Evidence-based science in public policies for reinventing alcohol and drugs use prevention

The evidence-based public policies need to address the social vulnerabilities in order to overcome the inequities. This narrative literature review analyzes the challenges of adaptation in the dissemination of the evidence-based alcohol and drugs prevention practices within the context of the Brazilian public policies. The critique of existing models is based on the theories of “Diffusion of Innovations” (Rogers) and “Implementation of the evidence-based practices” (Aarons et al). We concluded that the implantation of an evidence-based preventive action, if culturally not relevant, risks not impacting on the vulnerabilities. The adaptations may promote higher levels of acceptance and adhesion. In spite of that, if those adaptations are performed without the evidence base, they may reduce the effectiveness, as well as de-characterize the innovation, ending up in the reproduction of the inequities it aimed to reduce.

Keywords: Prevention of alcohol and other drugs use. Public policies. Evidence-based science.
Public policy is a set of goals with the purpose of solving or preventing social problems defined by governers, with different degrees of participation of those that are governed, that becomes a political agenda¹.

The analysis of how alcohol and other drug policies are placed on agenda is an indicator of the ideological positioning regarding the problem, especially when decisions are scarcely supported by scientific evidence, being instead upheld by moral appeals of user isolation and fear-mongering speech².

As part of the consolidation of public policies on alcohol and other drugs, evidence-based prevention has been advocated aiming at the adequate use of resources to produce desired and non-iatrogenic effects³⁻⁵. Evidence-based science alone cannot act in the decision-making field of policymaking, but it can mediate interests based on cultural norms. The political practice, based on the ethics of preservation of life can find answers originated in evidence that avoid the reproduction of actions that are not aligned with these ethics.

Even though the evidence has shown that the “war on drugs” policies have not been able to reduce rates of alcohol and other drug use, they are still a choice of governers²,⁶,⁷. In this case, the consumption of alcohol and other drugs, understood as a public problem, is treated as if having a political, ideological nature instead of a scientific one². Problems can rise to the political agenda through evidence, but they often emerge in other ways, such as the influence of the media, the diffusion of ideas from professional circles and interests of political elites, and this emergence often occurs after party changes in government control due to elections⁸.

Science can map out ways of overcoming social vulnerabilities, and must act to translate good technique into good practice, going beyond controlled contexts of studies that are not replicated in the “real world”, with scarce contribution to the consolidation of complex prevention systems⁹⁻¹¹.

To systematize and produce practices based on evidence, it is recommended to evaluate the efficiency, efficacy and effectiveness of the actions, either in programs already in existence or under construction, for their possible diffusion in the context of public policies¹².

It is more likely to achieve effectiveness results in the replication of a previously evaluated program than in the implementation of a program without scientific basis¹³,¹⁴. In terms of cost-effectiveness, the implantation of an evidence-based program is more cost-effective than the development of a new program⁹.

The formulation of alcohol and other drug policies should be organized in a number of areas, such as health promotion, prevention, care, social reinsertion and supply control – and scientific validation of the actions shall be considered. There is a need to be careful with the generalization of evidence, because the policies need to be sensitive to different realities⁵.

The prevention of problems related to the use of alcohol and other drugs has been addressed in Brazil within the scope of actions and programs, posing the challenge of being implemented as a public policy. There are efforts made in a diffuse and scantily articulated way of actions that are defined as preventive, although their effect has not been verified⁶,¹⁵⁻¹⁷.

The verification of the effects of preventive actions, however, has followed an international trend of validation through Randomized Controlled Trials (RCT),
checking for behavioral changes in the variables of first use, frequent use, harmful use and abusive use before and after interventions, with follow-up of six to twelve months, with the exception of broader life skills studies lasting up to 20 years\textsuperscript{14,18}.

When good results are found, the transposition from the controlled scenario to the real life is initiated, whether in small or large scales as in the case of the diffusion of an intervention implanted as the public policy of a country.

The challenge that reality imposes comes from the fact that it presents new and diverse variables that were not present during the test phase, such as the profile of the implementer, the community readiness, or norms and laws that govern social and political systems. And it is at this point that the protective effect can lose its force to the point of even becoming iatrogenic\textsuperscript{11,19}.

Facing this inexorability, the studies on cultural adaptation of programs propose that when transposing these programs to the real world, there must be considered adjustments that favor the maintenance of the effects verified in controlled contexts\textsuperscript{18,20,21}. What this article proposes, however, is that positioning the cultural adaptation as an initial stage does not adequately respond to the complexity of the diffusion of programs as public policies of countries, especially in Brazil, with its social and cultural inequities and diversities.

The present research therefore sought new answers to the approach of cultural adaptation, understanding that scientific evidence should dialogue with public policies avoiding imposing a blind method to reality; rather the method should be at the service of that reality.

In prevention science, there is a tension between two competing objectives: to develop universal interventions, implementing them without adaptations that compromise fidelity, and on the other hand, to implement evidence-based prevention that meets the specific cultural needs of the territories\textsuperscript{19,21,22}.

This research critically dialogues with the applicability of this model of cultural adaptation of evidence-based programs, in which the emphasis on the fidelity aspects does not allow adaptation beyond the superficial elements such as language, for example. Thus, the logic is reversed and the contexts need to adapt to programs rather than programs to contexts, stressing or even excluding vulnerability scenarios in which readiness for practice is far from the prerequisites of effectiveness.

The present study describes and discusses the challenge of the relationship between evidence and cultural adaptation in the diffusion of preventive innovations in the context of public policies of alcohol and other drugs in Brazil. It is a qualitative study done by narrative review, geared to discuss the state of the art of the abovementioned topics while proposing a reflection on new possible answers facing the limits found in the literature. The broad analysis of the literature did not focus on establishing a rigorous and replicable methodology from the perspective of data reproduction, but instead to highlight the paradigms under which topics have been addressed\textsuperscript{23,24}.

Articles, books and book chapters were analyzed from August 2015 to August 2017. The original date of publication was not used as a criterion because theoretical methodological references on implementation, monitoring and evaluation of programs and policies were included. The articles were searched within the scientific databases of Scielo, Medline, Lilacs and Pubmed using the descriptors in health sciences in Portuguese and their correspondents in English and Spanish: Alcohol Consumption
by Minors; Illicit drugs; Primary Prevention; Public policy; Adaptation; Government Programs; Health promotion; Health education; Preventive Health Services; Evidence-Based Clinical Practice; Evidence-Based Health Care; and Evidence-Informed Policy.

The papers were read in full, categorized and analyzed with the support of Mendeley software. The inclusion criteria of the publications were the title or keywords containing the expressions or the abstract explaining that the text relates to the adaptation, implementation, monitoring or evaluation of programs and policies in the health area. Throughout the period, new publications were identified, totaling 202 materials. No paper exclusion happened after reading the titles and abstracts at this initial stage. Throughout the study, 56 publications that were not coherent with the references studied from the perspective of information quality were excluded. A complete reading of the 146 materials was carried out, in which 87.3% are international literature published in English.

Related to the axes of analysis, we sought to categorize the papers in: (1) Theories in public policies; (2) Historical perspective of public policies on alcohol and other drugs in Brazil; (3) Evidence-based science: international concepts and national critiques; (4) Alcohol and other drugs prevention programs: theories of adaptation, implementation, monitoring and evaluation; and (5) Social vulnerabilities and inequities in the scenario of alcohol and other drugs use in Brazil. From this point on, the study evaluated the methodology, the results obtained and the discussion for the critical organization of knowledge.

The initial results indicate that adaptation to the context, denominated cultural adaptation according to authors, should be explored as a process and not as a punctual stage as presented in the literature. The experiences of the implantation of practices based on evidence in new contexts highlight the need of adaptation in order to increase the cultural relevance of the intervention as well as to make the program compatible with the language, dialect, values and cultural meanings of the new audience.

Cultural adaptation of evidence-based programs needs to be conducted in a planned, systematic and collaborative way. Burlew et al. identified three most common approaches to cultural adaptation: community involvement at all stages; review of the literature on etiological precursors of the problems to be prevented (risk and protective factors of the target audience); and involvement of experts in decision-making.

According to Rogers, the author of the Theory of Diffusion of Innovations, the diffusion of innovations proceeds through exploration, adoption, implementation, dissemination and sustainability. Throughout the literature, the cultural adaptation is located at the beginning of the implantation. It is understood that in public policies that consider the prevalence of social vulnerabilities, adaptation crosscut all the stages: from language to the implementation mechanisms for sustainability.

Vulnerability contexts impact practices and without adaptation they may compromise the adoption, dissemination and sustainability of actions.

Rogers states that the analysis of how implementers update, modify and criticize their actions is strategic for adaptation. The author organizes four elements for the analysis:
The “innovation itself” is the perception of the implementers of the new action being a better option than the previous ones. It is necessary to understand the compatibility and incompatibility with the different realities and how norms influence the perception of innovation\textsuperscript{31}.

“Communication channels” identify how participants create and share information to reach a mutual understanding. Interpersonal channels are considered effective in shaping and changing attitudes, influencing the decision to approve or reject the new idea. Most individuals do not perceive innovation on the basis of evidence, but through evaluations of those who had adopted innovation\textsuperscript{31}.

The “time” element is characterized by the timing required by the “innovator” to learn about technology and deciding to expand it to new contexts. The “innovator” is the one adopting, sustaining and developing the capacity to learn about and apply the new knowledge, even within the degrees of uncertainty\textsuperscript{31}.

The “social system” is the understanding and adaptation to the context in which an innovation is being diffused and to the interaction patterns of individuals, groups and organizations. Innovators influence the creation of the critical mass that will ensure the sustainability of innovation\textsuperscript{31}.

Professionals who are voluntarily committed to adopting good practices are more befitting in the context of public services\textsuperscript{32}. Reluctant professionals may complicate the diffusion of good practices. In Brazil, as the use of evidence-based practices in the prevention of alcohol and other drug use is recent\textsuperscript{6,15-17}, it is unlikely that professionals will be ready for exchanges and production of prior knowledge. Thus, innovation will depend on investing in the development of necessary skills and competencies of professionals and institutions\textsuperscript{4,33}.

When replicated in new contexts or in large-scale diffusion, programs validated in a controlled context are rarely implemented in the original way - adaptations by implementers are more the rule than the exception\textsuperscript{34,35}. In school prevention programs, teachers often modify program curricula, neglect or replace some activities, or change the methodology\textsuperscript{36,37}. These adaptations may be related to the difficulties with time management, to external factors (labor strikes, illnesses and overload), or beliefs in disagreement with the program proposal.

“Handbooking” is a necessity for the diffusion of programs to prevent alcohol and other drug use, but the training of professionals is important so that adaptations are not based on beliefs, but on theories of change\textsuperscript{11,38}. Systemization of guidelines on the core elements of the method that cannot be modified increases flexibility in intervention delivery. Handbooks may for example include options for other activities or techniques, while maintaining the core of the program\textsuperscript{29}. Continuous follow-up to professionals increase their ability to make evidence-based decisions\textsuperscript{29}.

Within the scope of public policies the implementation of innovation must be continuously monitored. The instruments should capture the levels of fidelity, quality, adaptability and responsiveness of the implantation, as well as verify the mediators in the prevention of alcohol and other drugs use\textsuperscript{38}.

What characterizes innovation is the proposal to change for the “better”\textsuperscript{31}. The definition of what is “better” in public policies is subject to several interpretations, based on social norms and therefore, the sustainability of an innovation predisposes the need of a continuous weaving of new consensus.
The pace of implementation of good practices accompanies the pace of changes in social norms. As a preventive action is implemented, it also transforms the belief system about the use of alcohol and other drugs; when innovation reveals its good results, new beliefs are strengthened. The measure aims to keep innovation alive by acting on these dissonances.

Rogers defines several steps and central elements in the process of diffusion of innovation, and Aarons et al. propose phases for the implementation of evidence-based practices in public services. The integrative model below helps to understand the diffusion of evidence-based practices in public policies, engaging a dialogue between the two approaches (Figure 1).

**Figure 1.** Core elements in the diffusion of innovations

The exploration

Public management should engage in strategies for implementing innovation in the prevention of alcohol and other drug use, and those strategies require changes in organizations, in local legislation such as, for example, authorization for professionals to participate in training.

Budget constraints discourage the implantation of innovations, especially in contexts where the time available to implementers is limited by insufficient human resources. Thus, underfunding can increase the tension between the implementation of innovation and effectiveness.
Workers’ perception of the potential improvements achieved by the new action in terms of optimization and qualification of work is essential to deal with the problems arising from scarce human resources\textsuperscript{33}.

The knowledge of the previous practices indicates how the evidences are part of the ways of acting in that social system and, in the dissonances, how organizational changes and modifications in the training of the implementers, facilitate a better implantation context\textsuperscript{31,40,42}.

The change is accelerated by the community advocacy, the efforts of community leaders and movements to influence policy decisions, among legislators and implementers\textsuperscript{31,33}.

There are three aspects that are important since the initial stages\textsuperscript{33}:

1. The capacity of the institution to absorb the practice: pre-existence of knowledge and skills that facilitate the incorporation of new knowledge, as well as mechanisms for exchanging experience among the subjects;
2. The availability for change: institutions that are likely to incorporate changes from the innovation; and
3. The receptivity of the context: culture (the institution’s shared beliefs, norms and expectations) and the organizational climate (perceptions of the psychological impact of shared work on the environment) that affect the quality of implementation and adoption of the good practice.

Thus, there are elements to be mapped in the exploration phase: the existence of institutional leaders favorable to the new knowledge, abilities and practices of planning and previous experience with prevention of use of alcohol and other drugs. At the micro-level, the characteristics of the implementing individuals are determinant for the adoption or the rejection of innovation, as well as for its quality, especially in relation to the values and objectives of the work that they develop, to the social networks to which they pertain and regarding the perception of the necessity of change\textsuperscript{40,43}.

The adoption / preparation

Adoption is often perceived as a single step while in the real world organizations can experience innovation intermittently, without implying that the practice is embedded in systems and policies\textsuperscript{31}. Continuous adjustments aim to maintain or improve program acceptability, adherence, and effectiveness\textsuperscript{18,29}.

Modifications aimed at cultural sensitivity can be classified into two categories: superficial structural and deep structural\textsuperscript{40}. The former aims to increase participants’ acceptance, receptivity and engagement\textsuperscript{29} and include translations, adaptation of elements, visual identity, image editing, among others, according to customs, without modifying the message and the central components of the original program\textsuperscript{21}.

The adaptations of the deep structural dimension contemplate the cultural, social, historical, environmental and psychological factors that influence the behaviors of the population in focus. It refers to the values or meanings, leading to the revision or modification of the central components of the intervention\textsuperscript{27}. The modification of these should be guided by the inclusion of specific risk and protective factors of the population\textsuperscript{21}.
Sandoval et al. summarized several models of cultural adaptation in five stages that can be used when importing evidence-based programs in the field of alcohol and other drug prevention policies.

The initial stage aims to assess the needs of the population by applying literature review and the construction of partnerships with the community. In the second stage, i.e. the review of the original intervention, it is necessary to translate program materials, with minimum adjustments in content and format, as well as to recruit and train the cultural adaptation team. The third stage is the pilot implementation of the translated version, with close follow-up to the implementers and participants, in order to record the experiences and collect feedback on program relevance, satisfaction and feasibility. The fourth stage is to refine the adapted version and measure its efficacy and effectiveness. The last stage of cultural adaptation regarding the field of research is the dissemination of results and lessons learned, while in the field of public policies this stage is constituted by its widespread dissemination.

There is no sustainability if implementers and communities are not transforming themselves and their interaction patterns throughout the deployment of the innovation. In the adoption process it is necessary to include the subjects in the decision making about which innovation to adopt, where and with whom, identification of limits and potentialities of reality, formalization of individual, collective and organizational contracts.

Legislative framework is important in sustainability. However if there is a focus on the inducement of innovative practices only through this framework, there is a risk of innovation fallacy due to the non-inducement of institutional changes and the inability to produce innovative ways of operating.

An intersectoral approach enhances the support network for innovation, and may be a determining factor in project sustainability. Partnerships should lead to joint goals and increase the likelihood that adoption will benefit both the community and different organizations.

The implementation

Innovations are new actions in existing services. Therefore those services are aligned with previous practices that may be contradictory to innovation and consequently it is necessary to guarantee conditions for sustainability, encompassing among others the availability of professionals' time and access to materials.

In this phase the development of the ability to learn about and apply new knowledge by implementers is initiated, and the duration will be determined by the learning time of the innovators.

Strategies such as seed funds can be used, but in the long run it may be unsustainable, especially when the innovation reaches new scales. The practice should be incorporated as a routine of organizations, and not as extra activities.

Implementation challenges include: disarticulation among sectors, lack of information, misinformation, as well as beliefs that may be inconsistent with the assumptions of innovation. Cooperation between sectors with shared management fosters overcoming fragmentation facing intersectoral work, as mutual support allows actors to fill gaps such as insufficient human resources.
Leadership must be at the multiple levels of the system and not centralized, and organizations need to support these leaderships, promote a positive climate, and strengthen collaborative attitudes.

In the consolidation of policies, the transmission of knowledge and the operationalization and process monitoring need to be aligned, acknowledging that the more mechanisms capable of disseminating the intra and inter-organizational guidelines are in place, the greater are the chances of an orderly process for the incorporation of the innovation.

Regarding the levels of readiness of organizations, two aspects need to be taken into account: the pre-existing structure to support innovation; and its cohesion. A fragmented work process indicates the need for a pre-innovation agenda that is capable of adapting organizational aspects.

The mapping of actors’ skills and organizational structure becomes an essential point, since action will not be feasible if we suppose that everyone has the same levels of readiness. To equalize is to exclude those who do not meet the innovation criteria. On the other hand, implementation cannot be excluded because of adverse contexts. Therefore, it will be necessary to organize systems to make it viable: an innovative practice requires an innovative system.

When these aspects are not taken into account, there is a tendency for subjects and collectives to polarize innovation failures into individual or organizational lack of competencies, reaffirming an already existing or experience-induced fragmentation. The challenge may be the imposition of preconditions that were not available.

**Sustainability**

Sustainability is defined by the continued implementation of innovation by services and organizations.

Leaders in the organizations are essential in sustaining the action because they exercise the front of contagion of the innovation. They are disseminators of initiatives that will influence the guarantee of budgetary, material and human contributions.

It is important to identify local and federal policies for the prevention of the use of alcohol and other drugs, especially those related to the transfer of financial resources, as well as private sector organizations that receive public resources and carry out actions in the community.

In this phase, we must analyze the evidences obtained by process and impact evaluation, both by monitoring as well as by collaboration with researchers. The partnership with the research networks provides paths for innovation continuity, emerging proposals for solving problems, mechanisms for acquiring funds for sustainability and continuous technical support.

As the capacity of services to involve managers and workers improve, there are greater chances of continuity. This requires positive communication of processes and results and sharing of the principles of innovation. It is important to highlight that without monitoring, sustainability is compromised. New skills should not be evaluated by old arrangements. Monitoring is important because it collects data to support financial resources; it maps out critical implementation points; it may identify...
theoretical and methodological distortions; it charts points of incompatibility between innovation and contexts while qualifying the provision of training.

Monitoring should map out needs and adaptations to the context using a formative and non-punitive perspective. Tools such as checklists, web forms, field observations and interviews are examples of ways to monitor and evaluate the process, and they are more powerful when carried out in partnership with the research networks.

It is therefore concluded that the implementation of an evidence-based, albeit not culturally relevant action, runs the risk of not reaching the target audience, not being understood, not focusing on risk and protective factors, leading consequently to the failure to prevent problems. At the same time, adaptations, even when they promote acceptability and compliance, may jeopardize the effectiveness of the program if they are carried out without basis on evidence.

Innovation in diverse socially and culturally vulnerable contexts such as Brazil reveals even more complex challenges. The necessary adaptations appropriate to the context and process are at stake in the diffusion. Without these adaptations, innovation does not impact the social and institutional vulnerabilities, which will immediately de-characterize it as innovation.

Freitas proposes the concept of institutional bad faith, understood as a standard of institutional performance articulated from the state towards the micro-powers and daily relations, in which class hierarchies determine the symbolic resources that institutions offer. Innovation needs to be accessible to those who will implement it. In order to avoid acting within the logic of “bad faith”, we should not assume that the implementers already have the necessary skills. It is desirable that implementing practitioners make adjustments to meet local needs and increase the program’s relevance, adherence and community identification with innovation.

As a public policy that takes place within a system, prevention needs to be organized in an intersectoral way. It is not an exclusive task of Health or Education, and both sectors need to be prepared to act in a coordinated way in incorporating effective ways of preventing alcohol and other drug use.

Even when evidence-based innovative practices in the prevention of alcohol and other drug use are disseminated through public policy, there are risks of inadequate in loco adaptations by practitioners. Thus, results are maximized not only by evidence-based programs, but rather when they are associated with qualified implementations.

Considering the need to disseminate practices to prevent the use of alcohol and other drugs through intersectoral public policies that are consistent and effective, the present narrative review points out the following recommendations:

- The use of evidence (obtained from studies in partnerships with research networks as well as by monitoring of implementation) in the selection of effective practices and in the dissemination of actions to qualify the process;
- To consider cultural adaptation as an essential and continuous process in the diffusion of public prevention policies, considering the diversity and social vulnerability in Brazil;
- The need to identify core elements and theories of change in preventive programs and interventions as well as their systematization to guide practitioners in relation to safe adaptations;
To sensitize and train managers and professionals in order to encourage the adoption of evidence-based practices in the exploratory phase. At this stage, the organizational changes and modifications on the legislation regulating the work of public services are important;

- The inclusion of subjects in decision-making and cultural adaptation and creation of intersectoral networks in the phase of adopting evidence-based practices;
- The promotion of intersectoral approach and decentralization in the implementation phase;
- The importance of creating conditions for implementation in vulnerability contexts, through incentives, incorporation of practices into routines, continuous training and monitoring aimed at the qualification of the implementers;
- The linkage of evidence-based practices to existing public policies, making use of monitoring evidence and impact assessments in the sustainability phase.

Prevention of alcohol and other drug use should be aligned with public policies on health, education and social protection. However, it must be able to transform them too, raising their interventions to the levels of prevention systems, able to act in an extended way for the transformation of economies, legislation and social norms. When articulated in a network, prevention must have in its basic ethics the commitment to overcome social fragmentation and to fade out implicit mechanisms of social disqualification57, being conducive to the construction of projects of the future that may become real stories - of people, of a country, of humanity.

Authors’ contributions

Raquel Turci Pedroso contributed with the conception and design of the paper, participation of the discussion of the results, the writing of the manuscript and approval of the final version of the manuscript. Michaela Batalha Juhásová contributed with the design of the paper, critical revision of the contents and approval of the final version of the manuscript. Edgar Merchan Hamann contributed with the design of the paper, critical revision of the contents and approval of the final version of the manuscript.

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