ONCB JOURNAL

OFFICE OF THE NARCOTICS CONTROL BOARD, MINISTRY OF JUSTICE

Volume 40, Issue 1 (October 2023 - March 2024)

ONCB

- International Narcotic Drug Control under the United Nations System
- Development Guidelines for Creative Utilization of Hemp and Surveillance of Hemp Abuse through Community Enterprise Participation Mechanism
- A Model for Predicting Psychiatric Symptoms in Substance Abusers
- Online Market for New Psychoactive Substances (NPS) in Thailand: Data from Drug Marketing and Sales via Internet during 2020-2023
- Survey on Immunity-Based Factors, Contextual Factors, and Risk Behaviors Related to Drug Use Among Children and Youth Aged 13-15 Years

https://nctc.oncb.go.th

ISSN 0857 - 0485

ONCB

Vision

"To be a leading agency in developing and driving forward the drug control strategies of Thailand and ASEAN in order to make Thai society safe from drugs"

Mission

(1) To formulate and adjust the national narcotics control strategy to be implemented appropriately and continuously by taking into account of the current drug situation

(2) To integratedly manage the narcotics control efforts as stipulated in the national narcotics control strategy

(3) To supervise and direct the enforcement of narcotics laws and other relevant laws

(4) To monitor, examine and keep a close watch over the spread of drugs

ONCB JOURNAL

OFFICE OF THE NARCOTICS CONTROL BOARD, MINISTRY OF JUSTICE

Volume 40, Issue 1 (October 2023 - March 2024)

Year of publication : 2024
Number of copies : 600 copies
Owner : Office of the Narcotics Control Board (ONCB)
Ministry of Justice
ISSN : 0857 - 0485
Publication Number : 1-02-2024
Released via : Website of the Narcotics Control Technology Center
(https://nctc.oncb.go.th)

- Articles published in this ONCB Journal include personal opinions of the article authors and research owners. The editorial team of the ONCB Journal is under no obligation to bear its responsibility on these pieces of academic work.
- The editorial team of the ONCB Journal reserves no right to copy the content of articles for educational or working purposes. However, a complete reference citation would be required.
- If you want your academic article or research on narcotics to be published in the ONCB Journal, please submit to the editorial team of the ONCB Journal.

Advisors

Pol.Lt.Gen. Phanurat Lukboon	Secretary - General, NCB
Mr. Thanakorn Kaiyanunta	Senior Narcotics Control Advisor
Mr. Mana Siriphitthayawat	Deputy Secretary - General, NCB
Mr. Piyasiri Wattanavarangkul	Deputy Secretary - General, NCB

Executive Editor and Publisher

Mr. Sirisuk Yoenhan	Director of Narcotics Control Strategy Bureau

Editorial Team

Mr. Anirut Khemkanon
Miss Bangorn Poothong
Mrs. Bunsri Punsiri
Miss Chattiporn Limopasmanee
Mr. Chinnapak Sornsue
Miss Chompunuth Thipsang
Mr. Jakarin Playchumpol
Miss Jeerakan Daorerk
Ms. Jittima Boonkebthong
Mr. Kritphong Boonpha
Miss Luksamee Phutpiput
Miss Patchareewan Poolkhamlang
Mr. Phanupong Punsue
Miss Pornsawan Srisung
Mr. Ratthapon Tuntianupong
Mr. Ronrachai Nuanhong
Miss Saisamorn Rodkaew
Miss Sirinat Pariyawongkorn
Miss Supawadee Boonyapitaks
Mrs. Tipakron Cheevaskunyong
Mr. Wutthipong Kasphasa

Editorial Team Secretariat

Mr. Pitchayakit Boonpou
Mrs. Supaporn Sawasdichaiya
Mr. Titiwat Pattanasuk
Miss Wichaya Khampukdee

Printed by

Style Creative House Co., Ltd.
32/152 Ramintra 65 Road, Ladprao, Bangkok 10230, Thailand
Tel. (+66) 2945 8051-3, 08 6315 2645
E-mail : stylecreative@gmail.com
www.style.co.th

Objectives

The ONCB Journal is an academic journal on narcotics. It aims to be a medium of dissemination and exchange of narcotics control information among scholars, practitioners, and the general public. In addition, it is also intended to facilitate the collaboration and implementation concerning narcotics control as well as encouraging public involvement in illicit drug monitoring and control.

Release

The release schedules of the ONCB Journal Vol. 40 Issue 1-2 are as follows:

Issue 1 (October 2023 - March 2024)

Issue 2 (April - September 2024)

Copies of journal will be submitted to libraries of universities and public and private partners of our narcotics control network and will be published via the website of the Narcotics Control Technology Center. (https://nctc.oncb.go.th)

Data Search

Readers can search for, copy or download the current and past issues of ONCB Journal via the website of the Narcotics Control Technology Center (https://nctc.oncb.go.th) or scan the QR Code below.

Contact Address

Editorial Team, ONCB Journal
Strategic Drug Monitoring Division,
Narcotics Control Strategy Bureau,
Office of the Narcotics Control Board (ONCB)
No. 5, Din Daeng Road,
Samsen Nai Sub-district, Phyathai District,
Bangkok 10400, Thailand
Tel. (+66) 2247 0901-19 ext. 13005-06
Fax (+66) 2245 9884
Website: https://nctc.oncb.go.th

Editorial

The ONCB Journal has entered its 40th year and still focused on the utilization, promotion, and dissemination of knowledge, as well as being the channel for academic sharing in the area of narcotics. For this ONCB journal, issued no. 1 (October 2023 - March 2024), intriguing and beneficial articles were selected by the editorial team to be included in this journal, namely 1) International Narcotic Drug Control under the United Nations System, 2) Development Guidelines for Creative Utilization of Hemp and Surveillance of Hemp Abuse through Community Enterprise Participation Mechanism, 3) A Model for Predicting Psychiatric Symptoms in Substance Abusers, 4) Online Market for New Psychoactive Substances (NPS) in Thailand: Data from Drug Marketing and Sales via Internet during 2020-2023, and 5) Survey on Immunity-Based Factors, Contextual Factors, and Risk Behaviors Related to Drug Use Among Children and Youth Aged 13-15 Years.

For those who are interested in or want to utilize the information for the purpose of further developing their knowledge on narcotics, the published contents are available for searching or downloading on both the ONCB website (http://www.oncb.go.th) and the Narcotics Control Technology Center (NCTC) website (http://nctc.oncb.go.th). Moreover, you could become part of the ONCB journal. As readers, if you wish to publish your articles or narcotics research, you could find additional information on the said website or contact the editorial team.

The editorial team hopes that the ONCB Journal will become an inspiration for the improvement and dissemination of academic works and research to both domestic and international practitioners. Should you have any comments or suggestions, we, the editorial team, are graciously pleased to accept them to continue improving the ONCB Journal. Lastly, the editorial team would like to thank all of the faculty members and authors for their contributions to published articles, as well as all of the readers who shown their interest and continued to follow the ONCB journal.

(Mr. Sirisuk Yoenhan)
Executive Editor and Publisher

Contents

6 International Narcotic Drug Control under the United Nations System

24 Development Guidelines for Creative Utilization of Hemp and Surveillance of Hemp Abuse through Community Enterprise Participation Mechanism

33 A Model for Predicting Psychiatric Symptoms in Substance Abusers

53 Online Market for New Psychoactive Substances (NPS) in Thailand: Data from Drug Marketing and Sales via Internet during 2020-2023

64 Survey on Immunity-Based Factors, Contextual Factors, and Risk Behaviors Related to Drug Use Among Children and Youth Aged 13-15 Years

International Narcotic Drug Control under the United Nations System

| **Ms. Rachanikorn Sarasiri***
Advisor to the ONCB

The problem of narcotic drugs is the world's most significant concern due to their epidemic in every country and region. One country alone is not able to solve the narcotic drug problem. Therefore, collective cooperation from countries in every region is needed. The United Nations is the organization that plays an important role in solving the narcotic drug problem, which is an international problem that requires international cooperation from all countries concerned in order to prevent the effects from narcotic drug problem on each other. The United Nations, the world's largest international organization, was established on 24 October 1945 (B.E. 2488), which is considered to be the United Nations Day, with 51 founding Member States. At present the UN's membership has grown to 193 Member States. The United Nations has evolved over the years to keep pace with a rapidly changing world. It remains one place where all the nations can gather together, discuss common problems, and find shared solutions that benefit all of humanity. The United Nations is headquartered in New York, USA, and has three other offices: in Geneva, Switzerland, where the World Health Organization (WHO) is headquartered; in Nairobi, Kenya, where the United Nations Environment Programme (UNEP) is headquartered; and in Vienna, Austria, where the United Nations Office on Drugs and Crime (UNODC) is headquartered.

The United Nations was established with the following purposes:

1. To maintain international peace and security;
2. To develop friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples and to take other appropriate measures to strengthen universal peace;
3. To achieve international cooperation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion; and
4. To be a centre for harmonizing the actions of nations in the attainment of these common ends.

The Commission Nations established five Regional Commissions by the adoption of resolutions of the Economic and Social Council (ECOSOC) to promote regional development as follows:

1. Economic and Social Commission for Asia and the Pacific (ESCAP): Bangkok, Thailand.
2. Economic Commission for Africa (ECA): Addis Ababa, Ethiopia.
3. Economic Commission for Latin America and the Caribbean (ECLAC): San Diego, Chile.
4. Economic and Social Commission for Western Asia (ESCWA): Beirut, Lebanon.
5. Economic Commission for Europe (ECE): Geneva, Switzerland.

* Ms. Rachanikorn Sarasiri, Deputy Secretary-General of the Narcotics Control Board (2014-2015).

United Nations Office in Vienna, Austria

The problem of narcotic drugs is a significant international concern that affects the economy, society and security of every nation. The United Nations plays a key role in controlling and solving the narcotic drug problem through the collaborative efforts of its member states. It has mechanisms, tools, and systems for controlling and solving narcotic drug problem, as follows:

A. The International Narcotic Drug Control Mechanisms

The main UN mechanisms responsible for addressing the narcotic drug problem that affects the economic and social aspects of all member states are as follows:

1. The Commission on Narcotic Drugs (CND)

The Commission on Narcotic Drugs (CND) was established by the Economic and Social Council (ECOSOC) in 1946 (B.E. 2489) with the objectives to assist the ECOSOC in supervising the application of the international narcotic drug control treaties. The Commission on Narcotic Drugs is a working committee of the ECOSOC and the United Nations General Assembly (UNGA). The Commission will review and analyze the world illicit drug problem in terms of illicit drug supply and demand. This will lead to shaping up the international drug control policy and guidelines through voting and the adoption of the resolutions which were drafted and submitted to the Commission on Narcotic Drugs, other relevant commissions under the UN system, or other UN subsidiary bodies via the annual session of the Commission on Narcotic Drugs. The Commission on Narcotic Drugs, therefore, is the international narcotics control body that formulates the guiding principles for addressing the world drug problem.

In 1991 (B.E. 2534), the United Nations General Assembly expanded the mandate of the Commission on Narcotic Drugs to function as the governing body of the United Nations Office on Drugs and Crime (UNODC). The Commission comprises 53 members which are elected by the ECOSOC from UN member states, taking into account the principle of equitable geographical distribution and the level of seriousness of the narcotic drugs in the member states. The election will be done by 54 members of the ECOSOC during its annual meeting in May at the United Nations Headquarters in New York, USA.

The membership of the Commission on Narcotic Drugs is a four-year term. Thailand, one of 53 members of the Commission, has been re-elected consecutively since 1973 (B.E. 2516). The current term of Thailand's membership in the Commission is the 14th, which started from 2024 (B.E. 2567) to 2027 (B.E. 2570). Thailand's previous term of membership was the 13th, which ended on 31 December 2023 (B.E. 2566). Thailand expressed her intention to be re-elected as a member of the Commission for another term and was successfully re-elected.

Since the work of the United Nations is treaty-based, the Commission on Narcotic Drugs meets at the regular session annually in March to consider the normative agenda of drug control in terms of supply and demand reduction. The Commission adheres to the three international narcotic drug control treaties, namely, the Single Convention on Narcotic Drugs, 1961, as amended by the Protocol 1972, the Convention on Psychotropic Substances, 1971, and the UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988. As the governing body of UNODC, the Commission has an annual reconvened session in December to review the budget and management of the United Nations Office on Drugs and Crime (UNODC). Moreover, the Commission also has an intersession where the experts meet to discuss specific issues or prepare substantive issues or recommendations for the Commission at its special sessions, such as the High-Level or Ministerial-Level Sessions of the Commission, and the UN General Assembly Special Session on the World Drug Problem. The Commission may have a special session at the high-level or ministerial-level segment during the mid-term implementation of the ten-year plan. In 2024, the Commission met at the high-level or ministerial-level segment for the midterm review of the ten-year implementation of the Ministerial Declaration on Strengthening Our Action at National, Regional, and International Levels to Accelerate the Implementation of Our Joint Commitment to Address and Counter the World Drug Problem (2019-2029). It assessed the progress made in the implementation of all international drug policy commitments as set forth in the said 2019 Ministerial Declaration, which was adopted at the 62nd session of the Commission in 2019. The 2024 Midterm Review was held during the Ministerial Segment of the 67th session of the Commission on Narcotic Drugs on 14-15 March 2024, prior to the regular session of the Commission which was held on 18-22 March 2024, at the Vienna International Centre (VIC), Vienna, Austria. The regular session of the Commission comprises two segments: the operational and normative segments. The operational segment considers strategic management, budgetary and administrative questions of UNODC, working methods of the Commission, staff composition of UNODC, and other related matters. The normative segment follows up the implementations of international drug control treaties as well as all commitments reflected in the 2019 Ministerial Declaration to address the world drug problem at all levels (national, regional, and international), considers the recommendations of the 5 subsidiary bodies of the Commission, addresses the contributions by the Commission to the work of the ECOSOC including follow-up, review and implementation of the 2030 Agenda for Sustainable Development, considers the draft resolutions and adopts the resolutions, promotes the inter-agency cooperation and coordination of efforts under the UN system, considers the draft agenda of the next session of the Commission, and adopts the report of the Commission.

The 67th Session of the Commission on Narcotic Drugs

The Commission on Narcotic Drugs established five subsidiary bodies, namely, the Heads of National Drug Law Enforcement Agencies in Europe, the Heads of National Drug Law Enforcement Agencies in Latin America and the Caribbean, the Heads of National Drug Law Enforcement Agencies in Asia and the Pacific, the Heads of National Drug Law Enforcement Agencies in Africa, and the Sub-commission in the Near and Middle East. Each subsidiary body holds its annual meeting hosted by the member states in each subsidiary body on a rotational basis. The reports of the subsidiary bodies will be submitted to the Commission for consideration and endorsement, while the report of the Commission will be further submitted to the ECOSOC for consideration and adoption, and finally submitted to the 3rd Committee of the UN General Assembly for final adoption. The UN General Assembly (UNGA) is the main policy-making organ and the highest-level session of the United Nations. It is the forum for all member states to discuss and make decisions on various international issues, which are the world's common problems, by consensus or voting. The regular session of the Assembly starts from September to December each year. The Assembly meets in plenary session and in six main committees, as follows:

1. First Committee: Disarmament and International Security
2. Second Committee: Economic, Financial, and Development
3. Third Committee: Social, Humanitarian, and Cultural Issues
4. Fourth Committee: Special Political and Decolonization
5. Fifth Committee: Administrative and Budgetary
6. Sixth Committee: Legal

Narcotic drug issues are on the agenda of the Third Committee and relate to a range of social, humanitarian affairs and human rights issues that affect people all over the world. The important part of the work of the Third Committee will focus on the examination of human rights questions, including reports on the special procedures of the Human Rights Council. The report of the Commission on Narcotic Drugs, after being endorsed by the ECOSOC, will be

further submitted to the UNGA for final adoption. The report of the Commission will be tabled at the Third Committee before proceeding to the Plenary Session of the Assembly since the Committee also addresses important social development issues as follows:

- Overall human rights and country situation on human rights
- Social development
- Rights of various groups of people, in particular women, youth and children groups, persons with disabilities, elder people, and migrant workers
- Criminal justice and the treatment of prisoners
- International drug control

A person elected to chair the session of the Commission also serves as the Chair of the Commission. The election of the Chair of the Commission is conducted on a regional rotation basis. The regional UN system is divided into 5 regions, namely Asia and the Pacific, Western Europe and Other States, Eastern Europe, Africa, and Latin America and the Caribbean. The Bureau of the Commission comprises the Chair, the First Vice Chair, the Second Vice Chair, the Third Vice Chair and the Rapporteur. The First Vice Chair serves as the Chair of the Committee of the Whole to consider the draft resolutions submitted to the Commission by the member states. The election of the Chair of the next session of the Commission is conducted at the end of the reconvened session of the Commission in the current year. For example, the election of the Chair of the 67th session of the Commission was conducted at the end of the reconvened session of the 66th Session of the Commission in December 2023. After the Chair of the 67th Session of the Commission was elected, the Chair delivered the opening speech of the 67th Session of the Commission, which meant that the next session of the commission started. The Bureau of the 67th Session of the Commission comprised H.E. Mr. Philbert Abaka Johnson, Ghana, a representative of Africa as the Chair of the Commission; H.E. Mr. Asad Alam Siam, Bangladesh, a representative of Asia and the Pacific as the First Vice Chair; H.E. Ms. Barbara Zvokelj, Slovenia, a representative of Eastern Europe as the Second Vice Chair; H.E. Ms. Natasha Meli Daudey, Malta, a representative of Western Europe and Other States as the Third Vice Chair; and Mr. Fabio Esteban Pedraza Torres, Columbia, a representative of Latin America and the Caribbean as a Rapporteur. The election of the Chair of the 68th Session of the Commission on Narcotic Drugs will be conducted at the end of the reconvened session of the 67th Session of the Commission in December 2024. The representatives of the regional group are rotated to chair each session of the Commission. For the 68th Session, the Chair will be nominated by the group of Asia and the Pacific region.

Chair of the 67th Session of the Commission on Narcotic Drugs

High-Level Segment of the 67th Session of the Commission

Regular Session of the 67th Session of the Commission

2. International Narcotics Control Board (INCB)

The International Narcotics Control Board (INCB) is the independent monitoring body for the implementation of the international narcotic drug control treaties. It was established in 1968 (B.E. 2511) by the Economic and Social Council (ECOSOC) under the Single Convention on Narcotic Drugs, 1961, to be responsible for monitoring the control of substances pursuant to the three international narcotic drug control conventions, namely, the Single Convention, 1961 as amended by the Protocol, 1972 (B.E. 2515), the Convention on Psychotropic Substances, 1971 (B.E. 2514), and UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, in particular the implementation of Article 12 of the 1988 UN Convention on Precursors and Chemicals Control, as well as, the control of narcotic drugs and psychotropic substances for medical and scientific use, and the monitoring of the utilization of narcotic drugs, psychotropic substances, illegal precursors and chemicals under control. The International Narcotics Control Board formulates the annual

report, which is annually launched in March. The INCB annual report provides a comprehensive global drug and psychotropic substance situation in the regions, the implementation of three international narcotic drug control conventions, and the recommendations made to governments and international organizations relating to narcotic drug and psychotropic substance control. In addition, the INCB also formulates another specific report regarding the implementation of Article 12 of the 1988 UN Convention, i.e., the INCB Precursors Report, which provides the trend and situation of illicit chemicals and precursors trafficking in every region, as well as, the chemicals and precursors control in every country. The INCB is headquartered at the United Nations Office in Vienna, Austria.

INCB Annual Report and INCB Precursors Report

The International Narcotics Control Board comprises 13 members who were elected by ECOSOC at its annual meeting in May when there is a vacancy in a member seat. The member has a five-year term; three members with medical, pharmacological, or pharmaceutical experience are elected from a list of persons nominated by the World Health Organization (WHO), and other ten members are elected from a list of persons nominated by the governments of member states or parties to the Single Convention on Narcotic Drugs, 1961. The election nominees for INCB members shall serve in their personal capacity, not as government representatives, though they are nominated via the diplomatic channel of the Member States. Members of INCB should be impartial in their capacity and independent from their governments. The election of INCB members is carried out through the vote by ECOSOC members, taking into account the specific personal qualifications of the candidates. The INCB formulates the annual INCB Report with an analysis of illicit drug trends in every part of the world, which is submitted to the ECOSOC through the Commission on Narcotic Drugs. The annual INCB Report is a supplement to the Report of the Commission regarding the implementation of Article 12 of the 1988 UN Convention. Moreover, the INCB organizes

missions to countries that face the problem of implementing narcotic drug control conventions or to monitor the progress made on narcotic drug and psychotropic substance control.

Thailand previously nominated two candidates for the INCB memberships, namely, Professor Dr. Boonsom Martin, former Minister of Education and former Minister of Public Health, who was elected as a member of INCB for the term of 1992-1997 (B.E. 2535-2540) and Dr. Viroj Sumyai, former Deputy Secretary-General of the Food and Drug Administration, who was elected as the INCB member for two terms during 2010-2020 (B.E. 2553-2563). Dr. Viroj Sumyai served as the Vice President of the INCB in 2012 (B.E. 2555), 2014 (B.E. 2557), and 2016 (B.E. 2559) and became the President of the INCB in 2017 (B.E. 2560) for a one-year term and in 2018 (B.E. 2561) for another one-year term until his term of INCB membership terminated in 2020 (B.E. 2563). He was the first Thai to take up the highest position in the INCB, which is a great honor for Thailand.

Dr. Boonsom Martin
INCB Member 1992 - 1997

Dr. Viroj Sumyai, Ph.D
INCB Member 2010 - 2020

3. United Nations Office on Drugs and Crime (UNODC)

The United Nations Office on Drugs and Crime (UNODC) is responsible for narcotic drug control and solving the narcotic drug problem of the United Nations. It performs the operational function and secretariat of two mechanism, namely, the Commission of Narcotic Drugs, responsible for international narcotic drug control, and the Commission on Crime Prevention and Criminal Justice (CCPCJ), which was established in 1992 (B.E. 2535) by the ECOSOC. The CCPCJ is tasked with being the principal policymaking body of the United Nations in the field of crime prevention and criminal justice. It is also responsible for providing solutions to combat the international problems relating to transnational crime, economic crime, money laundering, standardizing the correctional system, promoting the rule of law, addressing violence against women and children and youth crime, preventing terrorism, and reforming the justice system. The CCPCJ is in charge of the activities and projects under the Crime Prevention and Criminal Justice Programme (CPCJ Programme) as well as monitoring the implementation of the United Nations against Transnational Organized Crime and its Protocols, the United Nations Convention against Corruption (UNCAC), and International Instruments on Counterterrorism. The Commission on Crime Prevention and Criminal Justice meets annually in May at the United Nations Office in

Vienna, Austria, and has a joint meeting with the Commission on Narcotic Drugs at the reconvened session of both commissions in December annually.

For international narcotic drug control, the United Nations Office on Drugs and Crime (UNODC) performs the operational function and secretariat to the Commission on Narcotic Drugs, which is responsible for every dimension of international narcotic drug control under the three international narcotic drug control conventions. It is also responsible for implementing activities and projects under the Drug Control Programme (DCP Programme), and supporting the implementation of resolutions and decisions of the Commission on Narcotic Drugs. The UNODC is headquartered at the United Nations Office in Vienna, Austria.

The United Nations Office on Drugs and Crime was originally established on 1 March 1991 (B.E.2534) under the name of the United Nations International Drug Control Programme (UNDCP) by combining three UN organs, namely, the United Nations Division of Narcotic Drugs, the United Nations Fund for Drug Abuse Control (UNFDAC), and the Secretariat of the International Narcotics Control Board. After the United Nations restructured its organization, UNDCP was merged with the Centre for International Crime Prevention (CICP) and became the Office for Drug Control and Crime Prevention (ODCCP), which was effective on 1 November 1997 (B.E. 2540). Since then, the United Nations has expanded the work of its regional offices to cover the transnational crime prevention issue, which was in line with the establishment of the ODCCP. In October 2002 (B.E. 2545), the ODCCP was renamed to the United Nations Office on Drugs and Crime (UNODC) and established nine regional offices located in all regions. For Asia, the UNODC Regional Office for Southeast Asia and the Pacific is located in Bangkok and is responsible for coordinating with countries in Southeast Asia and the Pacific region. The current UNODC Representative for Southeast Asia and the Pacific is Mr. Masood Karimipour, who took up the post in January 2024 after Mr. Jeremy Douglas was transferred to be the Chief of Staff of the Executive Director of UNODC at the UNODC Headquarters in Vienna, Austria.

United Nations Office in Vienna, Austria

The head of the United Nations Office on Drugs and Crime is the Executive Director (ED), who is in charge of administration, management, control, and supervision of activities under the United Nations scheme, seeking funds for UNODC, and coordinating with various international organizations both internal and external to the UN system. The Executive Director of UNODC also holds the rank of Under Secretary-General of the United Nations. In the past, when the United Nations Office for Drug Control and Crime Prevention (ODCCP) still existed, the Executive Director of UNDCP was changed to the Executive Director of UNODCCP. Later, when UNODCCP was changed to UNODC, the Executive Director of UNODCCP was renamed to the Executive Director of UNODC. The current Executive Director of UNODC is Ms. Ghada Waly.

Ms. Ghada Waly
Executive Director, UNODC

4. Other organizations under UN Entities

Other international organizations that also work in the field of solving narcotic drug problems or cooperate with UNODC by working in an integrated manner under the UN framework are, for example, the World Health Organization (WHO) and the International Labour Organization (ILO).

B. International Narcotics Control Tools

Under the UN system, the important tools for international narcotics control are as follows:

1. International narcotics control conventions: They are important legal tools for controlling international narcotic drugs by parties to the conventions since the parties are obliged to implement the narcotic drug control as required by the conventions. The domestic laws are to be enacted in compliance with the conventions. The United Nations adopted three international narcotic drug control conventions that currently remain effective, and many member states are parties by ratification or accession since they realized the seriousness of the narcotic drug problem and its threat to their countries and people. The three international narcotics control conventions are as follows:

1.1 The Single Convention on Narcotic Drugs, 1961, as amended by Protocol 1972

The Single Convention on Narcotic Drugs, 1961, is an international treaty that entered into force on 13 December 1964 (B.E. 2507). Later, it was modified by Protocol 1972 (Protocol Amending the Single Convention on Narcotic Drugs, 1972), which was effective on

8 August 1975 (B.E. 2518). The Convention aims at tackling illicit drugs through limiting the availability of certain drugs and international cooperation. It intends to control and limit the use of narcotic substances to medical and scientific purposes only. The parties to the Convention shall issue domestic law or internal legal measures that are in compliance with the Convention. The International Narcotics Control Board was established by the Convention with the objectives of monitoring the implementation of international narcotic drug control treaties by States Parties (manufacture, import, export, domestic consumption, and international trade done under the Convention). The narcotic substances are classified into four schedules, which are attached to the Convention. Each schedule has a level of control. Substances listed in Schedules I and II are subject to all measures of control and can be used for medical and scientific purposes. Schedule III contains preparations that are subject to the same measure of control as the drugs they contain. Schedule IV is subject to strict control and cannot be used for medical or scientific purposes.

The control of narcotic substances under the aforementioned Schedules is subject to change in scope of control, taking into account the changing situation of the narcotic drug epidemic and abuse. The World Health Organization (WHO) and International Narcotics Control Board will jointly submit the recommendations to change the scope of narcotic substance control to the Commission on Narcotic Drugs. The Commission will consider those recommendations and decide whether or not it wishes to change the scope of narcotic substance control as recommended by WHO and INCB through the voting of members of the Commission. Once the Commission agrees to the recommendations to change the scope of narcotic substance control, the UN Member States shall take action to amend the domestic law or legal regulations to comply with the change adopted by the Commission.

1.2 The Convention on Psychotropic Substances, 1971

The Convention on Psychotropic Substances, 1971 (B.E. 2514) entered into force on 16 August 1976 (B.E. 2519). It intends to control psychotropic substances and psychoactive drugs and to limit the use of psychotropic substances to medical and scientific purposes only. Parties to the Convention shall take action as required by the Convention and shall enact domestic laws to control psychotropic substances in compliance with the Convention. The International Narcotics Control Board will monitor the implementations of the Convention (manufacture, import, export, domestic use, and international trade). Psychotropic substances are classified into four schedules, which are attached to the Convention. Each schedule has a level of control in the same manner as narcotic drug control.

In the same method of narcotic drug control under the Single Convention, 1961, as amended by Protocol 1972, the scope of psychotropic substance control is subject to change in accordance with the situation of its epidemic and abuse. The World Health Organization (WHO) and International Narcotics Control Board will jointly submit the recommendations to change the scope of psychotropic substance control to the Commission on Narcotic Drugs. The Commission will consider those recommendations and decide whether or not it wishes to change the scope of psychotropic substance control as recommended by WHO and INCB through the voting of members of the Commission. Once the Commission agrees to the recommendations to change the scope of psychotropic substance control, the UN member states shall take action to amend domestic law

or legal regulations to comply with the changes adopted by the Commission.

1.3 The UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988

The UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988 (B.E. 2531), entered into force on 11 November 1990 (B.E. 2533). This Convention is different from the Single Convention on Narcotic Drugs, 1961, as amended by Protocol 1972, and the Convention on Psychotropic Substances, 1971, which control the substances but do not control the offences related to the narcotic substances or psychotropic substances. Given the rise of illicit drug and psychotropic substance trafficking in many countries all over the world, the rapid expansion of illicit drug trafficking networks, the unalignment of drug control cooperation and procedure, and the insufficiency of then existing legal measures, a new UN Convention was consequently drafted and adopted: the UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988, which contains requirements and new measures for its parties to take the same action. Parties to the Convention are required to carry out their obligations under the Convention. The key provisions of the Convention are as follows:

1. Offences and Sanction
2. Jurisdiction
3. Confiscation
4. Extradition
5. Mutual Legal Assistance
6. Transfer of Proceedings
7. Illicit Traffic by Sea
8. Precursor Chemicals Control
9. Money Laundering
10. Controlled Delivery

This Convention leads to the enactment of domestic legislation to comply with the implementation of obligations under the Convention and international cooperation relating to the specified provisions. Regarding precursor chemical control, Article 12 of the Convention specifies the precursor chemicals which are frequently used in the illicit manufacture of narcotic drugs or psychotropic substances under control in Tables I and II of the Convention. The International Narcotics Control Board, the body responsible for monitoring the implementation of Article 12 of the Convention, is responsible for making recommendations to change the scope of the precursor chemicals control or to add new precursor chemicals under control. This is in the same manner as its role in monitoring the implementation of the Single Convention on Narcotic Drugs, 1961, as amended by Protocol 1972, and the Convention on Psychotropic Substances, 1971. The International Narcotics Control Board will propose recommendations to the Commission for consideration through voting done by members of the Commission. After the recommendations are adopted by the Commission, the UN Member States will take further action by either enacting new domestic legislation or amending the domestic legislation.

2. When resolutions of the Commission on Narcotic Drugs or resolutions of the United Nations General Assembly Special Session (UNGASS) on the drug problem are adopted, the members of the Commission will submit the draft resolutions to the Commission for consideration. The substantives of the draft resolutions are measures, directions, or guidelines for action to solve the narcotic drug problem. After a draft resolution is adopted, it becomes the resolution of the Commission. The resolution will be attached to the report of the Commission, which will be further transmitted to the ECOSOC

for endorsement before being further submitted to the United Nations General Assembly for final adoption. The member states of the United Nations will take further action in accordance with the resolutions.

The implementations of key UN resolutions are, for example, resolutions of the Commission on Narcotic Drugs and the Twentieth Special Session of the United Nations General Assembly, which set the year 2003 (B.E. 2546) as a target year for enhancing measures on anti-money laundering, judicial cooperation, amphetamine-type stimulant control, and precursor chemical control, and the year 2008 (B.E. 2551) as a target year that the member states should successfully eliminate illicit narcotic crop cultivation and successfully reduce illicit drug demand. Such recommendations are the implementation frameworks for the member states to take action against narcotic drug problem. Every ten years, the United Nations, through the Commission on Narcotic Drugs, will adopt the guiding documents for the implementation of action in solving the narcotic drug problem during the ten-year period through the high-level segment, or the ministerial segment, of the Commission on Narcotic Drugs.

When achieving the target year of 2008 (B.E .2551), the 52nd Session of the Commission on Narcotic Drugs was held in 2009 (B.E. 2552), with the Ministerial Segment on 11-12 March 2009 (B.E. 2552), in order to review the ten-year implementation after the Twentieth Special Session of the United Nations General Assembly (UNGASS 1998). The Commission adopted the Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem, 2009-2019, and set 2019 as a year that the member states shall successfully eliminate the opium poppy cultivation, coca cultivation, and cannabis cultivation, or significantly and measurably reduce the illicit narcotic crop cultivation., The Commission's resolutions also focus on successfully reducing demand for narcotic drugs and psychotropic substances, mitigating drug-related health risks, decreasing the manufacture, distribution, and illicit traffic in psychotropic substances and illegal synthetic drugs, diminishing diversion and illicit traffic in precursor chemicals, and reducing money laundering relating to narcotic drugs. The 52nd Session of the Commission on Narcotic Drugs reviewed the implementation of the said Political Declaration, which led to the United Nations General Assembly Special Session on the World Drug Problem (UNGASS 2016) in 2016 (B.E. 2559).

In 2019, the 62nd Sesion of the Commission on Narcotic Drugs adopted the Ministerial Declaration on Strengthening Actions at the National, Regional, and International Levels to Accelerate the Implementation of Joint Commitments Made to Jointly Address and Counter the World Drug Problem, 2019-2029 or the 2019 Ministerial Declaration. The directions for solving the world drug problem are in reference to this Ministerial Declaration. The 67th Session of the Commission on Narcotic Drugs at the Ministerial Segment on 14-15 March 2024, reviewed the midterm implementation of the 2019 Ministerial Declaration before the regular session of the Commission on 18-22 March 2024, at the Vienna International Centre (VIC), Vienna, Austria.

3. Narcotic drug control projects: The United Nations, through the United Nations Office on Drugs and Crime, carries out global, regional, and sub-regional projects to solve the narcotic drug problem. Most of the projects implemented by UNODC are global projects and joint projects with country counterparts or donor

countries in all regions. In implementing projects, the United Nations, or UNODC, will also provide assistance to the country counterparts.

Regarding the global project, UNODC implements many global projects and develops them into programmes which are jointly implemented with countries in different regions; for example, the implementation of the UNODC-WHO Programme on Drug Dependence Treatment and Care under the cooperation between UNODC and WHO in countries in five regions, namely, Latin America (Brazil, Haiti), Africa (Benin, Mozambique, Senegal, Togo, Cote d'Ivoire), Europe (Albania, Macedonia, Montenegro, Serbia), Southeast Asia (Cambodia, Lao PDR, Viet Nam, Myanmar), and the Middle East (Iraq, Pakistan, UAE).

Another developed global project is the Global SMART Programme, or Synthetics Monitoring: Analysis, Reporting, and Trends Programme. The Programme aims to enhance the capacity of member states to compile, manage, and analyze information and make a report on the widespread use of synthetic drugs in many regions as well as the illicit traffic in synthetic drugs all over the world. UNODC seeks cooperation from member states to fill out the questionnaires. Later, UNODC, through the Laboratory and Scientific Section of Division for Policy and Analysis and Public Affairs, will analyze and process information and come up with a report on a yearly basis.

Moreover, UNODC implements projects on a bilateral basis in many countries, particularly in developing countries. For example, Thailand has had cooperation with the United Nations for more than 50 years, starting with the project on alternative development and highland development to solve the problem of opium poppy cultivation in 1973, for which Thailand received assistance from the United Nations. The United Nations also provided assistance to Thailand in implementing other projects in other fields, including drug prevention, treatment of drug addicts, research, and sponsorship of study visits and training, valued at about 700,000,000 baht, as follows:

a. Financial assistance for eight projects on crop replacement and highland development totaled 644,180,140 baht.

b. Financial assistance for seven projects on treatment and rehabilitation of drug addicts totaled 58,198,950 baht.

c. Financial assistance for two research projects totaled 16,846,500 baht.

d. Financial assistance for five projects on drug prevention totaled 21,712,725 baht.

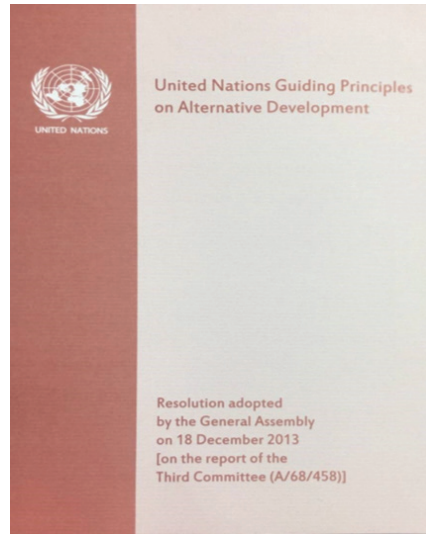
The United Nations stopped providing assistance to Thailand on highland development to reduce opium poppy cultivation at the end of 1994 (B.E. 2537) but turned to providing assistance on drug prevention and drug demand reduction.

The United Nations, through UNODC, initiated and prioritized the concept of regional and sub-regional cooperation since it believed that countries in the same region and sub-region facing the drug problem should cooperate in fighting narcotic drugs. UNODC implements the projects under this concept in various regions, such as the UNODC Regional Programme for South Asia 2023-2027 and the UNODC Regional Programme for Afghanistan and Neighboring Countries.

Thailand supports the United Nations' initiatives and lends full cooperation to UNODC in implementing the sub-regional projects with countries in the Greater Mekong Sub-region through signing the Memorandum of Understanding

on Drug Control among Cambodia, China, Lao PDR, Myanmar, Thailand, Viet Nam, and UNDCP in 1993 (B.E. 2536), when UNDCP had not changed its name to UNODC yet. Under the 1993 Memorandum of Understanding, the Sub-regional Action Plan (SAP) on Drug Control was formulated in 1995 (B.E. 2538) to cover a period of three years. It was changed in 1997 (B.E. 2540) to a rolling plan of action with no time limit, to be periodically revised and updated in order to better address newly emerging drug control priorities. Up to present, drug control projects have been implemented under the Sub-regional Action Plan on Drug Control to enhance the capacity of the signatory countries and their cooperation in combating drugs.

4. The UN Guiding Principles (GP), the Standard Procedure Operation (SPO), or the Outcome Document are formulated as the standard for solving specific drug control issue through the collaboration of member states or expert groups invited by the United Nations or nominated by member states. They are later submitted to the Commission on Narcotic Drugs for endorsement, and then to the United Nations General Assembly (UNGA) for adoption. In the past, the UNGA Special Session in 1998 (B.E. 2541) adopted the Declaration on the Guiding Principles of Drug Demand Reduction, and in 2013 (B.E. 2556), the UNGA adopted the UN Guiding Principles on Alternative Development, which were applied by the member states to the work on drug demand reduction and illicit narcotic crop cultivation, as well as to develop the quality of life of people facing narcotic drug problems.



UN Guiding Principles on Alternative Development

5. Narcotics Control Data System

The United Nations, through the United Nations Office on Drugs and Crime (UNODC), set up the data system to monitor the narcotic drug control implementation of the member states and the implementation of obligations under the international narcotic drug control conventions. The data is kept in a system that allows users to search for old information. T The United Nations collects data through the Annual Report Questionnaires (ARQ), which aim to monitor the illicit drug trend and drug control implementation of the member states during the two years prior to the current year. The member

states are required to fill out the ARQ questionnaires and submit them to UNODC for analysis, processing, and formulating the UN World Drug Report, which is a source for examining the trend of the world narcotic drug problem and applying for drug control policies in their respective countries.

6. Monitoring system for the implementation of obligations under the international narcotic drug control conventions

The International Narcotics Control Board (INCB) is responsible for monitoring the implementation of the obligations under the three international narcotic drug control conventions. The INCB sets up the data processing system to monitor the implementation of the said conventions, in which the data is obtained through the statistical forms filled out by the member states on a yearly and quarterly basis. The INCB statistical forms are as follows:

a. Forms to monitor the implementation under the Single Convention on Narcotic Drugs, 1961, as amended by Protocol 1972

- Form A: Quarterly Statistical Report of the Import and Export of Narcotic Drugs.
- Form B: Annual Estimates of Requirements of Narcotic Drugs and Modification of Approved Estimates to be Filled in the Supplement to Form B.
- Form C: Annual Statistics of Production, Manufacture, Consumption, Stocks, and Seizure of Narcotic Drugs.

For Thailand, in providing the necessary estimates and statistical report, the Food and Drug Administration Ministry of Public Health will be responsible for filling out forms A. and B. Form C, which contains the statistics of seizures of narcotic drugs, is filled out by the Office of the Narcotics Control Board.

The INCB prepares a list of narcotic drugs under international control called the Yellow List, which will be updated as new substances are scheduled under the 1961 Convention or when any information in the other parts is updated after the Commission adopts the recommendations to change the scope of control.

b. Forms to monitor the implementation under the Convention on Psychotropic Substances, 1971

- Form P: Annual Statistical Report
- Form A/P: Quarterly Statistics of Import and Export of Psychotropic Substances in Schedule II
- Form B/P: Assessment of Annual Medical and Scientific Requirements for Psychotropic Substances in Schedule II, III and IV
- Supplement to Form B/P: Modification to the Assessment of Annual Medical and Scientific Requirements for Psychotropic Substances in Schedule II, III and IV

For Thailand, in providing the necessary estimates and statistical report above, the Food and Drug Administration Ministry of Public Health will be responsible for filling out those forms.

The INCB prepares a list of psychotropic substances under international control called the Green List. which will be updated as new substances are scheduled under the 1971 Convention after the Commission adopts the recommendation to change the scope of control.

c. Form to monitor the implementation under the UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988

According to Article 12 of the UN Convention 1988, the member states are obliged to annually report on the substances or precursor chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances. Therefore, the member states are required to complete Form D and submit it to INCB by 30 June every year. They are also urged to complete all the sections of Form D and provide comprehensive mandatory information on methods of diversion, stopped shipments, and illicit manufacture.

The INCB prepares a list of precursor chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances under international control called the Red List, which will be updated as new substances are scheduled under the 1988 Convention after the Commission adopts the recommendation to change the scope of control.

For Thailand, the Office of the Narcotics Control Board is responsible for completing Form D by coordinating with concerned agencies, namely, the Royal Customs Department, Police Narcotic Suppression Bureau, Department of Industrial Works, Food and Drug Administration, and Foreign Trade Department.

The INCB also set up many systems to monitor precursor chemical control. The significant system is the Pre-Export Notification, which helps verify the legitimacy of the import or export of the precursor chemicals controlled under Table II of the UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988. The country of origin that exports the precursor chemicals shall send a pre-export notification about the shipments of precursor chemicals to the destination country in advance. The destination country shall confirm the legitimate import of such shipments within 7 days of receiving the notification. If not, the country of origin will assume that the importing country has no objection to the shipments of such precursor chemicals. Afterward, precursor chemicals will be exported by the country of origin, which may otherwise be diverted to illicit channels. In the event that the destination country confirms the legitimacy of the import of the shipment, it means that the shipment of precursor chemicals was legally ordered by the importing country. On the contrary, if the destination country confirms that there is no order for such shipment of precursor chemicals, the country of origin will stop the shipment and cancel the exportation. The INCB also developed the PEN Online system for real-time exchange of pre-export Notifications of precursor chemicals. Controlling the precursor chemicals by the Pre-Export Notification (PEN) leads to the stop of illegal and suspicious precursor chemical shipments in large amounts yearly. Another key system is the Precursors Incident Communication System (PICS), which is developed by INCB to enhance real-time communication and information sharing between national authorities on precursor chemical incidents. PICS can assist with investigations of incidents and identifying emerging diversion patterns of precursor chemicals and equipment used for illicit drug manufacture.

The problem of narcotic drugs is a significant global concern. The international narcotics control tools, initiated by the United Nations under the collaboration of all member states in every region as mentioned in this article, are only parts of the UN's efforts to solve the narcotic drug problem. Therefore, international cooperation at all levels, i.e., global, regional, sub-regional, and international levels, and the implementation of obligations under the three

international narcotic drug control conventions and resolutions adopted by the Commission of Narcotic Drugs or the UN General Assembly Special Session on the World Drug Problem are vital and necessary to the success of international narcotic drug control under the United Nations system.

References

Convention in Psychotropic substances, 1971, opened for signature 21 August 1971, (entered into force 16 August 1976)

International Narcotics Control Board. (n.d.). *The International Narcotics Control Board. INCB.* https://www.incb.org/incb/en/about.html

Ministry of Foreign Affairs, Kingdom of Thailand. (n.d.). https://www.mfa.go.th

Office of the Narcotic Control Board. (n.d.). https://www.oncb.go.th

Protocol amending the Single Convention on Narcotic Drugs, 1961, opened for signature 25 March 1972, (entered into force 8 August 1975)

The Commission on Narcotic Drugs. (2023). *The 66th Session of the Commission on Narcotic Drugs.* United Nation Office on Drugs and Crime.

The Commission on Narcotic Drugs. (2024). The 67th Session of the Commission on Narcotic Drugs. United Nation Office on Drugs and Crime.

United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, opened for signature 20 December 1988, (entered into force 8 August 1975)

Development Guidelines for Creative Utilization of Hemp and Surveillance of Hemp Abuse through Community Enterprise Participation Mechanism

| **Kittichai Lueangkamchorn**
Advisor to the Northern Substance Abuse Center, Chiang Mai University

Abstract

Hemp is a plant with significant economic potential due to its versatile applications. To utilize hemp as an economic crop, there has been continuous development of hemp strains and adjustment of regulations related to hemp plants since 2019. The project has completed its third phase under the objectives to develop Hemp Learning Centers for the creative utilization of hemp and surveillance of hemp abuse, as well as to enhance hemp activities in the network of associations format. A participatory research and development approach was applied involving community enterprises and collaborative partnerships through the four operational processes: (1) developing hemp strains; (2) promoting Hemp Learning Centers and knowledge dissemination; (3) enhancing community enterprises cooperation into an association; and (4) developing communication channels for public understanding and advocacy of hemp as a new cash crop.

The results showed that Mae Taeng Community Enterprise has developed two suitable hemp strains tailored to the local context and quality standards, which have been certified by the Department of Agriculture under the Plant Variety Act, B.E. 2518 (1975). Hemp farmers in the upper northern region have gained knowledge and awareness regarding cultivation, funding sources, markets, and challenges before deciding to grow hemp. The community enterprises group in the pilot areas has mutually enhanced a mechanism for creatively utilizing hemp and is registered as the Northern Controlled Herb Entrepreneurs Association in Doi Tao District, witnessed by the Chiang Mai Governor. In addition, they have outlined the roles and activities of the association in fostering public understanding and engaging the community in the prevention and surveillance of problems associated with hemp legalization. This requires collaboration and support from academic institutions and relevant agencies, such as the Northern Substance Abuse Center at Chiang Mai University, the Office of the Narcotics Control Board, the Ministry of Public Health, the Ministry of Agriculture and Cooperatives, and the Ministry of Industry.

Project Background

The Northern Substance Abuse Center at Chiang Mai University, supported by the Office of the Narcotics Control Board, initiated the “Study of Hemp Management Development” in upper northern pilot areas under the Ministry of Public Health's Regulation, B.E. 2559 (2016). The first phase of the project operated from 2019 to 2020.

Hemp crops were piloted in Mae Taeng and Doi Lo Districts. Hemp activities during the first phase were conducted under the Ministry of Public Health's Regulations on application for and granting of licenses to produce, sell, or possess Category 5 Narcotics Concerning Hemp, B.E. 2559 (2016). Within the first three years, the Ministerial Regulations allow government agencies to solely request permission from the Food and Drug Administration under the Ministry of Public Health to produce hemp. Despite the many challenges the hemp growers in the two pilot areas faced, there were various local government agencies that provided encouragement and assistance in accordance with the regulations of the Ministry of Public Health at that time.

Lessons captured from the pilot hemp corps in both Mae Taeng and Doi Lo Districts showed that the community enterprise groups recognized the importance of creative hemp utilization coupled with a certain level of knowledge and experience. The Ministry of Public Health issued Regulations concerning the application for license to produce, import, export, sell, or possess Category 5 Narcotics Concerning Hemp, B.E. 2563 (2020), effective from January 29, 2021. Accordingly, the Northern Substance Abuse Center at Chiang Mai University initiated the second phase of the project entitled "Study of Hemp Management Development" in upper northern pilot areas sponsored by the Office of the Narcotic Control Board. The second phase of the project aimed to elevate the pilot hemp-growing areas into Hemp Learning Centers and establish cooperative mechanisms for exchanging ideas, lessons learned, and knowledge among various stakeholders, including government agencies, civil society, academic institutions, and scholars. This initiative prepared the community enterprises group to be a hemp hub capable of generating knowledge of hemp management and utilization from the pilot areas under the Ministrerial Regulations.

To ensure the continuity of study and development of creative hemp use while carefully watching out for hemp abuse through a mechanism of community participation, the Northern Substance Abuse Center conducted the following phase of the project, which aligned with the new conditions and situations following the removal of hemp from the list of narcotics under Category 5 in 2022.

Key Principles of the Project

(1) Utilizing the experience, knowledge, and expertise gained from the first and second phases of the project to develop Hemp Learning Centers for the creative utilization of hemp while establishing the mechanisms for community participation at the local level in the prevention and surveillance of hemp abuse.

(2) Utilizing a participatory mechanism in the form of a hemp hub to exchange ideas, lessons learned, and knowledge among all relevant stakeholders in the supply chain of creative hemp management and utilization. This principle considers the mutual benefits and impacts on both the population and society in all dimensions and evolves them into policy briefs.

(3) Utilizing public relations media to communicate and foster public advocacy regarding driving industrial hemp as an alternative cash crop and to promote community involvement in preventing and monitoring problems arising from the legalization of hemp.

Target Community Enterprises and Areas of Operation from August 2022 to March 2023

(1) Community enterprise groups in the upper northern region include:

- Mae Taeng Herbal Community Enterprises Group in Mae Taeng District, Chiang Mai Province
- Doi Lo Community Enterprises Group in Doi Lo District, Chiang Mai Province
- Hemp-growing community enterprises group in the upper northern region

(2) Network of public, private, civil society, and academia in Chiang Mai Province and the upper northern region

(3) Five government agencies in Chiang Mai Province and Bangkok

Project Duration: from August 2022 to March 2023

Project Objectives:

(1) To promote the development of hemp strains suitable for the local context and of high quality by community enterprise groups.

(2) To develop and promote the establishment of Hemp Learning Centers for the creative utilization of hemp and surveillance of hemp exploitation and abuse through the participation of community enterprises and local networks.

(3) To foster understanding among community enterprises regarding the enhancement of hemp initiatives through group formations, networks, and associations.

(4) To facilitate coordination in creating business opportunities for hemp growers and community enterprise groups involved with relevant government and business organizations at the local level.

Expected Project Outcomes

(1) Enhancement of skills and capacities of the target community enterprise groups in developing hemp strains for certification.

(2) Establishment of Hemp Learning Centers that capture and disseminate knowledge, lessons learned, and experience in creative utilization while preventing exploitation and abuse through the participation of community enterprises at the local level in the upper northern region.

(3) Enhancement of collaboration mechanisms among community enterprise groups for the creative utilization of hemp in the upper northern region.

(4) Establishment of communication channels for public understanding and advocacy of hemp as an alternative economic crop and for participation in preventing and monitoring issues arising from the legalization of hemp.

Project Methodology

It consisted of four operational processes adhering to the principle of community participation, as follows:

Process 1: Developing the skills and capacities of community enterprise groups for hemp strain development and certification.

Key Activities
- Designing and planning.
- Discussing key and detailed activities.
- Signing an MOU with local coalitions and interested community enterprises in the upper northern region.

Target community enterprises and supporting organizations
- Mae Taeng Community Enterprise
- Doi Lo Community Enterprise
- Regional Medical Sciences Center 1 Chiang Mai
- Narcotics Crops Survey and Monitoring Institute
- Chiang Mai Provincial Public Health Office
- Northern Substance Abuse Center, Chiang Mai University

Key Outputs
- Having a timeline for the development and registration of two hemp varieties (DMS-Mae Taeng 3 and DMS-Mae Taeng 4) with the Department of Agriculture.
- Having a recorded knowledge set and plan for hemp knowledge dissemination.
- Having meeting schedules for public education on hemp and cannabis.
- Having an establishment plan for hemp networks registering as legally compliant associations.

Process 2: Supporting the Hemp Learning Centers and facilitating knowledge transfer from upstream, mid-stream to downstream.

Key Activities
- Organizing study visits to Mae Taeng community enterprise.
- Organizing study visits to Doi Lo community enterprise.

Target community enterprises and supporting organizations
- Farmers leader in the upper northern region
- Community enterprises group
- Private sector and academia
- Citizen and government agencies and Monitoring Institute
- Chiang Mai Provincial Public Health Office
- Northern Substance Abuse Center, Chiang Mai University

Key Outputs
- Knowledge and awareness and awareness of the target community enterprises on the hemp management, markets, funding sources, and challenges before decision making.

- Northern Substance Abuse Center, Chiang Mai University
- Narcotics Crops Survey and Monitoring Institute
- Regional Medical Sciences Center 1 Chiang Mai

Process 3: Promoting collaboration among community enterprise groups to form a registered association for creative utilization of hemp in the upper northern region.

Key Activities
- Gathering opinions for developing collaboration mechanisms among community enterprise groups.
- Drafting the scope of the collaboration network and details of a hemp association before registering with authorized agencies.
- Facilitating the establishment and registration of a hemp association.

Target community enterprises and supporting organizations
- Mae Taeng Community Enterprise
- Doi Lo Community Enterprise
- Ban Kad Smart Farm Community Enterprise
- One Nan Community Enterprise
- Farmers in Doi Lo District
- New Gen Organic Farmers Group Community Enterprise
- Farm Suk Community Enterprise
- Pha Cho Agro Processing Community Enterprise
- Phuta Panya Organic Co., Ltd.
- Thai Federal Hemp Corporation
- Thai Tech CBD Company Limited

Key Outputs
- Approval of draft mechanism for a hemp association establishment.
- Preparation of documents and draft of a hemp association as the Northern Controlled Herb Entrepreneurs Association.
- Registration at Doi Tao District, witnessed by the Chiang Mai Governor.

- Northern Substance Abuse Center, Chiang Mai University
- Narcotics Crops Survey and Monitoring Institute
- Regional Medical Sciences Center 1 Chiang Mai
- Chiang Mai Provincial Public Health Office
- Chiang Mai Provincial Agricultural and Cooperatives Office

Process 4: Creating communication strategies and channels that foster public understanding and readiness for adopting hemp as an alternative economic crop.

Key Activities
- Creating communication strategies and channels for public education.
- Implementing communication strategies and channels.
- Capturing lessons learned and exchanging progress of the hemp network/ association.

Target community enterprises and supporting organizations
- Community enterprises in the upper northern region
- Farmers in the upper northern region showing interest in growing hemp
- Private company in the upper northern region processing hemp and cannabis
- Scholars from Chiang Mai University, Kasetsart University, and Rajamangala University of Technology Isan

Key Outputs
- Having lessons learned on developing hemp as an alternative economic plant.
- Having lessons learned about the dissemination plan and promotion of hemp and cannabis as multipurpose crops.
- Having an event plan for public education on hemp and cannabis.
- Having an improvement plan for the Northern Controlled Herb Entrepreneurs Association to reach its full potential.

- Northern Substance Abuse Center, Chiang Mai University
- Narcotics Crops Survey and Monitoring Institute
- Regional Medical Sciences Center 1 Chiang Mai

Challenges and Recommendations

Challenges

(1) Lack of clarity regarding the draft Cannabis and Hemp Act that the government is currently processing.

(2) Negative societal perceptions and misconceptions about hemp, affecting its creative utilization, such as concerns about the potential adverse effects of hemp-derived products, confusion between hemp and cannabis as the same type of psychoactive plant, and fears about the impact of hemp promotion on children and society.

(3) Widespread lack of knowledge and understanding among consumers about the benefits of cannabidiol (CBD) in hemp, resulting in reluctance to purchase hemp-derived products for improving quality of life.

Recommendations

(1) Social communication: by implementing effective social communication strategies to promote accurate understanding and stimulate the market for hemp-derived products within the country.

(2) Community surveillance mechanism: by implementing a community-based participatory system to oversee the responsible use of hemp, cannabis, and kratom. These psychoactive plants are interrelated in terms of their medical, health, social, and economic aspects.

(3) Collaboration with academic and relevant institutions: The Northern Controlled Herb Entrepreneurs Association should seek collaboration and support from academic institutions and relevant agencies, including the Northern Substance Abuse Center at Chiang Mai University, the Office of the Narcotics Control Board, the Ministry of Public Health, the Ministry of Agriculture and Cooperatives, and the Ministry of Industry.

Challenges and Future Endeavors of the Northern Controlled Herb Entrepreneurs Association

(1) The association should promote and support hemp farmers and community enterprises at the local level by (1.1) identifying unique selling points and differentiating the existing hemp products. This allows access to niche customer groups, such as those interested in the medicinal properties of hemp, both within and outside the upper northern region; (1.2) building confidence and demonstrating tangible results to encourage repeat purchases from existing customers; and (1.3) encouraging existing customers to spread the word about the benefits of hemp-derived products, using real-life experiences to communicate with others in society. This will foster trust and a clear understanding of the therapeutic benefits of hemp. As societal awareness of the benefits of hemp increases, sustained support and advocacy will follow suit.

(2) The association should review and analyze market trends for hemp products both domestically and internationally, considering factors that influence the hemp industry, such as government policies and global trends, to diversify hemp-derived products that meet the needs of target consumer groups while reaching a diverse range of consumer groups.

(3) The association should connect the Hemp Learning Centers for creative hemp utilization with tourism initiatives to generate income for hemp and related entrepreneurs and local communities.

(4) The association should enhance the Hemp Learning Centers in both pilot areas by reviewing the content and communication formats with hemp farmers and community enterprises from various areas who come to study and observe. This aims to disseminate knowledge on hemp

cultivation while fostering a mutual understanding of the differences between hemp and cannabis. It also seeks to shift societal attitudes towards hemp, harnessing its benefits and economic value to generate income for hemp farmers at the local level. Educational field trips serve as a powerful tool to convey knowledge (emphasizing collaborative learning exchanges) and expand cooperation networks further.

(5) The association should unite hemp growers and related businesses to instill confidence among those interested in hemp cultivation for economic purposes. This involves supporting activities that benefit members, such as providing information, sharing knowledge, planning to coordinate cooperation with purchasing companies, expanding the hemp market, etc. There should be guidelines to prevent problems like being deceived into buying low-quality hemp seeds or investing without guaranteed buyers. This could involve creating contracts or utilizing letters of credit, which are documents confirming payment for purchases or providing a deposit to farmers. These guidelines ensure confidence that investing in hemp cultivation will not be in vain, as there will be a guaranteed market for their produce.

(6) The association should develop its own hemp strains that are suitable for the local context, resilient, and capable of producing high-quality yields to meet market and buyer demands. These strains should possess unique characteristics and be eligible for registration, which helps address the issue of importing hemp seeds from foreign countries that affects the production costs of farmers and community enterprise groups in the area.

(7) The association should identify business and marketing opportunities in the form of carbon credits, which is a new and interesting innovation that could potentially provide an alternative for farmers and community enterprise groups growing hemp in the future. Carbon credit management aims to reduce greenhouse gas emissions by promoting solutions to address climate change issues in Thailand that align with international standards. Hemp is a plant that can sequester carbon dioxide quite effectively, and holding carbon credits operates similarly to holding stocks, allowing for trading. This issue may require time to study and understand thoroughly.

References:

Northern Substance Abuse Center, Chiang Mai University (October 2020). Project completion report: Development of hemp management in the upper northern region under the Ministry's Regulations 2016 funded by the Office of Narcotics Control Board.

Northern Substance Abuse Center, Chiang Mai University (April 2022). Project completion report: Development of creative hemp utilization in the upper northern region under the Ministry's Regulations 2020 (application for and granting of licenses to produce, import, export, sell, or possess of Category 5 Narcotics Concerning Hemp) funded by the Office of Narcotics Control Board.

Northern Substance Abuse Center, Chiang Mai University (April 2023). Project completion report: Development of creative hemp utilization and surveillance of hemp abuse through community enterprises participation mechanism in 2022-2023 funded by the Office of Narcotics Control Board.

A Model for Predicting Psychiatric Symptoms in Substance Abusers

| **Assoc. Prof. Manop Kanato, Ph.D**
ISAN Substance abuse Academic Network,
Khon Kaen University, Khon Kaen
Assoc. Prof. Pol.Maj. Poonrut Leyatikul, Ph.D. and
Asst. Prof. Pol.Lt.Col. Rungsiya Wonguppa, Ph.D.
Faculty of Public Health, Vongchavalitkul University, Nakhon Ratchasima
Apichart Ranuwattananon, MD
Princess Mother National Institute on Drug Abuse Treatment, Bangkok

ABSTRACT

Substance-induced psychosis presents a prevalent issue in Thai society, which can be prevented and its severity reduced by mitigating associated risk factors. This study endeavors to construct a predictive framework for anticipating psychiatric symptom manifestation in individuals engaging in substance abuse. Employing a combined research methodology, the study unfolds in three phases. Phase 1 entails an exploratory study of substance use behaviors, encompassing 1,000 drug users exhibiting psychiatric symptoms. Phase 2 delves into an analytical study of risk factors through a case-control approach involving 2,000 individuals undergoing treatment in governmental facilities, diagnosed both with and without psychotic symptoms. Phase 3 focuses on crafting a predictive equation model, integrating structural equation modeling among 1,457 drug users, and a screening tool assessment among 880 treatment recipients at service centers. Data collection involves structured interviews, with subsequent analysis utilizing descriptive and various inferential statistical techniques.

The study revealed that twelve factors significantly contribute to the emergence of psychotic symptoms resulting from drug use. These factors collectively account for 88.9% of the observed variance, including income level, cohabitation with individuals exhibiting psychiatric symptoms, history of mood disorder symptoms, past drug treatment, past mental illness treatment, drug-induced mental illness treatment history, frequency of drug use in the preceding month, prior cannabis usage, recent methamphetamine, past month kratom use, tendency towards polydrug use, and concurrent alcohol consumption during drug use. Through a statistically significant structural equation model ($p < 0.01$), a diagnosis of drug-induced psychiatric disorder can be predicted utilizing the following formula: Diagnosis of psychiatric disorder from substance = (2.117 * income + 17.350 * living in the same house with psychiatric person + 2.720 * history of mood disorder symptoms + 9.369 * number of days using drugs in the past month + 4.462 * past cannabis usage + 1.441 * tendency towards polydrug use + 1.348 * concurrent alcohol and drug use), collectively forecasting 74.5% ($R^2 = 0.745$).

Moreover, a screening tool developed from these variables exhibited a sensitivity of 0.806, specificity of 0.717, positive predictive value of 0.784, negative predictive value of 0.744, and predictive validity of 0.762.

The tool is suitable for the initial screening of drug users, facilitating subsequent steps in psychiatric prevention and treatment.

Keywords: Substance abuse, Psychiatric symptoms, Predictive model

INTRODUCTION

Illegal narcotics pose a substantial and persistent challenge to society. According to the United Nations Office on Drugs and Crime (UNODC), approximately 585,000 individuals worldwide succumb to drug-related circumstances (UNODC, 2019).

Evidence dating as far back as 50,000 BC indicates the utilization of plant-psychoactive substances (Merlin, 2003). In Southeast Asia, the tradition of using addictive substances stretches back over 15,000 years (Sullivan et al., 2002). Subsequently, these substances gained popularity for recreational purposes. Thailand has grappled with substance abuse issues for an extensive period (Department of Fine Arts, 1978; Kanato et al., 2020). Indigenous narcotic plants such as opium, cannabis, and kratom are prevalent. Heroin, the first synthetic drug introduced to the population, emerged in Thailand before 1957 and proliferated thereafter. Stimulants like amphetamine and methamphetamine gained prominence after 1967, while volatile substances like benzene, lacquer, and glue surfaced post-1977 (Poshyachinda et al., 1999). Since 1987, new drug types, including ecstasy, ketamine, methamphetamine crystals (ICE), and more recently, cocaine, alongside pharmaceutical abuse and emerging psychoactive substances, have been identified (Poshyachinda et al., 1998; Wonguppa et al., 2018). However, official data indicate that methamphetamine users constitute the most significant demographic seeking treatment. Given the relatively lower risk associated with cannabis and kratom, only a minority of users necessitate treatment (Kanato et al., 2022).

The United Nations Office on Drugs and Crime (UNODC) reported that in 2021, an estimated 296 million individuals aged 15-64 worldwide, constituting 5.8 percent of the population within that age group, had used drugs within the past year. Of these, approximately 219 million had used cannabis, 36 million had used amphetamines, 22 million had used cocaine, and 20 million had used ecstasy (UNODC, 2023). Concurrently, a drug monitoring report in ASEAN countries revealed that over 614,000 individuals in these nations were undergoing drug treatment, equating to a rate of 92.0 per 100,000 population. Among these, a significant majority sought treatment for Amphetamine Type Stimulants (ATS), with the remainder seeking assistance for opiate derivatives, cannabis, and other substances (Kanato et al., 2023). Additionally, a national household .survey conducted by the Administrative Committee of Substance Abuse Academic Network in 2019 estimated that approximately 1,966,827 individuals aged 12-65 had used some form of drug within the past year (excluding cigarettes and alcoholic beverages), representing 3.91 percent of the population within that age range (Kanato et al., 2020). However, access to treatment was limited, with only 241,857 individuals reported to have received treatment, accounting for 12.3 percent of drug users (Office of the Secretary of

the Drug Addiction Treatment and Rehabilitation Committee Ministry of Public Health, 2024).

A multitude of narcotic drugs proliferate throughout Thailand, with data from the drug addiction treatment system revealing that the majority of individuals undergoing drug treatment are users of methamphetamine tablets (YABA) and methamphetamine crystals (ICE), both classified as stimulants. Amphetamine-type stimulants (ATS) comprise a category of synthetic narcotic drugs known for their central nervous system stimulation. Essential drugs within this classification encompass amphetamine, methamphetamine, methcathinone, fenetylline, ephedrine, pseudoephedrine, methylphenidate, and MDMA or 'Ecstasy' (WHO, 2021). The effects of consuming central nervous system stimulants significantly impact the nervous system and brain of individuals with addiction, manifesting in abnormalities related to sleep, pronounced feelings of fear, cognitive confusion, and hallucinations. Over the long term, Ecstasy usage can lead to lethargy, drowsiness, concentration difficulties, and psychiatric disorders such as depression, anxiety, self-harm, hallucinations, violent behavior, aggression, and mood swings (McCrady et al., 2013). Grant's review of research studies conducted in Japan, Taiwan, Australia, and Thailand (Grant et al., 2012) identified hallucinations as the most prevalent mental illness symptom, alongside hearing loss and other related symptoms. Acknowledging the significance of mental health issues, the government initiated a nationwide search targeting 32,623 groups for urgent action and surveillance.

Mental health issues stemming from drug use are prevalent in Thai society (Maneeganol et al., 2014). Their severity can be mitigated by reducing predisposing, enabling, and enhancing factors. Consequently, examining the correlation between substance-related risk factors and psychiatric conditions among substance users holds significance in developing predictive models for substance-induced psychiatric illnesses. Such models enable drug users to evaluate their susceptibility to psychiatric symptoms, facilitating the mitigation of risk factors and the formulation of strategies for subsequent psychiatric prevention and treatment.

OBJECTIVES

(1) To explore substance use behavior that is at risk of developing psychiatric symptoms.

(2) To test the relationship between risk factors and psychiatric symptoms.

(3) To develop a model to predict the chance of developing psychiatric symptoms among drug users.

METHODOLOGY

1. Research Design

This study employed a combined research design divided into 3 phases.

Phase 1 involves exploring substance use behavior through an exploratory study conducted among a cohort of drug users exhibiting psychiatric symptoms.

Phase 2 entails testing the association of risk factors through a case-control study involving substance abusers diagnosed with and without psychotic symptoms who are undergoing treatment in government facilities.

Phase 3 involves constructing a predictive equation model, which entails developing structural equations among drug users and examining screening tools among those receiving treatment in service facilities using the known group validity method.

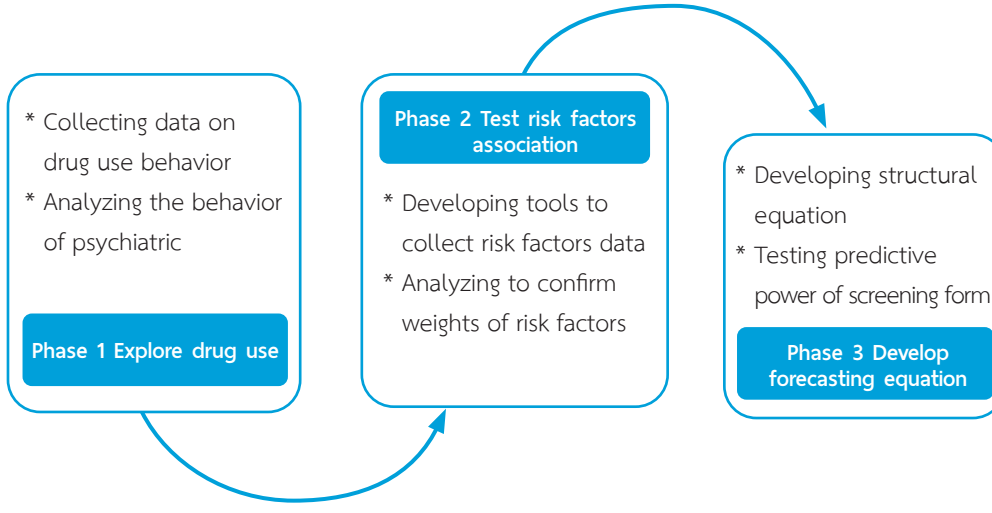


Figure 1. A framework designed to examine models predicting the likelihood of psychiatric symptom development in individuals with substance abuse disorders.

2. Population and Samples

2.1 Phase 1

2.1.1 The population comprises patients receiving treatment for drug abuse-related psychiatric symptoms at the psychiatric clinic within a government hospital.

Study samples

1) A total of 1,000 individuals currently undergoing treatment for drug-related psychiatric symptoms at psychiatric clinics in government hospitals are classified as substance abusers.

2) The number of family members of drug users, which consists of 1,000 individuals.

3) Recruited community leaders residing in the same villages, with an approximate range of 4 to 12 individuals per village, for a total of 1,346 people.

4) The lay population refers to 2,167 individuals registered as Thai nationals within the same community.

2.1.2 Sample sizes

The sample size determination was guided by MacCallum (MacCallum et al., 1999). Consequently, this study established a sample size of 1,000 individuals for data collection.

2.1.3 The sampling method utilized a stratified multi-stage systematic sampling approach proportional to the size of the population.

The initial step involved systematic sampling of ten provinces nationwide based on the ONCB regional offices. Subsequently, the sample size for each province was determined based on the proportion of drug/alcohol-related psychiatric patients in fiscal year 2019 (sourced from the Thailand Psychiatric Patients Service Center System, Department of Mental Health) from the total number of samples collected throughout the study duration.

In the second step, voluntary hospitals within each province were chosen. The proportion of drug-related psychiatric patients determined each hospital's sample size. The total number of samples per area was adjusted to align with each area's designated sample size.

In the third step, a sample was randomly chosen from the list of outpatient individuals receiving treatment, diagnosed by a doctor according to ICD-10 codes F10-F19, and

patients with code T40 in the selected hospitals. Participants in the study were required to communicate effectively, be 18 years or older, and be willing to provide consent. Simple random sampling with a random table was conducted using the HN number list of hospital samples.

2.2 Phase 2

2.2.1 The population consisted of patients undergoing treatment for drug-related psychiatric symptoms at psychiatric clinics/and those receiving treatment at hospital substance abuse clinics.

2.2.2 The sample size of patients was based on Schlesselman's determination of the sample size (Schlesselman, 1974). This study set the ratio between the case and control groups to be 1:1 to achieve a 95% confidence interval and 5 percent acceptable error, calculating the sample size of each ONCB regional office according to the proportion of drug-related psychiatric patients. Therefore, the sample size for studying people who are being treated for psychiatric symptoms related to drugs is set to 1,000 samples and 1,000 people undergoing drug treatment who do not have psychiatric symptoms, a total of 2,000 samples.

2.2.3 The sampling method utilized a stratified multi-stage systematic sampling approach proportional to the size of the population.

The initial step involved systematic sampling of ten provinces nationwide based on the ONCB regional offices. Subsequently, the sample size for each province was determined based on the proportion of drug/alcohol-related psychiatric patients in fiscal year 2019 (sourced from the Thailand Psychiatric Patients Service Center System, Department of Mental Health) from the total number of samples collected throughout the study duration.

In the second step, voluntary hospitals within each province were chosen. The proportion of drug-related psychiatric patients determined each hospital's sample size. The total number of samples per area was adjusted to align with each area's designated sample size.

In the third step, a sample was randomly chosen from the list of outpatient individuals receiving treatment. Participants in the study were required to communicate effectively, be 18 years or older, and be willing to provide consent. Simple random sampling with a random table was conducted using the HN number list of hospital samples.

1) Cases were chosen from the list of outpatient individuals receiving treatment, diagnosed by a doctor according to ICD-10 codes F10-F19, and patients with code T40 at a psychiatric clinic in the selected hospitals. Simple random sampling with a random table was conducted using the HN number list of hospital samples.

2) Controls were randomly chosen from the list of outpatient individuals receiving treatment at a substance abuse clinic in the same hospital as cases. The controls must be of the same sex and similar age (+/-3 years). Simple random sampling with a random table was conducted using the HN number list of hospital samples.

2.3 Phase 3

2.3.1 Developing structural equations

The population consisted of patients undergoing treatment at hospital substance abuse clinics.

The study sample consisted of patients receiving treatment at government hospital substance abuse clinics (Hair et al., 2010)

The sampling method utilized a stratified multi-stage systematic sampling approach proportional to the size of the population.

The initial step involved systematic sampling of ten provinces nationwide based on the ONCB regional offices. Subsequently, the sample size for each province was determined based on the proportion of drug/alcohol-related psychiatric patients in fiscal year 2019 (sourced from the Thailand Psychiatric Patients Service Center System, Department of Mental Health) from the total number of samples collected throughout the study duration.

In the second step, voluntary hospitals within each province were chosen. The proportion of drug-related psychiatric patients determined each hospital's sample size. The total number of samples per area was adjusted to align with each area's designated sample size.

In the third step, a sample was randomly chosen from the list of outpatient individuals receiving treatment. Participants in the study were required to communicate effectively, be 18 years or older, and be willing to provide consent. Simple random sampling with a random table was conducted using the HN number list of hospital samples, resulting in 1,457 samples.

2.3.2 Examining screening tools

The population consisted of patients undergoing treatment for drug-related psychiatric symptoms at psychiatric clinics and those receiving treatment at hospital substance abuse clinics.

The sample group to be studied totaled 880 people, consisting of 1) patients undergoing treatment for psychiatric symptoms related to drugs at the psychiatric clinic, totaling 440 people; 2) those receiving treatment at the drug clinic of a government hospital, totaling 440 people (Reise et al., 1990; Embretson et al., 2013)

The sampling method utilized a stratified multi-stage systematic sampling approach proportional to the size of the population.

The initial phase involved selecting 10 provinces nationwide based on the ONCB regional offices. Subsequently, the sample size for each province was determined based on the proportion of psychiatric patients, drug users, and alcohol users in the fiscal year 2019 (sourced from the Thailand Psychiatric Patients Service Center System, Department of Mental Health) in conjunction with the total number of samples collected throughout the study duration.

In the second step, hospitals within each district were chosen based on their voluntary participation in the study. The sample size for each hospital was determined by the proportion of psychiatric patients with drug and alcohol issues, as sourced from the Outpatient database receiving treatment for mental and behavioral disorders from drug use/ poisoning and adverse reactions from drug use in the HDC database system, Ministry of Public Health, 2019. The total number of samples per area was adjusted to align with each area's designated sample size.

In the third step, a sample was randomly chosen, adhering to specific criteria for selection.

1) A cohort of individuals grappling with mental health conditions, specifically those undergoing treatment for drug-related psychiatric symptoms as per ICD-10 codes F10-F19 at a psychiatric institution, were included in the study. Among them, 440 individuals demonstrated the capacity to effectively communicate, comprehend, and provide informed consent for participation. A consecutive selection method was employed.

2) The study enrolled a cohort of individuals grappling without mental health symptoms, comprised of patients receiving drug treatment at specialized hospitals and not diagnosed with ICD-10 codes F10-F19. Among this group, 440 individuals demonstrated the capability to communicate effectively, comprehend, and provide informed consent for participation. A consecutive selection method was employed.

3. Tools and data collection

3.1 Phase 1

The tool used to collect data was an interview, which the researcher developed after reviewing related research. The content covers demographic, environmental, and social characteristics and substance use.

Data collection was carried out from October to December 2020. The research team coordinated with the selected medical facilities and requested permission to use data from the database. Then, the samples were selected according to the procedure mentioned.

The research team requested cooperation from psychiatric/substance abuse clinic staff to help coordinate random samples to introduce the research projects. The teams briefly explained the details, requested consent from the subjects to participate in the study, and provided information.

The research team/trained research assistants used an interview form developed by the researcher to collect data with sample patients in a hospital or residence where patients or relatives expressed their wishes.

A team of researchers/trained research assistants interviewed community leaders and held group discussions with community members.

3.2 Phase 2

The instrument used for data collection was interviewed, that the researchers developed from the results of the study in Phase 1 and compiled knowledge from academic evidence based by reviewing academic work abroad (Arillo-Santillan et al., 2005; Arunogiri et.al., 2018; Australian Institute of Criminology, 2007; Australian Institute of Health and Welfare, 2005; Burns et al., 2002; Callaghan et al., 2012; Connor et al., 2016; Degenhardt et al., 2018; Dillehay et al., 2010; DiMiceli et al., 2016; Drake et al., 1989; Embry et al., 2009; Foti et al., 2010; Gan et al., 2018; Gouzoulis-Mayfrank et al., 2017; Grant et al., 2019; Grant et al., 2012; Gureje et al., 2007; Guxens et al., 2007; Hemphill et al., 2011; Korhonen et al., 2008; Linszen et al., 1994; McCrady et al., 2013; McKetin et al., 2019; McKetin et al., 2013; National Drug Strategy, 2008; Pristach et al., 1990; Reise et al., 1990; Rognli et al., 2014; Schuckit, 2009; Seibyl et al., 1993; Srisurapanont et al., 2003; SStone et al., 2012; Van Ryzin et al., 2012; Wearne et al., 2018; Wu et al., 2010).

Data collection was carried out throughout June-December 2021. The research team coordinated with the selected medical facilities and requested permission to use data from the database. Then, the samples were selected according to the procedure mentioned.

The research team requested cooperation from psychiatric/substance abuse clinic staff to help coordinate random samples to introduce the research projects. The teams briefly explained the details, requested consent from the subjects to participate in the study, and provided information.

The research team/trained research assistants used an interview form developed by the researcher to collect data with sample patients in a hospital or residence where patients expressed their wishes.

3.3 Phase 3

3.3.1 Developing structural equations

The tool used to collect data was an interview in which the researcher 1) compiled knowledge from research studies in the area. Variables were obtained from previous research phases. 2) Compilation of opinions from 9 experts.

Data collection was carried out throughout November-December 2022. The research team coordinated with the selected medical facilities and requested permission to use data from the database. Then, the samples were selected according to the procedure mentioned.

The research team requested cooperation from psychiatric/substance abuse clinic staff to help coordinate random samples to introduce the research projects. The teams briefly explained the details, requested consent from the subjects to participate in the study, and provided information.

The research team/trained research assistants used an interview form developed by the researcher to collect data with sample patients in a hospital or residence where patients expressed their wishes.

3.3.2 Examining screening tools

It is an interview form developed by the researcher from previous studies

Data collection was carried out throughout January-February 2022. The research team coordinated with the selected medical facilities and requested permission to use data from the database. Then, the samples were selected according to the procedure mentioned.

The research team requested cooperation from psychiatric/substance abuse clinic staff to help coordinate random samples to introduce the research projects. The teams briefly explained the details, requested consent from the subjects to participate in the study, and provided information.

The research team/trained research assistants used an interview form developed by the researcher to collect data with sample patients in a hospital or residence where patients expressed their wishes.

4. Data management and analysis

All received information will be checked for completeness and imported into the database using double data entry.

Data analysis employed statistical program comprised of Mplus 8 (lisense of the ISAN Substance Abuse Academic Network, Khon Kaen University) and SPSS v.16 (lisense of the ISAN Substance Abuse Academic Network, Khon Kaen University) using descriptive statistics, Chi-Square, Binary Multiple Logistic Regression, Exploratory Factor Analysis, Confirmatory Factor Analysis, Intraclass Correlation Coefficient, Cronbach Alpha Coefficient, McDonald Omega Coefficient and Rasch Model Analysis.

RESULTS

Exploring substance use behavior that is at risk of developing psychiatric symptoms

Substance abusers who are being treated for drug-related psychiatric symptoms at the psychiatric clinic in the government hospital. Most of whom used methamphetamine tablets (YABA) as their first drug, 66.9% (average age of first onset 19.2 years, SD 7.12, Min 10; Max 69) cannabis 9.6% (average age of first onset 18 years, SD 8.33, Min 12; Max 42) heroin 1.7% (average age of first onset 17.5 years, SD 2.1, Min 16; Max 19) kratom boiled 8.7% (average age of first onset 21.8 years, SD 8.7, Min 14; Max 41) and 0.9% of non-prescription medicines (average age of first onset 12 years, SD 1.58, Min 10; Max 14).

53.9% of the sample continued to use the same substance after their first use (49.5% of amphetamines, 2.9% of cannabis, 0.9% of heroin, and 0.9% of kratom boiled). The rest used the same substance combined/alternated with another substance and switched to a new one. They liked to use many different substances at the same time (polydrug) at 44.4%. The main drugs used are methamphetamine (both methamphetamine tablets (YABA) and methamphetamine crystals (ICE)), cannabis, heroin, kratom boiled, and non-prescription medicines. As for the second line, the drugs used mainly were methamphetamine, cannabis, heroin, kratom, and alcoholic beverages.

Drug users with psychotic symptoms have been using drugs for an average of 14.4 years. When classified according to the type of drug used and having psychotic symptoms, it was found that heroin users had used heroin for an average of 7.2 years, methamphetamine users had used it for an average of 14.2 years, and cannabis users had used cannabis for an average of 16 years. Regarding the amount of drugs used, people with mental illness take an average of 10-20 YABA per day, two tubes of heroin per day, 10 grams of ICE per day, five cannabis sticks per day, and 1-2 liters of kratom boiled water per day. Considering the frequency of drug use, they used it every day for the past month. In addition, they were taking 2-3 times a day.

Adverse effects from drug use were confusion, altered level of consciousness (36.5%), learning disabilities (32.2%), fatigue (22.6%), insomnia (9.6%), blurred vision (46.1%), and restlessness (30.4%) psychedelic (25.1%), delusional (4.4%), fearful (0.9%), paranoid (67.8%), sad, bored, persistently bored (31.3%), easily irritated (19.0%), aggressive (16.5%), impulsive. (1.9%). Other symptoms, 9.6%, were auditory hallucination and isolation.

Testing the association of risk factors involving psychiatric symptoms

A study of patients undergoing treatment for drug-related psychiatric symptoms at a psychiatric clinic and those attending a substance abuse clinic found an association between risk factors and psychiatric symptoms. When confirming the weights by analyzing the relationships and controlling the variables, it was found that ten common factors could be confirmed.

Personal Factors

Income (over 6,000 baht per month) is at a very high risk of developing psychiatric symptoms, 1.9 times higher than those with lower incomes.

Substance Factors

1) Regular YABA users are at a 6.9 times higher risk of developing psychiatric symptoms.

2) Regular ICE users are at a 4.2 times higher risk of developing psychiatric symptoms.

3) Regular cannabis users are at a 3.5 times higher risk of developing psychiatric symptoms.

4) Regular inhalant users are at a 3.6 times higher risk of developing psychiatric symptoms.

5) Regular heroin users are at a 6.1 times higher risk of developing psychiatric symptoms.

6) Regular ecstasy users are at a 6.0 times higher risk of developing psychiatric symptoms.

7) Regular ketamine users are at a 5.6 times higher risk of developing psychiatric symptoms.

8) Regular non-prescription drug abusers are at a 2.5 times higher risk of developing psychiatric symptoms.

9) Regular polydrug users are at a 1.4 times higher risk of developing psychiatric symptoms.

TABLE 1 Weight of factors affecting psychiatric symptoms

	Risk Ratio	Adjusted Odd Ratio	95% C.I.	P value
Marital status (single)	1.341**	1.135	0.933, 1.380	0.205
Income (over 6,000 baht a month)	1.788***	1.874	1.500, 2.342	0.000***
Methamphetamine tablets	2.9***	6.950	5.208, 9.275	0.000***
Methamphetamine crystals	2.058***	4.241	3.015, 5.965	0.000***
Cannabis	1.576***	3.508	2.542, 4.840	0.000***
Volatile	1.337	3.558	1.390, 9.107	0.008**
Heroin	1.723	6.085	2.108, 17.565	0.001**
Ecstasy	2.747*	5.983	2.273, 15.751	0.000***
Ketamine	3.535*	5.569	1.499, 20.682	0.010*
Non prescription medicines	1.512***	2.465	1.964, 3.095	0.000***
Polydrug	1.4**	1.441	1.277, 2.532	0.000**
Using substances (over 15 days a month)	1.31**	1.024	0.837, 1.254	0.815
Frequency of use (more than 1 time a day)	1.336*	1.238	0.938, 1.633	0.131
Duration of use (over 10 years)	1.401***	1.154	0.947, 1.405	0.155

Remarks: *p<0.05 **p<0.01 ***p<0.001

Development of a predictive equation model

Data were collected from 1,457 drug users nationwide in developing structural equations, and factor analysis was conducted (Exploratory Factor Analysis). It was found that 12 factors significantly influenced the occurrence of psychotic symptoms from drug use. The factors above can explain 0.889 of the variance, consisting of:

Income,

Living in the same house as the psychiatric person,

History of mood disorder symptoms,

History of substance abuse treatment,

History of psychiatric symptoms treatment,

History of substance abuse-induced psychosis treatment,

Number of days using drugs in the past month,

Past cannabis usage,

Using ICE in the past three months,

Using kratom in the past month,

A tendency toward polydrug use, and

Concurrent alcohol and drug use.

From the variables above, they can be collapsed, classified, and created structural equations that are statistically significant at the <0.01 level as follows:

Diagnosis of psychiatric disorder from substance = (2.117 * Income

+ 17.350 * living in the same house as the psychiatric person

+ 2.720 * history of mood disorder symptoms

+ 9.369 * number of days using drugs in the past month

+ 4.462 * past cannabis usage

+ 1.441 * tendency towards polydrug use

+ 1.348 * concurrent alcohol and drug use)

The above equation is collectively forecasting 74.5 (R^2 = 0.745)

Screening tools were developed and analyzed based on the above variables. Two structural groups of variables are:

1) The group of 8 observed mental symptom variables consists of

1.1) Drivel,

1.2) Inappropriate dressing,

1.3) Aggressiveness,

1.4) Isolation,

1.5) Paranoid,

1.6) Grandeur delusion,

1.7) Hallucinations,

1.8) Disorganized behavior.

2) The group of 7 predictive variables consists of

2.1) Monthly income,

2.2) Living in the same house with the psychiatric person,

2.3) History of mood disorder symptoms,

2.4) Number of days using drugs in the past month,

2.5) Past cannabis usage,

2.6) A tendency towards polydrug use, and

2.7) Concurrent alcohol and drug use.

In a study involving 880 cases, Confirmatory Factor Analysis (CFA) was conducted to assess construct validity following established criteria (Bagozzi, 1993; Western et al., 2003). The analysis required meeting at least 3 out of 5 criteria, including evaluating the Chi-square Statistics (Joreskog et al., 1989), where a smaller value closer to 0 was preferable, with an insignificant p-value indicating consistency with empirical data. Additionally, the Root Mean Square Error of Approximation (RMSEA) (Browne et al., 1992) was assessed, aiming for a value below 0.05, indicating an excellent fit to the data. The Comparative Fit Index (CFI) (Bentler, 1990) was examined, with a value approaching 1.00 signifying strong consistency with empirical data, and a threshold of 0.90 was set for this study. Tucker-Lewis Index (TLI) (Tucker et al., 1973) values below 0.90 suggested model consistency. Furthermore, the Standardized Root Mean Square Residual (SRMR) was analyzed, aiming for a value below 0.08 to demonstrate high accuracy with empirical data (Hu et al., 1999).

TABLE 2 Confirmatory Factors Analysis Indicators for screening tools

	Confirmatory Factors Analysis					
	Chi square	P-value (p>0.05)	RMSEA <0.06	CFI >0.95	TLI >0.95	SRMR <0.08
8 observed psychiatric symptoms	91.91	0.06	0.01	0.99	0.99	0.01
7 forecasting factors	11.71	0.16	0.032	1.0	0.985	0.02

** CFA uses the criteria of passing 3 out of 5 or more, especially when the chi-square value is not statistically significant.*

In this context, the set of 8 observed symptom variables demonstrates acceptable construct validity, indicating consistency with empirical data, with a confidence level.

1) When applying Item Response Theory (for unequal difficulty), the correlation coefficient is 0.72-0.81.

2) Inter-rater reliability 0.84.

3) 1-week test-retest reliability 0.78.

Likewise, the group of 7 predictive variables exhibited acceptable construct validity values, further affirming the model's consistency with empirical data, with a confidence level.

1) Omega Coefficient (for unequal variance) 0.89.

2) Inter-rater reliability 0.96.

3) 1-week test-retest reliability 0.93.

Screening tools are essential for establishing criterion-related validity. In this study, the two groups of variables were divided into distinct tools;

1) The screening form for eight fundamental mental symptoms consists of a 2-choice question with a predefined cutoff point to identify the presence of any symptom or a combination thereof. By comparing with diagnoses according to ICD-10, the following results were obtained:

• Sensitivity: 1.0 (indicating the tool's ability to accurately detect all psychiatric symptoms in 100 individuals with such symptoms).

• Specificity: 1.0 (indicating the tool's ability to accurately detect the absence of psychiatric symptoms in 100 individuals without such symptoms).

• Concurrent Validity : 1.0 (suggesting the tool's ability to classify individuals with or without psychiatric symptoms correctly).

2) The screening form for predicting mental symptoms incorporates seven variables, each with assigned weights:

2.1) Monthly income (weight 2 for incomes over 6,000 baht per month),

2.2) Living in the same house with the psychiatric person (weight 17),

2.3) History of mood disorder symptoms (weight 3),

2.4) Number of days using drugs in the past month (weight 9 for 15 days or more),

2.5) Past cannabis usage (weight 5),

2.6) A tendency towards polydrug use (weight 1), and

2.7) Concurrent alcohol and drug use (weight 1).

To determine the score, aggregate all seven, establishing a cutoff point of 8 or higher. Then, compare it with diagnoses according to ICD-10 to ascertain criterion-related validity, yielding the following results:

• Sensitivity: 0.806 (the tool can accurately detect 81 out of 100 individuals with psychiatric symptoms).

• Specificity: 0.717 (indicating the tool's ability to identify 72 out of 100 individuals without psychiatric symptoms correctly).

• Positive Predictive Value: 0.784 (suggesting the tool can accurately predict 78 out of 100 individuals at risk of having psychiatric symptoms).

• Negative Predictive Value: 0.744 (the tool correctly predicted that 74 out of 100 individuals were not at risk as individuals without psychiatric symptoms).

• Predictive Validity: 0.762 (indicating the tool's ability to correctly predict up to 76 out of 100 individuals with or without psychiatric symptoms as being at high risk).

Based on the properties of the above tools, the screening forms are divided into 2 types: drug user screening forms for community leaders/ villagers/relatives of drug users and a screening

form for mental health risks in drug users for public health personnel.

DISCUSSION

The findings of this study align with international academic evidence. In a study involving hospitalized patients undergoing treatment, an association was identified between methamphetamine usage and psychiatric symptoms, with hallucinations and hearing loss being the most prevalent. The severity of these symptoms correlates with the frequency and method of methamphetamine consumption (Srisurapanont et al., 2003). Arunogiri conducted a review of research indicating that factors such as age of onset, duration of use, and frequency of methamphetamine consumption are linked to the risk of psychosis. Multiple studies have reported that individuals who use methamphetamine 16 or more days per month have a significantly higher likelihood of experiencing mental illness (OR = 11.2, 95% CI = 5.9-21.1) compared to those who use it less frequently. Furthermore, the co-occurrence of alcohol and drug abuse exacerbates the risk of psychosis associated with methamphetamine use (Arunogiri et al., 2018). Callaghan found that individuals who engage in polydrug use, including methamphetamine, opioids, and alcohol, are at a notably higher risk of developing schizophrenia compared to the reference group (Callaghan et al. 2012).

In numerous studies on individuals with drug usage and psychiatric symptoms, it has been observed that individuals with no prior history of mental disorders who engage in alcohol consumption (OR = 1.4, 95% CI = 1.1–1.7) and non-prescription drug use (OR = 1.5, 95% CI = 1.1-1.9) are at an increased risk of developing psychiatric symptoms. Moreover, uncontrolled alcohol consumption elevates the chance of developing psychiatric symptom by 1.5-1.6 times (alcohol abuse : OR = 1.6, 95% CI = 1.2-2.2, alcohol dependence : OR = 1.5, 95% CI = 1.1-2.1) (Degenhardt et al., 2018). The risk of developing psychiatric symptoms is approximately doubled among cannabis users compared to non-users in the same age group (hazard ratio = 1.97, 95% CI = 1.48–2.62, p<0.001) (Foti et al., 2010). Occasional use of amphetamines has been associated with increased risks of psychosis (OR = 2.0, 95% CI = 1.3-3.3), violent behavior (OR = 2.2, 95% CI = 1.2-4.1), suicide (OR = 4.4, 95% CI = 2.4-8.21), and depression (OR = 1.6, 95% CI = 1.1-2.2) when compared to non-use. Regular amphetamine use further escalates the risk of psychiatric symptoms (OR = 3.0, 95% CI = 1.9-4.8), violent behavior (OR = 6.2, 95% CI = 3.1-12.3), and suicide risk (OR = 2.3, 95% CI = 1.8-2.9) (Grant et al., 2012).

Psychotic symptoms during methamphetamine use are more likely to occur compared to periods of non-use (OR = 5.3, 95% CI = 3.4-8.3, P <0.001). Methamphetamine use for 1-15 days in the past month is associated with a 5-fold increased risk compared to non-use (OR = 4.0, 95% CI = 2.5-6.5), while usage for 16 days or more increases the risk by 11 times (OR = 11.2, 95% CI = 5.9-21.1) (McKetin et al., 2013; Arunogiri et al., 2018). Furthermore, regular use of cannabis and alcohol (16 days or more in the past month) amplifies the likelihood of experiencing psychotic symptoms (Cannabis: OR = 2.0, 95% CI = 1.1 - 3.5; Alcohol: OR = 2.1, 95% CI = 1.1- 4.2) (McKetin et al., 2013; Arunogiri et al., 2018). Substance use of hallucinogens has also been associated with mental health issues (p < 0.001) (Grant et al., 2019).

Various factors contribute to an increased risk of developing psychiatric symptoms among substance abusers, including demographic variables such as gender, age, income, employment status,

and education level. However, the method of administration, particularly injection, has not been linked to an elevated risk of addiction symptoms (Arunogiri et al., 2018). While the frequency, quantity, and level of addiction associated with amphetamine/methamphetamine use also play a role (McKetin et al., 2019; DiMiceli et al., 2016). Regular consumption of cannabis and alcohol (16 or more days in the past month) has been associated with an increased risk of psychotic symptoms (McKetin et al., 2013) and antisocial personality disorder (Arunogiri et al., 2018). Certain factors remain controversial in their relationship with psychiatric symptoms and drug use, such as the age of onset of substance use, duration of use, and experiences of homelessness (Arunogiri et al., 2018; McKetin et al., 2013; Gan et al., 2018).

CONCLUSION

Drug-induced psychiatric disorders pose significant challenges to individuals' mental health and overall well-being. Predicting and diagnosing such disorders accurately is crucial for effective intervention and treatment. This study explores the utilization of a statistically significant structural equation model to predict the diagnosis of drug-induced psychiatric disorders. They also developed and evaluated a screening tool based on critical variables identified in the model.

A rigorous statistical analysis developed a structural equation model, demonstrating a significant predictive capability ($p < 0.01$). The model incorporates various factors known to influence the onset and manifestation of drug-induced psychiatric disorders. These factors include income, living with a psychiatric patient, history of mood disorder symptoms, frequency of drug use, past cannabis usage, tendency towards polydrug use, and concurrent alcohol and drug use. The model's predictive formula is represented as follows:

Diagnosis of psychiatric disorder from substance = (2.117 * income + 17.350 * living in the same house with psychiatric person + 2.720 * history of mood disorder symptoms + 9.369 * number of days using drugs in the past month + 4.462 * past cannabis usage + 1.441 * tendency towards polydrug use + 1.348 * concurrent alcohol and drug use). This equation collectively forecasts 74.5% of the variance in diagnosing drug-induced psychiatric disorders ($R^2 = 0.745$). By incorporating these key variables, the model offers valuable insights into the complex interplay between substance abuse and psychiatric symptoms.

Based on the variables identified in the structural equation model, a screening tool was developed to assess individuals' risk of drug-induced psychiatric disorders. This screening tool provides a quick and reliable means of identifying individuals who may benefit from further assessment and intervention.

The screening tool exhibited promising performance characteristics: Sensitivity: 0.806, Specificity: 0.717, Positive Predictive Value: 0.784, Negative Predictive Value: 0.744, and Predictive Validity: 0.762.

These metrics indicate the tool's efficacious in accurately identifying individuals at risk of drug-induced psychiatric disorders. With high sensitivity and specificity, the screening tool can effectively detect both the presence and absence of such disorders, minimizing false positives and false negatives.

The utilization of a statistically significant structural equation model provides valuable insights into predicting and diagnosing drug-induced psychiatric disorders. By incorporating key variables such as income, living arrangements, substance use patterns, and concurrent alcohol and drug use, the model offers a comprehensive understanding of the factors contributing to these disorders. Furthermore, developing and evaluating

a screening tool based on these variables demonstrates its potential as a practical and effective tool for early identification and intervention. Moving forward, continued research and refinement of predictive models and screening tools are essential for enhancing our ability to address the complex challenges posed by drug-induced psychiatric disorders and improve outcomes for affected individuals.

RECOMMENDATION

The prevalence of drug use and its associated psychiatric consequences underscore the importance of adequate screening measures in psychiatric prevention and treatment. Early identification of individuals at risk of developing drug-induced psychiatric disorders is critical for timely intervention and improved outcomes. The screening tools play a significant role in the initial assessment of drug users and facilitate subsequent steps in psychiatric prevention and treatment.

Effective psychiatric prevention and treatment rely on early detection and intervention. Initial screening serves as a crucial first step in identifying individuals who may be at risk of developing psychiatric disorders due to drug use. By assessing key factors such as substance use patterns, living arrangements, and past psychiatric history, screening tools enable healthcare professionals to identify individuals who may benefit from further evaluation and intervention.

Once individuals at risk are identified through initial screening, subsequent steps in psychiatric prevention and treatment can be initiated. These steps may include comprehensive psychiatric assessment, personalized treatment planning, and referral to appropriate resources and support services. Screening tools provide valuable information that guides healthcare professionals in tailoring interventions to meet the specific needs of each individual.

Screening tools play a vital role in streamlining the psychiatric prevention and treatment process for drug users. By efficiently identifying individuals at risk, these tools enable healthcare professionals to allocate resources effectively and prioritize interventions based on the severity of the individual's condition. Moreover, screening tools contribute to early intervention, which has been shown to improve treatment outcomes and reduce the long-term impact of drug-induced psychiatric disorders.

The screening tool discussed in previous sections has demonstrated suitability for the initial screening of drug users. Its high sensitivity and specificity make it effective in identifying individuals who may be at risk of developing drug-induced psychiatric disorders. By providing a quick and reliable assessment, the tool facilitates prompt intervention and ensures that individuals receive the care and support they need.

Screening tools play a crucial role in the initial assessment of drug users and subsequent steps in psychiatric prevention and treatment. By identifying individuals at risk of developing drug-induced psychiatric disorders, these tools enable healthcare professionals to initiate timely intervention and improve treatment outcomes. Moving forward, continued efforts to develop and refine screening tools will further enhance our ability to address the complex challenges posed by drug use and its associated psychiatric consequences.

REFERENCES

Arillo-Santillan, E., Lazcano-Ponce, E., Hernandez-Avila, M., Fernández, E., Allen, B., Valdes, R., & Samet, J. (2005). Associations between individual and contextual factors and smoking in 13,293 Mexican students. *American Journal of Preventive Medicine, 28*(1), 41-51.

Arunogiri, S., Foulds, J. A., McKetin, R., & Lubman, D. I. (2018). A systematic review of risk factors for methamphetamine-associated psychosis. *Australian & New Zealand Journal of Psychiatry, 52*(6), 514–529.

Australian Institute of Health and Welfare. (2005). *2004 National Drug Strategy Household Survey: detail findings.* https://www.aihw.gov.au/reports/illicit-use-of-drugs/2004-ndshs-detailed-findings/summary

Bagozzi, R. P. (1993). Assessing construct validity in personality research: Applications to measures of self-esteem. *Journal of research in personality, 27*(1), 49-87.

Bentler, P. M. (1990). *Comparative fit indexes in structural models.* Psychological bulletin, 107(2), 238.

Browne, M. W., & Cudeck, R. (1992). *Alternative ways of assessing model fit.* Sociological methods & research, 21(2), 230-258.

Burns, L., & Teesson, M. (2002). Alcohol use disorders comorbid with anxiety, depression, and drug use disorders: Findings from the Australian National Survey of Mental Health and Well Being. *Drug and alcohol dependence, 68*(3), 299–307.

Callaghan, R. C., Cunningham, J. K., Allebeck, P., Arenovich, T., Sajeev, G., Remington, G., Boileau, I., & Kish, S. J. (2012). Methamphetamine use and schizophrenia: a population-based cohort study in California. *American Journal of Psychiatry, 169*(4), 389–396.

Connor, J. P., Haber, P. S., & Hall, W. D. (2016). *Alcohol use disorders.* The Lancet, 387(10022), 988-998.

Degenhardt, L., Saha, S., Lim, C. C. W., Aguilar‐Gaxiola, S., Al‐Hamzawi, A., Alonso, J., Andrade, L. H., Bromet, E. J., Bruffaerts, R., Caldas‐de‐Almeida, J. M., Girolamo, G. de, Florescu, S., Gureje, O., Haro, J. M., Karam, E. G., Karam, G., Kovess‐Masfety, V., Lee, S., Lepine, J.-P., Makanjuola, V., Medina-Mora, M. E., Mneimneh, Z., Navarro-Mateu, F., Piazza, M., Posada-Villa, J., Sampson, N. A., Scott, K. M., Stagnaro, J. C., Have, M. T., Kendler, K. S., Kessler, R. C., & McGrath, J. J. (2018). The associations between psychotic experiences and substance use and substance use disorders: Findings from the World Health Organization World Mental Health surveys. *Addiction, 113*(5), 924–934.

Department of Fine Arts (1978) *The "Tra Sam Duang" Laws.* Bangkok: Veteran printing house. [in Thai]

Dillehay, T. D., Rossen, J., Ugent, D., Karathanasis, A., Vásquez, V., & Netherly, P. J. (2010). *Early Holocene coca chewing in northern Peru.* Antiquity, 84(326), 939-953.

DiMiceli, L. E., Sherman, S. G., Aramrattana, A., Sirirojn, B., & Celentano, D. D. (2016). *Methamphetamine use is associated with high levels of depressive symptoms in adolescents and young adults in Rural Chiang Mai Province,* Thailand. BMC Public Health, 16(1), 1-9.

Drake, R. E., Osher, F. C., & Wallach, M. A. (1989). Alcohol use and abuse in schizophrenia: a prospective community study. *Journal of nervous and mental Disease, 177*(7), 408–414.

Embretson, S.E., & Reise, S.P. (2013). *Item response theory.* Psychology Press.

Embry, D., Hankins, M., Biglan, A., & Boles, S. (2009). Behavioral and social correlates of methamphetamine use in a population-based sample of early and later adolescents. *Addictive behaviors, 34*(4), 343-351.

Foti, D. J., Kotov, R., Guey, L. T., & Bromet, E. J. (2010). Cannabis use and the course of schizophrenia: 10-year follow-up after first hospitalization. *American Journal of Psychiatry, 167*(8), 987-993.

Gan, H., Zhao, Y., Jiang, H., Zhu, Y., Chen, T., Tan, H., Zhong, N., Du, J., & Zhao, M. (2018). A research of methamphetamine induced psychosis in 1,430 individuals with methamphetamine use disorder: clinical features and possible risk factors. *Frontiers in Psychiatry, 9,* 551, 1–8.

Gouzoulis-Mayfrank, E., Härtel-Petri, R., Hamdorf, W., Havemann-Reinecke, U., Mühlig, S., & Wodarz, N. (2017). *Methamphetamine-related disorders.* Deutsches Ärzteblatt International, 114(26), 455-461.

Grant, J. E., Lust, K., & Chamberlain, S. R. (2019). *Hallucinogen use is associated with mental health and addictive problems and impulsivity in university students.* Addictive behaviors reports, 10, 100228, 1-7.

Grant, K. M., LeVan, T. D., Wells, S. M., Li, M., Stoltenberg, S. F., Gendelman, H. E., Carlo, G. & Bevins, R. A. (2012). Methamphetamine-associated psychosis. *Journal of Neuroimmune Pharmacology, 7,* 113-139.

Gureje, O., Degenhardt, L., Olley, B., Uwakwe, R., Udofia, O., Wakil, A., ... & Anthony, J. C. (2007). A descriptive epidemiology of substance use and substance use disorders in Nigeria during the early 21st century. *Drug and alcohol dependence, 91*(1), 1-9.

Guxens, M., Nebot, M., & Ariza, C. (2007). Age and sex differences in factors associated with the onset of cannabis use: a cohort study. *Drug and alcohol dependence, 88*(2-3), 234-243.

Hair JR, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.).

Hemphill, S. A., Heerde, J. A., Herrenkohl, T. I., Patton, G. C., Toumbourou, J. W., & Catalano, R. F. (2011). Risk and protective factors for adolescent substance use in Washington State, the United States and Victoria, Australia: A longitudinal study. *Journal of Adolescent Health, 49*(3), 312-320.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal, 6*(1), 1-55.

Jreskog, K.G. & Srbom, D. (1989). *Lisrel 7 - A guide to the program and applications.* Chicago: Scientific Software Inc.

Kanato M. & Leyatikul P. (2020) Size Estimation of Substances Users Population in Thailand 2019. *ONCB Journal 36*(2): 37-48.

Kanato M., Leyatikul P. & Wonguppa R. (2022). Cannabis Situation among the Thai Youth after Law Amendment. *ONCB Journal 36*(2): 27-36.

Kanato M., Leyatikul P. & Wonguppa R. (2020) Impacts of Medical Cannabis Law in Thailand. *ONCB Journal 36*(2): 27-36.

Kanato M., Sarasiri R., & Leyatikul P., (Eds.). (2023). *ASEAN DRUG MONITORING REPORT 2022.* Bangkok: ASEAN Narcotics Cooperation Center.

Korhonen, T., Huizink, A. C., Dick, D. M., Pulkkinen, L., Rose, R. J., & Kaprio, J. (2008). Role of individual, peer and family factors in the use of cannabis and other illicit drugs: a longitudinal analysis among Finnish adolescent twins. *Drug and alcohol dependence, 97*(1-2), 33-43.

Linszen, D. H., Dingemans, P. M., & Lenior, M. E. (1994). *Cannabis abuse and the course of recent-onset schizophrenic disorders.* Archives of general psychiatry, 51(4), 273-279.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). *Sample size in factor analysis.* Psychological methods, 4(1), 84.

Maneeganol, S., Pimpanit, V., Jarassaeng, N., & Boontoch, K. (2014). *Prevalence of Substance Use in Psychiatric Outpatient Clinic at Srinagarind Hospital.* J Psychiatr Assoc Thailand, 59(4), 371–380. [in Thai]

McCrady, B. S., & Epstein, E. E. (2013). *Addictions: A comprehensive guidebook.* Oxford University Press.

McKetin, R., Leung, J., Stockings, E., Huo, Y., Foulds, J., Lappin, J. M., Cumming, C., Arunogiri, S., Young, J.T., Sara, G., Farrell, M., & Degenhardt, L. (2019). *Mental health outcomes associated with the use of amphetamines: A systematic review and meta-analysis.* EClinicalMedicine, 16, 81-97.

McKetin, R., Lubman, D. I., Baker, A. L., Dawe, S., & Ali, R. L. (2013). *Dose-related psychotic symptoms in chronic methamphetamine users: evidence from a prospective longitudinal study.* JAMA psychiatry, 70(3), 319-324.

Merlin M.D. (2003). *Archaeological evidence for the tradition of psychoactive plant use in the old world.* Economic Botany. 2003 Sep 1; 57(3): 295-323.

National Drug Research Institute, Australian Institute of Criminology. (2007). *National amphetamine¬type stimulant strategy background paper.* National Drug Strategy Monograph Series 69.

National Drug Strategy (2008). *National amphetamine-type stimulant strategy: 2008-2011. Canberra: National Drug Strategy.* https://aodknowledgecentre.ecu.edu.au/key-resources/policies-and-strategies/13996/?title=National+amphetamine-type+stimulant+strategy%3A+2008-2011

Office of Secretary of National Addiction Treatment & Rehabilitation Committee, Ministry of Public Health. (2024). *Drugs Addiction Treatment Statistics 2020.* https://ncmc.moph.go.th/home/index/dash

Poshyachinda, V., Phittayanon, P., Simasatitkul, V., & Perngparn, U. (1998). Stimulant use, abuse, and dependence in Thailand. *Alcohol and drugs perspectives, prevention and control—Asia Pacific region.* Sri Lanka: Alcohol and Drug Information Centre, 77-106.

Poshyachinda, V., Srisurapanont, M., & Perngparn, U. (1999, November). *Amphetamine type stimulants epidemic in Thailand: a country profile.* In WHO meeting on amphetamine, MDMA, and other psycho stimulants phase II. Bangkok, Thailand, 22-26.

Pristach, C. A., & Smith, C. M. (1990). *Medication compliance and substance abuse among schizophrenic patients.* Psychiatric Services, 41(12), 1345-1348.

Reise, S.P., & Yu, J. (1990). Parameter recovery in the graded response model using MULTILOG. *Journal of Educational Measurement, 27*(2), pp.133-144.

Rognli, E. B., Håkansson, A., Berge, J., & Bramness, J. G. (2014). Does the pattern of amphetamine use prior to incarceration predict later psychosis?—A longitudinal study of amphetamine users in the Swedish criminal justice system. *Drug and alcohol dependence, 143,* 219-224.

Schlesselman, J. J. (1974). Sample size requirements in cohort and case-control studies of disease. *American journal of epidemiology, 99*(6), 381-384.

Schuckit, M. A. (2009). *Alcohol-use disorders.* The Lancet, 373(9662), 492-501.

Seibyl, J. P., Satel, S. L., Anthony, D., Southwick, S. M., Krystal, J. H., & Charney, D. S. (1993). Effects of cocaine on hospital course in schizophrenia. *Journal of Nervous and Mental Disease, 181*(1), 31–37.

Srisurapanont, M., Ali, R., Marsden, J., Sunga, A., Wada, K., & Monteiro, M. (2003). Psychotic symptoms in methamphetamine psychotic in-patients. *International Journal of Neuropsychopharmacology, 6*(4), 347-352.

SStone, A. L., Becker, L. G., Huber, A. M., & Catalano, R. F. (2012). *Review of risk and protective factors of substance use and problem use in emerging adulthood.* Addictive behaviors, 37(7), 747-775.

Sullivan, R. J., & Hagen, E. H. (2002). Psychotropic substance-seeking: Evolutionary pathology or adaptation?. *Addiction, 97*(4), 389–400. http://dx.doi.org/10.1046/j. 1360-0443. 2002.00024.x.

Tucker, L. R., & Lewis, C. (1973). *A reliability coefficient for maximum likelihood factor analysis.* Psychometrika, 38(1), 1-10.

United Nations Office on Drugs and Crime. (2019). *World Drug Report 2019.* Vienna: United Nations publication.

United Nations Office on Drugs and Crime. (2023). *World Drug Report 2023.* Vienna: United Nations publication.

Van Ryzin, M. J., Fosco, G. M., & Dishion, T. J. (2012). Family and peer predictors of substance use from early adolescence to early adulthood: An 11-year prospective analysis. *Addictive behaviors, 37*(12), 1314-1324.

Wearne, T. A., & Cornish, J. L. (2018). *A comparison of methamphetamine-induced psychosis and schizophrenia: a review of positive, negative, and cognitive symptomatology.* Frontiers in psychiatry, 9, 491, 1-21.

Westen, D., & Rosenthal, R. (2003). *Quantifying construct validity: two simple measures. Journal of personality and social psychology, 84*(3), 608.

WHO. (2021). *Management of substance abuse.* [available on 21/1/2021] at https://www.who.int/substance_abuse/facts/ATS/en/

Wonguppa R., & Kanato M. (2018). *The prevalence and associated factors of new psychoactive substance use: A 2016 Thailand national household survey.* Addict Behav Rep. 7: 111–5.

Wu, P., Liu, X., & Fan, B. (2010). Factors associated with initiation of ecstasy use among US adolescents: Findings from a national survey. *Drug and Alcohol Dependence, 106*(2-3), 193-198.

Online Market for New Psychoactive Substances (NPS) in Thailand:
Data from Drug Marketing and Sales via Internet during 2020-2023

| **Kanittha Thaikla**
Research Institute for Health Sciences

Abstract

The study on the situation of online marketing of new psychoactive substances in Thailand during 2020-2023 aims to examine the online marketing situation of new psychoactive substances by applying a mixed methods research model with the following steps: 1) Search for posts selling new psychoactive substances on the internet; 2) Follow sellers and posts selling new psychoactive substances on the internet and 3) Analyze and process messages, images, and context of posted message content.

The results from tracking online sellers of new psychoactive substances reveal 1,385 users with 3,083 posts. There are more new sellers than old sellers with more posts on the X platform when compared to other platforms. The most popular type of new psychoactive substance posted for online sale is ketamine, followed by Tryptamines such as 4-HO-MET (4-Hydroxy-N-methyl-N-ethyltryptamine); magic mushroom; DMT (5-MeO-DMT) and ACTB (ingredient for making DMT); plant-based substances such as Nymphaea caerulea; Synthetic cathinones such as 3-MMC (3-Methylmethcathinone or metaphedrone, NEP (N - Ethylpentedrone), APIHP (Alpha-Pyrrolidinoisohexanophenone/α-PiHP); and Phenethylamines, respectively. The online sale of new psychoactive substances in Thailand tends to consecutively increase. Sellers' 3posts focus on introducing new psychoactive substances with images, properties, effects, symptoms, and how to consume the new psychoactive substances, rather than enhancing purchases. They also retain customers by offering discounts, giveaways, freebies or free shipping.

Introduction

New Psychoactive Substances (NPS) are becoming an important health problem and are of great interest worldwide (Hasan M et al., 2023.) The United Nations Office on Drugs and Crime (UNODC) defines a new type of psychoactive substance as a natural or synthetic substance or product that has a psychoactive effect and is not controlled under the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances which may threaten people's health. The word "new" indicates the illegal presence of certain substances in the market. It is used for recreational purposes more

than for medical treatment with chemical and molecular structure modifications or "Designer drugs" with design developed to mimic the effects of traditional illicit substances (Simão AY et al., 2022.) The more modifications, the more difficult to control. New psychoactive substances (NPS) have been found for sale in both offline and online markets, avoiding national and international laws (UNODC, 2021.) Since December 2021, partner agencies in more than 134 countries have confirmed to UNODC Early Warning Advisory (EWA) regarding new psychoactive substances (NPS) that there were more than 1,124 items and were grouped as follows (Hasan M et al., 2023. Juraithip Wangsinthaweekul, 2021. Ling-Yi Feng et al., 2017. Pia Simona Bruni et al., 2018. Marta Massano et al., 2024.)

1. Substances from the amino acid group (Aminoindanes) which have analgesic and bronchodilating effects, which have important effects on the release and absorption of serotonin and stimulates the effects of emotional stimulation such as MDMA.

2. Synthetic cannabinoids whose synthetic substances have similar effects to THC (delta-9-tetrahydrocannabinol) in marijuana, including derivatives of tetrahydrocannabinol (THC), HU-210, cyclohexylphenols, aminoalkylindoles, etc. Its common marketing name is spice, which is herbal tobacco mixed with K2.

3. Synthetic cathinones which have similar effects to cathinone in a plant called Khat (Catha edulis) with similar effects to amphetamines, methamphetamine, ecstasy, cocaine. The synthetic substances in this group include MDMC (3,4-Methylenedioxymethcathinone or Methylone), 3-MMC (3-Methylmethcathinone or Metaphedrone), NEP (N-Ethylpentedrone), 4-MMC (4-Methylmethcathinone or Mephedrone), APIHP (Alpha-Pyrrolidinoisohexanophenone/ α-PiHP), 4-MEC (4-Methylethcathinone), Pyrovalerone, MDPV (3,4 Methylenedioxypyrovalerone) etc. Its common marketing name is bath salt since it is similar to bath salt powder.

4. Ketamine and PCP (Phencyclidine-type substances) which are anesthetics, causing unconsciousness, sleep, and inactivity.

5. Phenethylamines are synthetic substances with a structural formula and effects similar to the stimulants as amphetamine and MDMA which include, '2C series' such as 2C-B, 2C-E, 2C-I; 'D series' such as DOI, DOC; benzodifurans such as bromo-dragonfly, 2C-B-Fly; and others such as p-methoxymethamphetamine (PMMA), etc.

6. Piperazines which have stimulant effects similar to MDMA and Amphetamines, causing euphoria. They are commonly used for entertainment with a mixture of Benzylpiperazine (BZP) and Trifluoromethylphenylpiperazine (TFMPP) such as 1-benzylpiperazine (BZP), 1-(3- chlorophenyl)piperazine (mCPP), 1-(3-trifluoromethylphenyl)piperazine (TFMPP), 1-benzyl-4- methylpiperazine. (MBZP), and 1-(4-fluorophenyl)piperazine (pFPP).

7. Plant-based substances or new psychoactive substances of natural origin which are addictive plants that have stimulant, sedative, or hallucinogenic effects, such as Kratom (Mitragynaspeciosa Korth), Khat, Diviner's sage, Salvia divinorum, Nymphaea caerulea, etc.

8. Tryptamines which are synthetic derivatives of tryptamine, causing Hallucinations with similar chemical structure to the neurotransmitters as serotonin and psilocybin. Substances in this group include 5-MeO-DMT, 5-MeO-DPT, Alphamethyltryptamine (AMT), 4-Hydroxy-N-methyl-N-ethyltryptamine (4-HO-MET), including the natural tryptamine group obtained from both fresh and dried magic/ hallucinogenic mushrooms.

9. Fentanyl analogs which are stronger synthetic drugs often used to reduce chronic pain.

10. Other substances such as 1,3-Dimethylamylamine (DMAA).

For Thailand, new psychoactive substances found or under legal control include ketamine, kratom, magic mushrooms, 1-(3-Trifluoromethylphenyl) piperazine, phenazepam, M-alpha, diclazepam, 3,4-methylenedioxypyrovalerone, JWH-018, JWH-073, ethylone, khat, ((±)-dimethyl-1-[1-(4-chlorophenyl) cyclobutyl]-N,N,3-tri methyl butan-1-amine, methylone, 2-[3-(aminomethyl)-5-methyl-4H-1,2,4-triazol4-yl]-5-chlorophenyl-((phenyl) methanone, 3,4-methylenedioxy-N, N-dimethylcathinone, para-methoxymethamphetamine (PMMA), para-methoxymethamphetamine, 1-(3-chlorophenyl) piperazine, 3-Methoxyeticyclidine (3-MeO-PCE),7-[2-([1-(4-chlora-2,5-dimethoxyphenyl) propan-2-yl]amino) ethyl]-1,3-dimethyl-3,7 dihydro-1H-purine-2,6-dione, 4-methylmethcathinone (4-MMC), 4-MEC (4-Methy-lethcathinone), N-benzylpiperazine (BZP), 1,4-dibenzylpiperazine (DBZP), flunitrazolam, XLR-11, alpha-pyrrolidinovalerophenone, beta-keto-N-methylbenzodioxolybutanamine, and isopropylphenidat (Hasan M et al., 2023, Teera Chaipiriyasak 2017)

This report uses data on the marketing and sales of only new psychoactive substances from the Online Drug Marketing and Sales Survey during 2020-2023 (Kanitha Thaikla, 2020. 2021. 2022. 2023) with research funding support from the Office of the Narcotics Control Board to reflect on the online marketing situation of new psychoactive substances with hundreds of new addictive substances recently developed. The limitation of law enforcement and the rapid development of new psychoactive substances, including the adjustment of sellers by using online channels to market new psychoactive substances in Thailand (Madras BK., 2017) have enhanced the interests in tracking and monitoring the situation. Despite the fact that Nymphaea caerulea is not yet classified as an illegal narcotic in Thailand, it is considered illegal in some countries such as Russia, Latvia, etc. (Online Manager, 2019.) Together with its increase in online sales, therefore, Nymphaea caerulea is included in this paper. Meanwhile, in August 2021, kratom was removed from Thailand's list of narcotic drugs and is, therefore, not included in this report. This report mainly focuses on monitoring the online situation of new psychoactive substances through the systematic monitoring process under the Monitor Drugs Online System (MDOS) program.

Objective

To examine the online marketing situation of new psychoactive substances in Thailand.

Methods

Apply mixed-methods research consisting of qualitative and quantitative surveys

Procedure

1. Find posts selling new psychoactive substances on the Internet via an internet search engine, using keywords which include names, slang words, or words used to call each type of new psychoactive substance during January 2020 and December 2023.

2. Follow sellers and posts on new psychoactive substance sale on the internet and check the data redundancy, confidence, data linkage, sales context, poster characteristics, etc.

3. Analyze, process, and combine text and image analysis algorithms to classify information, context, content, and message related to the marketing and sale of new psychoactive substances.

4. Store posted messages, pictures of new psychoactive substances being sold online, and the data that can be analyzed in the MDOS system.

5. Create an information reporting system.

Study results

From searching and tracking 1,385 accounts of new psychoactive substance online sellers, 58.7% are new sellers, 35.6% are old sellers, and 5.7% are sellers whose accounts were previously closed and re-opened.

Table 1: Types of online sellers of new psychoactive substances

Type of sellers	Year				Total (1,385 accounts)
	2020 (142 accounts)	2021 (383 accounts)	2022 (382 accounts)	2023 (478 accounts)	
New seller	0 (0%)	304 (79.4%)	237 (62%)	272 (56.9%)	813 (58.7%)
Old seller	134 (94.4%)	65 (17%)	106 (27.7%)	188 (39.3%)	493 (35.6%)
Seller with reopened account	8 (5.6%)	14 (3.7%)	39 (10.2%)	18 (3.8%)	79 (5.7%)

Among 3,083 posts selling new psychoactive substances, 80.9% were on X platform, followed by 14.7% on Facebook.

Table 2: Platforms with posts selling new psychoactive substances online

Platform	Year				Total (3,083 posts)
	2020 (379 posts)	2021 (874 posts)	2022 (520 posts)	2023 (1,310 posts)	
X	373 (98.4%)	777 (88.9%)	418 (80.4%)	926 (70.7%)	2,494 (80.9%)
Facebook	2 (0.5%)	74 (8.5%)	40 (7.7%)	336 (25.6%)	452 (14.7%)
TikTok	0 (0%)	0 (0%)	22 (4.2%)	34 (2.6%)	56 (1.8%)
Instagram	4 (1.1%)	22 (2.5%)	5 (1%)	11 (0.8%)	42 (1.4%)
Line	0 (0%)	1 (0.1%)	30 (5.8%)	3 (0.2%)	34 (1.1%)
BAND	0 (0%)	0 (0%)	5 (1%)	0 (0%)	5 (0.2%)

93.4% of new psychoactive substances are sold in conjunction with narcotic drugs. Only 6.6% of them are posted with nontraditional medicines and electronic cigarettes. For types of posts, small-scale sales account for 80.1%, while wholesale and sales through representatives account for 19.9%.

The most popular type of new psychoactive substance posted for online sale is ketamine (52.4%), which is commonly sold with main drugs such as ice, methamphetamines, ecstasy, cocaine, heroin, and mixed drugs or cocktails (Happy Water, collagen, mineral salt, 3-in-1 coffee mix, etc.). The second most popular drug sold is the drug

in the tryptamine group (42.7%), which is a synthetic derivative of tryptamine that causes hallucinations, such as 4-HO-MET (4-Hydroxy-N-methyl-N-ethyltryptamine), magic mushrooms, which are usually sold in the form of dried mushrooms rather than fresh mushrooms, DMT (5-MeO-DMT), and ACTB (raw materials for cooking DMT). DMT has been found selling online since 2020 in the form of capsules, while magic mushrooms are usually sold with DMT and LSD, or ecstasy, LSD and 2-CB, etc. The post-sale ACTB (raw materials for cooking DMT) was found first and only once in 2022. 1.8% of online posts sell a group of plant-based substances that have stimulant, sedative, or hallucinogenic effects, such as Nymphaea caerulea in the forms of dried flowers, inhalants, lean, panlam, beer, cookies, dried flowers coated with cannabis, smoking pots, etc. The online posts were found in 2023, with a concentration on only Nymphaea caerlea. Synthetic cathinones with similar effects to cathinone in the plant Khat (Catha edulis), equivalent to amphetamines, such as 3-MMC (3-Methylmethcathinone or metaphedrone), nep (N-eethylPentedrone), alpha/APIHP (alpha-pyrrolidinoisohexanophenone (α-PiHP), etc., were found posted online as 0.3% that a posting for sale was found in the year 2023. Most of 3-MMC is sold in isolation, and only 1 post of 3-MMC selling with cocaine was found. 0.2 percent of posts are found with drugs in the group of phenethylamines, which are synthetic substances with a structural formula and action similar to the use of stimulants in the amphetamine and MDMA groups, such as 2CB (5-dimethoxyphenethylamine). The first selling post was found in 2022. 2CB is usually posted for sale with new psychotropic substances, ecstasy, and marijuana, such as 2CB with nep (N-eethylPentedrone); 2CB with Marijuana, Ecstasy, LSD, Alpha/APIHP, 4-ho-met; 2CB with Ecstasy; 2CB with Ecstasy, 4-ho-met, Alpha/APIHP, LSD, and Marijuana; 2CB with Ecstasy, and LSD with DMT, etc.

Table 3: Types of new psychoactive substances posted for online sales

Types of new psychoactive substances	Year				Total (3,083 posts)
	2020 (379 posts)	2021 (874 posts)	2022 (520 posts)	2023 (1,310 posts)	
Ketamine	279 (73.6%)	553 (63.3%)	245 (47.1%)	540 (41.2%)	1,617 (52.4%)
Tryptamines	105 (27.7%)	327 (37.5%)	282 (54.2%)	743 (56.7%)	1,457 (47.2%)
Magic Mushroom	102 (26.9%)	309 (35.4%)	271 (52.1%)	706 (53.9%)	1,388 (45%)
DMT	3 (0.8%)	18 (2.1%)	10 (1.9%)	37 (2.8%)	69 (2.2%)
ACTB	0 (0%)	0 (0%)	1 (0.2%)	0 (0%)	1 (0.03%)
4-HO-MET	0 (0%)	0 (0%)	0 (0%)	2 (0.2%)	2 (0.1%)
Nymphaea caerulea	0 (0%)	0 (0%)	0 (0%)	57 (4.4%)	57 (1.8%)
Synthetic cathinones	0 (0%)	0 (0%)	0 (0%)	9 (0.7%)	9 (0.3%)
3-MMC	0 (0%)	0 (0%)	0 (0%)	6 (0.5%)	6 (0.2%)
Alpha/APIHP	0 (0%)	0 (0%)	0 (0%)	2 (0.2%)	2 (0.1%)
NEP (N - ethylpentedrone)	0 (0%)	0 (0%)	0 (0%)	1 (0.1%)	1 (0.03%)
Phenethylamines: 2CB	0 (0%)	0 (0%)	2 (0.4%)	4 (0.3%)	6 (0.2%)

Remark: One post sold more than one type of drug.

The most popular units for selling ketamine are G and bottles; 600 (400-6,800) baht/G, and 1,200 (750-1,800) baht/bottle.

The most popular units for selling magic mushroom is gram, bottle, capsule or set; 150 (50-4,500) baht/gram, 200 (180-500) baht/bottle, 40 (25-300) baht/capsule, and 700 (400-1,000) baht/set.

There are various units for selling DMT. The most popular are capsule and gram; 160-2,600 baht/capsule, and 1,900-29,500 baht/gram.

The most popular unit for selling 2CB is capsule; 1,000 (800-1,000) baht/capsule.

The most popular unit for selling 4-ho-met is capsule; 800 baht/capsule.

Table 4: Online selling price of new psychoactive substances

New psychoactive substances	Year: Popular selling price (Min-Max)				Total
	2020	2021	2022	2023	
Ketamine					
Bottle	1,200 (900-1800)		750-900		1,200 (750-1,800)
G	700 (400-5,000)	900 (400-6,800)	600 (400-1,500)	600 (400-2,100)	600 (400-6,800)
Magic mushroom					
Gram	280 (150-4,500)	800 (200-1,500)	150 (100-650)	120 (50-900)	150 (50-4,500)
Bottle	450-500		200 (180-380)	300 (200-500)	200 (180-500)
Capsule	300		40 (40-120)	40 (25-50)	40 (25-300)
Set	900			700 (400-1,000)	700 (400-1,000)
DMT					
Capsule	1,700-2,600	1,500		160	160-2,600
Milligram		1,650			1,650
Gram		29,500		1,900	1,900-29,500
Bottle			3,000		3,000
Set			1,000-1,200		1,000-1,200
Trip				900	900
2CB					
Capsule				1,000 (800-1,000)	1,000 (800-1,000)
Oz.				16,000	16,000
4-HO-MET					
Capsule				800	800

Sales of new psychoactive substances were mostly posted in the Bangkok area (14.6%), provinces in the eastern region (Chonburi, Chanthaburi, and Rayong: 0.9%), provinces in the Northern region (Chiang Mai and Chiang Rai: 0.8%), provinces in the northeastern region (Nakhon Ratchasima and Ubon Ratchathani: 0.6%), provinces in the southern region (Phuket: 0.3%), provinces in the central region (Nonthaburi, Ratchaburi, Chachoengsao, Nakhon Pathom, and Suphanburi: 0.3%). Every post offered free delivery nationwide.

More than 99.0% of posts focus on introducing about new psychoactive substances, regarding their appearance, properties, effects, symptoms, and how to use them, while 76.7% stimulating purchases and 15.6% retaining customers by giving discounts, giveaways, add-ons, or free delivery.

Table 5: Areas with online posts selling new psychoactive substances

Posting Areas	Year				Total (3,083 posts)
	2020 (379 posts)	2021 (874 posts)	2022 (520 posts)	2023 (1,310 posts)	
Bangkok region	86 (22.7%)	167 (19.1%)	37 (7.1%)	161 (12.3%)	451 (14.6%)
East region	2 (0.5%)	10 (1.1%)	3 (0.6%)	12 (0.9%)	27 (0.9%)
Northern region	0 (0%)	4 (0.5%)	3 (0.6%)	19 (1.5%)	26 (0.8%)
Northeast region	0 (0%)	1 (0.1%)	0 (0%)	16 (1.2%)	17 (0.6%)
Southern region	2 (0.5%)	0 (0%)	0 (0%)	6 (0.5%)	8 (0.3%)
Central region	1 (0.3%)	2 (0.2%)	1 (0.2%)	4 (0.3%)	8 (0.3%)

Sample of online-sale posts for psychoactive substances:

"...#DMT mimosa NN-DMT 🌿 🌺 #rare item, very hard to find, DMT capsules extracted from specially selected grades with good quality 💊 1 cap/2,600 💊 3 caps/2,400 💊 10 caps/1,700 ..."

"...all species of mushrooms 700 baht per 3G; pure DMT 1,500 baht/Capsule; LSD sunshine 280 UG 950 baht/tab; Ketamine 700 baht/G with discount if buy more. Sweet 650 baht/piece with discount if buy more; Opioid 1,700/G; Shrooms 700 baht/3G; Pure DMT 1,500 baht/Capsule; Ketamine 700 baht/G; Ecstasy 650 baht..."

"...DMT the most powerful, the best price, the best quality, 50mg/1,500 baht// 100mg/2,900 baht #dmt #shrooms #lsd

"...The last step. . DMT manually extracted, pure, white. #magic mushrooms #psychedelics #LSD #DMT #shrooms #drunkmushrooms #drunk paper #magicmushrooms #stamps..."

"...Mixed DMT, 2,100 baht/150 milligrams, genuine, can pay later #drunk mushroom #LSD #DMT #drunk stamp..."

"...#DMT 1,350 baht/cap..."

"...4-AcO-DMT, pure mushroom derivative (not DMT for smoking) 25 mg = [redacted] equivalent to approximately 3-5 grams of mushrooms, depending on mushroom type ..."

"... 💊 DMT 1,000 baht/set, 60-65 mg/set, 1 set contains 1 cap of DMT, 4 caps of Syrian rue (Sorry for not to directly post pictures of the product to avoid the post from being removed ><) If interested, please contact via DM #DMT #LSD #drunk mushrooms..."

"...Selling ACTB, raw materials for cooking #dmt yield 0.7 ~ 1% depending on the cook's Tek/technique, 700 baht/100g, 2,400 baht/500g, 3,200 baht/1 kg #LSD #drunk mushroom..."

"...DtoHight, 3,000 baht (DMT 250 mg.) Dtohight, for smoking with pod or electric..."

"...Dmt vape 6 ml, smoke with electronic cigarette. If interested, please contact..."

"... 🚘 Send via Grab #LSD #molly #lucy #acid #2cb #tuci #ChiangMaiMarijuana #ForeignCodeine Pure 2CB 30 mg 1,000 baht/cap, 4-ho-met 800 baht/cap, MDMA Al FA/APIHP Dab (cannabis dab) 1G/900 baht. 4-ho is a synthetic substance with effect like mushroom for those who want to try new things. I've unintentionally tried them. Try tasting the powder, the effect will just come in a minute. You'll become limp and weary like tripping for about 6-8 hours..."

"...Zaza Billy Kimber Moonrock 1G/400 baht, dried cannabis inflorescence, MDMA, 2CB, LSD, Alpha/APIHP, 4-ho-met..."

"...2cb nep Dm / line / telegrame #2cb #nep #cocaina #ACID #cannabisbars #greenyellow #depression ..."

"...3mmc, inhale and become horny. Can also swallow. Click bio for inquiry..."

Picture 1: Sample photos of posts selling Alpha/APIHP, 4-HO-MET with marijuana and LSD

Picture 2: Sample photos of posts selling 2CB and 3MMC

2CB

3MMC

Picture 3: Sample photos of posts selling Nymphaea caerulea

Dried Nymphaea caerulea

Dried Nymphaea caerulea

Nymphaea caerulea capsule "Lean"

Nymphaea caerulea pod

Nymphaea caerulea panlam

Picture 4: Sample photos of posts selling magic mushrooms

Summary

Referring to the situation of online marketing of new psychoactive substances in Thailand from 2020 to 2023, tracking 1,385 online sellers of new psychoactive substances, it is found that there are more new sellers than old sellers. They post more on X than other platforms. The most popular type of new psychoactive substance posted for online sale was ketamine (52.4%), followed by the tryptamine group (47.2%) such as 4-HO-MET (4-Hydroxy-N-methyl) -N-ethyltryptamine), magic mushrooms, DMT (5-MeO-DMT) and ACTB (raw materials for cooking DMT); plant-based substances (1.8%) such as Nymphaea caerulea; Synthetic cathinones (0.3%) such as 3-MMC (3-Methylmethcathinone or Metaphedrone), NEP (N - EthylPentedrone), APIHP (alpha-pyrrolidinoisohexanophenone /α-PiHP), etc.,; and the phenethylamine group (Phenethylamines) (0.2%), respectively.

Most posts selling new psychoactive substances are in the Bangkok area, and the trend of selling online in Thailand continues to increase. Sellers emphasize posts to introduce the form, characteristics, properties, effects, symptoms, and how to use new psychoactive substances (more than 99.0%); stimulate purchases (76.7%); and retain customers by giving discounts, giveaways, or free delivery (15.6%).

References

Bruni PS, Grafinger KE, Nussbaumer S, König S, Schürch S, Weinmann W. *Study of the in vitro and in vivo metabolism of 4-HO-MET.* Forensic Sci Int. 2018 Sep;290:103-110. doi: 10.1016/j.forsciint.2018.06.037. Epub 2018 Jul 4. PMID: 30015274.,

Damien Rhumorbarbe, Marie Morelato, Ludovic Staehli, Claude Roux, David-Olivier Jaquet-Chiffelle, Quentin Rossy, Pierre Esseiva,Monitoring new psychoactive substances: Exploring the contribution of an online discussion forum, *International Journal of Drug Policy, Volume 73, 2019,* Pages 273-280, ISSN 0955-3959, https://doi.org/10.1016/j.drugpo.2019.03.025.

Forensic Science International,Volume 290, 2018,Pages 103-110,ISSN 0379-0738, https://doi.org/10.1016/j.forsciint.2018.06.037.

Hasan M, Sarker SA. *New Psychoactive Substances: A Potential Threat to Developing Countries.* Addict Health. 2023 Apr;15(2):136-143. doi: 10.34172/ahj.2023.1411. Epub 2023 Apr 29. PMID: 37560390; PMCID: PMC10408757.

Hondebrink L, Nugteren-van Lonkhuyzen JJ, Van Der Gouwe D, Brunt TM. Monitoring new psychoactive substances (NPS) in The Netherlands: data from the drug market and the Poisons Information Centre. *Drug Alcohol Depend.* 2015 Feb 1;147:109-15. doi: 10.1016/j.drugalcdep.2014.11.033. Epub 2014 Dec 13. PMID: 25541244. https://pubmed.ncbi.nlm.nih.gov/25541244/

Ling-Yi Feng, Altansuvd Battulga, Eunyoung Han, Heesun Chung, Jih-Heng Li,New psychoactive substances of natural origin: A brief review, *Journal of Food and Drug Analysis, Volume 25,* Issue 3, 2017,Pages 461-471, ISSN 1021-9498, https://doi.org/10.1016/j.jfda.2017.04.001.

Madras BK. *The Growing Problem of New Psychoactive Substances (NPS).* Curr Top Behav Neurosci. 2017;32:1-18. doi: 10.1007/7854_2016_34. PMID: 27571747.

Marta Massano, Melani Nuñez-Montero, Esther Papaseit, Olga Hladun, Clara Pérez-Maña, Mireia Ventura, Emilia Marchei, Eugenio Alladio, Enrico Gerace, Simona Pichini, Magi Farrè, Alberto Salomone,Metabolic profile of N-ethylhexedrone, N-ethylpentedrone, and 4-chloromethcathinone in urine samples by UHPLC-QTOF-HRMS, *Journal of Pharmaceutical and Biomedical Analysis, Volume 241,2024,*115994,ISSN 0731-7085, https://doi.org/10.1016/j.jpba.2024.115994.

Simão AY, Antunes M, Cabral E, Oliveira P, Rosendo LM, Brinca AT, Alves E, Marques H, Rosado T, Passarinha LA, Andraus M, Barroso M, Gallardo E. An Update on the Implications of New Psychoactive Substances in Public Health. *Int J Environ Res Public Health.* 2022 Apr 17;19(8):4869. doi: 10.3390/ijerph19084869. PMID: 35457736; PMCID: PMC9028227.

United Nations Office on Drugs and Crime What are NPS? [(accessed on 13 November 2021)]. Available online: https://www.unodc.org/LSS/Page/NPS

Kanitha Thaikla. *Marketing and selling of drugs on the internet in 2020.* Bangkok: Office of the Narcotics Control Board.

Kanitha Thaikla. *Marketing and selling of drugs on the internet in 2021.* Bangkok: Office of the Narcotics Control Board.

Kanitha Thaikla. *Marketing and selling of drugs on the internet in 2022.* Bangkok: Office of the Narcotics Control Board.

Kanitha Thaikla. *Marketing and selling of drugs on the internet in 2023.* Bangkok: Office of the Narcotics Control Board.

Juraithip Wangsinthaweekul. *Five Plant-based New Psychoactive Substances.* 2021. Faculty of Pharmacy. Prince of Songkla University. 1004-1-000-001-01 2564. https://ccpe.pharmacycouncil.org/index.php?option=article_detail&subpage=article_detail&id=947

Teera Chaipiriyasak. Monitoring and surveillance of new psychoactive substances (NPS New Psychoactive Substances) in Thailand. 2017. *Thai Food and Drug Journal, 24*(3), 4–6. Retrieved from https://he01.tci-thaijo.org/index.php/fdajournal/article/view/140254

Online Manager. *Warning to teenagers! Smoking lotus petals instead of marijuana has no intoxicating properties.* 26 Sep. 2019. Retrieved from https://mgronline.com/onlinesection/detail/9620000092834

Survey on Immunity-Based Factors, Contextual Factors, and Risk Behaviors Related to Drug Use Among Children and Youth Aged 13-15 Years

| **Assoc. Prof. Dr. Wilailak Langka, Assoc. Prof. Dr. Narissara Puengphosop, Assoc. Prof. Dr. Khwanying Sriprasertpap, Assoc. Prof. Dr. Itthipat Suwatanpornkul, Assoc. Prof. Dr. Patcharaporn Srisawad, Asst. Prof. Dr. On-uma Charoensuk, Asst. Prof. Dr. Tawika Tangprapa, Asst. Manaathar Tulmethakaan, and Asst. Prof. Dr. Panida Sakoontanak. Srinakharinwirot University**

Abstract

This research is part of the Project on the Development of the Application for Monitoring Immunity-Based Factors, Contextual Factors, and the Risk Behaviors of Drug Use among Children and Youth Aged 13-15 Years. The main objective is to present the results of the survey on the level of immunity-based factors and contextual factors that are related to the risk behaviors of drug use among children and youth aged 13-15 years. The sample comprised 6,242 youths aged 13-15 years, who were recruited from the Bangkok Area Narcotics Control Office (Bangkok Area NCO) and Narcotics Control Office Region 1-9 (NCO Region 1-9) using multi-stage sampling. The data collection tool is the scale questionnaire designed to assess immunity-based factors, contextual factors, and risk behavior related to drug use among children and youth aged 13-15 years. The nature of the scale is a rating scale. The data analysis was performed using basic statistics, including frequency, percentage, mean, standard deviation, as well as inferential statistics for comparative analysis of mean differences, specifically the t-test and one-way ANOVA.

The research findings are as follows:

1. In the sample group of 6,242 children and youth aged 13-15 years, 4,614 had never tried drugs, whereas 1,628 had tried drugs. Among the latter group, 77.6 percent had tried alcohol, 45.1 percent had tried smoking, 28 percent had tried Kratom plants, and 17.2 percent had tried cannabis.

2. Generally, the sample group exhibited a relatively high level of immunity-based factors and all factors, including self-management, psychological capital, self-esteem, and self-power, across both subgroups: those who had never tried drugs and those who had experimented with drugs. The overall picture indicated that the children and youth aged 13-15 years demonstrated a low to relatively low level of negative contextual factors, including conformity, family violence, role models, exposure to media, attitude towards drug use, and recognition of drug-selling sources. On the contrary, it was found that they had a relatively high level of positive contextual factors, such as family power, power to create wisdom, peer and activity power, and community power.

Overall, the children and youth aged 13-15 years had a relatively low level of risk behavior, both among those who had never tried drugs and those who had. However, when considering individual aspects of behavior, it was found that the youth who had tried drugs exhibited a relatively high level of "sense of seeking" and "impulsiveness," whereas the youth who had never tried drugs demonstrated a relatively low level of those behaviors. The children and youth aged 13-15 years who had never tried drugs and those who used to try drugs had different levels of immunity-based factors in terms of self-management, psychological capital, self-esteem, and self-power. The differences between these groups were statistically significant at the .05 level. Specifically, the group of children and youth who had never tried drugs demonstrated higher level of all immunity factors compared to the youth group who had previously try drugs. Moreover, the two groups also had different levels of contextual factors, which were negative factors including conformity, family violence, role models on drug use, exposure to media, attitude towards drug use, and recognition of drug-selling sources. The statistical significance was at .05 level. It was found that those who used to try drugs had a higher level of all negative contextual factors than those who had never tried drugs.

The children and youth aged 13-15 who had never tried drugs and those who used to try drugs exhibited significantly different levels of positive contextual factors, with a statistical significance level of .05. These contextual factors included family power, power to create wisdom, peer and activity power, and community power. It was found that those who had previously tried drugs exhibited significantly higher levels of risk behaviors compared to those who had never tried drugs.

Key words: immunity-based factors, contextual factors, and risk behaviors related to drug use.

Introduction

The strategic plan of the Office of the Narcotics Control Board (ONCB), has consistently carried out on both drug prevention and suppression. However, drug problems are crucial issue that affects people of all ages, and have the tendency to continually increase, especially among children and youth. Studies indicated an increasing prevalence of drug use among youth aged 15-19 years and those younger than 15. This trend is observed in both children and youth within the educational system and those outside of it, particularly at the primary and junior high school levels. In response to the drug problems affecting children and youth, and the theoretical issues in Thailand's reform in the field of sociality, one of the recommendations is to enhance mechanisms for drug prevention and develop approaches to prevent youth from engaging in drug use. (The Office of the Narcotics Control Board, online, the Office of the Permanent Secretary of Defense, 2014)

According to the study on the situation regarding immunity levels, contextual factors, and risk behaviors of drug use of 9,069 children and youth aged 13-15 years recruited by the Bangkok Area NCO and from the NCO Region 1-9, the sample was divided into two groups: 7,490 had never tried drugs and 1,579 had tried drugs. Among the latter group, 77.3 percent had tried alcohol, and 52.2 percent had tried smoking. This group of youth had a relatively high level of negative contextual factors, which included conformity towards drug users, family violence, exposure to role models of drug use, exposure to media related to drugs, and, more importantly, a "sense of seeking" and "impulsiveness." The

comparative result of immunity-based factors classified by drug trying showed that the youth aged 13-15 years who had never tried drugs exhibited a statistically significant difference at a level of .05. These immunity-based factors included self-management, psychological capital, self-esteem, and self-power. The youth who never tried drugs had a higher level of all immunity-based factors than those who used to try drugs. (Wilailaks Lanka et al., 2021)

The above-mentioned findings demonstrated that if the data on immunity-based factors, contextual factors, and risk behaviors of drug use are continually monitored, the ONCB will be able to compare these data against the established benchmarks from previous research (Wilailaks Langka et al. 2019). The interval of enhancement of the immunity-based factors could be identified to strengthen children and youth through all parties concerned. This would help to timely prevent the group from getting involved with drugs. The research team gave priority to the following-up survey of the situation on immunity-based factors and contextual factors to reduce the risk of drug use in children and youth, so that the concerned agencies, namely the Office of the Narcotics Control Board, Ministry of Education, Ministry of Justice, and Ministry of Social Development and Human Security, could make use of the data for preventing and screening the problem of drug use.

Objectives of the Research

This research aimed to conduct a survey of the situation on the level of immunity-based factors and contextual factors affecting the risk behaviors of drug use among children and youth aged 13-15 years.

Literature Review

In conducting the survey of the situation on the level of immunity-based factors and contextual factors towards risk behaviors of drug use in children and youth aged 13-15 years, the group of variables was developed from the Research on the Development of the Indicators of Immunity-Based Factors, Contextual Factors, and Risk Behaviors of Drug Use of the Children and Youth Aged 13-15 Years under the Project on the Research and Development of the System for Monitoring the Situation on Immunity-Based Factors and Contextual Factors to Reduce Drug Demand among High-Risk Children and Youth (Wilailaks Langka, 2019). The study was based on the Social Learning Theory of Bandura (1997) and the Life Assets of Suriyadhev Tripati (2012). The immunity-based factors, which are variables in reducing the drug use behavior of children and youth, comprise four variables: 1) Executive Functions (EF), 2) self-esteem, 3) psychological capital, and 4) self-power. The contextual factors, which are contextual variables to increase or reduce the opportunity for drug use behavior among children and youth, comprise two sets of variables. First, the variables that increase the likelihood of drug use behavior include 4 variables, namely: 1) family violence; 2) exposure to the role models of drug use; 3) exposure to media related to drug use; and 4) positive attitude and feeling towards drug use, both intending to do or get involved with drug use. Second, the variables that reduce the likelihood of drug use behavior among children and youth, which are the variables of life assets of Suriyadhev Tripati (2012), comprise 4 variables, namely: 1) family power, 2) wisdom power or educational institute power, 3) peer and activity power, and 4) community power.

Study Methods

This research aimed to conduct a survey of the situation regarding the level of immunity-based factors and contextual factors affecting risk behavior related to drug use among children and youth aged 13-15 years. The study methods were as follows:

Population

The population were children and youth aged 13-15 years recruited by the ONCB, Bangkok Area NCO, and NCO Region 1-9.

Sample Group

The sample group for this research comprised 6,242 children and youth aged 13-15 years, recruited from the Bangkok Area NCO and the NCO Region 1-9. The sample size was determined using the ready-made table by Sirichai Kanjanawasi et al. (2016), with the confidence level at 95 percent and a margin of error of +/- 5 percent. To prevent loss of data and to ensure the reliability and representativeness of the sample for the 13-15 age group in each region, the researchers set a minimum sample size of 400 participants per region. The final sample size of 6,242 was achieved through multi-stage sampling.

Data Collection Tools

The data collection tools for the situation on immunity-based factors and contextual factors influencing risk behaviors related to drug use among children and youth aged 13-15 years old were derived from the research by Wilailaks Langka et al. (2019). The tool which was a rating scale, which comprised the following:

1. The Tool for Immunity-Based Factors, which included self-management, self-esteem, psychological capital, and self-power;

2. The Tool for Contextual Factors, which included family violence, exposure to the role models of drug use, exposure to media that related to drug use, attitude towards drug use, family power, wisdom power, peer and activity power, and community power.; and

3. Risk Behaviors related to Drug Use, which included sensitivity towards anxiety, a sense of seeking, and impulsiveness.

Implementation Methods

1. The research team convened to establish the implementation framework.

2. Data on the situation of immunity-based factors, contextual factors, and risk behavior related to drug use were collected from a sample of 6,242 children and youth aged 13-15 years old recruited by Bangkok Area NCO and NCO Region 1-9.

3. The collected data were analyzed and graphical representations were created to facilitate the interpretation results.

4. A thorough research report was prepared according to the results of the study.

Data Analysis and Statistics

The quantitative data from the rating scale questionnaire were analyzed using basic statistics, namely frequency, percentage, means, standard deviation, and inference statistics, for conducting comparative analysis to evaluate difference in means, which includes t-test and one-way ANOVA. .

Results of the Study

1. The results of the study on immunity-based factors, contextual factors, and risk behavior related to drug use among children and youth aged 13-15 years.

The sample group used in this analysis were 6,242 children aged 13-15 years recruited by Bangkok Area NCO and NCO Region 1-9. It was divided into 2 groups: the first group comprised 4,614 children and youth who had never tried drugs, and the second group comprised

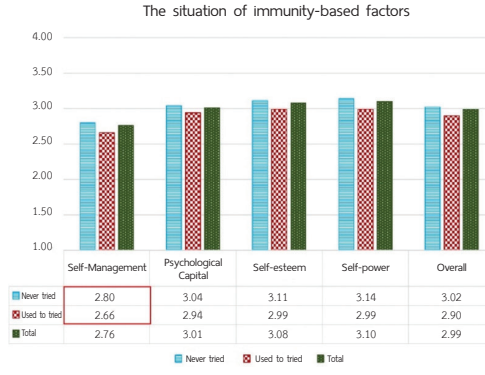
1,628 children and youth who had tried drugs, of which 77.6 percent had tried alcohol drinks, 45.1 percent had tried smoking, 28 percent had tried Kratom, and 17.2 percent had tried cannabis.

The children and youth aged 13-15 years, across all groups, both those who had never tried drugs and those who had, exhibited a relatively high level of overall immunity factors, including self-management, psychological capital, self-esteem, and self-power. In general, the children and youth aged 13-15 of both groups exhibited a low to relatively low level of contextual factors, which were negative factors (conformity, family violence, role models of drug use, exposure to media, attitude towards drug use, and recognition of drug-selling sources). On the contrary, it was observed that the children and youth exhibited a relatively high level of positive contextual factors (family power, power in creating wisdom, peer and activity power, and community power).

The children and youth aged 13-15 years exhibited a relatively low level of risk behaviors related to drug use across all groups, including both those who had never tried drugs and those who had. However, when examining specific aspects of behaviors, it was observed that the children and youth who had tried drugs exhibited a relatively high level of "sense of seeking" and "impulsiveness", whereas those who had never tried drugs, exhibited a relatively low level. Statistical analyses revealed significant difference between the groups concerning immunity-based factors at a significance level of .05. The immunity-based factors included self-management, psychological capital, self-esteem, and self-power. It was also found that the children and youth who had never tried drugs exhibited a higher level of immunity-based factors than those who had tried drugs. For the children and youth aged 13-15 years of both groups, they had different levels of negative contextual factors at a statistical significance level of .05. These contextual factors included conformity, family violence, role models of drug use, exposure to media, attitude towards drug use, and recognition of drug-selling sources. It was also found that the children and youth who had tried drugs exhibited higher negative contextual factors than those who had never tried drugs.

The children and youth aged 13-15 who had never tried drugs and those who had tried drugs exhibited different positive contextual factors at a statistical significance level of .05. These factors included family power, wisdom power, peer and activity power, and community power. It was also found that the children who had never tried drugs exhibited higher levels of all these positive contextual factors than those had. Besides, both groups exhibited different levels of risk behaviors related to drug use at a statistical significance level of .05. The children and youth who had tried drugs exhibited a higher level of risk behavior for drug use, compared to those who had never tried.

The situation of immunity-based factors



The children aged between 13-15 years old **had rather high level of immunity factors** (self-management, psychological capital, self-esteem, and self-power).

Both groups of children who never tried drug and those who used to try drug should be strengthened on self-management.

Picture 1 : The Situation of Immunity-based Factors

The Contextual Factors (Negative)

The children aged between 13-15 years old had rather low level of contextual factors (Negative) The children **who used to try drug had higher** average on

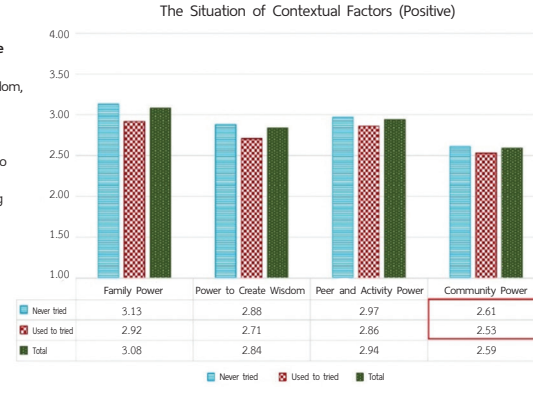
"The attitude on drug use" and "Recognition of drug selling source"

Picture 2 : The Situation on Contextual Factors

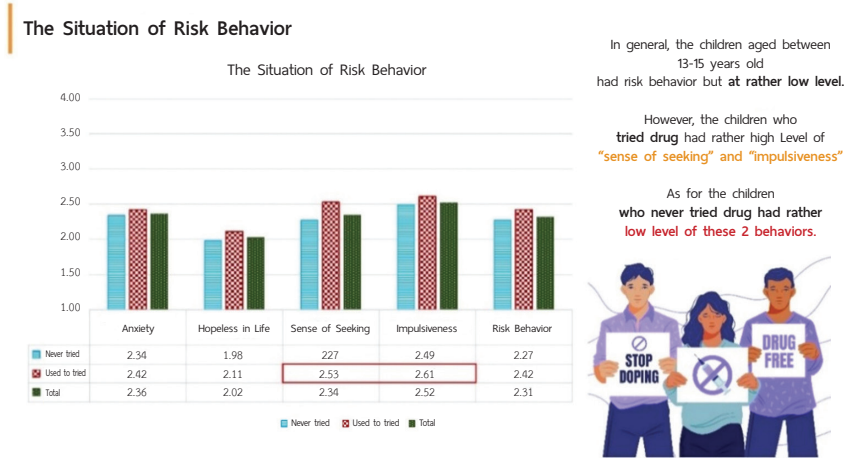
The Situation of Contextual Factors (Positive)

TThe children aged between 13-15 years old **had quite high level of positive context factors** (family power, power to create wisdom, peer and activity power and community power)

Both group of children, those who never tried drug and those who used to try drug should be strengthened on community power.



Picture 3 : The Situation of contextual Factors



Picture 4 : The Situation of Risk Behavior

Discussion on the Results

The research results revealed that the sample group of 6,242 children and youth aged between 13-15 years recruited by the NCO Bangkok Area, and NCO Region 1-9 comprised 4,614 children who had never tried drugs and 1,628 children who had tried drugs. Of these numbers, 77.6 percent had tried drinking alcohol, 45.1 percent had tried smoking, 28 percent had tried Kratom plants, and 17.2 percent had tried cannabis. When classifying the children into two groups: those who had tried drugs and those who had never tried drugs, it was found that both groups had different levels of immunity-based factors at a statistical significance level of .05. These immunity-based factors included self-management, psychological capital, self-esteem, and self-power. The children who had never tried drugs exhibited a higher level of immunity-based factors than those who had. Both groups also exhibited different levels of negative contextual factors at a statistical significance level of .05. These negative contextual factors included conformity, family violence, role models of drug use, exposure to media, attitude towards drug use, and recognition of drug-selling sources. It was also found that those who had tried drugs exhibited a higher level of all negative contextual factors than those who had never tried. Differences in peer groups surrounding the two groups of children resulted in varying risk factors. Children who had previously experimented with drugs exhibited higher risk factors for easy access to drugs. They conformed to the drug user group by observing their peers, seniors, or family members use drugs, so they were persuaded to conform to the drug use behavior. The context acted as a precipitating factor. The environment was another important factor influencing risky drug use behavior. This assumption was in line with the research of Kalayani Punnakhan (2013), which studied attitudes towards drug use, knowledge of drugs, and social environments that affected the risk behaviors of drug use in vocational students. The research clearly revealed that the social environment affected the risk behaviors of drug use.

As for the immunity-based factors of both groups, they had significantly different levels of immunity-based factors at a statistical significance level of .05. These immunity-based factors included self-management, psychological capital,

self-esteem, and self-power. It was also found that the children who had never tried drugs exhibited higher levels of all these immunity-based factors than those who had tried drugs. This might be due to the fact that the children and youth who had never tried drugs were in an environment in which no one around them was involved with drugs, leading them to have positive thoughts about themselves and be proud of themselves. Moreover, having life skills was another factor that contributed to preventing them from getting involved with drugs since they had the thoughts and skills to deal with the living situation and could avoid problems related to drug use. The importance of family in relation to drug use among children and youth was also pivotal. This was in line with the research by Pornpak Panpit (2019), which studied the factors affecting drug prevention among students in the non-formal education system of the Non-Formal and Informal Education Center. It was found that there were two factors influencing drug prevention behaviors, namely family relationships and attitudes towards drug use, which were ranked according to their influence on drug prevention behavior. Moreover, knowledge and understanding of drugs among the students do did not affect drug prevention behaviors. The research also found that the awareness of the dangers of drugs among students in each region was similar.

The children and youth aged 13-15 years exhibited a relatively low level of risk behaviors in both groups: thosewho had never tried drugs and those who had tried drugs. However, when analyzing individual factors, it was found that the group who had tried drugs had a "sense of seeking" and "impulsiveness" at a relatively high level, while thosewho had never tried drugs had a relatively low level of these behaviors. This was due to the risk behaviors of the children and youth who had tried drugs motivated by peers or seniors, and their own high sense of seeking and impulsiveness. Living among drug users, they believed that drug use was normal and not wrong, which led to curiosity and the desire to experiment. When children and youth were motivated, it became easy for them to imitate drug use, as they would like to be accepted and be a part of the group. With these environments and stimulators, children and youth would be motivated to try drugs. They had a mental desire for excitement and liked to take risks and experience challenges in life. Sometimes, they expressed their negative feelings and made quick decisions without careful consideration. These risk behaviors are in line with the concepts of Woicik et al. (2009: 1044-1045) and Robles-García et al. (2014: 1115), which explain that the nature of risk behaviors is the tendency to have behaviors that are harmful or dangerous to life, even though individuals are aware of their behaviors and have sensitivity to anxiety, rumination, or hopelessness in life, risk, and the challenges of living.

Acknowledgement

This research was financially supported by the Office of the Narcotics Control Board (ONCB).

Recommendations

Recommendations for Utilizing the Research Results

1. According to the survey comparison, it was found that the results of the 2023 survey regarding children and youth aged 13-15 years revealed a lower level of immunity-based factors, including self-management, psychological capital, self-esteem, and self-power compared to the 2021 survey. When examining negative contextual factors, the 2023 survey indicated an increase compared to 2021. These negative

factors included conformity with drug users, family violence, role models of drug use, exposure to drug-related media, attitudes towards drug use, and recognition of drug-selling sources. The agencies that are responsible for the development of children and youth, from the family, educational organizations, and community levels to the policy level, should organize activities to strengthen immunity-based factors and reduce negative contextual factors to further prevent drug-related risk behaviors in among the children and youth.

2. The ministries or agencies involved in the development of the children and youth aged 13-15 years could utilize an application to monitor immunity-based factors, contextual factors, and risk behaviors related to drug use among the children and youth aged 13-15 years to measure the level of immunity-based factors, contextual factors, and risk behaviors of drug use. The said information could then be used for developing plans to promote protective factors or prevent drug use risk in this population.

Recommendations for Future Research

1. There should be research and development of tools to monitor the level of immunity-based factors, contextual factors, and risk behaviors related to drug use among children and youth aged under 13 and over 15 years. These tools should be designed for longitudinal monitoring across multiple age ranges, providing crucial information for planning drug use prevention in children and youth.

2. There should be research to develop innovations for enhancing immunity-based factors or mitigating risk factors for drug use in children and youth aged 13-15 years, such as developing models to enhance EF through participatory approaches involving the children and youth in the area.

3. There should be the development of normative criteria that are in line with the changing social situation and cultural contexts so that the norms stay updated and reflect the accurate level of immunity-based factors, contextual factors, and risk behaviors related to drug use among children and youth aged 13-15 years.

References

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* New York: W.H. Freeman and Company.

Farrand, P., & Woodford, J. (2013). Impact of support on the effectiveness of written cognitive behavioural self-help: a systematic review and meta-analysis of randomised controlled trials. *Clinical Psychology Review, 33*(1), 182-195.

Kalayani Poonnakhandh (2013) *The Factor on Attitude towards Drug, the Knowledge on Drug and the Social Environment which Affects to Drug Related Risk Behavior of the Vocational Diploma Student in Nong Khai Province.* The 3rd Meeting to Present the research of the Graduate School of Sukhothaidhammadhiraj University, 1 - 14

Pornpak Panpit (2009) *The Factors that Effect on Drug Prevention Behavior of the Non-formal Students in the Non-formal and the Informal Education Centre of Phra Pradaeng District, Samut Prakan Province.* The Dissertation for M.A. (Social Science for Development), Bangkok. The Graduate School of Thonburi Rajabhat University.

Robles-García, Rebeca et al. (2014). *Spanish version of the Substance Use Risk Profile Scale: Factor structure, reliability, and validity in Mexican adolescents.* Psychiatry Research. 220: 1115.

Sirichai Kanjanawasi et al (2016) *The Choosing of Appropriate Statistics for Research,* Bangkok: Chulalongkorn University Printing House.

Sompoj Aemsuphasit (2019) *Theories and Techniques in Behavior Modification* (the 9th Edition, [re-printed issue].ed.). Bangkok, Chulalongkorn: University Printing House.

Suriyadev Tripati (2555) *Life Capital of the Thai Children and Youth* (the 8th Edition), Bangkok, Duan Tula Printing House.

The Office of the Narcotics Control Board. *The Strategic Plan on Drug Prevention and Control B.E.2558-2562* https://www.oncb.go.th/Home/PublishingImages/Pages/ProgramsandActivities/strategic_plan2558-2560.pdf

The Office of the Permanent Secretary of Defense (2014) *Opinion Frame on Thailand's Social Reform.*

Wilailaksana Langka et al (2019) *The Study Research and Development of the System for Following-up the Situation on Immunity Factors and Contextual Factors to Reduce Drug Demand in the High Risk Student and Youth Group: the 1st Phase,* Faculty of Education, Srinakharinwirot University.

Woicik, Patricia A et al. (2009). The substance use risk profile scale: A scale measuring traits linked to reinforcement-specific substance use profiles. *Addictive Behaviors. 34:* 1044-1045.