

The Impact of Anxiety on Interpersonal Trust Among Individuals Undergoing Drug Rehabilitation in Compulsory Isolation Centers and Community Settings

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Abstract. Drug abusers often seek escapism and self-satisfaction by re-using drugs when facing anxiety and interpersonal conflicts. Enhancing their ability to build and maintain interpersonal trust is crucial for improving social interactions and external support. This study aims to analyze the impact of anxiety on interpersonal trust among individuals undergoing drug rehabilitation in compulsory isolation centers and community settings.

Keywords: Anxiety, Mandatory isolation center, Community drug rehabilitation.

1. Introduction and Research Background

The compulsory isolation drug rehabilitation program, where drug addicts are generally held for two years, along with voluntary and community-based drug rehabilitation, constitutes the basic system of drug rehabilitation measures in the People's Republic of China. However, Mainland China officially began implementing community-based drug rehabilitation in 2008, which is mainly divided into two types: (1) Individuals in the early stage, who undergo three years of community-based drug rehabilitation. (2) Individuals released from compulsory drug rehabilitation centers, who receive another three years of community-based drug rehabilitation.

Since Drug abusers often lack the support and respect of their family and friends and face significant challenges, such as economic hardship, interpersonal conflicts, and social discrimination. So these pressures and anxiety often lead them to reuse drugs to compensate for their mental distress, seeking a brief sense of pleasure. Therefore, additional external supports and resources are crucial for their recovery in compulsory isolation centers and communities. And promoting interpersonal trust is essential for effective interactions and external support.

2. Literature Review

2.1. Drug Abuse

Long-term drug abuse can lead to physiological and psychological disorders, which means that substance use disorder (SUD) patients have a higher probability of anxiety, depression, and other mental complications (Ashrafioun et al., 2020). Furthermore, dependence on drugs can make them seem unreliable, irresponsible, uncaring, selfishness, avoidance, persistently irritable, and withdrawal, which will reduce their trust and destroy their intimate relationships (Green, 2021). Besides, drug withdrawal treatment can be mainly divided into three stages: onset, maintenance, and relapsing nature of drug use (Dougherty et al., 2015). And the subjects in this study are all in the maintenance stage, meaning they are currently undergoing drug rehabilitation. The purpose of this study is to prevent the occurrence of the third stage, relapse.

2.2. Drug Rehabilitation

Anxiety in Drug Rehabilitation Contexts. Anxiety is a common negative emotion during drug rehabilitation and impacts the motivation for recovery, though its specific mechanism remains unclear (Li et al., 2023). Even after completing rehabilitation, drug abusers often struggle with anxiety,

depression, and other negative emotions, which can lead to repeated relapse (Song et al., 2023). Sapkota et al. (2017) concluded that anxiety from peer pressure, employment pressure, lack of social and family recognition, and adjustment problems increases the likelihood of relapse after treatment. Consequently, individuals with more severe drug addiction may experience higher levels of anxiety during rehabilitation.

Interpersonal Trust in Drug Rehabilitation. Interpersonal trust and social support are critical determinants of mental health during drug rehabilitation, contributing to relapse prevention and effective recovery (Aline et al., 2016). Besides, a lack of participation, interaction, and understanding can lead to reduced trust in therapists or service providers, thereby diminishing the effectiveness of rehabilitation (Cournoyer et al., 2007). Furthermore, Qualitative interviews with drug users in the compulsory isolation rehabilitation center in Changsha, Hunan Province, revealed that relapse incentives are primarily driven by negative emotions, interpersonal conflicts (such as stigma and discrimination), and stressful events (socio-economic conditions) (Yang et al., 2015). Consequently, individuals with more severe drug addiction may exhibit lower interpersonal trust. According to interactive ritual theory, high interpersonal trust allows individuals to gain relationship energy through quality interactions, improving mental energy and self-control, thus reducing drug abuse behavior (Reina et al., 2023). Chan et al. (2019) concluded that drug abuse is a coping strategy for psychological needs unmet after the loss of interpersonal relationships, suggesting that developing relationships characterized by unconditional warmth, care, and empathic support can enhance trust. This improvement in interpersonal trust can satisfy psychological needs and reduce the probability of relapse. In summary, interpersonal trust enhances social interaction, provides external support and psychological care, and helps individuals repair their social support networks and adapt to society, reducing drug reuse.

The Impact of Anxiety on Interpersonal Trust in Drug Rehabilitation Contexts. Mellinger (1956) found that anxiety in insecure environments reduces interpersonal trust and communication accuracy. Higher levels of anxiety have been shown to diminish interpersonal trust (Shabahang et al., 2022; Sellnow et al., 2021; Aimone et al., 2014; Simpson, 2007; Anderl et al., 2018). Shabahang et al. (2022) confirmed a high correlation between social anxiety and fear of interpersonal relationships. Additionally, Quintana et al. (2019) found that anxiety interferes with social information processing, reducing interpersonal trust. Compared to healthy individuals, drug users have weaker brain responses, are more susceptible to emotional stress, and lack self-esteem, trust, and self-efficacy, making them more prone to interpersonal conflict due to lost respect and recognition from family, friends, and society (Zhe Wang et al., 2018). This may lead them to turn to drugs to alleviate tension and powerlessness, seeking pleasure. Aimone et al. (2014) studied the relationship between anxiety, interpersonal trust, betrayal aversion, and risk preference, finding that higher anxiety results in a decreased growth rate of interpersonal trust and a diminished ability to establish or maintain trust relationships. They also found no correlation between anxiety and risk preference or betrayal aversion, although betrayal aversion reduces the growth rate of interpersonal trust, while risk preference positively regulates it. In summary, increased anxiety in drug addicts may lead to lower interpersonal trust.

2.3. Classification of Trust

Shapiro et al. (1992) identified three foundational types of trust in business relationships: deterrence-based, knowledge-based, and identification-based. The deterrence-based trust is related to the fear of punishment, with deterrence preventing hostilities as the main motivation for keeping a promise, so this level of trust is fragile (Chua et al., 2012). Besides, there are three types of interactions that can serve as deterrence tools: repeated interactions, multiple interactions, and interactions involving hostage-taking (Shapiro et al., 1992). The knowledge-based trust is based on predictions about others' behavior. With sufficient information about another's behavior, competence, reliability, and honesty, it becomes easier to predict cooperative behavior and determine whether to develop further trust. Regular communication is particularly useful in increasing the predictability of

this type of trust (Shapiro et al., 1992). The identification-based trust is the highest level of trust, where trust exists because each party understands, agrees with, empathizes with, and adopts the other's values due to their emotional connection (Shapiro et al., 1992). At this level, one person can act as another's agent in interpersonal transactions, making surveillance unnecessary (Chua et al., 2012). Yin (2003) suggested that trustworthiness is highly valued in Chinese culture, second only to filial piety, due to Confucianism's influence. As a result, the Chinese generally have a higher level of the identification-based trust (IBT), while the knowledge-based trust (KBT) plays a more important role among Westerners (Zhang & Bond, 1993). They also found that the identification-based trust (IBT) is higher with acquaintances, as more interaction and learning occur, while the knowledge-based trust (KBT) is higher with strangers due to the lack of information about them.

3. Conceptual Framework and Hypotheses

Based on the classification model of interpersonal trust and the innovative use of the extended trust game experiment, this study seeks to compare the impact of anxiety on three different types of interpersonal trust among drug abusers in compulsory isolation drug rehabilitation centers, individuals undergoing detoxification or rehabilitation in the community, and normal citizens. According to existing literature and addiction severity, the following hypotheses were tested:

3.1. Differences in Anxiety and Interpersonal Trust Among Three Groups

Differences in Anxiety Levels. The anxiety levels of the three groups will differ significantly, with the highest levels in the compulsory isolation group and the lowest in the control group (H1).

Differences in Interpersonal Trust. There will be significant differences in interpersonal trust among the three groups, with the highest levels in the control group and the lowest in the compulsory isolation group. Specifically: (1) There will be significant differences in trust willingness among the three groups, with significant differences found within each group under different delta values (the lower the delta, the higher the deterrence degree, and the higher the level of deterrence-based trust). Under various deterrence conditions, the control group will have the highest willingness to trust, while the compulsory isolation group will have the lowest (H2). (2) There will be significant differences in the knowledge-based trust among the three groups, with the highest levels in the control group and the lowest in the compulsory isolation group (H3). (3) Similarly, there will be significant differences in identification-based trust among the three groups, with the highest levels in the control group and the lowest in the compulsory isolation group (H4).

3.2. The Correlations Between Anxiety and Interpersonal Trust in Each Group

The Impact of Anxiety on The Deterrence-based Trust. (1) Higher deterrence levels will lead to more anxious individuals being more likely to choose trust (H5). (2) The level of anxiety will positively affect the amount of money allocated by A to themselves (H6). (3) Subjects will expect B to reduce the allocation if A is more anxious (H7).

The Impact of Anxiety on The Knowledge-based Trust. There will be a negative correlation between anxiety and the knowledge-based trust in each group (H8).

The Impact of Anxiety on The Identification-based Trust. Similarly, anxiety will be negatively correlated with the identification-based trust in each group (H9).

4. Methodology

4.1. Participants

Participants were recruited from Hunan Province, mainland China, and divided into three groups (50 individuals each): drug abusers in the compulsory isolation drug rehabilitation center (experimental group 1), individuals in community-based rehabilitation (experimental group 2), and normal citizens (the control group). All participants were informed of the study procedures and signed

informed consent forms. Besides, individuals with mental illness or cognitive impairment were excluded.

4.2. Measures

4.2.1. The Anxiety Degree

The Zung Self-rating Anxiety Scale (SAS) was used to measure the anxiety level of participants recently. And it has 20 items, on a 4-point scale from 1 (none, or very little of the time) to 4 (most of the time, or all of the time), covering a variety of anxiety symptoms, both psychological (e.g., "I feel scared for no reason," etc.) and physical (e.g., "My arms and legs won't stop shaking"). In addition, questions 5, 9, 13, 17, and 19 should be calculated in reverse, then the scores of 20 items are finally added together (Dunstan & Scott, 2020). Moreover, this scale showed relatively high reliability in this study (with Cronbach's alpha of the compulsory group, the community group, and the control group being .740, .864, and .878, respectively).

4.2.2. The Deterrence-based Trust

(1) The Experiment to Study the Deterrence-based Trust: The Extended Trust Game.

The extended trust game (van et al., 2017) is a variation of the typical trust game that measures the effect of deterrence on interpersonal trust using the delta game, a general form of the ultimatum game. This experiment focuses on player A's trust decisions, with three control experiments designed: delta = 1 (dictator game), delta = 0.5, and delta = 0 (traditional ultimatum game). Lower delta levels indicate higher deterrence levels, with greater concern about the risk of underbidding (Handgraaf et al., 2008). Moreover, the game was conducted with E-Prime for accurate testing. Participants were informed that they would be randomly matched with another participant, referred to as player A and player B, respectively. However, all participants were assigned as player A and had two options: (1) Player A could choose to distribute the funds themselves, starting with \$10, indicating unwillingness to trust and cooperate. (2) Player A could give distribution rights to player B, tripling the start-up capital to \$30, indicating willingness to trust and cooperate. In addition, individuals would have previously learned the following information, additionally, they would have been told that player B were also conducting this experiment simultaneously and knew the same rules as the following: (1) When delta = 1, if player A chose to let player B distribute \$30, they could not influence B's allocation. (2). When delta = 0.5, if player A chose to let player B distribute \$30, they would receive a subsequent distribution from B, which they could accept or reject. If rejected, all of their distributions would be reduced by 50%. 3). When delta = 0, if player A rejected B's allocation, both would receive nothing (see in Figure 1).

(2) Manipulation Checks

At the end of the experiment, we added three questions to form the Consequences of Rejection Perception Scale (van et al., 2017) to check our manipulation of the different delta values: (1) "If you disagree with the outcome assigned by B, how much influence do you think you have in the process?" (1 = absolutely not; 7 = absolutely). (2) "What are the consequences for you if you disagree with the outcome of the B assignment?" (1 = absolutely not; 7 = absolutely). (3) "If you disagree with the outcome of B's assignment, what are the consequences for B?" (1 = absolutely not; 7 = absolutely). And this scale demonstrated general reliability in this study, with Cronbach's alpha values of .687, .679, and .772 for the compulsory isolation group, the community group, and the control group, respectively. Besides, we also set up a Vulnerability Perception Scale with the question: "When choosing to let Player B allocate money, to what extent do you feel vulnerable?" (1 = absolutely not; 7 = absolutely). This scale showed general reliability, with Cronbach's alpha values of .624, .649, and .620 for the compulsory isolation group, the community group, and the control group, respectively.

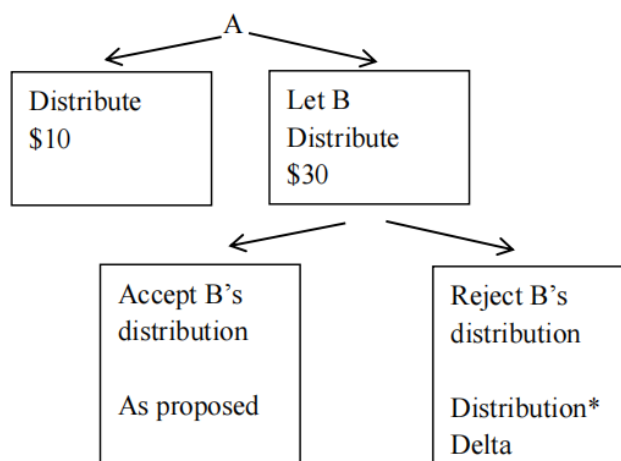


Figure 1. The Extended Trust Game

(3) Analyze Distribution Behaviors of the Subjects.

During the experiment, on the one hand, participants who were reluctant to trust and cooperate were asked "How much of the \$10 would you choose to allocate to yourself?" and "If you choose to give the distribution right to the other party B, he now has 30 yuan, how much do you think the other party will allocate to you?". On the other hand, participants who were willing to trust and cooperate were asked, "If you chose to allocate it yourself, how much of the \$10 would you choose to allocate to yourself?" and "Now that the other party B has 30 yuan, how much do you think the other party will allocate to you?" (van et al., 2017).

4.2.3. The Knowledge-based Trust

The 5-item knowledge-based trust scale (KBT) utilized a 5-point Likert scale (Zhang, 1997; Zhang et al., 2015), ranging from 1 (strongly disagree) to 5 (strongly agree). And the total or average score of the scale items was calculated to measure trust. An example item is: "The other person deserves to have a good reputation" (Zhang et al., 2015). This scale demonstrated high reliability in this study, with Cronbach's alpha values of .852 for the compulsory isolation group, .605 for the community group, and .904 for the control group.

4.2.4. The Identification-based Trust

The 5-item identification-based trust scale (IBT) also employed a 5-point Likert scale (Zhang, 1997), ranging from 1 (strongly disagree) to 5 (strongly agree). The total or average score of the scale items was calculated to measure trust. An example item is: "The people I trust are those with whom I have a long-term relationship" (Zhang et al., 2015; Zhao et al., 2019). This scale also showed high reliability in this study, with Cronbach's alpha values of .763 for the compulsory isolation group, .649 for the community group, and .832 for the control group.

4.3. Procedure

This study involved three groups, each conducting experiments and surveys in different quiet meeting rooms. Participants signed informed consent forms and provided demographic information, including age, gender, education level, and drug use status. They then completed the Anxiety Self-Rating Scale (SAS) to measure anxiety levels. To assess interpersonal trust, participants completed the following: (1) Participants completed experiments using the extended trust game on a computer. And the experiment was divided into three steps based on delta values ($\Delta=1$, $\Delta=0.5$, $\Delta=0$), with each step repeated twice to reduce error. Besides, manipulation checks were conducted at the end of each step. (2) To assess the knowledge-based trust, they completed the knowledge-based Trust Scale. (3) Similarly, to measure their identification-based trust, they completed the identity-based Trust Scale (IBT). At the end, they were then escorted out in an orderly manner.

4.4. Analytical Approach

(1) Data Analysis of the Experiment.

In order to test the deterrence-based trust, data from the extended trust game running on E-Prime was extracted into Excel and imported into SPSS. The following steps were conducted: (1) To test whether all subjects correctly understood the experimental rules and whether the delta operation was effective, we conducted 3×3 ANOVA on the consequences perception scale and the vulnerability perception scale of the three groups under three various delta values respectively. If the homogeneity of variance was not satisfied, a White test was conducted. LSD post-hoc comparisons were also performed. (2) In order to detect trust willingness, a 3×3 ANOVA was conducted across three groups under different delta values. If the homogeneity of variance was not satisfied, the White test was conducted, followed by LSD post-hoc comparisons. (3) To get a deeper understanding of the allocation behaviors of subjects, a 3×3 ANOVA was conducted on "player A's allocations of the \$10" and "A's expectations for B's distribution of the \$30" across three groups under different delta values. If the homogeneity of variance was not satisfied, a White test was conducted, followed by LSD post-hoc comparisons.

(2) Data Analysis of the Survey.

Data from demographic variables, the self-rating anxiety scale (SAS), the knowledge-based trust scale (KBT), and the identification-based trust scale (IBT) were imported into SPSS for statistical analysis. The following steps were conducted: (1) Reliability tests for various scales were conducted. (2) Descriptive analysis of demographic variables was performed. (3) In order to detect the degree of anxiety, One-way ANOVA was conducted on SAS results across three groups. If the homogeneity of variance was not satisfied, Welch and Brown-Forsyth tests were conducted, followed by LSD post-hoc comparisons. (4) In order to detect the knowledge-based trust, One-way ANOVA was conducted on results of the knowledge-based trust across three groups. If the homogeneity of variance was not satisfied, Welch and Brown-Forsyth tests were conducted, followed by LSD post-hoc comparisons. (5) In order to detect the identification-based trust, One-way ANOVA was conducted on results of the identification-based trust across three groups. If the homogeneity of variance was not satisfied, Welch and Brown-Forsyth tests were conducted, followed by LSD post-hoc comparisons.

(3) Binary Logistics Analysis and Correlation Analyses Based on Results of the Experimental and the Survey.

For the variables in this study, the independent variable (X) was the anxiety level, and the dependent variables were: Y1=willingness to trust, Y2=player A's allocations of the \$10, Y3=A's expectations for B's distribution of the \$30, Y4=the degree of the knowledge-based trust, Y5=the degree of the identification-based trust. And the following steps were conducted: (1) Binary logistic regression analysis was performed for X and Y1. (2) Correlation analysis for X, Y2, Y3, Y4, and Y5 was conducted for each of the three groups.

5. Results Analysis

5.1. Descriptive Analysis of Demographic Variables

As shown in Table 1, the majority of drug abusers in this study were male. The proportion of males in the compulsory isolation group, the community group, and the control group was 100%, 92%, and 80%, respectively. Most participants were aged between 31 and 50 years. In the compulsory isolation group, most individuals were in their second year at the compulsory isolation drug rehabilitation center (60%), and their education levels were generally low, with only 24% having a high school education or higher. This was higher than the community group (16%) but much lower than the control group (78%).

Similar to the community group, most individuals in the compulsory isolation group had used traditional drugs, and some had used multiple drugs simultaneously, including heroin (20 people), methamphetamine (32 people), leprosy (24 people), ketamine (3 people), etomidate (3 people), and

ecstasy (1 person). They also had a long history of drug use, as shown in Table 2, with 32% having used drugs for 10 years or more, the same proportion as in experimental group 2. The probability of relapse was 100% in the compulsory isolation group, with 58% reusing drugs more than three times. In contrast, 42% of the community group had no relapse, with only 14% reusing drugs more than three times. Notably, 56% of those in the community group had been released from the compulsory isolation drug rehabilitation center before entering community rehabilitation.

Table 1. Demographic Characteristics of Three Groups

Baseline characteristics	The compulsory isolation group		The community group		The control group	
	n	%	n	%	n	%
Gender						
Female	0	0	4	8	10	20
male	50	100	46	92	40	80
Age range						
Under 18	0	0	0	0	0	0
18-25	1	2	7	14	7	14
26-30	6	12	4	8	10	20
31-40	21	42	13	26	11	22
41-50	14	28	16	32	18	36
51-60	8	16	6	12	4	8
Over 60	0	0	2	4	0	0
Educational level						
Primary and below	17	34	10	20	0	0
Middle school	21	42	17	34	1	2
High school or technical secondary school	10	20	15	30	10	20
Junior college	2	4	7	14	16	32
Bachelor	0	0	1	2	12	24
Master's degree or above	0	0	0	0	11	22

Table 2. Basic Characteristics of Drug Addicts of the Study

Related characteristics	The compulsory isolation group		The community group	
	n	%	n	%
The number of years of drug use				
1 year or less	0	0	7	14
2-4	13	26	13	26
5-7	13	26	8	16
8-10	8	16	6	12
10 years or more	16	32	16	32
The number of times they have been relapsing into drugs				
0	0	0	21	42
1	16	32	13	26
2	15	30	9	18
3	10	20	3	6
4	5	10	0	0
5 times or more	4	8	4	8

5.2. Analyses of Differences in Anxiety and Interpersonal Trust Among Three Groups

5.2.1. Anxiety Levels

To analyze differences in anxiety among the three sample groups, a one-way ANOVA was conducted on their SAS scale scores, as the homogeneity of variance was satisfied ($p > .005$). Significant differences were found among the groups ($F(2, 147) = 9.372, p < .001$). Further LSD

post-hoc comparisons revealed that the anxiety level of the community group was not significantly higher than the control group ($p = .785$). However, the anxiety level of the compulsory isolation group was significantly higher than both the community and control groups ($p < .001$).

Table 3. Means, Standard Deviations, One-Way ANOVA Test, and LSD Post-hoc Comparisons of the Self-rating Anxiety Measures

Groups	M	SD	F-ratio	P	LSD
The compulsory isolation group	36.84	5.004	9.372	.000**	A>B, C
The community group	31.96	7.428			
The control group	31.54	7.662			
Note. The homogeneity of variance was satisfied, and One-way ANOVA was adopted. * $p < .05$. ** $p < .001$.					

5.2.2. The Deterrence-based Trust

Manipulation Checks. To ensure all participants understood the rules, 3×3 ANOVA tests were conducted on the perceived consequences scale ($F(4, 441) = 11.092, p < .001$) and the vulnerability perception scale ($F(4, 441) = 14.600, p < .001$). Both tests showed significant differences, indicating that participants understood the experiment's main features correctly.

Willingness to Trust. Because the homogeneity of variance was not satisfied ($p < .05$), White's test for heteroscedasticity was used. Significant differences among the three groups under different delta operations were found ($p < .001$). Although there was no significant difference in willingness to trust between the groups ($F(2, 441) = 2.670, p = .070$), significant differences were observed under three delta values ($F(2, 441) = 13.004, p < .001$). Additionally, the interaction between groups and delta values was significant ($F(4, 441) = 3.014, p < .05$). Then LSD post-hoc comparisons showed that the community group's willingness to trust was significantly higher than the compulsory isolation group ($p < .05$). Higher deterrent strength resulted in a significantly higher willingness to trust at $\text{delta} = 0.5$ compared to $\text{delta} = 1$ ($p < .05$), and $\text{delta} = 0$ compared to $\text{delta} = 1$ ($p < .001$), with no significant difference between $\text{delta} = 0.5$ and $\text{delta} = 0$. Besides, the control group showed higher willingness to trust at $\text{delta} = 0$, and as the delta value decreased, individuals in the experimental groups were more likely to trust.

Table 4. Means and Standard Deviations of Willingness to Trust Measures

Groups and various delta values	M	SD
The compulsory isolation group		
Delta=1	.34	.479
Delta=0.5	.58	.499
Delta=0	.64	.525
The community group		
Delta=1	.38	.490
Delta=0.5	.66	.479
Delta=0	.88	.328
The control group		
Delta=1	.52	.505
Delta=0.5	.54	.503
Delta=0	.56	.501

Table 5. White Test and Between-Subjects Effects Test of Willingness to Trust Measures

Source of variance	SS	df	MSE	F	P
Different groups	1.240	2	.620	2.670	.070
Various Delta Value	6.040	2	3.020	13.004	.000**
Different groups * Various Delta Value	2.800	4	.700	3.014	.018*

Note. The homogeneity of variance was not satisfied, so white heteroscedasticity test was adopted.
*p < .05. **p < .001.

Table 6. LSD Post-hoc Comparisons of Willingness to Trust Measures

Dimension Index	LSD
Different groups	A < B
Various Delta Value	a < b, c

Note. A=the compulsory isolation group, B=the community group, and C=the control group. Besides, a=delta=1, b=delta=0.5, and c=delta=0.

Player A's Allocations of the \$10. Participants who chose not to trust were asked, "How much of the \$10 do you choose to allocate to yourself?" Those who chose to trust were asked, "If you choose to self-distribute, how much of the \$10 would you want to allocate to yourself?" A 3×3 ANOVA test indicated significant differences among the groups with various delta values ($F(2, 441) = 24.241, p < .001$). Significant differences were found among the groups when delta values were consistent ($F(2, 441) = 24.241, p < .001$). However, within the same group, no significant difference was observed in the amount of money A allocated to themselves when delta changed ($F(2, 441) = .570, p = .566$). LSD post-hoc comparisons showed that individuals in the compulsory isolation group allocated themselves significantly more money than those in the community and control groups ($p < .001$), with no significant difference between the latter two groups ($p = .1$). Within the same group, delta value changes did not result in significant differences.

Table 7. Means and Standard Deviations of Player A's Allocations of the \$10 Measures

Groups and various Delta	M	SD
The compulsory isolation group		
Delta=1	8.14	1.959
Delta=0.5	8.26	1.871
Delta=0	8.60	1.796
The community group		
Delta=1	6.66	2.115
Delta=0.5	6.78	2.102
Delta=0	6.78	2.122
The control group		
Delta=1	7.12	2.173
Delta=0.5	7.02	2.152
Delta=0	7.26	2.248

Table 8. 3×3 ANOVA Test and Between-Subjects Effects Test of Player A's Allocations of the \$10 Measures

Source of variance	SS	df	MSE	F-ratio	P
Different groups	206.671	2	103.336	24.241	.000**
Various Delta Value	4.858	2	2.429	.570	.566
Different groups * Various Delta Value	2.769	4	.692	.162	.957

Note. The homogeneity of variance was satisfied, and 3×3 ANOVA was adopted. *p < .05. **p < .001.

A's Expectations for B's Distribution of the \$30. Participants who chose not to trust were asked, "If you choose to give the distribution to the other party B, and B now has \$30, how much do you think B will give you?" Those who chose to trust were asked, "How much do you think B will give you from the \$30?" White's test indicated significant differences among the groups with various delta values ($X^2 = 36.116, p < .001$). While the main effect was not significant ($F(4, 441) = 1.659, p = .158$), significant differences were found between the groups when delta values were constant ($F(2, 441) = 13.310, p < .001$). Within the same group, significant differences were observed in the amount of money A expected B to distribute when delta changed ($F(2, 441) = 26.884, p < .001$). LSD post-hoc comparisons revealed that participants in the control group expected significantly more money from B than those in the community ($p < .001$) and compulsory isolation groups ($p < .05$). The compulsory isolation group's expectations were significantly higher than the community group ($p < .05$). As deterrence increased, A's expectations of B at delta = 0.5 ($p < .001$) and delta = 0 ($p < .001$) were significantly higher than at delta = 1, with delta = 0 being weaker than delta = 0.5 ($p < .05$).

Table 9. Means and Standard Deviations of A's Expectations for B's Distribution of the \$30 Measures

Groups and various Delta	M	SD
The compulsory isolation group		
Delta=1	10.10	5.471
Delta=0.5	13.36	4.034
Delta=0	14.96	3.276
The community group		
Delta=1	9.06	4.098
Delta=0.5	11.48	3.196
Delta=0	14.06	1.867
The control group		
Delta=1	13.28	5.935
Delta=0.5	14.36	6.477
Delta=0	15.40	6.058

Table 10. White test of A's Expectations for B's Distribution of the \$30 Measures

Source of variance	SS	df	MSE	F-ratio	P
Different groups	595.391	2	297.696	13.310	.000**
Various Delta Value	1202.591	2	601.296	26.884	.000**
Different groups * Various Delta Value	148.449	4	37.112	1.659	.158

Note. The homogeneity of variance was not satisfied, then White test was adopted. * $p < .05$. ** $p < .001$.

Table 11. LSD Post-hoc Comparisons of A's Expectations for B's Distribution of the \$30 Measures

Dimension Index	LSD
Different groups	$B < A < C$
Various Delta Value	$a < b < c$

Note. A=the compulsory isolation group, B=the community group, and C=the control group. Besides, $a = \text{delta} = 1$, $b = \text{delta} = 0.5$, and $c = \text{delta} = 0$.

5.2.3. The Knowledge-based Trust

Since the homogeneity of variance was not satisfied ($p < .05$), Welch and Brown-Forsyth tests were used, showing significant differences between the groups ($p < .001$). LSD post-hoc comparisons indicated that the knowledge-based trust of the compulsory isolation group was significantly lower than the community group ($p < .05$) and the control group ($p < .001$). However, the community group was not significantly different from the control group ($p = .079$).

5.2.4. The Identification-based Trust

Welch and Brown-Forsyth tests were used due to the lack of homogeneity of variance ($p < .05$), revealing significant differences between the groups ($p < .001$). LSD post-hoc comparisons showed that the identification-based trust of the compulsory isolation group was significantly lower than the community and control groups ($p < .001$). However, the community group was not significantly lower than the control group ($p = .434$), similar to the knowledge-based trust results.

Table 12. Means, Standard Deviations, Welch Test, Brown-Forsyth Test, and LSD Post-hoc Comparisons of the Knowledge-based Trust and the Identification-based Trust Measures

Indexes of interpersonal trust	M	SD	P		LSD
			Welch Test	Brown-Forsyth Test	
The Knowledge-based Trust					
The compulsory isolation group	16.66	3.967	.000**	.000**	A < B, C
The community group	18.52	2.043			
The control group	19.68	3.525			
The Identification-based Trust					
The compulsory isolation group	16.80	3.563	.000**	.000**	A < B, C
The community group	19.60	1.852			
The control group	20.08	3.457			
Note. The homogeneity of variances were not satisfied, then Welch test and Brown-Forsyth test were adopted. Besides, A=the compulsory isolation group, B= the community group, and C=the control group. * < .05. **p < .001.					

5.3. Binary Logistics Analysis and Correlation Analyses

5.3.1. The Impact of Anxiety on Willingness to Trust Under Various Delta Values

Binary logistic regression analysis was conducted (see Table 13). In the compulsory isolation group, anxiety significantly negatively predicted trust intention when delta = 1 ($B = -6.63$, $p < .05$, $\text{Exp}(B) = .515$). However, anxiety did not significantly predict trust intention when delta = 0.5 ($B = .323$, $p = .260$, $\text{Exp}(B) = 1.381$) or delta = 0 ($B = .490$, $p = .093$, $\text{Exp}(B) = 1.632$). For the community group, anxiety did not significantly negatively predict willingness to trust when delta = 1 ($B = -4.90$, $p = .093$, $\text{Exp}(B) = .613$). Interestingly, anxiety positively predicted trust intention when delta = 0.5 ($B = .663$, $p < .05$, $\text{Exp}(B) = 1.941$) and delta = 0 ($B = 1.992$, $p < .001$, $\text{Exp}(B) = 7.333$). In the control group, anxiety did not significantly predict willingness to trust, although the regression coefficient was higher with a lower delta. However, in all three groups, the smaller the delta value, the higher the proportion of trust and the more positive the prediction of trust willingness.

Table 13. The Binary Logistic Regression Analysis of the Influence of Anxiety on Trust Decision

Groups	B	SE	P	Exp(B)
The compulsory isolation group				
Delta=1	-.663	.299	.026*	.515
Delta=0.5	.323	.287	.260	1.381
Delta=0	.490	.291	.093	1.632
The community group				
Delta=1	-.490	.291	.093	.613
Delta=0.5	.663	.299	.026*	1.941
Delta=0	1.992	.435	.000**	7.333
The control group				
Delta=1	.080	.283	.777	1.083
Delta=0.5	.160	.284	.572	1.174
Delta=0	.241	.285	.397	1.273
Note. *p < .05. **p < .001.				

5.3.2. The Impact of Anxiety on Player A's Allocations of the \$10

Correlation analysis was conducted on the average of the three delta values for each sample group and their anxiety levels. Higher anxiety caused Player A to allocate more money to themselves in both the compulsory isolation group (see Table 14) and the community group (see Table 15). The community group showed a significant moderate positive correlation ($r = 0.326$, $p < .05$), whereas the compulsory isolation group showed no significant positive correlation ($r = 0.055$, $p = .703$). In contrast, the control group (see Table 16) showed a weaker negative correlation between anxiety and the amount of money allocated to themselves ($r = -0.177$, $p = .22$).

5.3.3. The Impact of Anxiety on A's Expectations for B's Distribution of the \$30

We calculated the average amount of money A expected B to give them under different delta values in each group and conducted correlation analysis between anxiety levels and these expectations. In the community group ($r = -0.215$, $p = .134$) and the control group ($r = -0.179$, $p = .214$), anxiety levels were weakly negatively associated with the amount of money A expected from B. In the compulsory isolation group ($r = 0.027$, $p = .852$), there was a weak positive correlation. However, none of these correlations were significant (see Tables 14, 15, and 16).

5.3.4. The Impact of Anxiety on The Knowledge-based Trust

As shown in Tables 14, 15, and 16, increased anxiety in the control group significantly and negatively affected knowledge-based trust ($r = -0.388$, $p < .01$). In contrast, the compulsory isolation group ($r = -0.223$, $p = .119$) and the community group ($r = 0.001$, $p = .992$) showed insignificant and weak positive associations. Additionally, an unexpected finding was a significant moderate positive correlation between cognitive-based trust and identity-based trust in the forced isolation group ($r = .694$, $p < .01$) and the control group ($r = .486$, $p < .01$). However, there was no significant correlation in the community group ($r = .164$, $p = .255$). This warrants further investigation.

5.3.5. The Impact of Anxiety on The Identification-based Trust

Similarly, as shown in Tables 14, 15, and 16, the control group ($r = -0.21$, $p = .142$) and the community group ($r = -0.009$, $p = .953$) showed weak negative effects on the identification-based trust. In contrast, the compulsory isolation group showed a weak positive correlation ($r = 0.166$, $p = .248$). None of these effects were significant.

Table 14. Correlation Analyses of The Compulsory Isolation Group

	X	Y2	Y3	Y4	Y5
X	1				
Y2	.055	1			
Y3	.027	.001	1		
Y4	.223	-.007	.021	1	
Y5	.166	-.234	-.067	.694**	1

Note. X = anxiety, Y2= A's allocations of the \$10, Y3= A's expectations for B's distribution of the \$30, Y3= the knowledge-based trust, and Y4=the identification-based trust. * $p < .05$. ** $p < .01$. (two-tailed test)

Table 15. Correlation Analyses of The Community Group

	X	Y2	Y3	Y4	Y5
X	1				
Y2	.326*	1			
Y3	-.215	-.388**	1		
Y4	.001	-.032	.267	1	
Y5	-.009	-.262	.199	.164	1

Note. X = anxiety, Y2= A's allocations of the \$10, Y3= A's expectations for B's distribution of the \$30, Y3= the knowledge-based trust, and Y4=the identification-based trust. * $p < .05$. ** $p < .01$. (two-tailed test)

Table 16. Correlation Analyses of The Control Group

	X	Y2	Y3	Y4	Y5
X	1				
Y2	-.177	1			
Y3	-.179	.167	1		
Y4	-.388**	-.064	.154	1	
Y5	-.21	.152	.281*	.486**	1

Note. X = anxiety, Y2= A's allocations of the \$10, Y3= A's expectations for B's distribution of the \$30, Y3= the knowledge-based trust, and Y4=the identification-based trust. *p <.05. **p <.01. (two-tailed test)

6. Discussion and Conclusions

6.1. Discussion

6.1.1. Characteristics of Drug Users in This Study

Subjects in both the compulsory isolation group and the community group predominantly comprised males with low education levels, primarily using traditional drugs. And many of them had a long history of drug abuse. However, the incidence of drug abuse in the community group was nearly half that of the compulsory isolation group. Additionally, the proportion of individuals who relapsed more than three times was about one-fifth of that in the compulsory isolation group, consistent with previous findings (Yang et al., 2015).

6.1.2. The Difference of Anxiety Degree Among Three Groups

Consistent with prior studies (Ashrafioun et al., 2020; Dougherty et al., 2015; Li et al., 2023; Song et al., 2023), individuals with more severe drug addiction exhibited significantly higher anxiety levels, while those in longer recovery periods (the community group) displayed lower anxiety, supporting our hypothesis (H1). Moreover, the anxiety level of the community group was not significantly higher than that of the control group, suggesting they were adjusting to better psychological states due to external support and community interactions (Nickerson et al., 2019; Chan et al., 2019).

6.1.3. The Difference of Interpersonal Trust Among Three Groups

(1) The Deterrence-based Trust. Key findings include: (1) Partially supporting our hypothesis (H2), in each group, as delta decreased (indicating increased deterrence strength), the willingness to trust significantly increased. This suggests that individuals in all three groups might choose to trust due to fear of deterrence, aligning with findings by van et al. (2017). Notably, under deterrence, the community group exhibited a significantly higher willingness to trust than the compulsory isolation group. This may be because the community group valued their progress in drug rehabilitation and their improving lives, making them more willing to trust with lower risk preferences (Aimone et al., 2014). (2) Regardless of the level of deterrence, individuals in the compulsory isolation group allocated significantly more money to themselves than those in the community and control groups, confirming that higher addiction severity correlates with higher egoistic tendencies (Brajević-Gizdić et al., 2009). The lack of a significant difference between the latter two groups suggests that the community group was gradually reintegrating into society, increasing their prosocial behaviors (Chan et al., 2019). (3) A new finding was that under the same deterrence conditions, the community group expected to receive the least money from B, while the control group expected the most. This discrepancy, not yet clearly understood, warrants further investigation. Additionally, as deterrence increased, participants in each group expected B to give them more money. However, when delta = 0, A's expectations decreased, possibly due to influences such as betrayal aversion and risk preferences (Aimone et al., 2014).

(2) The Knowledge-based Trust. As hypothesized (H3), the compulsory isolation group exhibited significantly lower knowledge-based trust, likely due to adverse past experiences and lack of external

support and understanding (Yang et al., 2015). The community group's trust level was not significantly lower than the control group's, indicating their gradual recovery in establishing and maintaining interpersonal trust relationships (Nickerson et al., 2019).

(3) The Identification-based Trust. Consistent with our hypothesis (H4), the identification-based trust patterns mirrored those of the knowledge-based trust, indicating that this level of trust needs continuous maintenance and deepening based on knowledge-based trust (Lewicki & Bunker, 1996).

6.1.4. Comparing The Impact of Anxiety Degree on Interpersonal Trust Among Three Groups

The Impact of Anxiety on Willingness to Trust Under Various Delta Values. Contrary to our hypothesis (H5), in the compulsory isolation group, anxiety had a significant negative predictive effect on trust intention when $\delta = 1$. However, as deterrence strength increased, anxiety did not significantly predict their willingness to trust. For the control group, anxiety barely predicted trust intention under deterrence. These findings may be influenced by other factors like betrayal aversion, risk preferences, and mental stability, necessitating further study. Similar to current findings (Aimone et al., 2014), as deterrence increased, anxiety levels in the community group significantly positively predicted willingness to trust, supporting our hypothesis. This also confirmed the effectiveness of community-based rehabilitation policies in reducing the probability of drug reuse (Wang et al., 2018). Across all groups, willingness to trust increased with greater deterrence, corroborating findings by van et al. (2017) and our previous hypothesis.

The Impact of Anxiety on Player A's Allocations of the \$10. Aligned with our hypothesis (H6), there was a significant moderate positive correlation between anxiety levels and the amount of money A allocated to themselves in the community group, but not in the compulsory isolation group, possibly due to other variables like risk preferences and abnormal psychological behaviors (Aimone et al., 2014; Ashrafioun et al., 2020). The control group showed a weaker negative correlation between anxiety and self-allocated money, which contradicts our hypothesis and may be due to insufficient sample size, requiring further investigation.

The Impact of Anxiety on A's Expectations for B's Distribution of the \$30. Partially inconsistent with our hypothesis (H7), anxiety levels in the control and community groups were weakly negatively correlated with the amount of money A expected from B, while in the compulsory isolation group, the correlation was weakly positive. This discrepancy may be influenced by other factors like abnormal psychological behavior and risk preferences (Aimone et al., 2014; Ashrafioun et al., 2020).

The Impact of Anxiety on The Knowledge-based Trust. Increased anxiety significantly negatively affected the knowledge-based trust in the control group, while the compulsory isolation and community groups showed weak and insignificant positive correlations, inconsistent with our hypothesis (H8). Besides, an unexpected finding was a weaker positive correlation between the knowledge-based trust and the identification-based trust in the community group compared to the compulsory isolation group and the control group. The reasons for these discrepancy require further study.

The Impact of Anxiety on The Identification-based Trust. Similarly, contrary to our hypothesis (H9), the control and community groups showed a weak negative effect on identification-based trust, while the compulsory isolation group showed a weak positive association. This may be because the community and control groups were more cautious about deeper trust due to past experiences, such as being tricked into drug use by trusted friends. In contrast, the compulsory isolation group might be more prone to blind trust, influenced by risk preferences and abnormal psychological behavior (Aimone et al., 2014; Ashrafioun et al., 2020). Further in-depth research is needed to explain these findings.

6.2. Conclusions

In conclusion, we confirmed that individuals with more severe drug addiction had higher anxiety levels, and that longer recovery periods and closer community life, supported by external influences, effectively reduced anxiety levels. The extended trust game proved effective, showing that

individuals were more likely to choose trust out of fear of punishment and deterrence. Deterrence was more effective for the community group, whose funding allocation patterns were relatively similar to those of the general population, indicating their gradual recovery and social integration. However, deterrence was less effective for the compulsory isolation group, who, despite being more anxious, exhibited higher risk preferences and egoistic tendencies, especially when more anxious. This may be due to their abnormal psychobehavioral states, leading to different decision-making behaviors. The community group's knowledge-based trust and identification-based trust were only slightly lower than those of normal individuals but significantly higher than those of severe drug addicts. Additionally, more anxious individuals in the community and isolation groups were more likely to trust people they did not know well. As trust deepened, the community group became more similar to the general population, but the more anxious compulsory isolation group was more likely to trust others deeply.

In short, this study has significant social value, verifying the necessity of compulsory isolation for drug rehabilitation and the effectiveness of community drug rehabilitation policies. It highlights that deterrence interventions for community drug rehabilitation participants are crucial to preventing drug reuse. Providing professional cognitive guidance and psychological support is essential to help them reduce anxiety and establish initial trust. Strengthening their interactions with the community, helping them cope with pressure, and repairing their social support network will benefit their ability to maintain interpersonal trust. Based on this, they will receive more effective external support, be less likely to consider drug use again, and adjust smoothly to return to society. However, the abnormal patterns observed in prisoners in compulsory isolation centers require further study.

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