characteristics of effectiveness** | **Evidences** |
| Comprehensiveness | • Nation et al., 2003 |
| Risk and protective factors | • Hansen et al., 2007<br>• Stone et al., 2012<br>• Griffin et al., 2003 |
| Dosage | • Tobler et al., 2000<br>• Nation et al., 2003 |
| Theoretical background | • Petraitis, Flay and Miller, 1995 according to Amaro et al., 2001<br>• Hawkins, Catalano and Miller, 1992 according to Hansen, 2007<br>• Griffin et al., 2003 |
| Program duration | • Tobler et al., 2000 |
| Evaluation (process and outcome) | • Nation et al., 2003 |
| Booster sessions | • Botvin and Griffin, 2003<br>• Gottfredson and Wilson, 2003; McBride, 2003; Skara and Sussman, 2003; White and Pitts, 1998 prema Soole, Mazerolle and Rombouts, 2005 |
| **PROGRAM CONTENT** | |
| **Characteristics of effectiveness** | **Evidences** |
| Normative beliefs | • Cuijpers, 2002<br>• Faggiano et al., 2008 |
| Social and life skills | • Cuijpers, 2002<br>• Faggiano et al., 2008 |
| Comprehensive social influences | • Cuijpers, 2002 |
| Critical thinking strategies | • Faggiano et al., 2008<br>• Cuijpers, 2002 |
| Positive relations | • Nation et al., 2003 |
| Information/knowledge on effects and consequences of substance use | • Cuijpers, 2002<br>• Rohrbach et al., 2005<br>• Faggiano et al.,2008<br>• Botvin and Griffin, 2003 according to Soole, Mazerolle and Rombouts, 2005 |
| **PROGRAM PROCESSES** | |
| **Characteristics of effectiveness** | **Evidences** |
| Peer arm | • Cuijpers, 2002<br>• Ennett and Bauman, 1993; Oetting and Beauvais, 1987; Wills and Cleary, 1999 according to Griffin et al., 2003<br>• Allott et al., 1999; Black et al., 1998; McBride, 2003 according to Soole, Mazerolle and Rombouts, 2005 |
| Community-linked | • Cuijpers, 2002 |
| Interactive teaching/delivery methods | • Tobler et al., 2002<br>• Cuijpers, 2002<br>• Nation et al., 2003 |
| Educated staff | • Tobler et al., 2000<br>• Nation et al., 2003 |
| Temporal adequacies | • Griffin et al., 2003<br>• Soole, Mazerolle and Rombouts, 2005<br>• Gottfredson and Wilson, 2003<br>• Porath-Waller et al., 2010 according to Gabrhelik et al., 2012<br>• Botvin and Griffin, 2003 according to Soole, Mazerolle and Rombouts, 2005<br>• Nation et al., 2003 |
| Implementation fidelity | • Dusenbury et al., 2003 according to Sloboda et al., 2009b<br>• Kam, Greenberg and Walls, 2003<br>• Byrne, Barry and Sheridan, 2004<br>• Botvin and Griffin, 2003 according to Soole, Mazerolle and Rombouts, 2005<br>• Nation et al., 2003 |

preventing substance use. Most programs now focus on producing statistically meaningful changes in two types of variables– mediating variables (e.g., risk and protective factors) that help account for substance use, and substance use outcomes (e.g., delaying drug use initiation and reducing the level of use).

What is significant, and is known from recent researches (Werch and Owen, 2002; Moos, 2005), prevention programs can be (1) effective; (2) non-effective and (3) what is especially concerning for prevention practitioners and scientists, prevention programs can be harmful, they can have an iatrogenic effect.

These results of evaluation researches put even greater responsibility on prevention scientists and experts, especially in the way of using contemporary research knowledge in the process of development, implementation and evaluation of prevention programs. The approach of modernizing the practice with contemporary research results is sometimes absent because certain forms of work or certain approaches become common and traditional, which makes it more difficult to abandon them, because tradition is something we appreciate, especially if it was proven to be useful in a certain implementation stage. Even when it begins to fail to produce results, the approach still remains in practice for some time. Given what we said earlier, it is obvious that this approach is especially dangerous in areas where researches on the harmfulness of interventions, which today is a scientific fact, exist.

There are numerous other reasons (e.g. Lilienfeld et al, 2013) for dismissing the evidence-based approach, therefore the approach based on research results, except the ones we mentioned. We won't elaborate on the further, it is enough to say the fact that evidence-based approach to prevention practice is sometimes ignored which can have negative consequences for prevention interventions target groups.

But there are several challenges when it comes to basing the development of prevention programs exclusively on the results of the evaluations researches of already implemented programs. First of all, there is the challenge of evaluating individual programs in one implementation. Earlier in the paper we mentioned a series of researches (e. g. Greenberg, 2004; Kam, Greenberg and Walls, 2003) that say there are several different problems in implementing programs in new environments, which is why the results of efficiency are not always consistent – what proved to be effective in one environment does not necessary have to be effective in the following implementation to the new environment. Besides, what has proven to be effective in a certain program in single-implementation does not necessarily have to be effective for other programs. So, as Springer, Hermann and Sambrano say (2002), in the last 20 years the researchers have dealt with a more complex multi-program analysis approach through meta-analysis and multilevel modeling. The results of such research approach are shown in this paper and represent the highest level of evidence in the prevention field, together with randomized controlled trials (Mullen and Streiner, 2004). One simply cannot avoid the challenges and problems of the prevention program evaluations which remind us to be cautious when transferring and using these results, which is important to avoid the harm inflicted on the program users.

Since the purpose of this paper was not to deal with the challenges of evaluation, we only mentioned some problems of substance use prevention programs evaluation: feasibility issues such as participant recruitment and retention, identifying target population, and obtaining a control/comparison group for specific population; measurement issues such as social desirability bias and instrument reliability; methodological issues such as attrition (both selective and differential), inadequate implementation and variable dose, low statistical power, contamination of comparison groups, and sometimes even low literacy skills of specific groups of participants (Resnickow et al., 2001). Jaycox et al. (2006) also mention measurement problems because many of the behaviors being prevented are low in frequency and socially undesirable, resulting in highly skewed responses and emphasizes that the validity of survey responses is questionable, thus challenging findings from an evaluation that relies on assessments via survey. Gabriel (2000) emphasizes the specifics of evaluation of substance use prevention initiatives in community: ever-changing array of interventions and the unavailability of traditional no-treatment control groups for testing the effectiveness of these community-wide substance use prevention interventions; assessment approaches must contend with the often poor, or at least underspecified, connections between the immediate outcomes of the community substance use prevention interventions and the ultimately desired impact of reduced substance abuse.

With the aim to support the evidence-based practice in substance abuse prevention activities and programs, there are different initiatives which take into consideration contemporary research and scientific accomplishments and support their transfer and implementation into prevention practice. For example, UNODC published International Standards on Drug Use Prevention (UNODC, 2013). These global International Standards summarize the currently available scientific evidence, describing

interventions and policies that have been found to result in positive prevention outcomes and their characteristics.

European Monitoring Center for Drugs and Drug Addiction (EMCDDA, http://www.emcdda.europa.eu) with their regular activities within the Best Practice Portal brings current evidence of prevention program effectiveness in the field of substance use prevention, as well as in the field of treatment, harm reduction and social reintegration approaches.

The European Drug Prevention Quality Standards (EMCDDA, 2011) are provided by the EU Prevention Standards Partnership, a multi-disciplinary and multi-sectoral collaboration of academic institutions, organizations in charge of delivering local prevention and health promotion services, as well as governmental institutions from across Europe. The Prevention Standards (http://prevention-standards.eu) provide the first European framework for high quality drug prevention. Organized in an eight-stage project cycle, the Standards outline the necessary steps in planning, implementing and evaluating drug prevention activities. Prevention quality standards tend to focus on the implementation of policies and interventions, covering structural and procedural aspects such as staff composition, recruitment of target population, or evaluation. In general, they do not prescribe 'what intervention' to implement (as above mentioned UNODC International Standards), but they refer to the context within which interventions take place.

The mentioned initiatives, with the before mentioned results of systematic research reviews, can be a valuable source of knowledge, tools and guidelines for the development, implementation and evaluation of substance use prevention programs in Croatia. In the Republic of Croatia, there is no systematic review of prevention activities being carried out (Bašić, 2009), and there is very little information on the evaluated and effective addiction prevention programs (Vugrinec et al., 2012). In practice, addiction prevention program activities often target different settings (family, school, community), but at the same time there are few programs where theoretical foundation can be identified. In order to gain insight into prevention activities in Croatia, in 2010 the Office started conceiving and creating the Drug Addiction Prevention Program Database[1], as part of the project of the Drug Demand Reduction Programme Database, which contains areas of prevention, treatment, resocialization and harm reduction programs (Vugrinec et al., 2011).

Some of objectives of the Drug Addiction Prevention Program Database are the following: gathering information about all preventive activities which are undertaken, notably gaining insight into high-quality and effective interventions. The long-term objective of this database is to improve the quality of the addiction prevention program and identify examples of evidence-based practice (Vugrinec et al., 2011). The database foresees searching activities according to levels of preventive interventions, evaluation type, targeted groups, year of implementation and counties in which a program was implemented, and will enable higher awareness of program implementers, policy creators, experts and all interested stakeholders about conducted activities, as well as identification of high-quality, evaluated and effective programs (www.programi.uredzadroge.hr). Furthermore, modeled after the EDDRA database and in cooperation with the EMCDDA, Croatian database also foresees introduction of quality certificates which will guarantee efficiency and quality of the program and represent one of the criteria for financing programs / projects by the Office. In addition, evaluated and effective programs will be proposed as Croatian examples of good practice for the EDDRA database of the EMCDDA, and will as such be presented on the national level (Vugrinec et al., 2011).

In order to improve the existing ones and develop new preventive programs, it is necessary to learn from the experience of Croatian and foreign prevention scientists and practitioners. For precisely this purpose, during 2011 and 2012 the Office had organized in cooperation with the EMCDDA, or TAIEX[2] unit of the European Commission, workshops about drafting and enhancing preventive programs and minimal quality standards in the area of programs aimed at decreasing the drug demand, during which the subject Database was presented to the wider expert public (http://www.uredzadroge.hr/home/?&io_news_list_c_1_com_pg=3). The forthcoming entry of projects into the Database represents a step forward in monitoring and improving the quality of addiction prevention programs in Croatia, and at the same time contribution to prevention practice and science.

Moreover, along with the development of the Database there is a need to conduct more meth-

1 Drug Addiction Prevention Programme Database is available at URL address www.programi.uredzadroge.hr.
2 TAIEX is Technical Assistance and Information Exchange Instrument of the European Commission managed by the Directorate-General Enlargement of the European Commission

odologically rigorous evaluations of prevention initiatives in Croatia, that are multi-implemented, and, as can be seen from the Database, that obviously exist in Croatian prevention practice. First steps in that process could be (1) to analyze programs from the Database, (2) based on the analysis to suggest the improvement of the prevention programs according to knowledge of prevention science and effectiveness research (presented in the aforementioned International standards and Prevention standards), and (3) test their effectiveness in specific Croatian implementation context through evaluation researches of multiple implementations. First steps by the Office for Combating Drugs Abuse were taken at the end of 2013 within the "Improvement of quality level in NGO-based programs of substance abuse prevention and resocialization" project in collaboration with the Faculty of Education and Rehabilitation, University of Zagreb, results of which are expected to be seen in the first half of 2014.

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# PREVENCIJSKA ZNANOST KAO OSNOVA PLANIRANJU PREVENCIJE KORIŠTENJA SREDSTAVA OVISNOSTI – NAUČENE LEKCIJE ZA UNAPRIJEĐENJE UČINKOVITOSTI PREVENCIJSKIH PROGRAMA

***SAŽETAK***

*Programi prevencije ovisnosti u Hrvatskoj još uvijek nisu dovoljno znanstveno utemeljeni kako to preporučaju strani i domaći znanstveno-istraživački autoriteti. Kako bi oni to postali potrebno je ulagati u razvoj programa i to prije svega (1) povezivanjem aktivnosti programa s teorijskim i istraživačkim spoznajama, (2) postavljanjem programskih aktivnosti na temelju opsežne procjene potreba i (3) planiranjem i provođenjem evaluacije programa. Stoga će se u ovom radu prikazati načela i elementi učinkovite prevencije rizičnih ponašanja općenito, a zatim i specifičnosti programa i strategija usmjerenih prevenciji korištenja sredstava ovisnosti. Dokazano učinkovite karakteristike programa koji sadrže komponente znanja, informiranja, ali se temelje i na psihoedukativnim pristupima kao što su razvoj vještina i zdravih stilova života, bit će opisane prema svim razinama prevencije, od strategije prevencije temeljene na okruženju, do univerzalne, selektivne i indicirane prevencije.*

***Ključne riječi:*** *sredstva ovisnosti, mladi, preventivni programi, karakteristike učinkovite prevencije*