THE SOCIETY AND PEOPLE

Original Article/Research

THE SOCIETY AND PEOPLE

ISSN Online:
Volume 1, Issue 1, pp. 25-38
APRIL- JUNE 2026
https://doi.org/xxxxxxxxxx

Drug Trafficking, Security Threats, and Impacts on Youth: A Comprehensive Review

Dr. Kuldeep Verma[1]

Author Information:

[1]Assistant Professor, Department of Defence and Strategic Studies, Hindu College Moradabad/ Guru Jambheshwar University Moradabad, Uttar Pradesh India- 244001
Correspondence:
deepverma1@hotmail.com

Article History:
Received: April 11,2026
Revised: April 17, 2026
Accepted: April 21, 2026
Published Online: April 23, 2026

Keywords

Drug trafficking, Organized crime, Security threats, Youth vulnerability, Transnational crime, Violence, International cooperation

ABSTRACT

Drug trafficking is one of the most acute transnational security issues of the 21st century and has far-reaching consequences to the youth populations worldwide. This is a comprehensive review of the existing literature that studies the nexus between drug trafficking networks, security vulnerabilities, and youth vulnerability. These include epidemiological, trafficking, and criminal network structure, security implication on nations and communities, and the multifaceted effects on the youth. The main conclusions are that the drug trafficking business produces more than 400 billion dollars of revenue annually all around the world stimulating organized crime, state institutions corruption, violence and instability. The youth populations are vulnerable to various interrelated factors: direct entry into trafficking groups, the experience of violence related to drugs, an increased risk of addiction, social destabilization, and a decreased rate of development. The geographic areas of focus such as the Southeast Asia, South Asia, Latin America, and Africa indicate the way in which trafficking networks take advantage of institutional vulnerabilities and geographic vulnerabilities. The paper will explore such security threats as cartel violence, state capture, terrorism-trafficking nexus, and community destabilization. International responses to interventions which have to be evidence-based, supply-side interdiction, demand reduction, development of alternative livelihoods and youth-based prevention strategies are critically analyzed. This review shows that the challenge of drug trafficking needs a multi-faceted security and public health strategy that acknowledges the protection of youth as a top priority. The future directions of research are longitudinal studies on the trauma of trafficking, assessment of the youth-focused intervention, and analysis of new threats such as the production of synthetic drugs and networks of the dark web distribution.

Introduction

Drug trafficking is one of the characteristic security issues of modern international relations, producing around $400-500 billion of illegal revenues every year that can compete with the GDP of most nation-states. According to the United Nations Office on Drugs and Crime, it is estimated that globally, about 275 million people have used drugs in the last one year, and that about 36 million have drug use disorders which need to be treated. These aggregate statistics hide an important fact: drug trafficking networks are highly developed multinational corporations that are as powerful as legitimate companies, but are hidden in the context of security and public health crises that destabilize communities and put the lives of young generations at risk.

A very acute vulnerability is the overlap of drug trafficking and youth. The youth, who at this point are defined as persons between the ages of 10-35 years, are in a dual role in the drug trafficking ecosystems: as those whose profiles are sought after by criminals and recruiting them to crime networks and as those who are at increased risk of addiction, exposure to violence, and developmental derailment. International Labouré Organization approximates that around 160 million children in the world are employed under exploitative

circumstances with major proportions being engaged in drug production, trafficking and distribution. At the same time, consumers in the youth markets are at a growing risk of addiction, with trafficking networks using advanced marketing techniques that attack the teens and young adults via social media and street-based distribution.

This review will discuss the intricate nexus of drug trafficking, security considerations, and youth effects. It includes: (1) epidemiological trends and trafficking pathways; (2) organizational framework and criminal networks; (3) security risks such as violence, corruption, and state capture; (4) direct and indirect effects on young people; (5) geographic disparities across geographical regions; and (6) evidence-based interventions. The analysis combines the insights of criminology, security studies, public health, sociology and development economics to offer a holistic understanding of this complex international issue.

2. Drug Trafficking: Size, Trails and Structures.

2.1 International Scale and market dynamics.

Drug trade is one of the largest illegal markets in the world, with the value of the global drug trade estimated by the UNODC to be between 400-500 billion a year. This number is more than the legitimate pharmaceutical market in the world and is equal to the sum of military expenditure of most developed countries. The market has a variety of substance groups: opioids (heroin, morphine, prescription opioid diversion), cocaine, amphetamine-type stimulants (ATS), cannabis, and more synthetic substances such as fentanyl and novel psychoactive substances (NPS).

The opioid market has the highest revenue and burden on health to the population. It is estimated that about 115,000 people die each year due to opioid overdose in the world, and North America has a high rate of the issue. An example of how trafficking networks harness technological capacity to manufacture highly potent and lower-weight substances to allow them to be more profitable and effective in distribution is the fentanyl crisis, where illicit fentanyl has entered the supply chains of heroin in North America and Europe. On the other hand, the cocaine business rakes in about 150 billion-dollar yearly incomes in North and South American countries and the amphetamine type stimulants are a 40-50-billion-dollar industry in Asia and Oceania.

Permitting cannabis in a few jurisdictions (Canada, Uruguay, and several states in the U.S.) has established complicated market forces. Although legal markets decrease the pressure of trafficking in legalized states, the existence of illicit cultivation and trafficking of cannabis is caused by price disparities, evasions of taxation, and unregulated access to products. The legal and illegal cannabis market is over $100 billion/year in the world, which is a huge amount of revenues of trafficking in those areas where it is prohibited.

2.2 Trafficking Pathways and Geographic Corridors

Drug trafficking exists in regular geographic routes that are efficient in transport and avoidance of enforcement. The second-largest opium-producing region in the world, the Golden Triangle (Myanmar, Laos, Thailand border region), is producing about 10 percent of the heroin in the world. About 80 percent of the world illicit opioids are produced in the so-called Golden Crescent (Afghanistan, Pakistan, Iran), and the production of Afghan opium grows significantly since 2001 despite counter-narcotics activities by the U.S./NATO.

The trafficking routes of cocaine start in Colombia, Peru and Bolivia, and pass-through Central America and Mexico to North American and Caribbean markets. Modern trafficking uses diversified sea routes using submarines, semi-submersible boats (narco-subs) and sea container boats. The transshipment centers of the Caribbean such as Jamaica, Haiti and Puerto Rico act as consolidation centers to be transported to North American markets.

Stimulants of the amphetamine type, especially methamphetamine, are manufactured in underground laboratories across Asia (China, Myanmar, Mexico) and delivered via an overland route to Oceania, East Asia, and, more recently, Africa. The production capacity of synthetic drugs has been established by the Mexico based criminal networks (Sinaloa Cartel, Jalisco New Generation Cartel, Gulf Cartel) producing domestic supply as well as trafficking cocaine.

The fentanyl and other synthetic opioids are a new trafficking front. The fentanyl precursor chemicals produced in China and India are reportedly exported to secret laboratories (concentrated in Mexico and Canada) to be transformed to fentanyl powder and pills. These 50-100 times more potent than heroin are sold by legitimate supply chains (diverted pharmaceuticals), street-level dealers, and dark web markets. The case of fentanyl trafficking network demonstrates how the trafficking organizations adjust to the enforcement and market pressures with the help of the technological and chemical innovation.

2.3 Criminal Network Organization and Hierarchies

Drug trafficking groups have varied organizational patterns based on market forces, geography and force of enforcement. The classic hierarchical cartel type, such as the old Colombian cartels, and the modern Mexican cartels, is characterized by strict hierarchies of command, demarcated territories, and vertical production to retail distribution. Such organizations become rich enough to corrupt state institutions, purchase military-grade weapons, and be able to commit large-scale violence.

On the other hand, Southeast Asian trafficking networks are often organized in decentralized forms having fluid membership, functional units of specialists (production, transportation, distribution, money laundering), and low levels of hierarchical integration. Such organizational flexibility increases the level of resilience to law enforcement disruption and decreases efficiency in coordination. The intelligence services note that most middle-level trafficking networks have the flexibility of operations in terms of independent specialists who are hired on a transactional basis and not as members of an organization.

Transnational criminal groups (TCOs) are starting to exhibit the features of legitimate multinational companies: elaborate supply chain management, quality control, market segmentation, brand differentiation, and technological innovation. An example is the Sinaloa Cartel, which has production plants, distributive channels in various countries, security communication procedures, and has invested the money it makes out of trafficking in other legitimate businesses that allow money laundering and protection of property.

The analysis of communications intercepted on the network (emails, encrypted messages, financial documents) shows that the contemporary trafficking networks have elaborate management systems with specialized functions: logistics, financial, security staff, and communications expert. These organizations demonstrate organizational learning capability, adjusting its operational processes to law enforcement interference and implementing new technologies to ensure information security in communications and product development and distribution effectiveness.

The development of so-called narco-states or state-captured territories (Sinaloa regions of Mexico, Pacific departments of Colombia, the Shan State of Myanmar) illustrates how trafficking groups become able to meet the functions of a quasi-government. Criminal organizations in these situations make de facto territorial claims, offer social services and dispute resolution, tax collection, and armed forces. This geographical unification demonstrates the vast amount of money and organizational potential of large trafficking groups.

3. Security Implications and Threats

3.1 Violence, Criminalization and Public Safety Crises.

The drug trafficking breeds violence of a magnitude never before seen in the history of humanity not only as a means of enforcement but also as a defining element of trafficker identity and territoriality. The drug war in Mexico, which started with government escalation of counter-narcotics actions in 2006 has claimed the lives of about 250,000 people and 37,000 disappearances, and essentially destabilized the country. The violence is an expression of cartel fragmentation that has formed various armed groups that are competing over the territorial control and dominating the trafficking routes.

The dynamics of violence of trafficking go beyond cartel-to-cartel antagonism. The victims of violence include journalists who probe into trafficking, human rights activists who campaign against traffickers, witnesses to trafficking offenses, and family members to traffickers who are under pressure and coercion and community members living in areas occupied by traffickers. This form of terror operates psychologically, terrorizing communities into silence and acquiescence, and functionally, killing the sources of information, witnesses,

and opposition.

Territorial control of the retail drug markets is reflected in street-level violence in the neighborhoods populated by youth (gang territories, poor neighborhoods, entertainment districts). The youth in such settings are subjected to violence at all times: seeing shootings, going to funerals of their peers who were killed during drug-related fights, internalizing threat as the way of life. The resulting cumulative trauma due to this exposure to violence results in a developmental derailment, increased risk of stress-related diseases, and aggression.

3.2 Institutional Corruption and State Capture

Drug trafficking raises incomes that allow pervasive corruption of state institutions to levels that essentially weaken state capacity and democratic government. Mexican federal police, which has traditionally been a professional institution, was widely penetrated by cartel members; even whole police units were found to be cartel employees. Likewise, in Central American countries (Guatemala, Honduras, El Salvador), corruption extends to the presidential levels, where state officials have been recorded being paid direct payments by trafficking organizations.

Corruption has various mechanisms: paying off officials directly; extortion that creates coercion; blackmail that uses information that compromises; infiltration of security forces by traffickers of the operation of the trafficking organization; and institutional capture that creates complicity in whole agencies. The ensuing "narco-corruption" leads to institutional dysfunction: police forces that cannot keep order, judiciary that cannot prosecute cases, customs services that support and not stop trafficking, and intelligence services that are compromised State capture is not just limited to security institutions but also finance, judiciary and executive branches. In certain jurisdictions (parts of Mexico, Colombia, Central America), the trafficking groups have effective veto over state policies that influence drug enforcement, extradition agreements and confiscation of proceeds of crimes. This institutional corruption turns the law enforcement direction: rather than the state is chasing the traffickers, the traffickers practically are chasing and taking over the state institutions. The security consequences are far-reaching: citizens of captured states no longer trust police protection, the criminal justice system is unable to punish crime, and very basic state legitimacy is undermined. In captured-state situations, youth experience state withdrawal of protective and governance roles, lowering levels of civic trust and institutional participation.

3.3 Trafficking-Terrorism Nexus and Destabilization

There is growing evidence of links between drug trafficking networks and established terrorist networks, such as the opium taxation of the Taliban government in Afghanistan, the involvement of Hezbollah in drug trafficking of cocaine, as well as the historical coca production that controlled by the FARC. These relations work in various modes: territorial overlap in which trafficking organizations and terrorist groups share space; organizational collaboration in which trafficking finances terrorist activities; and organizational integration in which trafficking and terrorism are integrated.

This nexus is especially the case with the relationship between the Taliban and Afghan opium. The Taliban prohibited opium farming in the first place due to religious reasons (2000-2001), and later realized that opium taxation would be used to fund the insurgent activities. Modern day Taliban makes close to 200-400 million dollars per year by taxing opium, which provides them a degree of financial independence and allows them to continue insurgency. This trafficking-terrorism nexus is a direct cause of Afghan instability and continuity of armed conflict impacting millions of civilians.

In Colombia, during the FARC period of involvement in both coca production and cocaine trafficking, about 60 percent of the revenue generated by the organization was used to finance armed forces, procurement of weapons, and establishing control over the territory. The subsequent disintegration and dispersal of the FARC gave rise to various successor groups that kept on trafficking cocaine which ensured violence and instability even after the formal de-commissioning of FARC.

Trafficking helps designated terrorist organizations in several ways: direct income to fund activities, logistical capability using existing trafficking systems and recruitment through networks of traffickers. On the other

hand, terrorist organizations have an advantage in the form of security, territorial protection, and access to military capabilities in the trafficking organizations. This symbiosis relationship produces destabilization effects that are greater than the individual effect of each phenomenon.

3.4 Economic Destabilization and Money laundering.

Drug trafficking produces huge amounts of money that need to be exchanged into apparent financial resources. Money laundering, which involves the use of illegal gains to hide them by passing them off as legitimate income, is one of the most essential elements of trafficking that allows individuals to protect the assets, reinvest the money, and amass wealth.

Money laundering functions in various ways: trade-based laundering (over/under invoicing genuine commodity trade), casino and gambling venues cash deposits, real estate property purchase, business investment, manipulated banking sector and hawala/informal value transfer systems. According to estimates given by the Financial Action Task Force, money laundering involves currency that amounts to between 800 billion to 2 trillion dollars every year with a significant percentage of the money being earned by drug dealers. Money laundering can affect economic security in several ways: asset inflation disrupting legal markets (inflation in real estate prices in drug-trafficking centers); destabilization of financial systems due to the large deposits of cash which leads to banking crises; and a misallocation of economic resources to unproductive criminal activities. In some developing countries where financial regulation is less strict, drug smuggling incomes may surpass legal foreign direct investment, which leads to an economic addiction to illegal trafficking and organizational adjustment to traffickers.

The merging of trafficking groups with respectable business makes it difficult to draw the line between licit and illicit economies. Hotel, restaurant, construction, and financial services companies owned by traffickers establish two-economy systems where criminal and legal businesses overlap. This integration enables money laundering and offers legitimate jobs in the enterprises being trafficked, making interdiction by law enforcement more difficult.

4. Youth Vulnerability and Direct Impacts

4.1 Recruitment and Involvement in Trafficking Networks

Youth are actively recruited into drug trafficking networks, which see several organizational benefits: cognitive development patterns that lead to a low-risk perception; minimal criminal record that allows street-level participation; physical dexterity that allows them to escape police; social network peer recruitment ability; and lowered risk of sentencing in most jurisdictions. Recruitment on the street takes place by peers, family members and organized by trafficking organizations who establish a presence in the youth-saturated regions.

Grooming mechanisms are commonly used in the recruitment process: they include initial exposure to low-risk activities (lookout positions, message delivery); exposure to more risky activities; the creation of debt by advances and by borrowing; coercion by violence or targeting of family members. Recruitment happens to youth, especially those who feel socially marginalized, economically deprived or dysfunctional family life, as an opportunity, access to material resources, social status in peer networks and perceived protection.

Research looking at the experience of young people in traffic records the pattern of progression: first entry due to economic need or peer pressure; growing organizational commitment and division of labor; and the growth of an organizational identity and career path in the traffic networks. Studies on gang-involved youth indicate that 30-40% of gang members use drugs distribution as their main source of income, and the recruitment of trafficking networks offers other options to well-paid jobs in situations with low opportunity.

Participation of young people in cultivation phase trafficking (opium and coca cultivation in Afghanistan and Andean region) is especially exploitative recruitment. According to UNODC reports, about 30-40 percent of opium growers in Afghanistan are children, who are employed in agricultural production within the coercive conditions with low pay. Likewise, in coca-producing areas of Colombia and Peru, child labor is a normalized part of the production processes.

4.2 Risk of addiction and vulnerability to substance use.

Addiction vulnerability is high among youth populations because it occurs through various pathways: neurobiological developmental pathways that result in increased sensitivity to rewards and decreased impulse control; social environments that can normalize substance use; and overt targeting of trafficking networks through the use of product placement and marketing strategies.

The brain of the adolescent, especially the prefrontal cortex that controls impulse and evaluates risk, does not develop completely till the mid-twenties. This developmental path predisposes vulnerability to addiction: young people are less able to consider the long-term outcomes, become more impulsive, and more susceptible to peer pressure. At the same time, the motivation of reward-seeking is the highest among adolescents, and neurobiological preconditions of addictive behavior are formed.

Trafficking groups actively engage youth markets in various ways: they price their products at accessible youth prices; use social media marketing with youth-friendly messages; they set up distribution in youth-saturated settings (clubs, schools, entertainment districts); and they employ youth distributors who help to normalize substance use among their peers. Modern trafficking enterprises with dark web markets specifically target the youth, using branding and distribution techniques of their products and services aimed at the right age target audience.

The North American opioid crisis is a good example of a traumatized youth addiction network by trafficking networks. In its aggressive marketing, pharmaceutical companies accepted the use of opioids to treat pain. Since the implementation of prescription opioid controls, illicit heroin was replaced by trafficking networks, which were later replaced by fentanyl. The young people, especially those who had earlier been exposed to opioids by prescription drugs, were faced with a very high risk of addiction. Modern fentanyl trafficking is aimed at young people using fake pharmaceutical drugs (imitation Adderall, OxyContin, Xanax with fentanyl) to cause overdoses among young people who did not use illegal drugs previously.

4.3 Trafficking-Related Violence Exposure and Trauma

Traffickeness exposure to violence among youth in the communities with trafficking is endemic and has caused extreme developmental and psychological effects. American Psychiatric Association records that about 60-90 percent of the young people in high-violence neighborhoods have experienced serious violence, and as much as 30-50 percent experienced direct violence victimization.

Exposure to violence has produced numerous reported effects: post-traumatic stress disorder (PTSD) with rates of 30-40% of violence-exposed youth; depression and anxiety symptoms; dysregulation of behavior; disruption of academic performance; and chronic changes to the physiology of stress. Neuroimaging research indicates that youth who are exposed to violence show an atrophy of the hippocampal and prefrontal cortices which is in line with the neuroanatomy of PTSD.

The violence associated with trafficking is not similar to that of community violence because of the aspects of deliberateness, intensity, and the character of the perpetrators. Youth would find it easy to identify the perpetrators of drug market violence because it would not be an anonymous person but a part of their community. The violence associated with trafficking often specifically targets youth: rivals in distribution chains, observers of trafficking-related violence, or victims of the violence who are coerced to play psychological intimidation roles. The outcome is an extreme loss of a feeling of security, certainty and communal confidence.

4.4 Educational Disruption and Developmental Consequences

The existence of drug trafficking in the communities interferes with the schools in several ways: the exposure to violence on the part of teachers and students makes the school less safe; students are forced to participate in the drug trafficking and create gaps in attendance, substance availability on the school grounds and in neighboring areas causes gangs/trafficking networks to claim territories around the schools, making them a contested area.

Young people who are in the networks of trafficking have a problem of time allocation between education and

trafficking activities. Drug dealing at street level involves daily presence and school attendance is not compatible with drug trafficking. The economic benefits of trafficking (daily incomes that are higher than monthly minimum wage in most situations) pose rational choice issues to the economically disadvantaged youth: should they invest in education with unpredictable outcomes or get a guaranteed income in trafficking with predictable gains.

4.5 Initiation into Gang and Trafficking Organizations.

Trafficking networks often coincide or rely on gang networks to distribute at the street level. Gang activity offers trafficking networks centered on recruitment, distribution and trafficking offers gangs primary source of income. The outcome is the integration of gang-trafficking where the identity of gangs is linked with trafficking activities.

Youth gang involvement has developmental trends, whereby gang membership often starts between 10-15 years of age and the rate of participation in trafficking escalates with age and length of gang membership. Longitudinal research of gang-involved young people indicates that about 50-70% of gang-involved youths involved in drug distribution at some time with gang-affiliated drug distributors showing lower initiation ages (average 13-14 years) than their non-ganged counterparts.

The integration of gang-trafficking presents specific vulnerability among the youth: increased exposure to violence by the gang conflict; increased coercion and pressure to intensify participation; fewer avenues of exit because of the gang loyalty system; and increased law enforcement interest leading to incarceration risk. Young people seeking to leave gangs are often faced with coercive force and violence, and generate trapped narratives in which they seem unable to leave.

5. Geographic Diversity and Local Effects.

5.1 Latin America: Cocaine Trafficking and Violence

The violence associated with trafficking has never been of such magnitude in Latin America, and since 2006, Mexico, Colombia, and Central American countries have suffered over 250,000 deaths due to drug wars. The cocaine business, valued at 100-150 billion/year, is concentrated in the area: the production is based in Colombia, Peru and Bolivia.

Mexico holds a very strategic place as the main transshipment point of cocaine to the North American markets. Mexican trafficking groups (Sinaloa Cartel, Jalisco New Generation Cartel, Gulf Cartel and fragmenting smaller organizations) take control of territory, transshipment operations and distribute retail. The violence that results is territorial fragmentation as various groups fight over the control of the corridors.

The young people living in Mexican trafficking areas are subjected to several types of violence: cartel-to-cartel violence; state-cartel conflicts; violence against communities that tried to resist cartels; and violence against journalists, human rights groups, and anti-trafficking organizations. In modern day Mexico, youth homicide is at high rates with drug trafficking being a causal factor of 40-50 percent of all male deaths between 15-29 years in high-trafficking areas.

The countries of Central America (Guatemala, Honduras, El Salvador) are also the transshipment routes and the sales market, where the government is powerless to keep cartels at bay. The integration of gang-trafficking in Central America develops specific violence, where maras (transnational gangs) are the foot soldiers in trafficking. In Central American trafficking areas, young people are exposed to cartel and gang violence and this poses a security risk.

5.2 South and southeast Asia: Opium, Heroin, and Synthetic Drugs

The second largest opium producing area in the world is southeast Asia, specifically the Golden triangle (Myanmar, Laos, Thailand). The pathways of opioid trafficking in Afghanistan pass by Pakistan and Iran and lead further into Central Asia to Russia and Western Europe. The area is exhibiting the growing production of synthetic drugs (methamphetamine, ecstasy) forming polysubstance trafficking patterns.

The production of opium in Myanmar and Laos entails a large amount of child labor and exploitation. UNODC

reports show that in Myanmar an estimated 30-40 percent of the opium growers are children who engage in agricultural production that poses health risks and developmental imbalance. The economics of the opium farming in poor areas, opium is the 70-80 percent of the farmer income, induce structural reliance on the trafficking networks.

The introduction of methamphetamine manufacturing in Myanmar and distribution within the South East Asian and Oceania regions is a new trafficking frontier. Young people in the affected areas have access to highly addictive, cheap drugs and the consumption of methamphetamines among youths in Thailand and Myanmar is soaring. The production lab explosions, the territorial fights among production networks, and the violence related to markets controlled by young users all create violence in the methamphetamine trafficking. South Asia (India, Pakistan, Bangladesh) will serve as transit area and consumer market. The trafficking routes of Afghan heroin run through Pakistan to India and to the Southeast Asian and Oceania consumer markets. The destabilization of Pakistan is seen through corruption and violence of criminal organizations because of trafficking. India is experiencing an increasing opioid use among the youth and a growing fentanyl-contaminated heroin, putting the possibility of an overdose at levels that might have been restricted to North America and Europe.

5.3 Africa: Emerging Trafficking Threat and Youth Impacts

Africa is a new trafficking frontier with the organized crime networks creating distribution infrastructure and domestic production capacity. The West African countries (Guinea, Guinea-Bissau, Senegal, Ghana) act as transshipment centers of the cocaine that is heading to Europe. The weak state capacity within these countries facilitates the freedom of the operations of traffickers with little pressure of enforcement.

African countries are witnessing an increase in the number of youths getting involved in trafficking as traffickers build networks of distributors at the local level and recruit agents. The demand side effects (availability of cocaine, heroin and synthetic drugs) and supply side effects (pressure to recruit and violence associated with trafficking) are felt by youth in West African trafficking areas. Trafficking disrupts social fabric at a rate that is faster than the ability of the state to address the situation, leading to institutional collapse in areas with high levels of trafficking.

Synthetic drug trafficking and local production occur in Southern African countries (South Africa, Botswana). The example of the introduction of the so-called tik (methamphetamine) in the South African communities shows that trafficking networks can localize products and tik production occurs in their secret laboratories, and distribution is carried out through the existing crime networks. Young people in these areas are exposed to addiction to highly addictive and powerful substances and treatment facilities are minimal.

6. Trafficking and Global Security: Transnational Implications

6.1 International Border Security/Interdiction

Drug trafficking is a major issue of international border security because criminal groups transport tonne amounts of drugs across national borders. Contemporary-day trafficking uses diversified pathways and modes of transport: commercial shipping containers, air transport (chartered flights, commercial flights with hidden cargo), maritime semi-submersible shipping, overland transportation, human smugglers.

The complexity of modern trafficking operations implies organizational strengths that are similar to legal supply chain operations. Trafficking networks have contingency plans regarding interdiction, contingent routes, alternative transport means and backup communications/networks. Intelligence agencies estimate that traffickers are able to move around 85-90 percent of the production to consumer markets, interdiction by law enforcement agencies has an impact on 10-15 percent of all trafficking.

Border security interdiction needs to be technologically advanced (scanning machines, surveillance), manpower (well-trained detectives), and intelligence data (knowledge of routes, activities of trafficking organizations). There are a large number of developing countries that are not able to conduct successful border interdiction and allow passage of trafficking. At the same time, advanced countries with well-developed border protection see the development of the trafficking groups, which manage to adjust to the new environment by

digging tunnels (Mexico-U.S. border), using drone delivery, and transporting submarines/ semi-submersible vessels.

6.2 Financial System Weaknesses and Regulatory Problems

Integration of drug trafficking with financial systems is an important security risk since drug trafficking groups take advantage of the gaps in banking systems and inadequacy of regulations. Money laundering through correspondent banking relationships, shell corporations, and businesses that are cash-intensive are hard to detect. The Financial Action Task Force projects that the present anti-money laundering systems only identify 1-2 percent of illegal financial flows.

Cryptocurrencies and digital finances also open some new ways of money laundering, where dark web markets can offer a direct sale of drugs and payment via Bitcoin and other cryptocurrencies. According to law enforcement agencies, out of 10-15 percent of transactions of dark web marketplaces, about 10-15 percent are related to the trade of narcotics, and digital money allows a way to transfer money anonymously and avoid traditional monitoring.

International regulations (Basel Accords, Financial Action Task Force recommendations) seek to enforce standards of anti-money laundering in an international context, although application is quite uneven. Weak financial regulation or corruption that facilitates infiltration of the banking system by them is a money laundering haven. The outcome is further exposure of global financial systems to illicit financial flows, caused by trafficking.

6.3 Immigration and Human Trafficking Nexus

Drug trafficking often runs parallel to human trafficking organizations, and there is even a similar overlap in the organizational structure, transportation channels, and corruption systems. Traffickers who operate human smuggling networks to transport both operatives and product at the same time, where human trafficking is the secondary source of income of trafficking organizations.

Young people are some of the most vulnerable groups in the context of human trafficking, as trafficking gangs recruiting and forcibly enslaving youth to sell drugs and sex. The coercion of trafficking generates debt-bondage that makes the youth accumulate unpayable debts that have to be paid through an increasing activity of crime.

7. Evidence-Based Interventions and Response Strategies

7.1 Supply-side Interdiction and Enforcement

Examples of supply-side measures to control drug manufacturing and drug trafficking networks include: crop eradication; interdiction of clandestine laboratories; disruption of trafficking organizations; and seizure of proceeds of crime. Supply-side interventions have been shown to have temporary disruption, an adaptation and replacement effect.

Crop eradication in opium and coca producing areas creates large human costs (ecological effects, disruption of livelihood, violence meted on eradication staff) but has little long-term impact. According to UNODC reports, opium production in Afghanistan is still growing despite the billions of U.S./international counter-narcotics funding as well as massive eradication efforts. The root cause, which is economic reliance of farmers on the production of opium under conditions of a low level of alternative income, remains regardless of enforcement.

Synthetic drug production is the focus of clandestine laboratory interdiction, where the production of fentanyl, methamphetamine and MDMA are seized by law enforcement. Nevertheless, the ease of manufacturing synthetic drugs (laboratories do not take up too much physical space and equipment) allows substituting them quickly after interdiction. The replacement of labs by intelligence agencies is estimated as weeks to months thus restricting interdiction effectiveness.

Attack on the trafficking organizations by arresting, seizure of assets and destroying the leadership structures only disrupts operations but rarely destroys organizations. Successor leadership is usually formed in the

shortest time possible and organizational knowledge and capabilities enable continuation of operations. According to some studies, disrupting key trafficking groups in a violent manner enhances violence by fragmenting the organization and creating territorial conflicts.

7.2. Demand-side Reduction and Treatment

Demand-side interventions targeting substance use reduction include: prevention education; substance use disorder treatment; and harm reduction strategies. It has been proven that demand-side interventions have long-term behavioral effects and population health outcomes.

Skill-based prevention programs that use peer resistance training, and life-skills training have proven to be 20-40% less effective in preventing substance initiation in rigorous trials. The effectiveness of both school-based and community-based prevention programs is proven, but the quality of implementation is significantly different. The developmentally-appropriate youth-specific prevention (adolescent brain maturation, social factors) will have better results than generic population-based message. The application of cognitive-behavioral therapy, motivational interviewing, and medication-assisted treatment (in opioid dependence) to the treatment of substance use disorders has proven to be highly effective (with 40-60% attaining long-term recovery). Nevertheless, the level of treatment capacity is grossly inadequate in the world compared to the prevalence of disorders. High-impact intervention strategy is to expand access to treatment.

Needle-syringe programs, supervised consumption facilities, naloxone distribution, harm reduction strategies are less abstinence-based and lower disease transmission and overdose mortality. It has been proved that harm reduction measures cut HIV, and hepatitis C transmission by 50-80 and 60-70 percent respectively. These interventions can be used to reach substance-using populations that are challenging to access using abstinence-based interventions.

7.3 Prevention and Alternative Livelihood Development that is Youth specific

Interventions to prevent trafficking recruitment vulnerability among the youth include: developing alternative livelihoods that offer income replacement of trafficking; skills training and vocational development of the youth; access to education and mental health services. It has been shown that increasing economic opportunities can decrease the number of people recruited into trafficking significantly.

Youth trafficking involvement is also decreased by 30-50 percent among program populations in conditional cash transfer programs in which income depends on school attendance, indicating economic deprivation is a key driver of recruitment. Equally, employment opportunities and vocational training sessions that equip individuals with marketable skills and employment opportunities decrease the involvement of at-risk youths in trafficking.

Mental health and psychosocial services targeting youth (underlying psychological vulnerability (depression, anxiety, trauma) that form trafficking vulnerability). Evidence-based treatment such as trauma-focused cognitive-behavioral therapy has been shown to be effective in the treatment of symptoms and resilience.

Protective factors are youth programs that use mentorship, recreational and pro-social skill building, using community-based programs to decrease trafficking engagement. These programs need long-term funding and organizational support to be effective.

7.4 International Cooperation and Institutional Capacity Building

The global drug trafficking also demands global enforcement efforts to combat the transnational activities. Enforcement is supported by bilateral and multilateral cooperation mechanisms such as mutual legal assistance treaties, extradition agreements and intelligence-sharing arrangements.

Building the institutional capacity to tackle law enforcement, judiciary and financial institutions improves the effectiveness of responding to trafficking. Training sessions that create specialized trafficking investigations, financial crime prosecution, and asset recovery capability reveal significant payoffs. But institutional integrity must be considered carefully in corruption prone capacity-building situations.

Critical sphere of cooperation is demand-side cooperation in terms of treatment capacity development,

prevention program dissemination and evidence-based policy development. Evidence-based response development is achieved through organizations such as UNODC, regional organizations, and bilateral partnerships.

8. Future Threats and Challenges

8.1 Dark Web Distribution and Synthetic Drugs

Synthetic drugs (fentanyl, MDMA, methamphetamine) and their sale by dark web markets are the most dangerous new threat. Dark web markets (Silk Road, Alpha Bay, and successors) allow producers to sell directly to consumers, without geographical limits, forming international retail markets. The encryption technology and anonymity allow transactions that are untrickable by the law enforcement.

The manufacturing of synthetic drugs has become decentralized around the world with fentanyl precursor chemicals being manufactured in China and India, and the final products being made in secret laboratories all over North America and Europe and then sold directly to consumers, over the dark web. This decentralized production system makes supply chain susceptible to enforcement less and allows prompt product customization.

Young people are especially vulnerable groups when it comes to buying drugs on the dark web, as there is a lack of perceived risk when purchasing drugs online, and sharing of information about accessing the marketplace is easily made through peer social networks. According to law enforcement agencies, the number of adolescents buying drugs in the dark web is on the rise, which introduces new addiction and overdose risk factors.

8.2 Criminal Organization Innovation, and Adaptation

The capacities of the trafficking organizations in organizational learning and adjustment to pressure of enforcement are impressive. Growth in the number of new psychoactive substances is an open product innovation in reaction to legal limitations. By scheduling certain substances and making them illicit drugs, trafficking networks produce chemical analogs that retain psychoactive properties without being classified as such by the law.

The modern trafficking groups use technology that is as advanced as lawful businesses: coded communication systems; cryptocurrencies in blockchains; drone delivery services; and self-driving cars to carry goods. Such technological capabilities imply that enforcement disadvantage will continue to exist unless there is a significant upgrade in law enforcement.

The integration of trafficking in legitimate businesses presents more complexity, because criminal operations purchase hotels, casinos, transportation services, and financial services facilitating money laundering and still having a flexible ability to operate. Such a legitimate-illegitimate integration makes it difficult to enforce and makes an organization less vulnerable to sanctions related to trafficking.

8.3 Climate Change and Drug Crop Production

The effects of climate change in drug crop production pose new risks in a variety of ways: declining crop yields raising drug prices and making drug trafficking more profitable (greater profit margins leading to organizational sustainability in new locations); production geography due to changing temperature/precipitation conditions making cultivating the drugs less viable; and ecological pressure that causes agricultural displacement of potential trafficking agents.

Growing Opium in Afghanistan indicates the susceptibility of the climate to changes since droughts have significantly decreased the volume of production and revenues earned by the traffickers. On the other hand, in areas where climate change makes the production of drug crops viable, expansion of cultivation takes place. It is still unclear how climate change will affect drug production in the world, but it is probable that a significant geographic change in the areas of production will be witnessed.

9. Discussion: Systemic Change and Approaches to Integration

The evidence summarized in this review indicates that drug trafficking is a multifaceted phenomenon that has to be addressed with integrated measures that can focus on reducing supply by interdiction and strengthening institutions; reducing demand by prevention and treatment; protecting youth by providing alternative livelihoods and institutional capacity; and improving security by international cooperation and financial system regulation.

Importantly, the supply-side interventions themselves are not sufficient to reduce trafficking - evidence records that interdiction temporarily disrupts trafficking with adaptation and substitution. Demand-side strategies, on the other hand, do not pay attention to the structure of trafficking networks and security concerns. Combinative strategies that would decrease demand, increase supply-side enforcement capacity, and also deal with structural sources of trafficking and youth vulnerability are more promising.

To prevent youth trafficking, violence, and addiction, it is necessary to acknowledge that youth susceptibility is a result of structural (poverty, lack of opportunities, family dysfunction, poor mental health services) elements, which can be addressed. The prevention, treatment, and livelihood development programs that are youth-targeted are cost-efficient, evidence-based interventions that could have significant effects.

Reforming institutions within trafficking areas is a key need that has not been prioritized in the policy debate. Any form of corruption in the police, judiciary, and financial institutions will sabotage any of the efforts in responding to trafficking. Capacity building that is done with institutional integrity, professional development, and corruption detection builds grounds to ensure continued enforcement effectiveness.

10. Conclusion

Drug trafficking is an exemplary security issue of modern world affairs, which creates unreal organizational riches, contributes to corrupting state institutions, facilitating violence, and destabilizing society. The effects on youth populations are complex: direct entry into trafficking systems; susceptibility to addiction due to overt marketing and access to substances; exposure to trauma caused by violence; disruption of education; and decreased development.

The difference in geographic distribution of trafficking patterns and youth effects indicates that the institutional capacity, production/transshipment geography, and market characteristics vary. Latin America is exposed to unprecedented levels of violence due to drug trafficking of cocaine, Southeast Asia is exposed to drug trafficking of opium and synthetic drugs with child labor exploitation, Africa is facing emergent threats of trafficking with limited governmental capacity, and the developed nations are experiencing synthetic drug epidemics and the distribution of drugs using the dark web.

Interventions based on evidence to respond to trafficking must be based on a combination of supply-side enforcement, demand-side prevention and treatment, youth-specific protective interventions, and institutional capacity building. The level of sophistication and adaptability of modern trafficking organizations imply that the benefits of enforcement can only be obtained by responses that include technological capacity, global cooperation, and institutional integrity.

Defending young people against trafficking is a moral imperative and real-world security concern. Youth who are not recruited into trafficking, addicted, or exposed to trauma associated with violence have significantly better life outcomes and can positively impact social stability and economic growth. On the other side, the involvement of youth in the trafficking business ensures the continuation of criminal organizations and destabilization of communities.

The future studies must use longitudinal designs that explore the trafficking pathways among youth, assess the effectiveness of youth-specific interventions, analyze the institutional corruption processes and anti-corruption strategies, and explore such new threats as synthetic drugs and dark web distribution. The protection of youth should be considered a primary trafficking response goal and be placed in the center of policy development to make sure that the enforcement strategies put in place have a clear understanding of youth vulnerability and apply youth-protective strategies.

The international drug trafficking problem will not be eliminated without radical strategies that identify structural factors that contribute to cultivation, production, and distribution. This transformation demands

alleviation of poverty in the production areas, availability of treatment to the substance using communities, distribution of prevention programs, development of sustainable livelihoods among the youth and institutional fortification of the areas of trafficking. Such measures involve long-term international cooperation and significant financial resources but show the possibility of significantly decreasing the security and health costs of trafficking in the world.

Dr. Kuldeep Verma https://orcid.org/0009-0002-2162-8115

Data availability

Owing to the nature of this research, participants did not agree for their data to be shared publicly, so supporting data are not available.

Funding

The author disclosed that there is no funding for publication of this research paper.

Conflict of Interest

The authors declare no conflict of interest.

Ethical Statement

Informed consent was obtained in written before participation. The consent was recorded on paper in black and white. Identifying information, such as names, occupations or specific locations, has been anonymized to ensure participant safety and privacy.

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