

Questionnaire Design for Drug Abuse Prevention Targeting Adolescents and Adults

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Manuscript received October 27, 2023; revised December 9, 2023; accepted March 6, 2024; published July 31, 2024.

Abstract—According to the World Drug Report released by the United Nations Office on Drugs and Crime (UNODC) in 2022, the global drug use population reached 284 million people in 2020, with a growth rate of 26% over the past decade. Additionally, apart from the increase in the number of drug users, there is also a trend of changes and increases in the types and quantities of drugs available. Taiwan is facing a similar challenge regarding drug-related issues. According to the data from the Food and Drug Administration of the Ministry of Health and Welfare in Taiwan, as shown in the “Drug Abuse Cases and Inspection Statistics” for the years 2019 to 2021, the age group of “first-time drug users” accounts for the highest proportion of all reported cases of drug abuse across various agencies and institutions. Among these cases, the age group “20–29” had the highest percentage (46.7%, 45.6%, and 43.5% for the years 2019, 2020, and 2021, respectively). This indicates a trend toward younger individuals engaging in drug abuse. This study, based on a causal model and from a preventive science perspective, proposes effective prevention strategies and policies. It formulates three prevention strategies: Universal prevention, selective prevention, and indicated prevention to examine the relationship between drugs and the environment. It also summarizes a multi-level development framework, categorizing risk factors into three levels: macro, micro, and individual. By integrating a prevention system and employing theory-based drug education, the aim is to promote drug abuse prevention behaviors during adolescence and adulthood. Hope to achieve a health-centered and balanced anti-drug model through the integration of prevention systems.

Keywords—causal model, multilevel development framework, media campaign, behavior change techniques

I. INTRODUCTION

Taiwan proposed a new generation of anti-drug strategy 2.0 in 2020. Effective policies to reduce drug use not only attack the supply side, but also emphasize the reduction and elimination of the demand side. The latest anti-drug strategy further regards drug awareness as one of the key aspects, which also shows the emphasis on prevention and publicity. It can be seen from this that if we want to prevent the public from using drugs, or even coming into contact with drugs, front-end prevention publicity must be an indispensable and important link without delay. This study was conducted through a three-stage research process, using multiple research methods such as literature review, focus group interviews (Focus group), semi-structured interviews (semi-structured interviews), and questionnaire design (Questionnaire Design). The following purposes:

1. What personal protective factors should be enhanced by preventive interventions targeting adolescence and adulthood?
2. What information should be targeted in preventive intervention measures for high-risk groups?
3. What are the mediating targets for preventive intervention strategies and measures in adolescence and adulthood?

II. LITERATURE REVIEW

A. Exploring the International Guidelines on Drug Abuse Prevention by the United Nations UNODC [1]

This section aims to discuss the second edition of the International Guidelines on Drug Abuse Prevention published by the United Nations Office on Drugs and Crime (UNODC) and the World Health Organization (WHO) in 2018. The guidelines were developed by a panel of 143 experts from 47 countries, who synthesized current scientific evidence, identified key components and features of an effective drug prevention system, and described interventions and policies that can enhance the effectiveness of drug abuse prevention. This second edition builds upon and expands the foundation of the first edition of International Standards on Drug Use Prevention published in 2013. It not only focuses on preventing drug abuse but also adopts a comprehensive approach, considering prevention strategies and policies for substances such as tobacco, alcohol, and other psychoactive substances that influence public health. This section will analyze individual and environmental factors in drug abuse prevention work based on these guidelines and outline the standards and principles for graded prevention campaigns.

Analysis of Empirical Research Results on Drug Abuse Prevention Strategies The second edition of the International Guidelines on Drug Use Prevention analyzes and assesses drug abuse prevention strategies across different stages of life development based on empirical research results from June 2012 to January 2018. Life development stages are categorized into five groups: infancy and early childhood, mid-childhood, early adolescence, adolescence, and adulthood. This study focuses on drug abuse prevention strategies and research analysis for the adolescence and adulthood stages (ages 15 to adulthood), as summarized in Table 1.

Table 1. Data sources UNODC and WHO [1] and compiled by the research itself

Intervention Measures	Introduction to Intervention Measures	Prevention Grading	Empirical Results
Short-term intervention	Short-term intervention is a service provided to individuals who may have substance use issues. Its purpose is to assess their situation and provide appropriate advice or referrals. Short-term interventions are carried out by various professionals such as doctors, nurses, social workers, etc., who engage in one-on-one counseling sessions with the individuals in question. These meetings are typically brief, lasting only 5 to 15 minutes, but follow-up sessions or additional resources can be arranged as needed.	Selective/ Indicated Prevention.	Addiction substance users can achieve significant reductions through short-term interventions and motivational interviews. This approach is supported by evidence for various types of substances, such as tobacco, alcohol, and drugs, as well as different age groups, including adolescents and adults. However, its effectiveness is not substantial and typically lasts only 6-12 months
Workplace prevention program	Workplace stress can lead to a higher likelihood of substance use disorders among young individuals. Employees with substance use problems often exhibit poor performance, leading to increased medical costs and higher staff turnover. Additionally, employers have an obligation to comply with legal regulations to ensure workplace safety and health.	Universal Prevention	Workplace prevention can help employees reduce alcohol intake, but its effectiveness may vary by gender. One study suggests that this prevention has a positive impact on female employees but does not significantly affect male employees. Another study found that workplace prevention does not assist in reducing tobacco intake
Community-based multifaceted prevention measures	To address substance use issues, community-level actions involve establishing various forms of collaborative relationships, such as partnerships, working groups, alliances, action teams, etc., to engage various stakeholders within the community.	Universal/ Selective/ Indicated Prevention	Research has shown that community-based multifaceted prevention measures can effectively reduce the use of drugs, alcohol, and tobacco.
Media campaigns	Media campaigns are a commonly used or even the sole strategy employed by policymakers in preventing drug use because they can capture widespread attention and easily reach large audiences	Universal Prevention	There is no consistent conclusion regarding the effectiveness of preventing tobacco, alcohol, and drug use. Regarding the primary outcomes, they present varying findings
Entertainment venue prevention	Effective prevention plans for alcohol and drug-related issues in entertainment venues typically include: Training for employees and management on how to handle intoxicated customers. Modification or creation of relevant laws and policies to regulate the supply and sale of alcoholic beverages, as well as strengthening penalties for drunk or drugged driving.	Universal/ Selective/ Indicated Prevention	Research on training entertainment venue staff, policy interventions, and enforcement reporting has provided positive empirical support for their impact on alcohol intoxication, high-risk drinking, and alcohol-related harm

In summary, during adolescence and adulthood, as individuals' physiological and psychological development generally matures, drug prevention strategies place less emphasis on individual capacity building and value establishment. Instead, short-term interventions focus more on addressing individual issues and providing assistance. Prevention at this stage is more concerned with community and environmental aspects. In terms of universal prevention, it can be implemented through media campaigns, workplace, and entertainment venue prevention measures. However, these strategies often lack empirical evidence to prove their effectiveness in preventing substance abuse. Based on research data, it is evident that more empirical studies are needed to assess the actual effectiveness of various prevention strategies in different contexts.

B. Future Research Questions in Drug Abuse Prevention

According to the second edition of the International Guidelines on Drug Abuse Prevention, future prevention research should focus on the following aspects: first, assessing interventions and policies that lack effective evidence; second, analyzing emerging substance use issues; and third, comparing prevention strategies during adolescence and adulthood [1]. This study will explore the research questions proposed in accordance with these

standards as follows:

1) The impact of social media

The profound influence of media on the psychological and social development of young people may be attributed to several reasons, such as the desire to emulate the qualities or behaviors of celebrities. Due to the heightened sensitivity of young people's neurological development to popular culture, their behavior is not merely a reflection of health knowledge. This issue requires further research. As mentioned earlier, there is a lack of evidence regarding the effectiveness of mass media promotional campaigns, making it necessary to conduct more research on the effectiveness of such campaigns [1].

2) Interventions and policies for high-risk adolescent groups

To reduce adverse behaviors among high-risk adolescent groups, effective intervention measures and policies need to be developed. This group may face various challenges, such as those coming from families with drug users, dropping out of school, or being in foster care, orphanages, and the juvenile justice system [1]. However, research on prevention for these groups remains insufficient, and it is uncertain which strategies are effective.

Conclusion: Based on the aforementioned information, it

is evident that there is a lack of concrete effectiveness results from empirical studies for programs designed to prevent drug abuse among young people. However, concerning drug prevention strategies, encouraging young individuals to engage in legitimate leisure activities, combining media communication to guide the public's correct understanding of drug dangers, and utilizing social resources to conduct outreach, screening, and provide various preventive measures for different groups can effectively reduce risk factors and enhance protective factors for young people in reducing drug abuse. High-risk groups are undoubtedly important targets for drug abuse prevention. These high-risk groups often find themselves in disadvantaged environments. Although Taiwan has established a social safety net in recent years to ensure proper treatment for high-risk groups, drug prevention strategies and programs for these high-risk groups remain relatively inadequate. It is worth considering how to strengthen preventive measures for these high-risk groups.

C. Prevention Guidelines from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) [2]

1) Etiological models

Etiology is a specialized term in the medical field that studies the causes and mechanisms of diseases, as well as various factors that influence the occurrence of diseases. Etiology is highly relevant to prevention work because it helps identify factors or mechanisms related to health issues or social problems, such as substance use problems. In the past 20 years of substance abuse prevention research, protective and risk factors for substance abuse have been crucial indicators. By enhancing protective factors or reducing an individual's susceptibility factors, the impact of risk factors can be effectively counteracted or mitigated. Risk factors for substance abuse primarily include:

Background factors: Such as the level of tolerance in laws and regulations regarding the trade and acquisition of hazardous substances and policies causing economic hardship and social unrest. Individual and interpersonal factors: Such as genetic inheritance and other physiological factors, a family history of substance use, attitudes toward substance use, poor family management functions, and lack of attachment to the family, among other factors. Etiological models explain these interactions, as shown in Fig. 1.

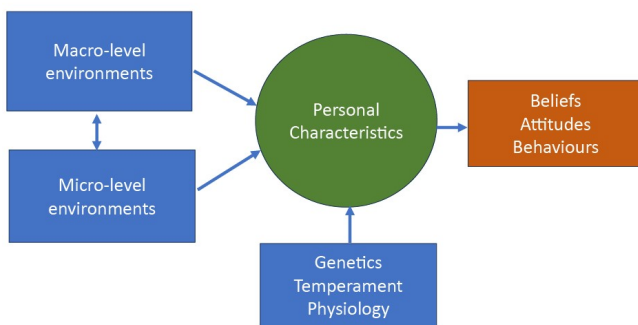


Fig. 1. Behavior change techniques. Data source: EMCDDA [3].

2) Multilevel developmental framework

The core risk factors of substance abuse behavior arise from the interaction between individual and environmental characteristics. The complexity of these issues is influenced

by various factors such as the nature of substances, methods of administration, individual susceptibility, and the social environment of substance use. A multilevel developmental framework categorizes these risk factors into three levels: macro, micro, and individual levels. Enhancing protective factors can reduce the vulnerability of young people and mitigate the negative effects of risk factors. Implementing evidence-based interventions at the appropriate developmental stage can lead to a "cascading effect" with longer-term positive outcomes, which also contributes to positive outcomes in adulthood [1].

UNODC and WHO [1] summarize several important considerations for substance abuse prevention strategies and measures: 1. Where should prevention interventions be implemented geographically? 2. Which substances should prevention interventions target? 3. Which populations or groups should prevention interventions target? Who are the high-risk target groups? 4. When should interventions begin? If 15 years old is a common age for substance abuse initiation, then interventions should start earlier, for example, at the age of 13. 5. What are the intermediate goals and information of prevention intervention strategies? For example, changing attitudes toward substance use, beliefs about substance abuse norms, and perceptions of substance abuse risks.

According to the analysis of the literature, the design of substance abuse prevention strategies should take into account factors such as the target population, environment, goals, risk levels, etc., to develop suitable prevention plans and measures. Substance abuse prevention advocacy strategies can refer to the strategy review results of the United Nations drug prevention standards and develop effective prevention and advocacy strategies according to their classification methods.

D. Social Media

According to the latest "Digital 2022: TAIWAN" report, Taiwan has 21.72 million internet users, accounting for approximately 91% of the population. Active users on social media platforms reach a staggering 21.35 million, constituting 89.4% of the total population. The growth rate of social media users is 8.4%, and the average daily internet usage per citizen is 8 hours and 7 minutes, with one-quarter of that time (2 hours and 4 minutes) spent on social media. This data reflects the high level of social media activity among internet users in Taiwan. Previous research in Taiwan on drug abuse prevention and advocacy has primarily focused on adolescents and anti-drug campaigns in schools [4] or explored drug abuse advocacy strategies from the perspective of advocates [5]. There has been relatively less research examining drug abuse prevention advocacy strategies from the perspective of young people, drug users, or the friends and family of drug users [6].

1) Social media and health information dissemination

The increase and diversification of communication methods through modern technology and social media break geographical and time limitations, providing more opportunities for diverse communication [7]. Leveraging the high usability and engagement of social media to promote information related to drug prevention and treatment is an important means of information dissemination [8]. It is believed to reshape how patients interact and communicate

health-related information and skills with peers in managing diseases [9].

2) Social media intervention approaches and effectiveness

Research by Maher (2016) suggests that the targeted use of platforms such as Facebook, Twitter, online social communities, and applications with social features can enhance certain aspects of health and provide unique insights into behaviors related to healthy eating. However, providing interventions on established and popular social media platforms does not guarantee influence. Internet social media is complex, evolving, and delicate, requiring continuous updates not only to the content of intervention approaches but also to the measures, design, and functionalities that sustain engagement and behavior change, in addition to the inherent diffusion and interactive features of the platforms [10].

3) Behavior change techniques

There are many different theoretical frameworks for behavior change techniques [11]. Simeon (2020) conducted an analysis of 71 studies on social media-driven interventions and identified the 15 most commonly applied behavior change techniques. This study integrates research analysis by Michie (2020) on behavior change techniques and presents 14 techniques applicable to recent social media use, as shown in Table 2.

Table 2. 14 behavior change techniques (compiled by the authors)

No.	Behavior Change Techniques
1	Goal setting (behavior)
2	Problem solving
3	Action planning
4	Review behavior goal(s)
5	Adding objects to the environment
6	Feedback on behavior
7	Self-monitoring of behavior
8	Social support
9	Instruction on how to perform the behavior
10	Information about health consequences
11	Demonstration of the behavior
12	Social comparison
13	Prompts/cues
14	Credible source

III. MATERIALS AND METHODS

A. Research Structure

This study is conducted in three phases. In the first phase, a review of the literature is conducted to identify the risk factors, prevention methods, and intervention strategies for drug abuse, serving as the basis for designing questionnaires and interview outlines in subsequent stages. In the second phase, an expert panel is convened to discuss and categorize risk groups for drug abuse, and to examine the content validity of the questionnaires. In the third phase, based on the results of both quantitative and qualitative research, a mixed-methods approach is employed, incorporating multiple perspectives to explore drug abuse prevention and advocacy programs. The research process is illustrated in Fig. 2.

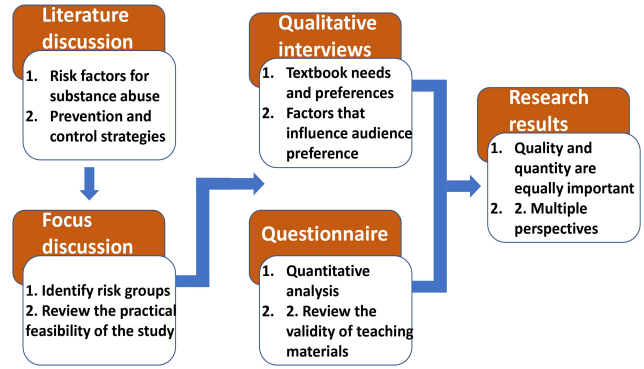


Fig. 2. Research process.

B. Literature Review

In response to the research background and objectives outlined in the previous section, this study plans to employ secondary data analysis and focus group interviews to conduct a literature review and research design. The aim is to compile existing findings, explore potential solutions, and provide policy recommendations for future research.

C. Semi-Structured Interviews

Through in-depth interviews, this study aims to investigate the needs and preferences of Taiwanese youth regarding public sector health information promotional materials. The interviewees will consist of young individuals in both adolescence and adulthood (aged 15 and above), with a total of 8 participants. The interview questions will cover four major aspects: material acceptability, media interaction behavior, social media consumption habits, and persuasiveness (as illustrated in Fig. 3). Interview data will be analyzed using grounded theory analysis to identify factors influencing audience preferences, serving as a basis for the subsequent questionnaire design.

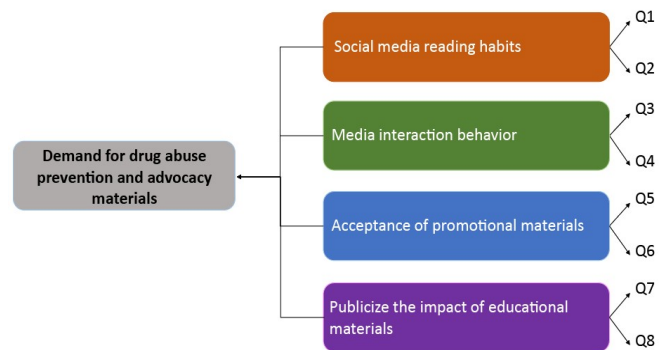


Fig. 3. Four aspects of interview questions.

D. Focus Group Interviews

This study aims to propose recommendations for substance abuse prevention and awareness programs. Through three expert focus group interviews, the study will establish a classification of substance abuse risk for promotional purposes, review the content and results of the questionnaire, and assess the practical feasibility of the research recommendations. The research team will first gather and synthesize relevant literature and then invite scholars and practical experts to participate in the interviews, considering both theoretical and practical perspectives, in order to provide effective prevention and awareness program recommendations.

IV. RESULTS AND DISCUSSION

This study employed both qualitative and quantitative analyses to understand the general public's perspectives on substance abuse prevention and awareness. It also focused on examining the presentation of substance abuse education and promotion within the research comic materials. Expert scholars and frontline practitioners were consulted to provide practical suggestions based on their experiences. The questionnaire was targeted at individuals aged 15 and above, with effective questionnaires developed based on four classification criteria. The study also referenced the review results of various strategies in the United Nations Drug Prevention Standards. The following four aspects are outlined, as shown in Fig. 4.

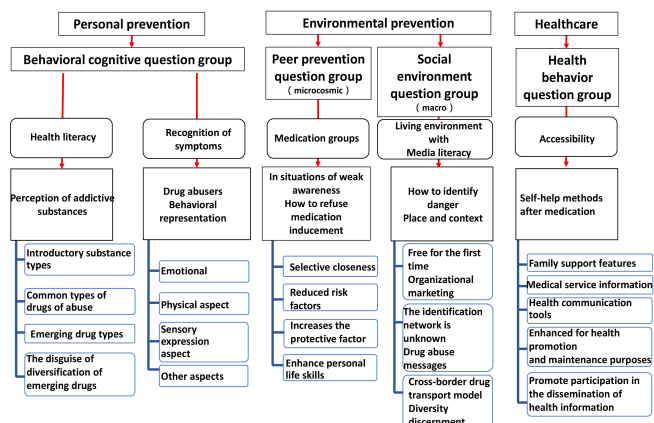


Fig. 4. Aspects of substance abuse prevention and promotion.

Section 1: Personal Prevention

1) Health literacy

In the theory of the causes and prevention of drug abuse, the “stage theory” or “gateway theory” is commonly applied. This theory emphasizes the specific order of progression in substance abuse behavior during the initial use of different psychoactive substances. Preventive interventions should analyze and discuss factors related to behaviors and progression, such as smoking, drinking, and betel nut chewing, that are often associated with drug users. From the perspective of preventive medicine’s three stages of prevention, the first stage is the most effective. Therefore, personal drug abuse prevention education should include awareness of gateway substances, strengthen recognition of common types of abused substances, how to detect emerging abused substances, enhance sensitivity to diverse disguises, and establish correct knowledge of drug use attitudes and methods.

2) Recognition of symptoms

According to Chou (2000), illegal drug use is a deviant behavior learned through communication and interaction with others. This learning process occurs within close-knit groups, including motivations and attitudes toward deviant behavior. Factors related to family, school, peers, and other environmental factors are considered one of the risk factors for adolescent illegal drug use [12]. Preventive interventions should be implemented based on geographical regions associated with the above environmental factors. Therefore, recognizing and identifying drug users’ symptoms and behavioral characteristics are crucial for identifying individuals at high risk of drug abuse and for building skills in rejecting drug-abusing peers within close-knit groups.

Section 2: Peer Prevention Question Group

From the perspective of social control theory, the main reason adolescents engage in drug abuse behavior is due to a lack of attachment, commitment, involvement, and belief, which are the four social bonds. Weaker or lacking social bonds are more likely to lead to the risk factors for adolescent drug abuse, and this has generated a phenomenon known as “selective bonding” with peers who have contact with illegal drugs [13]. Therefore, preventive interventions should focus on building knowledge and the ability to identify potential high-risk individuals who are likely to have contact with drug-related issues and to resist peer pressure to use substances in a healthy manner.

Section 3: Social Environment Question Group

Adolescents and young adults are a key target group for many substance abuse interventions. They are highly familiar with and willing to use information and communication technologies in many aspects of their lives. They may also be the group most willing to accept and benefit from interventions aimed at preventing, treating, and reducing the harm of drug use through digital means. The intermediate goals of evidence-based preventive interventions should primarily focus on early identification of risky locations and discerning the authenticity or reliability of information in the ecological environment.

Section 4: Health Behavior Question Group

During the qualitative research process, actual cases of substance abuse among young populations were collected through the Yunlin County Government’s Drug Harm Prevention Center. It was found that drug users often struggle to obtain various forms of support from their families, such as financial, medical, and emotional support. Therefore, preventive interventions should focus on enhancing empathy and support for others among high-risk individuals. Compared to social norms, new media has a stronger influence on young people [14]. Through social media platforms, they can break geographical and time constraints, and enhance opportunities for participating in health information dissemination for the purpose of promoting and maintaining health [7].

V. CONTRIBUTIONS AND FUTURE RESEARCH

This study used both qualitative and quantitative analyses to understand the general public’s views on substance abuse prevention and promotion. The results of the data analysis were used to provide responses and recommendations.

1) Broad preventive strategy recommendations

Different environments and contexts come with distinct regulatory requirements. It is important to apply “organizational intelligence” to understand the organizational culture and language of the audience and accordingly design appropriate advocacy content for different contexts.

2) Selective prevention strategy recommendations

Qualitative interviews revealed that providing family support services to high-risk populations, allowing them to feel cared for within their families and away from the temptations of drugs, significantly contributes to drug users’ efforts to overcome addiction.

3) Specific prevention strategy recommendations

In order to make the target audience aware that drugs are

not a good way to cope with stress, this research project plans to create a series of advocacy campaigns. Through focus group interviews, it was found that the target audience prefers videos with a narrative and dynamic quality. Therefore, this study recommends producing videos of different lengths based on varying levels of attention, creating promotional content that can resonate with or capture the audience's attention.

4) Environmental prevention strategy recommendations

To enhance the correct understanding of drugs among adolescents and adults during their transitional years, it is recommended to utilize social media platforms to disseminate new media educational materials in a format that appeals to this demographic. This approach not only increases media literacy among the audience but also has a significant impact on disrupting the drug supply chain. It is suggested that in the future, efforts should continue to strengthen social media advocacy and collaborate with law enforcement and judicial authorities to combat drug-related crimes and reduce drug trafficking.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Pei-Ching Tsai conducted the research, analyzed the data, and wrote the paper; Wen-Huei Chou provided academic advice; both authors had approved the final version.

ACKNOWLEDGMENT

The data source is a partial research result of the "Multi-element Educational Material Development Program for Drug Abuse Prevention" project commissioned by the Food and Drug Administration, Ministry of Health and Welfare, and conducted by the Center for Sustainable Development and Social Practice Research at National Yunlin University of Science and Technology in 2023.

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