# Early Detection Model of Drug Abuse *Relapse* in the City of Padang

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**Abstract**: The past year prevalence rate was 1.80% or 180 out of 10,000 Indonesians aged 15-64 years or equivalent to approximately 3.4 million people. The survey also found that drug abuse has penetrated into the countryside with very prominent drug use at a very productive age (25-49 years) and the prevalence rate in the past year of use above 2.5%. The various impacts of drug use can be overcome by conducting a rehabilitation program. The process of drug rehabilitation is a process given to drug addicts so that their mental, physical and social conditions improve, the existence of rehabilitation is expected to be able to reduce the adverse effects on physical and mental conditions and can reduce dependence and relapse due to drug use, so as to reduce the number of drug abusers. In this post-rehabilitation stage, drug abusers are prone to *relapse.* The case of *relapse* in drug users is very high, found in more than 50% of addicts in the last decade. Based on research, *relapse* rates are known to reach approximately 80 percent within the first six months, and occur as much as approximately 50 percent within two years. However, the various definitions of *relapse* have led to different *relapse* rates in Indonesia. The Ministry of Health in 2018 claimed that the *relapse* rate in Indonesia reached 24.3% while the *relapse* rate according to BNN stated that before the implementation of rehabilitation, Indonesia's relapse rate reached 90%. Indonesia's *relapse* rate after the implementation of rehabilitation at the Lido Bogor rehabilitation and therapy center is around 7%.

*Methods*: This study uses a qualitative design with a phenomenological approach and aims to determine the determinants of early detection of relapse in drug abusers in Padang city. The informants in this study are drug abuser clients who are undergoing rehabilitation, in the post-rehabilitation program, and who have completed the rehabilitation program at HB Saanin Mental Hospital Padang, West Sumatera BNNP Clinic, and Yayasan Karunia Insani in Padang City, with a total of 6 people. In addition, the respondent sample consisted of 30 drug abusers who were undergoing rehabilitation. The analysis included instrument validity and reliability tests, expert analysis, and diagnostic test analysis.

*Results*: Respondents' ages varied from 18 to 46 years old Factors that encourage relapse are the influence of friends and invitations from friends who use drugs. In addition, the absence of work and family problems also encourage relapse, Family, friends and community support for resilience, Informants revealed that rehabilitation programs can help informants from the risk of *relapse,* Informants confirmed that relapse can occur in anyone even in people undergoing intensive treatment, comprehensive and sustainable lecture programs can prevent relapse, Stress, depression, and social pressure factors affect the risk of relapse, the first signs of relapse felt by informants are unstable emotions. The developed relapse early detection model has significant predictive ability with an AUC of 78% and can predict the incidence of relapse with an accuracy between 60.2% and 95.8%. The model shows a strong correlation with the SSRS and has a 10,200 times greater chance of detecting relapse cases than the SSRS.

*Conclusion*: Informants define *relapse* as a situation where someone who has used drugs uses drugs again, Factors that encourage relapse are the influence of friends and invitations from friends who use drugs. In addition, the absence of work and family problems also encourage relapse, Family, friends and community support for resilience, Informants revealed that rehabilitation programs can help informants from the risk of *relapse,* Informants confirmed that relapse can occur in anyone even in people undergoing intensive treatment, comprehensive and sustainable lecture programs can prevent relapse events, Stress, depression, and social pressure factors affect the risk of relapse, the first signs of relapse felt by informants are unstable emotions.

**Keywords:** Early Detection, Relapse, Drug Abuse.

## INTRODUCTION

Substance abuse is a mental disorder, a chronic and persistent disease that affects the brain and causes complex health problems. Drug addiction has psychological, spiritual and physical impacts on society, families and individuals. Relapse almost always occurs during or after rehabilitation, indicating that the demand during or after rehabilitation, indicating that the demand for effective, long-term and sustainable intervention methods and reducing relapse rates is an important issue for drug addicts as a whole. Relapse prevention is key to the success of drug rehabilitation and is essential in drug rehabilitation treatment. Therefore, accurate identification of relapse predictors is essential to improving drug abuse prevention and treatment. Existing research shows that relapse is not a single factor, and is usually the result of a combination of demographic and physiological characteristics, situational and sociocultural characteristics, and treatment characteristics. The various impacts of drug use can be addressed by conducting rehabilitation programs. Drug rehabilitation is a process given to drug addicts to improve their

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mental, physical, and social conditions. It is hoped that rehabilitation will reduce the negative impacts on physical and mental conditions and can reduce dependence and relapse due to drug abuse, thereby reducing the number of drug users (BNN, 2017).

In this post-rehabilitation stage, drug abusers are prone to *relapse. The* case of *relapse* in drug users is very high, found in more than 50% of addicts in the last decade. Based on research, *relapse* rates are known to reach approximately 80 percent within the first six months, and occur as much as approximately 50 percent within two years [1]. However, the various definitions of *relapse* have led to different *relapse* rates in Indonesia. The Ministry of Health in 2018 claimed that the *relapse* rate in Indonesia reached 24.3% while the *relapse* rate according to BNN stated that before the implementation of rehabilitation, Indonesia's relapse rate reached 90%. Indonesia's *relapse* rate after the implementation of rehabilitation at the Lido Bogor rehabilitation and therapy house is around 7% [2]. One way to prevent drug addiction is treatment through rehabilitation and post-rehabilitation programs (ongoing rehabilitation).

The current instrument used for early detection/ prevention of relapse in Indonesia is *The Drug Abuse Screening Test* (DAST) 10. *The* DAST is designed to provide a brief self-report instrument for population screening, clinical case finding, and treatment evaluation research. The DAST produces a quantitative index of the level of consequences associated with drug abuse. The instrument takes approximately 5 minutes to administer and can be administered in a self-report or interview format. The DAST can be used in a variety of situations to provide a quick index of drug abuse problems. The original DAST contained 28 items modeled after the widely used Michigan Alcoholism Screening Test (Selzer, American Journal of Psychiatry, 1971, 127, 1653-1658). The DAST-10 is used as a brief measurement tool to screen and locate cases in areas such as healthcare, workplace, social services, education, criminal justice. Limitations of the DAST 10 instrument include: clients may be able to falsify the results, the DAST produces a numerical score, there is a possibility that this score may be misinterpreted, the DAST is not given to clients who are under the influence of drugs, or who are experiencing withdrawal reactions. Another instrument used to detect relapse prevention is the *Stimulant Relapse Risk Scale* (SRRS). This instrument is designed for evaluation of treatment programs [3]. The advantage of this instrument is that it has multidimensional psychometric properties that are useful for assessing various aspects of stimulant relapse risk. The *Psychological Wellbeing Scale* (PWB) is also used to detect *relapse* in drug abusers. The *Psychological Wellbeing Scale* developed by Ryff in 2014 is used to measure respondents' psychological well-being and relapse risk among people in recovery from stimulant use disorders. Based on the high relapse rates among drug abusers during and after rehabilitation, as well as internal and external factors contributing to relapse identified by previous studies, existing relapse prevention instruments remain incomplete in addressing these causes. To address this gap, the researcher aims to develop an integrated early detection model for relapse among drug abusers. The novelty of this research lies in the development of an early detection model for relapse among drug abusers. This detection model can be used to identify relapse cases in drug abusers post-rehabilitation.

## 2. METHODS

The research design consists of three stages. The first stage uses a qualitative research design with a phenomenological approach using in-depth interviews with 6 people. This study aims to identify the determinants of early detection of drug abuse relapse in Padang City. The informants in the study were drug abuse clients who were undergoing rehabilitation, in a post-rehabilitation program and had completed the rehabilitation program at the HB Saanin Padang Mental Hospital, the West Sumatra BNNP Clinic, the Karunia Insani Foundation in Padang City, totaling 6 people. The study was conducted from October 2020 to March 2024 in Padang City. In the second stage, using a quantitative design, the researcher will design a model for early detection of drug abuse relapse. The verification process uses the Content Validity Index. Content validity is carried out using expert agreement where the researcher consults with three experts, consisting of one expert from a clinical psychologist at the West Sumatra BNNP clinic, and one expert from a psychiatrist at the HB Saanim Padang Mental Hospital.

The purpose of designing Phase 2 is to obtain a draft of an early detection model for drug abuse relapse, and the population and sample in Phase 2 are planning experts from one addiction counselor at the BNNP West Sumatra clinic, and one clinical psychologist at HB. Saanim Padang Mental Hospital, and one doctor at the BNNP West Sumatra clinic to be able to provide a score for the Early Detection Model for Drug Abuse Relapse questionnaire.

The third stage in this study uses a crossectional design which aims to test the effectiveness of the model that has been made from the previous stage. The study population of drug abuse who relapsed was 126 people with the inclusion drug abuse patients in Padang City who have recovered or are still using drugs, either as outpatients or inpatients, and have experienced relapse without comorbid psychiatric disorder, and exclusion criteria Drug abuse patients in Padang City who have recovered or are still using drugs, either as outpatients or inpatients, and have experienced relapse with comorbid psychiatric disorders.

## 3. RESULTS AND DISCUSSION

### 3.1. Respondent Characteristics

Respondents in this study were drug abusers who were undergoing rehabilitation, in the post-rehabilitation program and completed the program at HB Saanin Mental Hospital Padang, West Sumatra BNNP Clinic, Kurnia Insani Foundation in Padang City. Respondents in this study totaled 126 people. In this study, statistical tests were carried out to obtain the frequency distribution and proportion of the characteristics of the research subjects. The general description of the respondents is presented in the form of a frequency distribution consisting of: age, gender, education level, employment status and marital status. The description of the research subjects can be described as follows.

Based on the table above, it shows that the average respondent is male with an age range of 18 - 42 years, and junior high school - high school education, and 4 respondents work in the private sector, while 2 respondents do not work.

### 3.2. Stage 1 Results

#### *3.2.1. Results of In-Depth Interviews on Emotional Aspects of Relapse*

From the results of in-depth interviews based on emotional aspects, it can be concluded that factors that

**Table 1: Demographic Characteristics of Drug Abusers**

| Code | Initials | Gender | Age | Ethnicity | Jobs | Education |
|---|---|---|---|---|---|---|
| P1 | T | L | 27 | Minang | Self-employed | HIGH SCHOOL |
| P2 | R | L | 34 | Minang | Private | HIGH SCHOOL |
| P3 | I | L | 30 | Minang | Not Working | SMP |
| P4 | L | L | 28 | Minang | Self-employed | HIGH SCHOOL |
| P5 | A | L | 18 | Minang | Not Working | HIGH SCHOOL |
| P6 | W | L | 42 | Minang | Self-employed | HIGH SCHOOL |

Source: Primary data processing results, 2024.

**Table 2: Matrix of In-Depth Interview Results on Emotional Aspects of Relapse**

| Thematic | Sub Theme | Answer | Conclusion |
|---|---|---|---|
| Emotional Aspects | Factors affecting relapse | 1. Influence and invitation from drug-using friends<br>2. Not having a job and being busy<br>3. Unfulfilled desires<br>4. Family problems | Factors that influence relapse in drug users are the influence of friends who use drugs, drug users do not have jobs and busyness, unfulfilled desires and family problems. |
| | Emotional reactions and relapse experiences | 1. Unstable emotions<br>2. Anger<br>3. Frequent solitude<br>4. Easily offended<br>5. Temperament | Emotional reactions and relapse experiences included emotional instability and erratic reactions. Reactions include anger, irritability, preferring to be alone and being very temperamental. |
| | Emotional, thought and behavioral responses | Behavior that triggers relapse:<br>1. Befriending drug users again<br>2. Not having a job<br>3. Strong desire to use drugs<br>4. Family problems<br>The emotional and thought responses that relapse brings:<br>1. Unstable emotions<br>2. Anger<br>3. Easily offended | Behaviors that encourage relapse include befriending drug users, not having a job, a strong desire to reuse drugs and family problems. Emotional responses to relapse include emotional instability, anger and irritability. |

influence relapse are the influence of friends who use drugs, drug users do not have jobs and busyness, unfulfilled desires and family problems, emotional reactions and relapse experiences experienced are emotional instability and erratic reactions. Emotional, thought and behavioral responses that encourage relapse are re-friending with drug users, not having a job, a strong desire to reuse drugs and family problems. Emotional responses caused by relapse include emotional instability, anger and irritability.

Areas of the brain associated with emotions become highly sensitive as a result of repeated drug use, increasing the likelihood of a person experiencing episodes of negative emotions and returning to using the substance. Many researchers have described addiction as a recurring condition. According to Le Moal and Koob, drug addiction is a chronic and recurrent medical condition. The term *relapse* comes from the medical model, which refers to a return to a disease state after a period of recovery. More recent characterizations have described relapse as a complex process, which includes any breach in the cyclical process of behavior change [4].

### *3.2.2. Results of in-Depth Interviews Self Efficacy Aspects*

Based on the results of in-depth interviews, the Self Efficacy aspect of relapse in drug abuse can be concluded from the ability to overcome difficult problems, informants answered that they could not solve difficult problems even when they had tried to overcome these problems, the ability to stick to the goal, informants answered that it was not easy to stick to the desired goal. When relapsing, drug abusers lack clarity and lose direction in achieving their desired goals and end up using drugs, while the ability to cope with unexpected situations Some informants could not even cope with the unexpected situation. However, one informant stated that he could still cope with unexpected situations, How to handle unexpected situations in life by using drugs again.

Then efforts in solving problems since being affected by drugs make drug users difficult to solve problems, some users do not even make efforts to solve problems, calmness in dealing with problems some informants answered that it was very difficult to calm down and could not even calm down when faced

**Table 3: Matrix of Self-Efficacy In-Depth Interview Results**

| Thematic | Sub Theme | Answer | Conclusion |
|---|---|---|---|
| Self Efficacy | Ability to tackle difficult problems | 1. Difficulty in overcoming difficult problems<br>2. Can't solve difficult problems | Unable to solve difficult problems even when trying to overcome the problem . But some informants were still able to solve the difficult problem despite experiencing difficulties |
| | Ability to stick to the goal achieved | 1. It is not easy to stick to the desired goal<br>2. No clear direction<br>3. Loss of direction<br>4. Using drugs again | It is not easy to stick to a desired goal. During relapse, drug abusers lack clarity and lose direction in achieving their desired goals and end up using drugs. |
| | Ability to cope with unexpected situations | 1. Can<br>2. Difficult<br>3. Can't | Experiencing difficulties in coping with unexpected situations. Some informants could not even cope with the unexpected situation. However, one informant stated that he could still cope with unexpected situations |
| | How to handle unexpected situations | Using drugs again | How drug users handle unexpected situations in life by using drugs again |
| | Efforts in solving the problem | 1. Difficulty in solving problems due to drug influence<br>2. Did not make an effort due to the strong influence of drugs | The influence of drugs makes it difficult for drug users to solve problems, some users do not even make efforts to solve problems. |
| | Calmness in dealing with problems | Difficult and unable to calm down | It is very difficult to calm down and cannot even calm down when faced with a problem. |
| | How to solve the problem | 1. Difficulty thinking due to drug influence<br>2. Go to a pleasant situation<br>3. Desire to use drugs again | The influence of drugs makes it difficult for drug users to think. Drug users overcome problems by going to situations that are considered fun. When faced with a problem, drug users want to use drugs again. |
| | How to get out of a difficult situation | Using drugs again | The way drug users get out of a difficult situation is by using drugs again. |

with a problem, and How to solve problems for informants drug influence makes it difficult for drug users to think. Drug users solve problems by going to situations that are considered fun. When faced with problems, drug users want to use drugs again, while the way out of difficult situations for drug users out of difficult conditions is to use drugs again.

Based on research by Abdollahi, *et al*. [5] states that self efficacy is a predictor of treatment outcomes, *self efficacy* significantly predicts alcohol consumption for periods up to twelve months, higher self efficacy predicts less drug use only after 3 months, but not after 6 months [6]. In a study on the Effectiveness of step-down continuing care after inpatient treatment or intensive outpatient treatment little evidence was found to support step-down continuing care itself. Other studies have shown that self-efficacy is a relatively strong predictor of post-treatment *relapse* and frequency of marijuana use.

### *3.2.3. Results of In-Depth Interviews Knowledge Aspect Relapse*

Based on the results of in-depth interviews with research informants related to the knowledge aspect of relapse which consists of several sub-theme questions, namely the definition of relapse itself, it can be concluded that informants define relapse as a situation where someone who has used drugs uses drugs again, then the factors driving *relapse* can be concluded that the factors that encourage informants to use drugs again are the influence of friends and invitations from friends who use drugs besides that, the absence of work and family problems also encourage informants to return to using drugs then questions about family, friends and community support for self-resilience

**Table 4: Matrix of In-depth Interview Results on Relapse Knowledge**

| Thematic | Sub Theme | Answer | Conclusion |
|---|---|---|---|
| Knowledge about Relapse | Definition of *relapse* | Using drugs again | Informants defined relapse as a situation where someone who has used drugs uses drugs again. |
| | Factors driving *relapse* | 1. Friend's invitation<br>2. Not Working<br>3. Family issues | The factors that encourage informants to use drugs again are the influence of friends and invitations from friends who use drugs. In addition, lack of work and family problems also encourage informants to use drugs again. |
| | Family, friend and community support for resilience | Yes | The informant confirmed that family, friends and the community can support the informant's resilience from the risk of relapse. |
| | Rehabilitation in *relapse* prevention | 1. Changes when participating in rehabilitation<br>2. Very helpful in prevention<br>3. Trained not to use drugs again | Informants revealed that the rehabilitation program can help informants from the risk of relapse. Informants revealed that there were changes experienced when doing rehabilitation. The rehabilitation program teaches informants to stop using drugs and train themselves not to be affected again. |
| | The likelihood of *relapse* in a person | 1. Yes<br>2. Correct<br>3. Yes | Informants confirmed that relapse can happen to anyone even to people undergoing intensive treatment. |
| | *Relapse* prevention through a comprehensive and sustainable recovery program | 1. Yes<br>2. Agree<br>3. Yes<br>4. Correct | Informants confirmed that a comprehensive and sustainable college program can prevent relapse. |
| | Stress, depression, and social pressure factors influence *relapse* risk | 1. Correct<br>2. Yes | Informants confirmed that stress, depression, and social pressure affect the risk of relapse. |
| | Early signs of *relapse* experienced | 1. Unstable emotions<br>2. Lying<br>3. Withdraw<br>4. Grumpy<br>5. Spending money<br>6. Making friends with drug use again<br>7. Disrupted activity | The first signs of relapse felt by the informant were unstable emotions. The informant also started lying, withdrawing, and spending money. Informants also revealed that they could not do routine activities and disrupted their activities. |

Informants confirmed that family, friends and society can support informants' self-resilience from the risk of relapse.

Rehabilitation in preventing *relapse* in drug abuse can be concluded that informants reveal that rehabilitation programs can help informants from the risk of relapse. Informants revealed that there were changes experienced when doing rehabilitation. The rehabilitation program teaches informants to stop using drugs and train themselves not to be affected again, stress factors, depression, and social pressure affect the risk of *relapse,* the first signs of *relapse* experienced by drug abuse are unstable emotions. Informants also start lying, withdrawing, and spending money. Informants also revealed that they could not do routine activities and disrupted activities.

This study is in line with research by Aida Yulia [7] which states that there is a significant relationship between family support and the incidence of relapse in drug abuse. the type of family support consists of four categories. First, emotional support, which includes expressions of empathy, care, and concern for the person concerned. Second, appraisal support, which occurs through expressions of respect and positive regard for the other person. Third, instrumental support, which includes direct assistance, such as help with work during times of stress. Fourth, informational support, which includes providing advice, instructions, suggestions, or feedback [7].

The results of research by Aria prananta, *et al*. [8] showed that as many as 65% of drug abusers who were in the Tenjo Laut Rumah Damping Kuningan Regency did not experience relapse. This means that quite a lot of drug abusers are able not to use drugs again. However, the struggle to escape the shackles of drugs is not easy. The addict's effort to escape from drugs is a life struggle that can be said to be lifelong, because almost all dimensions of the addict have been damaged by the chaos caused by his addiction. Therefore, abusers must be aware of the possibility of relapse, which is the return to using drugs in the same pattern. One way to strengthen drug abusers' ability to stay clean is through family support. In addition, drug support, self-motivation, environment, and physical, medical, social, and psychological rehabilitation are needed [9].

### 3.3. Stage 2 Results

Phase 2 involved designing a drug abuse *relapse* early detection model. *The* validation process used the *content validity index*. Content validity is carried out using expert agreement where the researcher consults with three experts, consisting of one expert from the Clinical Psychologist at the West Sumatra BNNP clinic, one expert from the Specialist Doctor of Psychiatric Medicine at HB Saanim Mental Hospital Padang. To determine the agreement, the index proposed by *Aiken's V* was used. An item or device can be categorized based on its index, with the interpretation of the agreement index less than 0.4, it is said to be low validity, between 0.4-0.8 it is said to be moderate validity and if more than 0.8 it is said to be very valid [10].

Researchers used an expert validation sheet instrument that contained a brief description of the *relapse* early detection model domain*,* statement items and statement item relevance scores. In total, there are 20 statement items with a measurement scale of irrelevant, less relevant, quite relevant, relevant and very relevant. The assessment was carried out by calculating the relevance score of the 20 statement items using the Aiken item validity index formula:

$$V = \frac{\sum S}{n(c-1)}$$

V = Reter Agreement Index

S = The score assigned to each reter minus the lowest score in the category

n = Number of raters

c = number of categories selected by the rater

Based on the results of the expert test that has been carried out, it is obtained that all items are in the valid category, because the lowest index is 0.583 and the highest is 1 with an overall average value of 0.825 (High) statement items.

In addition to providing an assessment in the form of a score on the format provided, the expert also provided a descriptive assessment in terms of the feasibility of the items used for the respondent's *relapse* early detection model.

### 3.4. Stage 3 results

#### *3.4.1. Diagnostic Test*

This measurement is made of the item score and the condition of the respondent as a relapse or not. It can also serve as a screening tool to predict early detection of relapse, as shown in Figure **1**.

Figure **1** shows the diagnostic test results of the early relapse detection model against the SSRS *(Stimulant Relapse Risk Scale)* [3]. The area under the curve (AUC) value was 78% (95% CI 60.2% - 95.8%) with $p < 0.05$. Based on this confidence interval, the model can predict the category of respondents who are likely to relapse with an accuracy between 60.2% and 95.8%. The developed relapse early detection model scale can predict the occurrence of relapse in 68% of the 30 drug abuser samples.

Based on the intersection of the sensitivity and specificity curves, the score of the relapse early detection model in predicting relapse in drug abuse is 11 with a sensitivity of 10.

Based on the SSRS scale, respondents who displayed positive relapse detection (54.4%) also showed relapse detection when using the relapse early detection model scale. In comparison, of all respondents who were not characterized as having

**Table 5: Recapitulation of Expert Content Validity of *Relapse* Early Detection Model**

| Question Item | Appraiser | | | S1 | S2 | S3 | ∑ s | n(c-1) | V | Ket |
|---|---|---|---|---|---|---|---|---|---|---|
| | I | II | III | | | | | | | |
| Item 1 | 4 | 2 | 4 | 3 | 1 | 3 | 7 | 12 | 0,583 | MEDIUM |
| Item 2 | 3 | 3 | 3 | 2 | 1 | 2 | 5 | 12 | 0,500 | MEDIUM |
| Item 3 | 5 | 5 | 5 | 4 | 4 | 4 | 12 | 12 | 1,000 | HIGH |
| Item 4 | 5 | 5 | 5 | 4 | 4 | 4 | 12 | 12 | 1,000 | HIGH |
| Item 5 | 4 | 5 | 3 | 3 | 4 | 2 | 9 | 12 | 0,750 | MEDIUM |
| Item 6 | 4 | 4 | 4 | 3 | 3 | 3 | 9 | 12 | 0,750 | MEDIUM |
| Item 7 | 4 | 3 | 3 | 3 | 2 | 2 | 7 | 12 | 0,583 | MEDIUM |
| Item 8 | 5 | 5 | 5 | 4 | 4 | 4 | 12 | 12 | 1,000 | HIGH |
| Item 9 | 4 | 5 | 5 | 3 | 4 | 4 | 11 | 12 | 0,917 | HIGH |
| Item 10 | 4 | 5 | 5 | 3 | 4 | 4 | 11 | 12 | 0,917 | HIGH |
| Item 11 | 4 | 5 | 4 | 3 | 4 | 3 | 10 | 12 | 0,833 | HIGH |
| Item 12 | 4 | 4 | 4 | 3 | 3 | 3 | 9 | 12 | 0,750 | MEDIUM |
| Item 13 | 4 | 5 | 4 | 3 | 4 | 3 | 10 | 12 | 0,833 | HIGH |
| Item 14 | 5 | 5 | 4 | 4 | 4 | 3 | 11 | 12 | 0,917 | HIGH |
| Item 15 | 5 | 5 | 5 | 4 | 4 | 4 | 12 | 12 | 1,000 | HIGH |
| Item 16 | 5 | 5 | 4 | 4 | 4 | 3 | 11 | 12 | 0,917 | HIGH |
| Item 17 | 4 | 5 | 4 | 3 | 4 | 3 | 10 | 12 | 0,833 | HIGH |
| Item 18 | 4 | 4 | 4 | 3 | 3 | 3 | 9 | 12 | 0,750 | MEDIUM |
| Item 19 | 5 | 4 | 4 | 4 | 3 | 3 | 10 | 12 | 0,833 | HIGH |
| Item 20 | 5 | 4 | 4 | 4 | 3 | 3 | 10 | 12 | 0,833 | HIGH |
| **TOTAL** | **87** | **87** | **83** | | | | | | | |

**Table 5.1:**

| Grain | Appraiser | | | S1 | S2 | S3 | ∑ s | V | Ket |
|---|---|---|---|---|---|---|---|---|---|
| | I | II | III | | | | | | |
| Items 1-20 | 87 | 88 | 83 | 67 | 68 | 63 | 198 | 0,825 | HIGH |

**Table 5.2: Aiken Item Validity Index Table**

| Deal Index | Interpretation |
|---|---|
| < 0,4 | Low Validity |
| 0,4 - 0,8 | Medium Validity |
| 0,8 - 1 | High Validity |

**Table 5.3: Improvement of *Relapse* Early Detection Model**

| No. | Expert Advice | Improvements |
|---|---|---|
| I | **Expert 1** | |
| | The instrument includes things that need to be known as signs of relapse for drug addicts/users. The instrument is good, and very helpful for officers in detecting potential relapse for drug addicts/users. It is recommended that simple statement sentences are very helpful for respondents in filling in because of the client's limitations in analyzing questions so that misperceptions do not occur. | Statement sentences have been made simpler to avoid misperceptions. |
| II | **Expert 2** | |
| | The statement is good, it's just that there are improvements to some sentences that seem ambiguous and difficult to understand for users. Readjust the original item after revising the sentence per item. | Statements that are still ambiguous and difficult to understand have been improved by using simpler sentences. |
| III | **Expert 3** | |
| | 1. Improve the sentence structure into standardized sentences so that it is easy to understand.<br>2. Provide additional information on some question items to make them easier to understand.<br>3. Avoid asking two or more things in one item. | The sentence structure has been adjusted to make it easier to understand<br>There is additional information on some items.<br>Statement item number 1 is separated into 2 statement items |

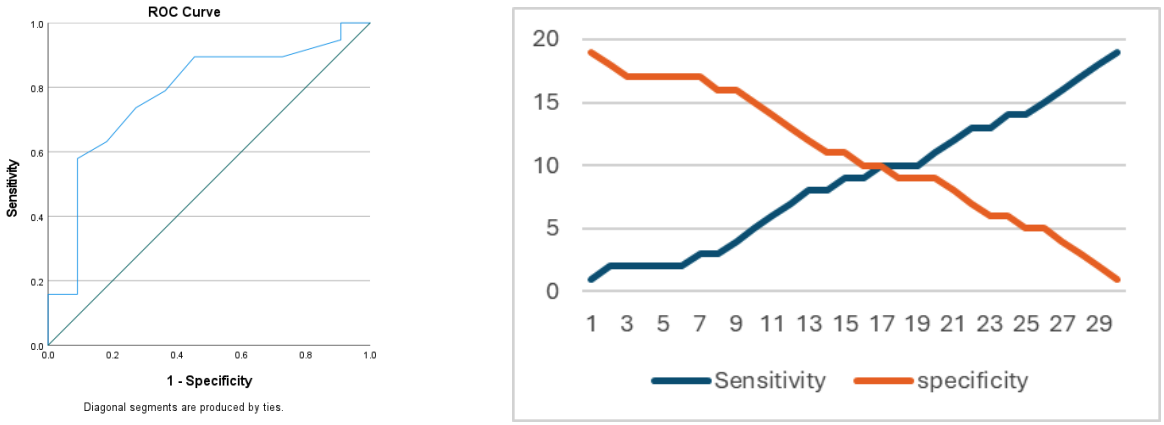


**Figure 1:** Sensitivity and specificity of relapse factors of the respondent's relapse condition.

**Table 6: Comparison of the Relapse Early Detection Model Instrument with the SSRS Model in Measuring the Scale of relapse in drug abuse (n=30)**

| Relapse Early Detection Model | SSRS | | P | OR | 95% CI |
|---|---|---|---|---|---|
| | Positive | Negative | | | |
| Positive | 6 (54,5%) | 2 (10,5%) | 0.009 | 10.200 | 1.548 - 67.217 |
| Negative | 5 (45,5) | 17 (89,5%) | | | |

relapsed using the SSRS scale, 10.5% were found to have relapsed using the relapse early detection model scale. This finding indicates a significant correlation between the SSRS scale and the relapse early detection model scale (0.009). The early detection model scale developed in this study has a 10.200 times greater chance of finding cases of relapse in drug abuse compared to the SSRS scale developed by Ogai *et al*. [3].

The diagnostic value is:

Sensitivity: a: (a+c) = 6/11 = 0.54

Specificity: d: (b+d) = 17/19 = 0.90

Positive predictive value (PPV): 6/8 = 0,75

Negative predictive value (NPV): 17/22 = 0,77

Likelihood ratio positive (LR+) = Sensitivity: (1-Specificity) = 0.54/0.11 = 4.91

Likelihood ratio negative (LR-) = (1-Sensitivity): Specificity = 0.46/0.90 = 0.51

## 4. CONCLUSION

After exploring the factors most associated with relapse, the knowledge of relapse was obtained by theme: Informants defined relapse as a situation where someone who has used drugs uses drugs again, Factors that encourage relapse are the influence of friends and invitations from friends who use drugs. In addition, the absence of work and family problems also encourage relapse, Family, friends and community support for resilience, Informants revealed that rehabilitation programs can help informants from the risk of relapse, Informants confirmed that relapse can occur in anyone even in people undergoing intensive treatment, comprehensive and sustainable lecture programs can prevent relapse events, Stress factors, depression, and social pressure affect the risk of relapse, the first signs of relapse felt by informants are unstable emotions. The developed relapse early detection model has significant predictive ability, with an AUC of 78% and can predict relapse events with an accuracy between 60.2% and 95.8%. The model shows a strong correlation with the SSRS, and has a 10,200 times greater chance of detecting cases of relapse in drug abusers compared to the SSRS.

## RESEARCH ETHICS

This research was declared to have passed the ethical review procedure of FK UNAND.

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