



Development and evaluation of addiction treatment programs in Latin America

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Purpose of review

The aim of this article is to present a state-of-the-art review of the scientific studies that have evaluated healthcare systems, services and programs for addiction treatment in Latin America. As a secondary aim, this article presents a brief description and analysis of the addiction prevention and treatment resources and programs available in Latin America, based on information from the ATLAS on Substance Use (ATLAS-SU) project led by the WHO.

Recent findings

Substance use disorders (SUDs) are among the main causes associated with global burden of disease. Around the world, many initiatives have been proposed to promote policies to reduce substance use and reduce the impact of SUD, including integrating treatments into healthcare systems, increasing access to treatment programs and impacting outcome measures. In Latin America, multiple efforts have been implemented to improve addiction services and programs, although little is known about the impact they have generated.

Summary

International studies report the availability of strategies and public initiatives on prevention and treatment of addiction in Latin America. These studies also report established networks of public and private services that include prevention and detoxification programs, outpatient and residential treatment, and also social reintegration initiatives. However, despite these advances, information on the evaluation of the progress, results and impact of these programs is limited.

Keywords

addiction, evaluation, Latin America, substance use disorders, treatment programs

INTRODUCTION

Substance use disorders (SUDs) contribute significantly to years of life lost (YLL) around the world, with the estimated YLL and years lost due to disability (YLD) reported as 0.4 and 3.9%, respectively [1]. Additionally, SUD and other psychiatric disorders are associated with about 60% of suicide deaths, placing them among the three primary causes of global disease burden [2]. This does not consider other associated problems, including co-occurring disorders [3], suicidal ideation [4^{••}], cognitive impairment [5], sexually transmitted infections, risky sexual behaviors [4^{••}], unemployment [6], and low family functioning [7], among others.

Multiple actions have been taken around the world to reduce the impact of SUDs, including promoting policies that reduce substance abuse, harm reduction programs, implementing services and comprehensive care programs, developing referral

and counter-referral algorithms for the different care levels of the healthcare system, increasing access to services and treatment programs, and impacting outcome measures beyond abstinence (e.g. methadone maintenance programs and integrative approaches to treat co-occurring disorders, increase the quality of life, and improve psychosocial functioning, etc.) [8,9].

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KEY POINTS

- The need for SUD treatment services has led to an increased demand for public plans and programs for the prevention, treatment and rehabilitation of SUD.
- The increase in public plans and programs to address SUD has led to a significant increase in the cost of care in recent decades.
- Evaluating these programs is a best practice that should be implemented to obtain indicators on cost, effect and impact, and to provide feedback to stakeholders and decision-makers.
- Reports indicate that plans and programs that respond to the demand for care for people with SUD exist in Latin America; however, the evidence regarding progress, results and impact is limited.

The increase of people with SUD and the corresponding biopsychosocial problems have generated the need to develop treatment options that offer various levels of care, including community-based outreach; screening, brief intervention, and referral to treatment (SBIRT); short-term residential treatment; outpatient treatment; long-term residential treatment; and recovery management [10]. Currently, there are a diversity of local addiction treatment services and programs around the world that have adapted to respond to the specific needs of each country, culture, and socio-political context.

The diversity of biopsychosocial problems associated with SUD, and the wide range of treatment approaches and offerings generate a complex relationship that represents significant public policy challenges in terms of the burden of disease and the cost of care. Although it is generally accepted that it is significantly less expensive to treat SUD and their associated problems than it is to not treat them [11], it is still necessary to evaluate the services and programs offered to gather indicators regarding their cost, effect, and impact, and to provide feedback to key stakeholders to support the decision-making process (e.g. to know if the budget of a program is being invested adequately and strategically in relation to the program's cost-benefit) [9].

The development of an evaluative culture for health programs creates a strategic and healthy atmosphere, as it encourages the routine collection and dissemination of information to help improve the services available. However, in many countries the evaluation of SUD treatments is still being developed [9].

Given this situation, large-scale international initiatives have been implemented to evaluate: access to mental health and addiction programs,

the integration of interdisciplinary teams [12,13]; the response capacity of services for addiction treatment and other psychiatric disorders [14,15]; the improvement of clinical practice (diagnosis and treatment) and standards of care [10,16]; and also the integration of treatment services for SUD and other psychiatric disorders [17] (see Table 1).

Local initiatives in countries around the world are also focused on implementing projects to improve healthcare systems, services, programs, and models, but information on progress, results, and impact is scarce. For example, Latin American countries have championed a series of healthcare reforms that include addiction and mental healthcare in primary care centers [18,19]. This process began almost 30 years ago, with the Declaration of Caracas [19], but little is known about the impact that these reforms have generated in the region. Similar efforts exist across Latin America, and all of them lack evaluative and follow-up data.

The aim of this article is to present a state-of-the-art review of the scientific evidence that evaluates healthcare systems, services, and programs for addiction treatment in Latin America. As a secondary aim, this article presents a brief description and analysis of the addiction prevention and treatment resources and programs available in Latin America based on information from the ATLAS on Substance Use (ATLAS-SU) project led by the WHO.

METHOD

Aim 1: state-of-the-art review

A systematic search was conducted for literature published between July 2016 and December 2017 (18 months) using the following databases: PubMed, SciELO, LILACS, and Web of Science. The search terms used were 'addiction,' 'substance use disorders,' 'alcohol use disorders,' 'outcome and process assessment (Healthcare),' 'program evaluation quality of healthcare,' 'healthcare system,' 'prevention programs,' 'evaluation,' 'treatment services,' 'treatment programs,' and 'Latin America.' Searches were conducted using these terms in both English and Spanish. The following Latin American countries were included: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.

The following inclusion criteria were used to select articles: written in Spanish or English, related to the evaluation of addiction treatment services, original articles published in peer-reviewed scientific journals, and cross-sectional and experimental

Table 1. Characteristics of the international initiatives

| Name | Institutions | Countries | Objective | Descriptions |
|--|---|------------------------------|--|---|
| Collaborative Mental Healthcare (CMHC) [12,13] | WHO, World Organization of Family Doctors (WONCA) | All countries | To promote mental well being, prevent mental disorders, provide care, enhance recovery, promote human rights and reduce the mortality, morbidity and disability for persons with mental disorders. | Developing good quality mental health services requires the use of evidence-based protocols and practices, including early intervention, incorporation of human rights principles, respect for individual autonomy and the protection of people's dignity. Governments have an important role in using information on risk and protective factors for mental health to put actions in place to prevent mental disorders and to protect and promote mental health at all stages of life. |
| ATLAS on Substance Use (ATLAS-SU) [14] | WHO; Department of Mental Health and Substance Abuse | All countries in six regions | To assess resources at the national, regional and global level to highlight the distribution of resources for treatment and prevention of substance use disorders. | The instrument used in the data collection is a questionnaire designed specifically for this purpose. The project was conceptualized as a collaborative project involving staff at WHO headquarters and WHO regional and country offices. Data is presented in a published report and will be available in a searchable online database on the web site of the WHO Management of Substance Abuse program. |
| The Joint UNODC/WHO Programme on Drug Dependence Treatment and Care [10] | WHO; United Nations Office on Drugs and Crime (UNODC) | All countries | To develop comprehensive, integrated health-based approaches to drug policies that can reduce demand for illicit substances, relieve suffering and decrease drug-related harm to individuals, families, communities and societies. | This program promotes the development of comprehensive and integrated treatment systems that are able to deliver a continuum of care for drug users and link services at municipal and national levels. It also prevention, treatment and care of drug use disorders into the mainstream healthcare system, linking with NGOs and ensuring full coordination with the healthcare system as part of an integrated continuum of care. |
| mhGAP Intervention [16] | WHO | All countries | To create a model guide developed for use by healthcare providers working in nonspecialized healthcare settings and adapt it for national and local needs. | This intervention focuses on integrated management of priority conditions using protocols for clinical decision-making. The priority conditions included are: depression, psychosis, bipolar disorders, epilepsy, developmental, and behavioral disorders in children and adolescents, dementia, alcohol use disorders, drug use disorders, self-harm/suicide and other significant emotional or medically unexplained complaints. |
| Ibero-American Initiative for the Treatment of Dual Disorders [17 ^a] | Pan American Health Organization (PAHO/WHO); Government Delegation for the National Plan on Drugs (GDSND); Spanish Society of Dual Disorders (SEPD); National Institute of Psychiatry Ramón de la Fuente Muñiz (INPRFM) | Latin America | To improve treatment programs for co-occurring disorders between addictions and other psychiatric disorders. | This initiative seeks to implement four lines of action to improve public services: build a theoretical-conceptual consensus on dual disorders; propose a treatment model; develop skills-based training; create collaborative networks for research on dual disorders. |

study designs. Gray literature was excluded, including books, book chapters, public reports, and so on.

Aim 2: brief description and analysis of the addiction prevention and treatment resources and programs available in Latin America

Through a collaboration between the Noncommunicable Diseases and Mental Health Department of the Pan American Health Organization (PAHO) and

the National Institute of Psychiatry Ramón de la Fuente Muñiz (INPRFM), an analysis was conducted of the data compiled in the ATLAS-SU information gathered in 2014 [14], and a report was compiled on the availability of public health resources for the prevention and treatment of SUD in the Americas [20]. Focusing only on Latin American countries, information from this 2015 report was used to create a brief description of the resources and programs available in the region.

The ATLAS-SU [14] is a worldwide project to collect, compile, and disseminate data on national, regional, and global resources, and programs for the prevention and treatment of SUD. The resources include administrative and financial resources, health service resources, human resources, policy and legislative resources, resources for the prevention of substance use disorders, and information resources such as presence of monitoring systems and other data collection tools. The ATLAS-SU was conceptualized as a collaborative project involving staff at WHO headquarters and WHO regional and country offices. Project data for the ATLAS-SU is obtained using a questionnaire that includes questions on the availability of resources and services for the prevention and treatment of addictions. These questionnaires are completed by key informants that are designated by the responsible ministry of health in each country. Currently, there are 162 countries, territories and areas participating in the project, which represent 98% of the world population.

RESULTS

State-of-the-art review

Six articles that complied with the inclusion criteria were identified. Four articles were randomized controlled trials (RCTs), and the other two were cross-sectional studies (see Table 2).

The first study referred to the evaluation of the effectiveness of a prevention program in Brazil [21,22²³], whose purpose was to delay the onset or interrupt the progression of the use of tobacco, alcohol, and other substances in adolescents. The study was conducted in 16 public schools in three cities, with the support of the Ministry of Health and the local Department of Education. The results indicated that among the younger students (11–12 years old), there were no significant increases in drug use in both groups during the 4-month follow-up. Among students aged 13–15 years, no significant increase in drug use was found in the intervention group; however, in the control group there was a statistically significant increase in past month in alcohol (from 10.6 to 14.9%) and marijuana use (from 1.3 to 2.7%). The authors concluded that the prevention program reduced the risk of the progression of marijuana and alcohol among adolescents aged 13–15 years.

The second RCT was also conducted in Brazil, and it evaluated the effectiveness of a contingency management intervention in standard outpatient treatment for people dependent on crack cocaine, in addition to assessing whether the implementation

of a contingency management program favored the use of services and promoted abstinence and treatment retention [23²⁴]. The results showed that participants that received contingency management attended a greater number of sessions ($M=19.5$, $SD=14.9$ vs. $M=3.7$, $SD=5.9$ from control group), were more likely to remain in treatment ($M=7.7$, $SD=5.2$ weeks vs. $M=3.0$, $SD=4.0$ weeks from control group) and maintained abstinence for a longer period of time ($M=4.4$ weeks) compared to the control group ($M=0.8$ weeks).

The third RCT evaluated the effectiveness of a short-term intervention based on the use of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) in various treatment centers in Chile [24²⁵]. The study was conducted in 19 primary care centers, eight emergency rooms, and five police stations, and was financed by the Chilean National Service for the Prevention and Rehabilitation of Drug and Alcohol Consumption. The results reported that there was not sufficient evidence to support that the brief intervention reduced the ASSIST score for alcohol ($M=12.94$, $SD=6.34$ vs. $M=13.12$, $SD=6.41$ from control group), marijuana ($M=10.43$, $SD=6.40$ vs. $M=9.81$, $SD=6.65$ from control group) nor cocaine ($M=11.07$, $SD=9.24$ vs. $M=10.28$, $SD=8.45$ from control group) in comparison to the delivery of an informational brochure about the damages associated with the consumption of alcohol and other drugs.

The fourth RCT evaluated the effectiveness of Motivational Enhancement Treatment for Spanish Speakers (METS) in terms of reducing days of substance use and increasing days of treatment services. This study was part of a technology transfer project between the Florida Node Alliance of the National Drug Abuse Treatment Clinical Trials Network (CTN) and INPRFM. The main objective of this collaboration was to develop a clinical trials network in Mexico [25²⁶]. The study was financed by the US Department of State. The results associated with the two treatment conditions (METS vs. counseling as usual) showed a difference in the patterns of means over time in level of substance use [$X^2(4)=11.58$, $P=0.021$], but did not show differences in the days of use of substances over time in the two treatment conditions by either site [$X^2(4)=11.58$, $P=0.021$] nor in services utilization [$X^2(6)=6.59$, $P=0.361$].

The following two studies utilized a cross-sectional study design. The first study aimed to examine the prevalence of co-occurring disorders in patients receiving treatment for substance use at community-based residential care facilities located in five Mexican states and to assess whether the presence of co-occurring disorders was associated

Table 2. Characteristics of the studies

| Author (year) | Country | Aims | Sample | Intervention | Results |
|---|---------|--|---|--|---|
| Sánchez <i>et al.</i> (2016) [22 [■]] | Brazil | To evaluate the impact of a prevention program on drug use among adolescents in public middle schools | $n=2185$ students from 16 public schools; $n=938$ in intervention group (unplugged program) and $n=1247$ students in control group | The intervention group attended 12 weekly unplugged program classes whereas control group did not attend any school prevention programs. | The intervention reduced the recent use of marijuana (transition from use to nonuse) among students between 13 and 15 years old. |
| Miguel <i>et al.</i> (2016) [23 [■]] | Brazil | To evaluate the efficacy of incorporating contingency management into standard outpatient treatment for crack cocaine users | $n=65$ individuals with crack cocaine dependence; $n=33$ in standard treatment and contingency management group (STCM), and $n=32$ in usual treatment group | 12 weeks of treatment. Participants in STCM group received monetary incentives for abstinence. | The STCM group presented higher treatment attendance, continuous abstinence, and a higher rate of negative samples of crack cocaine, THC, and alcohol when compared to the usual treatment group. |
| Poblete <i>et al.</i> (2017) [24 [■]] | Chile | To evaluate the effectiveness of an ASSIST-linked brief intervention (ASSIST-linked BI) for alcohol and illicit drug use as part of a systematic screening program implemented at the primary care level | $n=806$ individuals with moderate alcohol and drug use risk; $n=400$ individuals received ASSIST-linked BI; $n=406$ individuals received informational pamphlet | One session of ASSIST-linked BI based on the FRAMES model, including feedback, menu of options and enhancing motivation to change. Control group received an informational pamphlet. | There was no difference in effectiveness between ASSIST-linked BI and the delivery of an informational pamphlet. |
| Marín-Navarrete <i>et al.</i> (2017) [26 [■]] | Mexico | To evaluate the efficacy of incorporating Motivational Enhancement Treatment for Spanish Speakers (METS) to reduce alcohol and substance use in outpatient addiction treatment centers | $n=120$ participants; $n=54$ in METS group; and $n=66$ in usual treatment group | METS consisted of three individual counseling sessions that utilized strategies like open questions, affirmations, and summary statements. In addition, counselor and patient developed a change plan to be followed during treatment. Usual treatment consisted of three individuals, nonstructured counseling sessions delivered in the therapeutic style. | There were no differences between METS and usual treatment; although the authors suggest that brief interventions at treatment initiation may improve patient outcomes. |
| Marín-Navarrete <i>et al.</i> (2017) [4 [■]] | Mexico | To describe the prevalence of co-occurring disorders in individuals in residential centers and assess whether the presence of co-occurring disorders is associated with other health risks. | $n=601$ individuals receiving treatment for substance use disorders | – | The prevalence of co-occurring disorders was 62.6%. The presence of any co-occurring disorder was associated with higher severity of psychiatric symptomatology, more days of substance use, suicidal ideation, more sexual risk behaviors and more contact with professional services. |
| Donatti <i>et al.</i> (2016) [27 [■]] | Brazil | To determinate the characteristics of users of the Psycho-Social Care Center for Alcohol and Drugs (CAPS-AD). | $n=143$ users of CAPS-AD in Brasilia | – | Participants were men, middle-aged, married, and had a middle school education. Alcohol and cocaine were the most used drugs. The reasons for discontinuation of treatment were lack of interest in the center activities, logistical barriers and lack of family support. |

with higher severity of substance use, psychiatric symptomatology, and other health risks. The results indicated that the prevalence of any co-occurring disorder was 62.6%. Additionally, it was found that the presence of a co-occurring disorder was associated with higher severity of psychiatric symptomatology ($aB=0.297$, $SE=0.026$, $P<0.05$), more days

of substance use ($aB=0.219$, $SE=0.19$, $P<0.05$), greater odds of suicidal ideation [adjusted odds ratio (aOR) 5.07, 95% confidence interval (CI) 2.58, 11.17, $P<0.05$] and greater odds of sexual risk behaviors (aOR 1.95, 95% CI 1.07, 3.75, $P<0.05$), than those without co-occurring disorders [4[■]]. In addition to identifying the high prevalence of

co-occurring disorders in community-based residential centers in Mexico, this study also highlights the challenges that community-based residential care facilities face in terms of providing high-quality care for patients that present with co-occurring disorders.

The last study examined the characteristics of a sample of patients that sought care from a Psycho-Social Care Centre for Alcohol and Drugs in Brazil [27²²]. In addition to the characterization of the sample, the results of the study emphasize the importance of meeting the current unmet needs of SUD patients to increase treatment motivation and maintenance among these patients.

Resources and programs for the prevention and treatment of addiction available in Latin America

The 'Report on public health resources to address the use of psychoactive substances in the Americas' [20] showed that the implementation of plans, programs, and services for the prevention and treatment of SUD has increased, along with programs to reduce the demand for drugs, national standards for addiction treatment and interventions in primary care settings, and the implementation of epidemiological indicators that track the consumption trends and patterns of the population. In terms of program evaluation, two countries reported evaluating prevention programs (Chile/Peru), whereas two others reported evaluating treatment programs (Chile/Costa Rica) (see Table 3).

The most of the Latin American countries that participated in the ATLAS-SU project reported having epidemiological information and surveillance systems in place, and also programs for the prevention and treatment of addictions, but the majority of respondents reported that no actions or projects were in place for the evaluation of the implemented programs.

Many reasons could explain why the systematic search to identify scientific articles that evaluated services and programs in Latin America was limited. The first reason might be the results reported in the ATLAS-SU project in terms of the lack of actions or strategies in place to evaluate prevention and treatment programs.

A second reason might be the availability of financial resources for the evaluation of services and programs. Low and middle-income countries designate fewer resources for mental health and addiction treatment than high-income countries (less than US\$2 and over US\$50 per capita, respectively) [28]. Of the resources available, the majority is allocated to hospital care [15,28], which reduces the potential budget for research on mental health and addiction issues [29²³,30], including for the evaluation of services and programs.

A third reason for the limited scope of available literature might be the high cost of conducting high-impact studies. Evidence-based medicine considers RCTs to be a gold standard for developing high-quality treatment evidence and highly

Table 3. Public health resources related to substance use in Latin American countries

| Resource | Countries | | | | | | | | | | | | | | | | | | | Total |
|--|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| | ARG | BOL | BRA | CHI | COL | COS | CUB | DOR | ECU | ELS | GUA | HON | MEX | NIC | PAN | PAR | PER | URU | VEN | |
| Information systems on substance use | x | – | – | x | – | x | x | x | – | x | x | x | x | – | x | x | x | x | – | 13 |
| Plans and programs to reduce demand | x | x | x | x | x | x | | | | – | x | x | – | x | x | – | – | – | x | 11 |
| Prevention programs | x | x | x | x | – | x | x | x | x | x | x | x | x | – | x | x | x | x | – | 16 |
| Prevention program evaluation | – | – | – | x | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 2 |
| Interventions in primary care ^a | x | – | x | x | – | x | x | x | x | x | x | – | x | – | x | – | x | x | – | 13 |
| Approved methadone registry | – | – | x | – | – | x | – | – | – | – | x | – | x | – | – | – | – | x | – | 5 |
| Available methadone | – | – | – | – | – | – | – | – | – | – | – | – | x | – | – | – | – | – | – | 2 |
| Approved naloxone registry | – | – | – | – | – | – | – | x | – | x | x | – | x | – | – | – | – | x | – | 7 |
| Available naloxone | – | – | – | – | – | – | – | x | – | – | x | – | x | – | – | – | – | – | – | 5 |
| Training programs for health professionals | x | – | x | x | – | x | x | x | x | – | x | – | x | – | – | – | x | x | – | 11 |
| National standards for treatment programs | x | – | x | x | x | x | x | x | x | x | x | x | x | – | x | x | x | x | x | 17 |
| Treatment program evaluation | – | – | – | – | – | x | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Drug observatories | – | – | – | x | x | x | – | – | x | x | x | x | x | x | x | x | x | x | x | 18 |
| Data on the magnitude of substance use in the population | – | – | – | x | x | x | – | – | x | – | – | – | – | – | – | – | x | x | x | 9 |

ARG, Argentina; BOL, Bolivia; BRA, Brazil; CHI, Chile; COL, Colombia; COS, Costa Rica; CUB, Cuba; DOR, Dominican Republic; ECU, Ecuador; ELS, El Salvador; GUA, Guatemala; HON, Honduras; MEX, Mexico; NIC, Nicaragua; PAN, Panama; PAR, Paraguay; PER, Peru; URU, Uruguay; VEN, Venezuela. Reproduced with permission from [20].

^aUsing the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) and Mental Health Gap Action Program (mhGAP).

relevant for the decision-making process. In addition to providing the highest level of scientific evidence, RCTs allow decision-makers to determine if the services or programs available have a positive impact on multiple process measures and outcomes [31]. However, the costs associated with the planning and implementation of RCTs are very high and can vary significantly depending on the following: the phase of the study to be conducted (phase I: safety, phase II: efficacy, phase III: effectiveness), kind of trial (pharmacological or behavioral), salary of the research team and clinical staff, training, number of participating sites, duration of the study, and so on [32]. According to the US Department of Health and Human Services, the average cost of clinical trials across all medical areas is around US\$30–40 million per trial; being the most expensive elements: clinical procedures (15–22%), administrative staff (11–29%), site monitoring (9–14%), and site retention (9–16%) [33]. As a point of reference, the National Institute on Drug Abuse is the mayor impact institution on addiction science around the world and in 2014 received almost US\$1 billion to funding its four extramural research divisions. In particular the Clinical Trials Network, a division focused on translating findings from basic science to evidence-based practices in real-world settings, received more than US\$49 million to fund: new and renewal projects, and supplements [34].

A fourth reason might be the limited number of researchers in public mental health. The lack of funding allocated to research has a direct impact on the number of quality research training programs, which in turn impacts the number of well trained researchers that are able to design and implement high-impact research projects [29*].

A fifth reason might be the management capacity of the policy-makers of the mental health systems. Commonly the policymakers lack the knowledge and skills necessary to manage health programs, a result of a lack of sufficient training or experience to hold public office [35,36]. Even when local the policy-makers have experience in public management, they might minimize the need to evaluate the services available due to a lack of knowledge about the relevance of these evaluations for the improvement of the healthcare system. Knowledge regarding the needs of the healthcare system, leadership, technical capacity, an ability to influence decision-makers and political support are all essential elements that benefit the entire public healthcare system [37].

Although mental health research is an essential input for informed decision-making, public policy efforts in this area are still incipient. Although organizations aimed at technical and scientific development exist in various countries in Latin

America, like the National Council for Scientific and Technological Development in Brazil and the National Council of Science and Technology in Mexico, spending on research and development represents less than 0.5% of gross domestic product (GDP) in most Latin American countries, a percentage that is well below regions such as North America (2.79% of GDP), the European Union (2.05% of GDP) or Europe and Central Asia (excluding high-income countries - 0.87% of GDP) [30,38]. This low-level of spending might be associated with the scarce scientific production on mental health and addiction issues in Latin America, which represents less than 1% of scientific production on the subject worldwide [39], with Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela considered the most representative countries with the highest levels of scientific production in the region [30].

As a final consideration, the gap between research and practice in SUD treatment is well documented. To blend research and practice, it is necessary to consider the technology transfer process, which integrates at least three phases: technology development: devising treatments that are efficacious in real-world RCTs; technology dissemination: spreading and distributing information regarding effective treatments so that they can be adopted by clinicians and organizations; technology implementation: ensuring that treatments are used and applied correctly by clinicians and organizations to maintain their effectiveness and quality. This process suggests that development of evidence-based interventions does not guarantee the adoption or maintenance of the intervention by clinicians and organizations [40]. For this reason, evaluate each phase of the technology transfer process is crucial to guarantee the appropriate use of funding for prevention and treatment programs.

CONCLUSION

Studies show the lack of published evaluative evidence on prevention and treatment programs in Latin American countries [29*,41,42*]. Adopting an evaluation culture in the region could be a step towards promoting collaborative networks that link public policy makers, treatment agencies, research institutions and universities, to implement evidence-based strategies that respond to the community's needs regarding prevention and treatment. This proactive initiative would facilitate the creation of self-sustaining human resource training networks with specific knowledge and skills, which subsequently facilitate the generation of scientific evidence and increase scientific production on addiction and mental health issues [29*,42*].

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- of special interest
- of outstanding interest

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