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The Illicit Supply of New Psychoactive Substances in China: A Literature Review

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Abstract

The study aims to develop scientifically based victimological measures for preventing school shootings. It is an urgent issue nowadays as there are frequent attacks at educational institutions all around the world. However, it is not only the law enforcement agencies that must ensure the safety and security of citizens but citizens themselves can contribute to their safety. The expert survey method was used in this study. 214 respondents (investigators, interrogators, lawyers, and other practitioners) involved in crime control and prevention were interviewed during the survey. The article describes the most effective prevention measures taking into account the opinion of the respondents as well as the results of the authors' analysis of the incidents which have taken place in the USA, Russia, Germany, and other countries. These measures include socialization of potential offenders; awareness-raising activities involving potential victims (students), highlighting the impropriety of such negative behavior as bullying; installation of classroom door locks; evacuation devices acquired by schools.

Keywords: School-shooting, Bullying, Victims, Prevention, Socialization, Vigilance, Evacuation.

Introduction

The past decade has witnessed a global explosion in the number and diversity of new psychoactive substances (NPS) (EMCDDA, 2016, 2017; EMCDDA & Eurojust, 2016). Their increased availability and consumption have caused significant challenges for public health, supply reduction strategies, and the legal systems. In response, many scholars in the West have investigated the existence of NPS in drug markets (Hondebrink, Lonkhuyzen, Van Der Gouwe, & Brunt, 2015; van Amsterdam, Nabben, Keiman, Haanschoten, & Korf, 2015; Zawilska & Andrzejczak, 2015) and the harms related to illicit usage (Palamar, Martins, Su, & Ompad, 2015; Sande, 2016). It has been suggested that such availability and harms highlight the need for a greater emphasis on supply and harm reduction strategies (McAuley et al., 2015). Concurrently, some academics have focused on

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regulatory innovation (Seddon, 2014) and innovative legislation (Hughes & Winstock, 2012; King, 2014; Wilkins, 2014) as efficient responses for reducing the supply of NPS, while others have preferred to endorse the traditional prohibitionist approach (Smyth, James, Cullen, & Darker, 2015; Kavanagh & Power 2014).

To investigate the illicit supply of NPS and explore efficient responses, Western scholars have identified the presence of numerous products made in China in European and American drug markets and monitored systems such as the United Nations Office on Drugs and Crime (UNODC) and European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). This has directed the foci of most scholars and stakeholders to the status quo of NPS production and distribution in China. As described in these articles, China has been the main source country, producing and shipping NPS to other countries (EMCDDA, 2017; Norman, Grace, & Lloyd, 2014; Reuter & Pardo, 2016).

Furthermore, Chinese scholars have also acknowledged the challenges posed by the increasing NPS supply (W. Liu, Zhao, & Zhao, 1992); however, they did not recognize the complexity and importance of the issue until 2005, and scholarly studies from sociological and criminal perspectives on reducing NPS supply have multiplied since then. Most studies have been devoted to the legal responses to NPS supply (Hao & Zhao, 2012; Qin, 2011; W. Shi, 2012). There has also been some research describing the characteristics of NPS supply in terms of manufacture, transport, and smuggling (You, Deng, & Zhao, 2017; L. Zhang & Zhang, 2013). Notably, some empirical research has addressed the profiles of NPS offenders and key supply patterns, especially organization and supply routes. For example, Huang et al. (2012) examined data collected from Chinese court sentencing files to analyze the profiles of traffickers and related organizations. Lin (2012) analyzed and summarized the regional features of drug offenders in Zhongshan city from 2004 to 2011 to further develop the existing prevention system.

In this study, we collected and reviewed articles on the illicit supply of NPS published in journals and books. The aim of the review is to summarize the knowledge and answer the questions of how the NPS supply side is organized in China and what the benefits and limitations of the existing supply reduction policy and laws are.

Methods

To develop a comprehensive understanding of NPS supply research, the collection of studies focused on NPS and published in the Chinese language was prioritized. Articles written in the English language also qualified for review if they concentrated on the same topic. Since research was quite limited following the first-round review, we extended the keywords to include new drugs, as well as ketamine, methcathinone, and fentanyl (the three substances most frequently noticed in drug market and criminal cases), to obtain potentially valuable information. We also asked colleagues and professors to broaden and identify different research results, enabling most of the literature on the topic to be collected.

Our search process aimed to select representative articles, not conduct an exhaustive search of the literature. An initial search was conducted in academic databases, including the Web of Science, Google Scholar, PubMed, ProQuest, National Knowledge Infrastructure (CNKI), WanFang Data, National Digital Library of China (NDLC), and CQVIP. Keywords for searching included: new psychoactive substance, novel

psychoactive substance, NPS, new drugs, ketamine, methcathinone, and fentanyl. Meanwhile, a snowball approach was also employed as an iterative search method within references. We searched all English- and Chinese- language studies, and each database was searched from its inception to recent updates as of September 1, 2018. In total, after the abstract review, there were 104 studies, including 99 qualitative and five quantitative research involving the illicit supply of NPS. A full-text review was conducted to extract information for further synthesis.

The Supply Patterns of NPS

1. Profiles of NPS offenders

Many qualitative studies have outlined the profiles of NPS offenders by addressing the differences in their educational backgrounds and occupations, as well as the increasing involvement of young adults (Hao & Zhao, 2012; Qin, 2011). Hao and Zhao (2012) noted that the educational backgrounds and occupations of NPS offenders are quite diverse. For example, while some NPS manufacturers have low educational attainment such as elementary or junior high school, others are highly educated, possessing even master or doctoral degrees. Similarly, the occupations of NPS offenders vary greatly to include peasants, self-employed individuals, and small businessmen, as well as chemists, doctors, and entrepreneurs. The frequent involvement of young adults (those younger than age 40) in NPS cases is described by Qin (2011), who stated:

On March 2008, Dongguan police dismantled a ketamine manufacturing den in a rented apartment. In this case, the suspect was unable to manufacture ketamine and went to the job market to hire a 22-year-old college student as a cook in his manufacturing group. On March 2009, Jiangmen police uncovered a case of ketamine manufacturing, in which six defendants (6/7) were younger than age 30, and the ringleader was only 22 years old. (Qin, 2011, p. 125)

Based on empirical findings from their analysis of sentencing files for drug trafficking cases in China, Huang et al. (2012) supported the argument that most offenders are male (89.1%) and younger than age 35 (72.2%). However, they also presented a different view with respect to the occupations of offenders, noting that most offenders in their cases were self-employed, and their educational levels were quite low. Using logistic regression analysis, they further demonstrated that NPS-related crimes were significantly related to offenders' occupations. For example, farmers tend to be associated with drug trafficking more than they are with smuggling and transport. The accounts of Huang et al. suggest that farmers had quite low incomes from the land. Hence, many farmers represented cheap labor available for hire by smugglers to smuggle and transport drugs. While this appears to be a plausible explanation for the relation between farmers and drug-related offenses, it is also problematic because jobless individuals with lower incomes than farmers are less likely to be hired by smugglers to smuggle and transport drugs.

Another important issue that needs to be addressed here is how NPS offenders organize their activities. Some studies in the literature illuminate the organizational structure, communication networks, and operation of NPS transactions. For example, Chen and

Huang (2007), Z. Wan (2009), and Xu and Zeng (2009) discovered that NPS trafficking, like traditional drug trafficking, appears to be internationalized, syndicated, networked, and militarized. Traffickers tend to form a structured and hierarchical organization, in which some low-level individuals are hired temporally and manipulated remotely to transport and smuggle drugs based on a single vertical communication method. The operation of transactions relies heavily on the Internet, including Internet advertisements, Internet-based communication, and online payment. By contrast, M. Liu (2007) predicted that the cottage industry (Eck & Gersh, 2000) would be more common in NPS manufacturing cases. Additionally, based on observation and in-depth interviews, Chin and Zhang (2012) suggested there is little evidence to support the existence of links between drug trafficking and organized crime syndicates in China. Notably, Huang et al. (2012) addressed the organization of offenders, noting that they found insufficient evidence to support the general perception that NPS smuggling, trafficking, and transportation are typically conducted by organized crime syndicates. Instead, they concluded that most drug trafficking is committed by opportunistic offenders, rather than by organized career crime figures.

Based on different datasets, the qualitative and quantitative NPS research diverges on issues of occupation, structure, communication networks, and transaction operations. Although opportunistic offenders have been found in both qualitative data analysis and empirical research, career offenders have been highlighted only by some qualitative research. One explanation may be that different methods based on different datasets contribute to different results. Previous qualitative research and data analysis mainly focused on significant features or “high-profile incidents” in typical drug trafficking cases (J. Liu, 2008), which may have resulted in an emphasis on typical cases over other cases. Conversely, quantitative data present the big picture of cases (Neuman, 2013), but findings rely highly on statistical differences, rather than on “high-profile incidents” within the data. In addition, although both qualitative and quantitative analyses of drug offenses in China rely on official data such as police statistics, procuratorate statistics, and court statistics, the police statistics appear to be overstated, while the court statistics are relatively conservative (J. Liu, 2008), which may also contribute to the differences in the results.

2. NPS manufacturers

In early research, Chinese scholars observed that there were substantial dens in rural areas that were synthesizing methamphetamine, ecstasy (MDMA), and ketamine (Qin & Fang, 2006). It was not until 2010 that they realized some biochemical and pharmaceutical companies were not only involved in the supply of precursor chemicals but also starting to manufacture methcathinone and α -pvp (L. Yang, 2012). Some of these companies shifted their transactions from legitimate business to illegitimate NPS production, while others were set up deliberately to manufacture and sell NPS for profit (Qin, 2011). The intertwinement of synthetic drug production and the involvement of companies in the supply chain have made NPS manufacturers quite diverse.

First, certain companies are approved to produce substances but illicitly sell the substances to unqualified purchasers (Chang et al., 2016; Z. Liu, 2017). More importantly, the emerging trend in recent years has been an increase in the number of biochemical and pharmaceutical companies that have been established to illegally produce and sell NPS.

Guo (2017) noted that many chemical and pharmaceutical companies have developed facilities to illicitly produce large amounts of synthetic cathinone, which is smuggled out to international drug markets. Chemists, pharmacists, and other experts with professional knowledge and skills play central roles in the manufacturing process, especially with respect to updating new substances that are still not controlled in other countries.

The Hubei police cracked down on a case of smuggling NPS in October 2016. The suspect had once been a chemist in a pharmaceutical company in Shanghai. After learning about the huge demand in other countries and the legal status of some NPS in China, he chose to resign from his job and establish a company in the Hubei Industrial Park to produce 3-methylmethcathinone. Covered by a legitimate biotech company, he smuggled more than 700 kilograms of synthetic cathinone to foreign countries. (Guo, 2017, p. 25)

The increasing involvement of native manufacturers, including pharmacists, professors, and highly educated individuals in chemical companies, as noted by Qin (2011), symbolizes the reality of localized NPS manufacturers in China. However, this professional manufacturing has not led to a monopoly. Instead, production activities appear to be fragmented and can be categorized as purchaser-oriented; this subsequently results in diversified end products in the drug market. Thus, as noted by Guo (2017, p. 26), the overall trend of NPS supply is “domestic production and foreign consumption.”

Second, some individuals who produce NPS in workshops, labs, and even in kitchens have also been noted in China. The knowledge and methods of drug manufacturing are obtained from and developed through the Internet. Instant messaging software such as QQ and WeChat and Internet forums such as Tianya and Baidu have been used as communication tools for sharing information on precursor chemicals and substituted pre-precursors (Hao & Zhao, 2012). Manufacturing processes have been elaborately developed and divided into two different groups. Pollutive and noisy activities are normally located in remote areas such as the rural-urban fringe, abandoned factories, and countryside, while post-processing activities such as packaging and labeling are frequently conducted in city centers (M. Liu, 2007; Qin, 2011; X. Xu, 2007). Due to similarities in production processes, manufacturers of NPS and synthetic drugs in dens are always interwoven, which makes it quite difficult for scholars to categorize NPS supply patterns. Consequently, the characteristics of NPS manufacture were not distinguished from synthetic drug production in early academic research. Rather, they were sometimes treated as synonymous (Fu, You, & Li, 2005; L. Li, 2010).

3. Methods of distribution

The first method of distribution is specific to chemical and pharmaceutical companies, which sell a large amount of NPS through online communication—electronic payment—logistics delivery (OEL), this refers explicitly to online shops belonging to companies advertising the newest substances, prices, purity, and delivery on their websites to attract purchasers. The latter can easily and quickly complete payment with the click of a mouse (Qin, 2011; D. Wang, 2016), resulting in the diversion of massive amounts of legal products to illicit uses (Qin, 2011; Y. Xu, 2014). Subsequently, NPS are packaged and

labeled in various ways to avoid checks by law enforcement agencies: these include mislabeling shipments, concealing powder in silica packages placed alongside everyday items, and wrapping shipments as household products such as detergent. Data summarized from official documents in recent years has shown that these companies seem to mainly target international markets, including Europe and the United States, to which large amounts of NPS are smuggled by Chinese companies. As reported by the EMCDDA, most α -PVP seizures, including a single seizure of almost 260 kilograms (kg) of α -PVP, have originated in companies in China (EMCDDA, 2015a). U.S. law enforcement officials have also confirmed that thousands of pounds of NPS and controlled chemicals flowing from China have fueled the fentanyl crisis (Sean, 2017).

The second distribution method, sporadic drug trafficking (SDT), is related to workshop or den-based manufacturers and involves traffickers who frequently move small volumes of substances at a time (X. Li, 2017; Qin, 2011). This results in many cases but few seizures. The most common method for communication and payment in SDT, as summarized by Chinese scholars, is also OEL (Qin, 2008; Hao & Zhao, 2012). Similarly, NPS are packaged and labeled with false names or secretly mixed with legitimate goods. Packaging methods are quite dynamic and diverse. Food, beverage, chemicals, and fertilizers are used to hide NPS, but stamps and paper material have also been found mixed with NPS for direct consumption (You et al., 2017). After being packaged, NPS are delivered to consumers via express companies or small groups of individuals. Occasionally, a small amount of illicit NPS is packaged and delivered in separate shipments to destinations usually located in the frontier provinces for smuggling to the Golden Triangle and South Asia (Cheng, 2011).

As a key component in both distribution methods, express consignment plays an important role. As noted by Guo (2017), NPS are smuggled not by traffickers themselves but by international freight forwarders and “package transporters.” Most NPS departing from the Yangtze river delta are transported by international freight forwarders. Specifically, when an NPS distributor receives an order from a foreign client, it attempts to find companies to produce the substances. Subsequently, the products are transferred to international freight forwarders, who are responsible for declaring them at customs and consigning the parcels to international express companies such as EMS, FedEx, and bpost. The term “package transporters” refers to companies that function as freight forwarders between Inner Mongolia and Russia. Package transporters are responsible for collecting the parcels from their clients and consigning them to individuals such as tourists and visitors, who will take the parcels back to Russia by body carriage and then send them by express consignment to recipients (Nan & Li, 2014).

Another intriguing phenomenon concerning the illicit supply of NPS is the output of skills and trained individuals from developed coastal areas such as Guangdong, Fujian, and Shanghai to remote provinces, as well as other countries. Closed cases over the last 20 years show that key manufacturers in most provinces have mainly come from Guangdong and Fujian, where production skills have been profoundly shaped by the development of the chemical and pharmaceutical industries, as well as by foreign criminal drug organizations (Qin, 2011). Moreover, these manufacturers thereof have also tried to maximize their profits by exporting skills and trained workers to other countries. One case of a “high-profile incident” is that of the “bath salts” drug lord Zhang Lei, who made \$30

million in the United States alone, and his company CEC Limited, which not only sold precursor chemicals, synthetic drugs, and NPS but also helped foreigners to build facilities and taught them how to synthesize NPS. Chinese authorities arrested Zhang for allegedly teaching criminal methods to others, while his colleagues Zhang Jicheng and Hu Yongan were arrested in the United Kingdom for establishing a “clandestine laboratory” for the “industrial-scale production of synthetic drugs.” Therefore, the output of skills and trained individuals is not entirely consistent with data from early archives (EMCDDA, 2015b), which noted that NPS were manufactured in China and shipped to Europe by air freight, where they were processed, packaged, and sold to consumers. Rather, Europe may have been the location of NPS production and distribution (EMCDDA, 2018).

While NPS manufacturers are diversified, there appear to be some similarities in their supply patterns such as the application of OEL in transactions and the involvement of express consignment in distribution. The output of skilled workers is rare and infrequently captured by scholars and law enforcement agencies. However, it may exist in another form, based on the development of Internet tools such as Skype, instant messaging software, and online forums. Experts do not need to risk flying to another country to demonstrate an experiment, for example. Instead, they perform it in their own labs and teach their customers via video chat. It is plausible that the Internet will continue to be a significant source of information on NPS production and a powerful medium for the application of OEL in NPS illicit supply.

4. Domestic and international supply routes

The domestic illicit supply of precursor chemicals relies strongly on synthetic drug and NPS production patterns. A large amount of precursor chemicals illicitly flows from remote areas of China to the southeast and southwest coastal provinces, where synthetic drugs and some NPS were manufactured in the early 1990s (Qin & Fang, 2006). The last decade has witnessed the development of synthetic skills and widespread production facilities in rural and urban areas and probably every province in China. Therefore, there no longer appear to be fixed supply patterns. Conversely, smuggling precursor chemicals out of China seems to follow several specific routes, including from the southwest provinces to the Golden Triangle; the southeast provinces to Europe and North America; the northeast provinces to Russia; and the east coastal provinces to New Zealand (Cheng, 2011; Nan & Li, 2014; Qiu, 2006; Shen, 2013).

Synthetic drugs and NPS were generally distributed from southeast coastal areas such as Guangdong and Fujian, where they were produced, to local and remote provinces in China in the early 2000s. As noted by Z. Chen and Huang (2007), coastal areas such as Guangdong and Fujian became severely overwhelmed by drug production, while seizures of ecstasy (MDMA) in Guangdong accounted for more than 90% of all seizures in the entire country in 2004. The distribution networks are quite similar to the precursor chemical supply routes, but they flow in opposite directions. The output alone of synthetic drugs from China to other countries is not typical; in fact, smuggling synthetic drugs into China has been confirmed by several Chinese scholars, which together with the output of precursor chemicals, is referred to as the bidirectional flow mode (Z. Chen & Huang, 2007; Wei & Liang, 2016).

When some precursor chemicals began to be consumed by drug users in the late 1990s, drug dealers attempted to smuggle these NPS and other chemicals to other countries, based on the bidirectional flow mode (Qin, 2011). However, in terms of illicit supply patterns, most of the literature did not distinguish them from chemicals and synthetic drugs (Ruan, 2007). With the rapid growth of NPS supply, some research has attempted to depict the domestic supply routes of some individual NPS. Zou, Han, and Guan (2007) noted that southeast provinces such as Guangdong and Fujian have been significant ketamine sources in Chinese drug markets, while W. Shi (2012) and L. Zhang and Zhang (2013) discovered that methcathinone mainly originated in the Shanxi and Hubei provinces. You et al. (2017) recently found that some synthetic cannabinoids are manufactured in Ningxia province.

Similarly, international supply routes have not been fully addressed by Chinese academics either. Sparse information in the literature provides some data on supply routes across two dimensions: large-scale smuggling and small-scale delivery. With respect to large-scale smuggling, there are two specific routes: one transports NPS from southeast coastal areas such as Guangzhou, Shenzhen, and Shanghai to Europe, North America, and Australia (Qin, 2011), while the other transports NPS via the northeast provinces to Russia (W. Shi, 2012). Small-scale delivery refers to the smuggling of NPS through express consignment from China to individual foreign consumers.

Thus, the existing research literature does not systematically categorize NPS supply patterns, nor deliver sufficient accounts of the changes in the supply chain. Based on the limited literature, there seem to be two polarized trends in supply patterns: career supply and opportunistic supply. Career supply refers to the supply pattern of chemical and pharmaceutical companies that use advanced facilities and technologies and have higher production capacities to produce large quantities of NPS and subsequently smuggle them abroad. Opportunistic supply describes small groups of individuals producing NPS in labs or workshops, with substances being delivered through express companies. There are some differences between the two groups in terms of production capacity, transport mode, supply routes, packaging methods, targeted consumers, and related challenges. However, both also share some similarities such as the application of OEL in their illicit businesses.

Challenges for Drug Policy, Legislation, and Enforcement

Much of the emphasis by Chinese scholars is placed on the challenges that threaten drug policy, anti-drug laws, and judicial practice. The basic ideology against traditional drugs in Chinese drug policy is the “war on drugs” and the guideline promoting the “four prohibitions” embodied in Article 4 of the Narcotics Control Law of the People’s Republic of China (NCL), which was recognized as a successful tactic in the late 1950s. However, many scholars assert that the continuation of the “war on drugs” is inadequate for reducing the NPS supply because some NPS individuals have legitimate purposes and it is, therefore, impossible to remove them from the market (M. Liu, 2007; Y. Mao, 2007). Meanwhile, the emergence of a considerable number of such substances and their rapid expansion prominently reveal the defects of the existing legal system to respond efficiently (You et al., 2017). The first and most important issue is how to demarcate the boundary between criminal and legal activity in the current legal system regarding the illicit supply of NPS that are not included in the control list. As noted in early research,

the lack of a clear definition of NPS, its uncertain legal status, and inconsistent standards for conviction and sentencing further broaden the gaps between the rapidly evolving NPS-involved individuals and the law's marked shortfalls (L. Li, 2010; W. Shi, 2012; Z. Wan, 2009).

Due to the absence of legal provisions, there have been some embarrassing occasions in which law enforcement agencies could not control the illicit supply of NPS based on existing substantial and procedural law. Limited knowledge and outdated equipment also make it quite difficult for anti-drug police officers to distinguish NPS from legal substances and collect evidence promptly on the scene. In their research, You et al. (2017) describe the situation:

The knowledge of NPS has just entered the stage of popularization, in which even anti-drug police officers know little about them. One of the experienced policemen said that when he was first confronted with "happy water," a mixed liquid containing methamphetamine, amphetamine, and ketamine, he had no idea what it was until he obtained the test report. Therefore, it is not surprising that anti-drug agencies initiated a campaign against "Jin," treating it as caffeine, although it turned out to be MDPV after the National Narcotics laboratory analyzed the samples in 2010 (You et al., 2017, p. 98).

The following difficulties in investigation present a dilemma for prosecutors after a case is submitted for prosecution. As noted by Fu et al. (2005), police officers in 2005 learned that cases related to ketamine that were transferred for examination before the prosecution were always returned to police from the procuratorate for two reasons: a lack of evidence and an absence of legal provisions. Finally, when NPS-related cases successfully enter the trial stage, judges must do their best to find some legal grounds in the law or judicial interpretations that have been criticized by Chinese scholars as ambiguous and outdated to relate to the definitions, controlled list, and sentencing criteria (G. Li & Ruan, 2010; L. Li, 2010; Lin & Lin, 2008; F. Yang, 2012). As a result, some NPS offenders are not subject to justice, while some are convicted based, not exactly on what they did but on the behaviors that can be referred to criminal law.

Academic Propositions for NPS Supply Reduction

Based on their research, Chinese scholars have also proposed many solutions to the increased supply of NPS and related harms. All the propositions in the literature fall under three spectrums: legislation, law enforcement, and judicial practice.

a. Legislation

Most scholars suggest that the primary solution to the illicit supply of NPS is overall improvement of the legal system. Generally, coordination among different regulators, optimization of the relations between laws in the legal system, the definition of NPS, the speed of regulations, criteria for criminalization, and punishment are highlighted.

In total, there are 11 governmental entities at the national level involved in regulating the production and supply requirements for chemicals and precursors. At the local level, the functions and duties of administrative departments are unclear, given that the law only authorizes relevant administrative departments of the people's governments at the county

level or above to, according to their respective functions and duties, take charge of the relevant administration of precursor chemicals within their administrative divisions. Due to the confusing overlap of different departments at both the national and local levels, efforts to regulate the chemical and pharmaceutical industry have occasionally been overlooked (Lu et al., 2016; Wei & Liang, 2016). In response, You et al. (2017) noted the necessity of optimizing coordination and cooperation and utilizing joint efforts in inspection and management, while L. Zhang and Zhang (2013) proposed that the national authorities should cooperate and harmonize standards for production, supply, and usage, especially standards in different provinces at the local level.

Simultaneously, several specific arguments aimed at developing different laws have also been supported by the mainstream scholarship. In terms of regulations and NCL, many scholars have insisted on clarifying the definition and scope of NPS and further incorporating them into the spectrum of narcotic drugs in criminal law (L. Li, 2010; You et al., 2017; Shi, 2012). In addition, the principles and statutes regarding criteria for conviction and sentencing in criminal law also require some revision to improve the speed and practical impact of the prohibition system. You et al. (2017) argued that analogous interpretation should not be prohibited in criminal law, because it is quite necessary to provide legal foundations for law enforcement and judicial agencies to target new substances that are harmful to public health but have not yet been controlled. W. Shi (2012), J. Li (2015), and L. Li (2010) noted that the criteria for conviction and sentencing are inconsistent and even in competition, which highlights the importance of uniform sentencing standards. Further, existing criminal law only considers the quantity of the seizure, not the quantity or purity, as the main grounds for conviction and penalties, which results in many unnecessary death penalty convictions. In response, while insisting on incorporating purity into the criteria, Xu and Zeng (2014) also argued that the penal punishment for NPS offenders must be severe and timely to strengthen the effects of deterrence. There are also some scholars attempting to expand the scope of criminal law by adding new offenses. X. Chen and Xiao (2012) asserted that three new crimes should be included in criminal law: illicitly prescribing medicine containing psychotropic drugs, illicitly providing prescription medicines, and drug consumption to prevent the diversion of illegal substances.

Some recommendations have been accepted and implemented in judicial practice. For example, the purity of the seizure has been adopted by the courts as a discretionary circumstance for sentencing. However, there are also some propositions that are too general to offer added value for supply reduction policy. Furthermore, some of the specific arguments appear to miss the balance between crime prevention and protection of human rights. As a primary principle of criminal law, the principle of legality means that analogous interpretation that is not conducive to a defendant's case should be forbidden. Thus, analogous interpretation could justify law enforcement and judicial trials against the trafficking of NPS that have not been controlled, but it provides no justification for itself and may destroy the limitations set by criminal law on public power.

b. Law enforcement

Many projects have been developed by scholars to optimize operations against the illicit supply of NPS. First, the application of high-tech equipment has been utilized to improve

the capacity of anti-drug groups for detecting, tracking, and dismantling production facilities (Qin & Fang, 2006). Second, special campaigns have been conducted against NPS-related crimes. At the national level, initiatives against NPS-related crimes have been highly recommended because they contribute substantially to seizures, arrests, and development of cases, which are indicators of law enforcement success (L. Zhang & Zhang, 2013). At the local level, regular checks have been conducted by the public security bureau against the diversion of chemical precursors from chemical and pharmaceutical companies and against drug use in entertainment areas such as bars and Karaoke television clubs (Qin, 2011). In addition, publicity is also regarded as an essential measure for raising awareness of the harms and risks of NPS and boosting the coverage and influence of prevention education programs. Another point emphasized by scholars is law enforcement cooperation at the international level, especially monitoring and information exchange systems that may ensure the acknowledgment by authorities of newly emerging NPS in foreign drug markets and quick responses (You et al., 2017).

Several projects proposed by academics have been put into practice, and a greater emphasis has been placed on such campaigns, initiatives, and publicity. However, one concern that has been ignored is cost-effectiveness. Thus, national campaigns and initiatives require substantial investment of human, physical, and financial resources for specific crimes. Specifically, they narrow the focus of public security departments to the illicit supply of NPS. However, while greater input does not necessarily generate sufficient benefits, the narrowed focus of law enforcement agencies at the national level may inevitably result in unbalanced efforts to target other types of crime.

c. Judicial practice

Procuratorates and courts at all levels also play important roles in achieving the aim of supply-oriented policy from the perspective of mainstream scholarship. Y. Xu (2014) asserted that mass trials in public places could strengthen deterrent effects and therefore reduce illicit supply. F. Yang (2012) argued that judges should exercise their judicial discretion to convict and impose punishment on NPS offenders when there are no suitable laws and statutes. However, the death penalty is widely regarded to be inappropriate for application in NPS-related crimes, because it reduces neither demand nor supply (Yuan & He, 2012).

Propositions concerning judicial practices appear to serve the ultimate objective of supply-oriented policy that aims to reduce NPS supply through various means. Some of these conflict with the principle of legality in criminal law, while others propose solutions without any supporting evidence. For example, mass trials in public places have existed for decades, but there are no laws justifying their existence. In addition, the extent to which they achieve deterrence remains unknown.

Conclusion

The existing literature offers various perspectives and methods of understanding the illicit supply of some specific NPS in China. Many insightful results have been generated with respect to offender profiles, manufacture, transportation, supply routes, and challenges. There seem to be two parallel but vertically coherent views concerning the profiles of offenders, behavioral patterns, and supply patterns. For example, jobless and

low-educated offenders tend to be opportunistic offenders, who appear to be closely related to SDT. By contrast, offenders with good occupations and high educational backgrounds in chemical companies tend to be career offenders who are structured, organized, and involved in supplying large quantities of NPS through chemical and pharmaceutical companies.

Based on their accounts of the phenomenon in China, Chinese scholars also propose various solutions. Formal legislation and the legal system are placed at the top of the priorities list in the fight against the illicit supply of NPS, with measures that include amending criminal law to criminalize NPS use, detailing criteria of sentencing, descending the threshold of conviction, and revising decrees to totally ban NPS. Anti-NPS campaigns are also highly praised and recommended for cracking down on NPS-related cases. Besides, national and local publicity and educational activities through national projects, campaigns, or even new media such as the WeChat platform and mobile phone news, are also regarded as key measures for raising awareness of the harms and risks of NPS, as well as for boosting the coverage and influence of prevention education. Another point emphasized by scholars is international cooperation, in particular, a monitoring and information exchange system to ensure that authorities can acknowledge new, emerging NPS in foreign drug markets and respond in time.

The descriptions and explorations of Chinese scholars are fruitful and inspiring in terms of promoting our understanding of NPS supply in China. However, the existing literature contains many gaps regarding research methods, profiles of NPS offenders, key patterns and dynamics that take place on the supply sides, and legislation and law enforcement.

First, the dominance of the material dialectic and the limited number of empirical studies in the NPS research domain present many methodological limitations to grasping rich data regarding the supply patterns and dynamics of the supply side. As previously mentioned, under the guidance of the material dialectic, qualitative research focuses too much on typical cases, which results in a lack of analysis of supply patterns in general. At the same time, new, emerging empirical research also shows multiple potential weaknesses in terms of data sources and analysis. To fill these methodological gaps and offset the weaknesses, both qualitative and quantitative methods are required to generate in-depth information on the key patterns, legal responses, and interventions in practice.

Second, the profiles of offenders and the key patterns in the supply side are fragmented and outdated. Existing research on profiling offenders and depicting key patterns, to a large extent, does not specifically focus on NPS; rather, they include both synthetic drugs and NPS. At the same time, some NPS that are commonly consumed and frequently seized such as fentanyl and synthetic cathinone are still out of the spectrum of research foci. On this ground, therefore, the research provides limited evidence on which evidence-based policy can rely.

Third, the analysis of the legal responses conducted by some scholars places much emphasis on the loopholes and gaps between socialist modernization and outdated laws. For many of them, the loopholes and slow pace of regulation are the main facilitators of the illicit supply of NPS. Accordingly, filling the gaps in the law and strengthening law enforcement appear to be better choices. However, propositions to develop legislation and law enforcement are quite abstract, empty, and stereotypical, including, for example, the most frequent propositions of “improving the legal system and legislation,” “building

competent anti-drug teams,” and “strengthening the regulation of chemicals.” None of these are practical suggestions but simply general directions that have limited guidance for the practical reduction of the illicit supply of NPS. Rather than focusing on the general aspects of the legal system and law enforcement, an in-depth analysis of the law enforcement process at the local level; namely, how these campaign and initiatives are conducted in practice, and how implementation affects the illicit supply of NPS, appear to be of interest to policy-makers and scholars.

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