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Analysis of the Effect of Organizational Structure Components on Drug Use Deterrence in Prisons: A Case Study of Isfahan County

1. Amin. Amirian Farsani[1*] : Assistant Professor, Department of Law, Faculty of Humanities Sciences, University of Gonabad, Gonabad, Iran
2. Saeed. Vakili [2]: Assistant Professor, Department of Law, Shahid Ashrafi Isfahani University, Isfahan, Iran

*corresponding author's email: amirian_farsani@gonabad.ac.ir

ABSTRACT

Narcotic drugs constitute one of the most critical and pervasive social problems in all civil societies and prison systems, prompting policymakers and authorities to seek effective solutions for this significant issue. Addressing the problem requires reducing drug use both in society at large and, more specifically, within prisons—an objective that can only be achieved through an appropriate and well-designed organizational structure for correctional institutions. Therefore, the first step in controlling drug use in prisons is to examine and reform the structural framework of prison organizations. The purpose of the present study is to investigate the causes and factors contributing to drug use within prisons in Isfahan Province and to analyze their relationship with the organizational structure of the prison system. The research method employed is a survey-based quantitative approach. The statistical population includes all employees working in drug-related prisons across Isfahan Province. Data were collected through a researcher-constructed questionnaire, the reliability of which was confirmed using Cronbach's alpha coefficient to assess internal consistency. Descriptive findings from the study indicate that the rate of drug use in Isfahan prisons is significantly high. Based on the results of the structural model testing, the obtained t-value for examining the effect of organizational structure on drug use deterrence was 37.72, which exceeds the critical value of 1.96 at the 0.95 confidence level, indicating a strong positive effect (β = 0.81) of organizational structure on drug deterrence. Moreover, the t-value for the effect of organizational complexity on drug use deterrence was 22.29, also exceeding 1.96, demonstrating a positive influence (β = 0.71) of organizational complexity on deterrence. Similarly, the t-value for the impact of organizational formalization on drug deterrence was 23.56, exceeding the 1.96 threshold, showing a significant effect (β = 0.71). Finally, the t-value for the effect of organizational centralization on drug deterrence was 27.87, again exceeding 1.96, confirming a positive and significant relationship (β = 0.74) between organizational centralization and drug use deterrence.

Keywords: *structure, prison, crimes, narcotic drugs, Isfahan County.*

Introduction

Undoubtedly, all societies strive to reduce the rate of social disorders because such disorders impose extensive social and economic costs and damages upon them. Among these disorders, drug abuse—particularly among men in the city of Isfahan—represents a critical issue. The primary response to this problem in almost all judicial systems

is imprisonment, as male offenders constitute a significant proportion of the total population of drug-related prisoners, many of whom reoffend after completing their sentences (1, 2). One of the major causes of the increasing number of prisoners convicted of drug-related crimes lies in the organizational structure of prisons, which—similar to other penal institutions—has undergone multiple transformations and reforms to achieve its current form. Nevertheless, prisons have not effectively fulfilled their deterrent role in preventing drug crimes among men (3, 4).

Neglecting this matter leads to various adverse consequences, including recidivism, increased familial problems among prisoners, a growing prison population, higher maintenance costs for the prison organization, and serious social harm to the city of Isfahan (5). Consequently, the establishment of prisons and the growing importance of clinical criminology in the fields of offender rehabilitation and treatment have profoundly influenced the orientation of criminal law and penology. Accordingly, both domestic laws and international instruments have normatively emphasized the reformation and social reintegration of offenders through respect for fundamental rights and the implementation of correctional and rehabilitative programs in prisons (6, 7).

Although the original philosophy of prison establishment was to protect social interests through the correction and treatment of offenders and the prevention of recidivism, numerous global studies indicate that most prisons have failed to reform inmates effectively, as offenders who serve imprisonment sentences frequently reoffend after release (8). Statistical analysis of recidivism among prisoners in Isfahan confirms that, despite extensive financial investment and the employment of professional human resources for offender rehabilitation and reintegration, the rate of reimprisonment and repeated offenses remains alarmingly high. This concerning trend reflects the failure of the correctional and rehabilitative system in preventing relapse into criminal behavior. Therefore, in advanced penal systems, recidivism rates are systematically studied using criminological and penological indicators to develop more precise policy solutions (4).

In the case of drug-related offenders in Isfahan, several factors contribute to reoffending: the social and familial disconnection experienced during imprisonment, the inefficacy or incompleteness of rehabilitation programs, the stigmatization of ex-convicts, and the negative societal attitudes leading to rejection by family and peers. Comparative studies on recidivism highlight the importance of understanding both the recidivism rates and the strategies for predicting and preventing relapse, particularly among prisoners convicted of drug offenses (2). Thus, by conducting a descriptive–analytical study and adapting international strategies to the local criminal justice system, an appropriate model can be developed to reduce the penal population and prevent recidivism in Isfahan Province. The present study, therefore, examines male drug offenders imprisoned in Isfahan to identify effective measures for preventing reoffending and understanding why prisoners engage in drug consumption within correctional institutions. Furthermore, it explores the extent of prison staff involvement in reducing drug use among inmates in Isfahan (3).

Most societies condemn drug use and maintain hostile attitudes toward offenders, perceiving them as undeserving of treatment or support. Such negative perceptions of offenders and prisoners can hinder the delivery of rehabilitative services, leading many to reoffend and return to prison, creating a so-called “revolving door” between incarceration and society (1). Despite strict legal measures, drugs remain widely available in Isfahan’s prisons, and individuals continually attempt to smuggle narcotics into the facilities. When one route of smuggling is blocked, another emerges. Drugs are introduced through food, baby diapers, birds, items thrown over prison walls, books, shoes, magazines, and even through staff, inmates, and visitors. Addressing this issue requires continuous and coordinated efforts as part of a comprehensive supply reduction strategy. Thus, security measures and

enhanced drug detection mechanisms form the cornerstone of any effective prison-based drug control policy, while supply and demand reduction efforts must remain interdependent (3).

1. How does the organizational structure of prisons influence the prevention of drug-related recidivism among male offenders in Isfahan?
2. What is the impact of prison activities and management practices on deterring drug use among male inmates in Isfahan?

Theoretical Foundations

Prison Structure

To understand the organizational structure of prisons, it is necessary to first examine the pre-modern political structures of Iran. Historically, Iran's political system was characterized by autocratic rule, wherein kings possessed legislative, executive, and judicial powers. Monarchs such as Darius and Shah Abbas were themselves the source of law and justice, issuing decrees, executing officials, and rendering judgments directly. In pre-modern political thought, kings were viewed as shepherds of their subjects, occupying a status superior to that of ordinary citizens (9). Consequently, the pre-modern prison system reflected this anti-democratic political order. Because common people had no civil rights, their imprisonment in dungeons or prisons raised no legal or moral objection.

For instance, the Assyrian Empire detained thieves, bribed officials, tax collectors, foreign captives, and traitors. Foreign prisoners were forced to work in grain storage and milling facilities, and their prisons were located near these mills. Some were even confined inside the storage facilities themselves. The Babylonian term "Bit Kili", meaning "prison," described places where sinners and criminals were held (8).

Crime

The term *crime* may linguistically correspond to *offense*, *misdeed*, or *rebellion*. In Persian, it refers to an act or omission that constitutes a violation of the law and is punishable by legal sanction (10). Historically, in ancient legal texts, *crime* held a broad meaning encompassing sins, moral offenses, and legal violations. In the context of Iranian criminal law, the term has remained semantically ambiguous. On the one hand, it corresponds to the Arabic term *jarimah*, while on the other, it is linguistically aligned with the Persian grammatical structure, where it denotes a punishable act or omission (11).

Although the Persian term for punishment (*mojazat*) originally signified compensation or restitution, it has evolved in legal discourse to mean the infliction of penal sanctions. This conceptual shift is widely recognized in modern Iranian legal scholarship (7). In criminal law, *crime* remains a fundamental concept, as individuals may choose among countless behaviors, most of which are permissible unless explicitly criminalized by statute. Legislators apply specific criteria for criminalization, which vary across legal systems—from the degree of individual and social harm, public fear, and moral or religious conflict, to the prevalence and growth rate of the behavior. Nevertheless, an act becomes a crime only once it is legally codified.

Accordingly, for a behavior to be criminal, it must possess three essential elements:

1. The legal element – a specific law must prohibit the act;
2. The material element – a physical act or omission must occur;
3. The mental element – the requisite criminal intent or negligence must be established (6).

Narcotic Drugs

From the perspective of international drug control, a “narcotic drug” is any natural or synthetic substance listed in Schedules I–IV of the 1961 United Nations Single Convention on Narcotic Drugs, as amended by the 1972 Protocol. From a medical standpoint, any substance that causes anesthesia, coma, or analgesia is termed a narcotic. (1, 7)

A: Types of Narcotic Drugs

According to the Law on Preventing the Cultivation of Poppy and the Consumption of Opium, enacted on June 5, and pursuant to Article 1 of the Law, the following items are divided into two classes: the first class includes narcotics and cannabis and their preparations; the second class includes various forms of “spices” (psychoactive preparations). (7, 11)

First Class of Narcotics (Article 5—List of Narcotics)

Opium latex (opium gum): A substance obtained by lancing the poppy capsule (*Papaver somniferum*) and collecting the exuded latex, whether pulverized or not, at any concentration and with any morphine content. (11)

Opium: A substance produced from the poppy exudate, appearing as a syrup or solid, at any concentration and with any morphine ratio. (11)

Opium dross (burnt opium): A substance obtained from the combustion of opium in any of its forms, regardless of its morphine content. (11)

Opium decoction (liquid extract): A substance obtained by dissolving opium or opium dross (or their “essence”) alone, together, or combined with other materials in water and boiling it, at any concentration and with any morphine content. (11)

Residue (marc): The material remaining after filtering the boiled opium extract (before, during, or after boiling). (11)

“Soot ink” (burnt extract): A material resulting from burning the boiled extract in any form, with any morphine content that may be added, known as “ink” (burnt concentrate). (11)

Any pill, electuary, syrup, or solution (aqueous or alcoholic) prepared from opium products: Including traditional/Galenic opium preparations and tinctures or extracts (liquid or dry), whether concordant with or diverging from French Codex descriptions. (10, 11)

Bhang (cannabis herb): Derived from the dried flowering tops or fruits of the cannabis shrub, whether the resin has been extracted or not, used neat or mixed with other substances. (11)

Bhang beverage: Produced by mixing or soaking bhang in water or another liquid, either pure or with other ingredients. (11)

Charas (hashish resin): A resinous substance obtained from the flowering or fruiting tops of the cannabis plant, used either pure or combined with other materials. (11)

Galenic cannabis products: Including cannabis, hashish, tinctures, or extracts of cannabis. (10)

Coca leaf and its Galenic products (powder, tincture, extract). (10)

Second Class of Narcotics (Article 6—Narcotic Substances)

This class is divided into two groups. (7)

Group 1 – Substances whose crude forms, salts, and products are legally treated equivalently as narcotics: These include: Morphine, its salts, and preparations obtained directly from opium containing more than 20%

morphine (products containing 2% or less morphine are excluded unless dissolved or diluted in an inert liquid or solid). Morphine esters, morphine anhydrides (except those listed under Group 2). Diacetylmorphine (diomorphine, diamorphine, deacetylmorphine; heroin). Thebaine and its salts. Cocaine and its salts, and products derived directly from coca containing more than 1% cocaine (products under 1% are excluded unless dissolved or diluted in an inert liquid or solid). Aconine and its esters. Benzylmorphine (a specific medicinal product known in pharmacopeias). Desomorphine (medicinal product "Permonid"). Dihydromorphine (medicinal product "Paramorphan") and its esters. Hydrocodone (dihydrocodinone) (medicinal product "Dicodid") and its esters. Hydromorphone (dihydromorphinone) (medicinal product "Dilaudid"). Methyldesorphine, methyldihydromorphine, metopon, myrophine, nicomorphine, normorphine, oxymorphine (genomorphine), their compounds, and other morphine derivatives with a pentavalent nitrogen atom. Oxycodone (medicinal products "Eubine," "Ecodual") and its esters. Oxymorphone, tabakon(e) and its esters, pantopon and other products containing mixtures of opium alkaloids (papaveretum). Acetylmethadol, alphamethadol, betamethadol, alphamirodine, anileridine, betacetylmethadol, betameprodine, dioxyphthalyl butyrate, setimidone (chloradon–ketogan)—some cited as proprietary medicinal extracts. Dextromoramide (e.g., "Palfium," "Pyrrolamidol R-875"). Diethylthiambutene, dimethylthiambutene, dimethoxy-diol, dimethanol (medicinal product "Amidol"). Dipipanone, methyl 1-phenylpiperidine-4-carboxylate esters, 4-ethylmethylthiambutene, etoxeridine, hydroxypethidine, isomethadone, levomethorphan, levomoramide (e.g., "R-898"), levorphanol (medicinal product "Levorphan"). Methadone (e.g., "Dolafine," "Dolophine," "Phenedone," "Physeptone," "Eulamidon"). Morpheridine, normethadone (medicinal product "Normedon–Ticarda"). Pethidine (meperidine) (e.g., "Demerol," "Dolantin," "Dolantol," "Dolizan," "Dolizina," "Dolozal," "Pentalgin," "Sutragil"). Dioxone (medicinal product "Hepalgin"). Phenomorphan, proxitazine, properidine (dosage forms "Spasmod" and "Lysin"). Racemorphan, racemoramide, racemorphan, trimethidrine (dosage form "Promedol"). (7, 11)

Group 2 – Substances recognized as narcotics only in their crude form and salts (derivatives are not covered by current regulations): These include: Codeine (methylmorphine); Dionine (ethylmorphine); Pholcodine (medicinal products "Ethnin," "Homocodeine"); Acetyldihydrocodeine (product "Acetyldicon"); Dihydrocodeine (listed as a specific medicinal product); Propoxyphene (medicinal product "Darvon"). (7, 11)

It should be noted that, in criminology, two major approaches are relevant here: **clinical criminology** and the **criminology of convicted persons**, summarized as follows. (6)

The Positivist School and Clinical Criminology

Findings of the positivist school regarding the study of prisoner recidivism focus on the etiology of crime and on the offender as the subject of treatment and rehabilitation, which is the core of clinical criminology. The positivist school is empirical and inductive, emphasizing close study of the offender. Emerging in the late eighteenth and nineteenth centuries, its adherents advanced two pillars: (a) the determinism of criminal behavior; (b) the absence of moral responsibility in the offender. *Cesare Lombroso* ultimately attributed the determinism of crime to two sets of factors: (1) individual (personal) factors; (2) social factors. He argued that the offender is not morally free in his actions, drawing on studies of both deceased and living offenders to assert somatic and psychological defects, and he generalized such factors across offender populations. *Enrico Ferri* further emphasized that, alongside biological factors, social factors—such as the physical environment (climate, seasons), family environment (parental relations), broader social milieu (residential setting), and economic conditions (unemployment, poverty)—play significant roles in criminal causation. Regarding lack of moral responsibility, positivists held that the combination

of individual and social factors places offenders under compulsion, depriving them of free will; thus, they advocated security measures rather than moral blame. Within this framework, the offender is viewed as a patient who requires treatment, while society must address the dangerousness posed by such individuals through appropriate measures. The school yielded notable outcomes: (a) offender classification—three categories deemed highly dangerous (born criminals, the insane, and habitual offenders) and two less dangerous (occasional offenders and emotional offenders); (b) a rearticulation of social defense via security measures—Lombroso through exclusionary measures, and Ferri and Garofalo through social-defense policies tailored to individual conditions and the social environment; and **(c) a sustained endeavor to identify the causes of crime, opening a pathway for understanding offenders that continues to this day. The positivist school was the first to center the offender's personality in criminological inquiry and has influenced legislation from its time to the present. (6-8)

The Critical School and the Criminology of Convicts

The Critical School and the Criminology of Convicts offer new perspectives on the phenomenon of prisoner recidivism that, although distinct from the Positivist and Clinical Criminology schools, have gained significant global attention in contemporary criminological thought (6). A number of American and British criminologists and sociologists, critical of the traditional and clinical approaches in criminology—often referred to as "liberal criminology"—developed theories and ideas that came to be known collectively as Critical Criminology (7, 8).

Critical Criminology represents a broad theoretical discipline encompassing diverse perspectives that collectively reject the assumptions of classical and early realist criminology. Rather than viewing crime as an isolated act of deviance, this school focuses on the political, social, and economic structures of power, particularly the legislative system and the administration of criminal justice (9). The theories within this school are generally not based on empirical or field research but rather on philosophical, ideological, and socio-political critique, often addressing issues of justice, inequality, and systemic oppression. Instead of proposing pragmatic solutions for reducing crime within existing social frameworks, critical criminologists advocate legal, structural, and political reform, including the revision of laws, social policies, and economic systems to address the root causes of crime and prevent various forms of injustice (4, 7).

In the early twenty-first century, Critical Criminology witnessed the emergence of a new orientation even more radical than the 1970s' radical criminology, questioning the very legitimacy of criminology as a scientific discipline. This new strand argues that criminology, both in form and content, remains subservient to criminal law, and thus studies only one segment of social harm—criminalized behavior—while ignoring broader social injuries. This paradigm, emphasizing social justice, has contributed to the foundation of a new interdisciplinary field known as "social harm studies", which emerged at the beginning of the twenty-first century as an alternative to traditional criminology (6, 8).

Research Background

Given the growing importance of drug-related crimes, several empirical and analytical studies have been conducted in this area. Mohammadi Fard (2021) examined the impact of criminalizing narcotic drugs on divorce, finding that narcotic use often leads to marital separation, domestic violence, and child abuse, while the associated severe criminal penalties—such as long-term imprisonment or even the death penalty—contribute to family disintegration rather than its preservation. From a criminological perspective, the relationship between drug

criminalization and divorce is direct and causal, as criminalization reinforces the social destruction of family structures (5).

Rashidi (2022) analyzed the issue of drug addiction in Iranian law, concluding that, according to anomie and labeling theories, Iranian society has experienced a transformation of values—from traditional and religious to materialistic and modern—particularly since 1989. The study suggests that economic and educational reforms implemented after that period have increased inequality and poverty, consequently making wealth a dominant social value and exacerbating substance abuse and social deviance (1).

Arefi and Rabiei (2023) investigated the effect of gender as an extralegal variable on criminal judgments in narcotic drug cases in Kashan County. Their findings indicate that judges, consciously or unconsciously, consider gender when applying leniency or mitigating penalties for women, due to perceived psychological and physical differences between genders, women's vulnerability in social contexts, and different societal expectations for male and female offenders. The study concludes that female offenders are often subject to more lenient judicial treatment due to these factors (2).

Kazempour, Farajiha, and Habibzadeh (2023) conducted a penological analysis of class discrimination in the determination and execution of death penalties for drug-related crimes through a comparative approach. Their findings reveal that biased enforcement of drug laws, economic inequality among defendants (e.g., disparities in the performance of appointed vs. retained lawyers), corruption linked to the lucrative nature of drug trafficking, and judicial corruption leading to altered charges or case manipulation collectively reduce the likelihood of arrest and prosecution for major traffickers, while increasing the likelihood of execution for low-level offenders (4).

Finally, Ghasemi and Shadmanfar (2024) evaluated various data-mining methods for predicting narcotic drug crimes. Their results demonstrate that the Naïve Bayes classification algorithm exhibited superior accuracy and efficiency compared to other algorithms. However, other algorithms also achieved high validity scores, confirming the quality of the data features. The study concludes that data-mining techniques can play a critical role in forecasting and preventing drug-related crimes, offering innovative analytical tools for criminological prediction and policy-making (3).

Study Area

Isfahan Province, with an area of more than 107,000 square kilometers, is the sixth-largest province in Iran. Its vast expanse has led to the formation of diverse natural and human characteristics, to the extent that it can be regarded as a "miniature Iran." The province occupies a highly strategic position in terms of connectivity, economy, culture, and defense, and it has evolved into one of the country's most important scientific, industrial, military, and economic centers.

Since the enactment of the National Territorial Division Law in 1937, numerous changes have occurred in the administrative divisions of the province. Currently, Isfahan Province includes 25 counties, 51 districts, 107 cities, and 131 rural districts. Based on the latest administrative divisions, Isfahan Province covers an area of more than 107,000 square kilometers, accounting for approximately 6.6% of the total area of Iran. The size of the counties within the province varies significantly. For instance, Naein County and Khomeini Shahr County represent the largest and smallest counties, respectively. Due to the province's geographic characteristics, the distances between counties and the provincial capital are relatively balanced, facilitating administrative access and coordination.

The population of Isfahan Province, which experienced an upward trend between 1976 and 1986—rising by about 44%—began to decline after 1988. The population growth rate decreased to 7.36% in 1996 and further dropped to 2.2% in 2006. This downward trend has resulted in potential demographic challenges, such as population imbalance within the province. If the population control policy continues, the province may experience premature aging, leading to a shift in the age pyramid toward elderly populations. Such a demographic trend could pose a major obstacle to the province's economic development.

Research Methodology

Given the purpose of this research—to analyze the effect of the organizational structure of prisons on drug deterrence—and the use of a questionnaire as the main instrument, the study can be classified as a descriptive-survey research with a correlational design. Moreover, it is an applied study in terms of its objective. The data were collected through a survey conducted among employees who interact with prisoners convicted of drug-related offenses in Isfahan Province.

In general, the main methods of data collection in this study include:

1. Library Studies: To gather information related to the theoretical foundations and literature review of the research topic, various library resources such as books, articles, dissertations, and credible online databases were utilized.
2. Field Research: For collecting field data, a researcher-made questionnaire based on reliable scientific sources was employed. The sources of the questionnaire items are presented in Table 1.

The research questionnaire consists of three main sections:

- First: An introduction explaining the purpose of data collection and emphasizing the importance of participant cooperation.
- Second: Demographic questions designed to collect general information about respondents, including two questions on marital status and age.
- Third: Specialized questions focusing on the literature and conceptual dimensions of the study, particularly regarding organizational structure characteristics (complexity, formalization, and centralization) and drug deterrence.

The organizational structure scale includes three subscales:

- *Structural complexity* (4 items)
- *Structural formalization* (4 items)
- *Structural centralization* (4 items)

The dependent variable, drug deterrence, includes 10 items. Responses were measured on a five-point Likert scale, ranging from "strongly agree" to "strongly disagree."

Table 1 – Specialized Questions and Related Sources

Variable	Number of Questions	Question Numbers	Source
Organizational Structure	Complexity	4	1–4
	Formalization	4	5–8
	Centralization	4	9–12
Drug Deterrence	10	13–22	Researcher-made

The statistical population comprises all prison staff in 2024 who interact with drug-related prisoners in Isfahan Province. The sample was selected through purposive sampling. To determine the sample size for structural equation modeling, formula (1) was used. Based on the number of questionnaire items (22), the required sample size ranged between 110 and 330 participants. A total of 130 completed questionnaires were collected and analyzed using SPSS.

To assess the validity of the questionnaire, both content validity and construct validity were tested. Construct validity was examined using confirmatory factor analysis (CFA). Table 2 presents the factor loadings for the variables of complexity, formalization, and centralization, all of which exceed 0.40 (Halland, 1991), indicating adequate and significant factor loadings.

Table 2 – Results of Confirmatory Factor Analysis

Variable	Question	Factor Loading	Status
Complexity	Q1	0.77	Adequate
	Q2	0.70	Adequate
	Q3	0.74	Adequate
	Q4	0.71	Adequate
Formalization	Q5	0.79	Adequate
	Q6	0.78	Adequate
	Q7	0.64	Adequate
	Q8	0.71	Adequate
Centralization	Q9	0.72	Adequate
	Q10	0.79	Adequate
	Q11	0.80	Adequate
	Q12	0.79	Adequate
	Q13	0.55	Adequate
Drug Deterrence	Q14	0.74	Adequate
	Q15	0.62	Adequate
	Q16	0.71	Adequate
	Q17	0.82	Adequate
	Q18	0.70	Adequate
	Q19	0.77	Adequate
	Q20	0.55	Adequate
	Q21	0.64	Adequate
	Q22	0.57	Adequate

The reliability of the questionnaire was measured using Cronbach's alpha, and the results are presented in Table 3. Cronbach's alpha measures the internal consistency of scales, such as questionnaires or tests, that assess various constructs. Since the alpha coefficients for all variables exceeded 0.60 (Davari & Rezazadeh, 2016), the reliability of the questionnaire was confirmed.

Table 3 – Reliability of Research Variables

Cronbach's Alpha	Number of Items	Indicator	Construct (Latent Variable)
0.765	10	Drug Deterrence	
0.704	4	Complexity	Organizational Structure
0.818	4	Formalization	
0.738	4	Centralization	
0.990	22	Overall Questionnaire	

Depending on the nature of the hypotheses and variables, the following statistical analyses were used:

1. Descriptive Statistics: To analyze and summarize demographic data from the questionnaires, methods such as frequency distribution tables and mean comparisons were employed.

2. Inferential Statistics: To test the research hypotheses, analyses including skewness–kurtosis tests, correlation factor analysis, and structural equation modeling (SEM) were conducted. The data analysis was performed using SPSS version 24 and Smart PLS version 4.0 for confirmatory factor analysis and structural modeling.

Findings

Based on the results below, the highest mean pertains to the variable of centralization, and the lowest mean pertains to the variable of drug deterrence.

Table 4 – Descriptive Statistics for the Research Variables

Latent Variables	Mean	Standard Deviation
Complexity	3.8635	0.59154
Formalization	3.8796	0.64192
Centralization	4.0212	0.63264
Drug Deterrence	3.6516	0.58789

In inferential statistics, sample statistics are first calculated from observed data, and then the results are generalized to the population through estimation and hypothesis testing. In general, statistical procedures that involve inference and deduction are referred to as inferential statistics. The statistical methods used in this study were selected based on the study's needs and the aim of confirming or rejecting the research hypotheses. As stated, structural equation modeling (SEM) with partial least squares (PLS) was employed to analyze the data and assess model fit. To this end, SmartPLS version 4 was used.

Analysis using the PLS approach consists of two parts: the measurement model and the structural model. The model's variables are divided into latent and manifest variables, and latent variables are used at different levels. The measurement model section includes the items corresponding to each dimension as well as the dimension itself, and it examines the relationships between items and dimensions. The structural model section includes all constructs specified in the main research model and examines the correlations among constructs and the relationships between them.

Indicator reliability, convergent validity, and discriminant validity were used to evaluate the measurement model. Indicator reliability for internal consistency was assessed using three criteria: factor loadings, Cronbach's alpha, and composite reliability. Convergent validity indicates the correlation of a construct with its indicators, whereas discriminant validity indicates the extent to which a construct relates more strongly to its own indicators than to those of other constructs.

Factor loadings were calculated by correlating each indicator with its corresponding construct; acceptable values are equal to or greater than 0.40. In essence, a factor loading shows that the variance shared between a construct and its indicators exceeds the measurement error variance for that construct. The factor loadings of the model are shown in Figure 1.

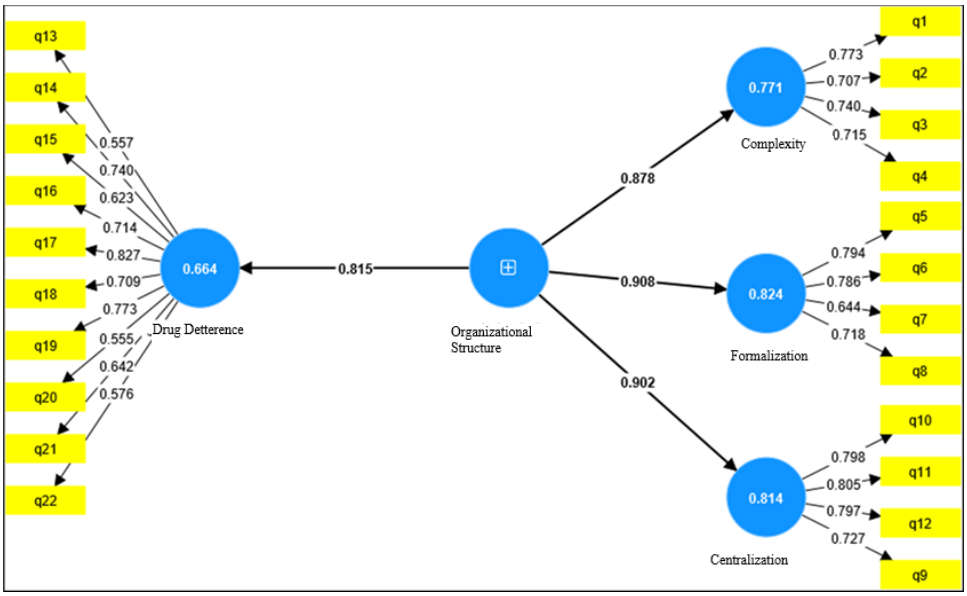

Figure 1 – Factor Loadings and Path Coefficients for the Research Data

Given Figure 1, all item loadings on their respective constructs exceed 0.40; therefore, all items are at an acceptable level, and no items need to be removed.

Cronbach's alpha is a classical index for reliability analysis and has a strong tradition in SEM, estimating reliability based on the internal correlations among indicators. Values equal to or greater than 0.50 are acceptable, with 0.60 and above often cited as desirable. Composite Reliability (CR) is another reliability index that offers advantages over the traditional Cronbach's alpha. Unlike alpha, CR accounts for the actual loadings of indicators, giving more weight to indicators with higher loadings; thus, both indices were used. Values equal to or greater than 0.50 are considered acceptable. These metrics are reported in Table 5.

Table 5 – Cronbach's Alpha and Composite Reliability

Latent Variables	Cronbach's Alpha (α ≥ 0.7)	Composite Reliability (CR ≥ 0.7)
Drug Deterrence	0.865	0.877
Centralization	0.788	0.790
Formalization	0.718	0.723
Organizational Structure	0.890	0.892
Complexity	0.714	0.715

Given the Cronbach's alpha and composite reliability values in Table 5, all latent variables have coefficients above 0.70, indicating adequate reliability (both in terms of alpha and CR). Convergent validity is another criterion used to evaluate measurement models in SEM. Fornell and Larcker (1991) recommend using the Average Variance Extracted (AVE) as a measure of convergent validity. Magnus et al. (1996) consider AVE ≥ 0.40 to be acceptable. Table 6 presents the AVE results, which indicate acceptable convergent validity.

Table 6 – Convergent Validity (AVE) of the Research Variables

Latent Variables	AVE (≥ 0.40)
Drug Deterrence	0.459
Centralization	0.612
Formalization	0.545
Organizational Structure	0.454
Complexity	0.539

The Fornell–Larcker criterion was used to test discriminant validity of the measurement model. According to this criterion, acceptable discriminant validity means that a construct shares more variance with its own indicators than with other constructs. Discriminant validity is acceptable when the square root of each construct's AVE is greater than the correlations between that construct and all others. In PLS, this is examined using a matrix (Table 7) whose diagonal cells contain the square roots of AVE for each construct and off-diagonal cells contain inter-construct correlations.

Table 7 – Correlations Among Latent Constructs and Square Roots of AVE

	Drug Deterrence	Centralization	Formalization	Organizational Structure	Complexity
Drug Deterrence	0.677				
Centralization	0.639	0.782			
Formalization	0.638	0.733	0.738		
Organizational Structure	0.515	0.602	0.708	0.674	
Complexity	0.411	0.668	0.714	0.678	0.734

Based on the correlations and the square roots of AVE on the diagonal of Table 7, the discriminant validity of the model at the construct level is supported according to the Fornell–Larcker criterion.

After establishing the validity and reliability of the measurement model, the structural model was evaluated using the relationships among latent variables. The most common indices for assessing structural model fit were used, including t-values (significance), R^2 (coefficient of determination), Q^2 (predictive relevance), and f^2 (effect size).

The primary index of structural model adequacy is the t-value. Analysis indicates that the t-values for all research hypotheses exceed 1.96, demonstrating that all indicators and inter-construct paths are significant at the 95% confidence level (Figure 2).

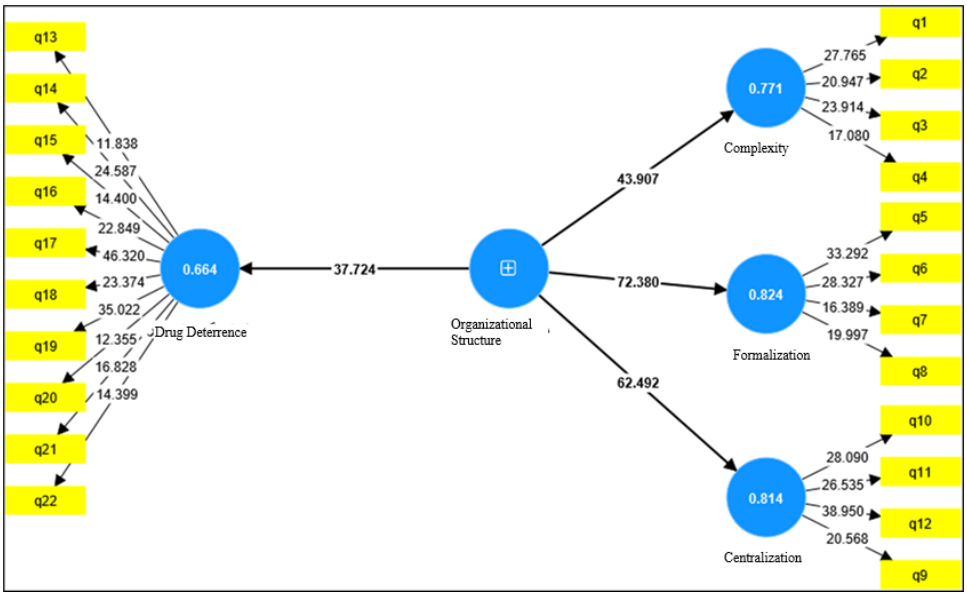

Figure 2 – t-Values for the Research Data

Table 8 presents R^2 for the endogenous variables in the structural model. Following Chin (1998), benchmark values of 0.19, 0.33, and 0.67 indicate weak, moderate, and strong explanatory power, respectively. The observed R^2 values exceed 0.33, indicating a relatively strong structural model. Additionally, Q^2 (Stone–Geisser) was used to assess predictive relevance. Following Henseler et al. (2009), 0.02, 0.15, and 0.35 indicate small, medium, and large predictive relevance, respectively. As shown in Table 8, the Q^2 values for the endogenous variables are greater than 0.15, indicating medium predictive power.

Table 8 – R^2 and Q^2 Values

Variables	R^2	Q^2
Drug Deterrence	0.664	0.330
Centralization	0.814	0.327
Formalization	0.824	0.232
Complexity	0.771	0.236

Effect size is another structural model fit index applicable to exogenous variables. Cohen's guidelines are 0.02 (small), 0.15 (medium), and 0.35 (large). This criterion is used when an endogenous variable is affected by more than one exogenous variable.

Table 9 – Effect Size (f^2) Values

Paths	f^2
Organizational Structure → Drug Deterrence	1.976
Organizational Structure → Centralization	4.380
Organizational Structure → Formalization	4.690
Organizational Structure → Complexity	3.371

As shown in Table 9, all effect sizes exceed 0.35, indicating large effects across nearly all paths.

The Standardized Root Mean Square Residual (SRMR) ranges from 0 to 1, with smaller values indicating better overall model fit. In other words, the higher the factor loadings and regression coefficients, the closer SRMR approaches zero. A common cutoff is 0.08; SRMR values at or below 0.08 suggest good overall fit, while higher values indicate poorer fit. According to the results, the SRMR for this model is 0.049, indicating strong overall model fit.

Conclusion

Given the results of the model test, the obtained t-value for the effect of organizational structure on drug deterrence is 37.72, which exceeds 1.96 at the 0.95 confidence level, and the effect size is 0.81. This result indicates that organizations with orderly and hierarchical structures can more effectively prevent the spread of drug use through preventive programs and resource management. Efficient organizational structures—with clear task division and effective communication—enable the provision of better training and social support, which ultimately strengthens a culture of prevention and reduces the prevalence of drug use. Moreover, organizations that continuously monitor and evaluate their performance in this domain and implement ongoing improvements can, by adopting supportive and incentive policies, create stronger deterrence against narcotics.

Given the results of the model test, the obtained t-value for the effect of organizational complexity on drug deterrence is 22.29, which exceeds 1.96 at the 0.95 confidence level, and the effect size is 0.71. This result indicates that organizations with more complex and multilayered structures, due to the presence of diverse and specialized units, are able to combat drug use from multiple angles. Such organizational complexity enables the mobilization of more resources for implementing preventive and therapeutic strategies, thereby increasing the efficiency of deterrence processes. In addition, complex organizational structures can facilitate information exchange and interdepartmental cooperation, improving coordination among the various bodies responsible for preventing drug use. Consequently, greater organizational complexity can, by establishing more effective and varied mechanisms, play an important role in reducing the prevalence of drug use.

Given the results of the model test, the obtained t-value for the effect of organizational formalization on drug deterrence is 23.56, which exceeds 1.96 at the 0.95 confidence level, and the effect size is 0.71. This result is consistent with the study by Dehnavi et al. (2019). It indicates that organizations with clear and formal regulations and guidelines are able to implement drug-prevention programs and policies more effectively and systematically. Formalization ensures systematic follow-up of activities, and those responsible for implementation act with greater precision and commitment. Moreover, the presence of formal rules and procedures in organizations can foster social discipline and strengthen a culture of countering drug use in workplace and educational environments. Ultimately, organizations with defined and coherent approaches can have positive effects in reducing drug use.

Given the results of the model test, the obtained t-value for the effect of organizational centralization on drug deterrence is 27.87, which exceeds 1.96 at the 0.95 confidence level, and the effect size is 0.74. This finding indicates that organizations that concentrate their resources and efforts in a focused and purposeful manner on prevention and counter-narcotics programs are able to achieve greater impact in reducing drug use within the target population. Centralization can improve efficiency in executing anti-narcotics policies and programs, enhance coordination among departments, and reduce the dispersion of efforts. Furthermore, focusing on this issue enables organizations to design specific and effective strategies and implement them precisely and systematically, which can, in turn, lead to greater deterrence against drug use.

Recommendations Based on the Research Findings

It is recommended that the organization use advanced information management and monitoring systems to oversee program implementation and evaluate their impact on reducing drug use.

To improve outcomes, it is recommended to employ artificial intelligence to analyze data related to employee or member behavior and identify patterns of risk for drug use. Such data may include work hours, atypical behaviors, health records, and mental health reports.

It is recommended to use intelligent systems to design customized training programs for employees or members. These programs can automatically deliver preventive education on drug use based on individual and group needs.

To achieve better results, it is advisable to develop online simulation programs that replicate various behaviors and test individuals' reactions to drug use in simulated environments.

It is recommended to apply machine learning algorithms to analyze behavioral data of employees and identify anomalous and high-risk patterns. These algorithms can detect signs of drug use by analyzing data from social networks, internal reports, and reviews.

For optimization purposes, it is recommended to use simulation models and educational games so that, to prevent drug use, the organizational structure employs simulations or educational games to raise awareness of the risks of narcotics.

It is recommended that the organization formally design recruitment processes and performance evaluations to ensure thorough screening of employees. These evaluations may include periodic testing to detect drug use and other methods of assessing employee health.

It is recommended that the organization establish clear and formal penalties for violations of anti-narcotics laws and policies. These penalties should be explicitly stated in organizational guidelines and be accessible to all employees.

To improve the situation, the organization can use artificial intelligence systems and machine learning algorithms to monitor employee behavior and enable early identification of risks related to drug use. These systems can automatically detect suspicious behavioral patterns and alert managers to take timely preventive action.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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