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# Comparing Defensive Mechanisms and Suicidal Thoughts in Addicted Men and Women

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A B S T R A C T

The present study aimed to compare the defensive mechanisms and suicidal thoughts among substance-dependent men and women. The research design was a retrospective (causal-comparative) study. The sample included 112 substance users (56 women and 56 men) from addiction rehabilitation centers in Gilan province, selected through convenience sampling based on entry criteria for this study. Two questionnaires were used in this study: the Defense Style Questionnaire (DSQ-40) and the Beck Scale for Suicide Ideation (BSSI). The collected data were analyzed using multivariate analysis of variance with SPSS software version 26. Data analysis showed no significant difference in the defensive mechanisms between men and women dependent on substances; however, there was a significant difference in suicidal thoughts between men and women dependent on substances. Considering the results of this study, therapists and counselors working with substance-dependent individuals are advised to pay attention to the defensive mechanisms and suicidal thoughts of these individuals, as awareness of these variables can assist in providing better and more appropriate services to these patients.

***Keywords:*** *Suicidal thoughts, Defensive mechanisms, Psychopathy traits, Addiction.*

## 1. Introduction

Substance abuse and dependency inflict serious social, economic, political, cultural, and health damages on societies, which include issues such as contagious physical diseases like hepatitis and AIDS, as well as social psychological diseases like an increase in crimes related to addiction such as theft, murder, self-immolation, unemployment, domestic violence, child abuse, an increase in divorce rates, and a decline in academic performance among children with addicted parents (1). According to the United Nations Office on Drugs and Crime (UNODC) report in 2004, the number of drug users worldwide was estimated to be approximately 185 million people, accounting for 3% of the global population, with stimulants like amphetamines and ecstasy ranking second in terms of use with about 30 million users (2, 3).

Defensive mechanisms are among the variables that, from a psychoanalytical perspective, have been highlighted

for their role in the formation and development of personality and as crucial elements in the underlying structure of personality related to substance use (4, 5). Therefore, defensive mechanisms play a fundamental role in substance use and addiction. These mechanisms are automatic psychological processes that protect individuals from psychological pressures and threats, making them aware of internal and external anxieties (6). The concept of a defensive mechanism is defined as a systemic mechanism that minimizes negative concerns and conflicts that can damage the integrative factors of personality, arising from contradictions within the personality itself and the discrepancy between new information and the pre-formed self-image by the personality (7, 8).

It appears that defensive mechanisms play a role in the psychological vulnerability of individuals suffering from substance misuse; when individuals cannot manage their anxieties and problems through logical and direct methods, they resort to indirect methods, namely defensive mechanisms. Findings have shown that individuals use nicotine to reduce negative emotions in their daily lives, and those who turn to substance use and smoking often employ underdeveloped defensive mechanisms. These individuals are unable to use effective and efficient defensive mechanisms in high-stress situations, leading them to engage in stimulated and destructive behaviors of smoking and substance use (9).

Furthermore, another study on the relationship between the BAS/BIS scales of reward sensitivity theory with psychopathy concluded that the first factor of psychopathy has a high relationship with low BIS, while the second factor of psychopathy has a significant relationship with high BAS (10-12). The components of BAS/BIS are fundamental in Cloninger's biopsychosocial personality theory, and there is a strong relationship between BIS with harm avoidance and reward dependence, as well as a significant relationship between BAS and novelty-seeking (10, 13). Besides the mentioned variables, another factor discussed in relation to substance misuse and addiction, which has gained increasing importance, is the tendency towards suicide and related thoughts, a subject of particular interest to clinical psychologists and psychiatrists because of its negative consequences and impacts on societies (14, 15).

Death resulting from deliberate suicide by the individual is a conscious act aimed at self-destruction. Suicide is not an accidental or meaningless act but a way to escape from a severe problem or crisis (16-18). According to the World Health Organization, a suicide attempt is a non-lethal act in which the individual deliberately and without others' intervention performs an unusual behavior (such as self-harm or consuming a substance in an amount exceeding the prescribed dosage), aiming to achieve their desired changes (16, 17). Suicide is one of the leading causes of death in individuals with substance use disorders and dependency and poses a significant challenge in their treatment. In recent decades, the rate of suicide as a major public health concern has increased among youth. Evidence suggests that the increase in suicide rates is due to the rise in substance misuse and psychotropic drug use. Substance misuse is considered a risk factor associated with suicide (16-21).

Overall, drug use increases the risk of suicide by 10% (17, 18). Suicide is among the top ten causes of death globally and is the second leading cause of death in the age group of 15-19 years in many Western countries (20). In 2016, a systematic review in the Eastern Mediterranean reported that the prevalence of suicide ranges from 0.05% to 4.5% per 100,000 people, and annually more than 40,000 people in the United States die from suicide, with the annual rate of suicide having increased by 26% over the past 15 years (2, 3). Drug use, a history of suicide attempts, and the use of psychiatric medications are risk factors among individuals who commit suicide. Men who use alcohol and drugs report substance use as a motive for suicide. They also report despair and damaging family relationships as part of their motivation for ending their lives. Suicidal thoughts include mental preoccupations about non-existence and the desire to die, which has not yet taken a practical form. Suicidal thoughts themselves are considered a risk factor for suicide. Smoking and substance addiction are also factors that increase the risk of suicidal thoughts and subsequently suicide attempts (1, 22). In one study, an attempt was made to develop a conceptual framework for the relationship between addiction to substances and alcohol and suicide attempts. In this conceptualization, it was shown that addiction to substances and alcohol affects suicide attempts through four mechanisms: first, increasing anxiety and psychological distress; second, increasing aggression; third,


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directing suicidal thoughts towards action; and fourth, reducing the level of awareness that disrupts the creation and execution of alternative adaptive strategies (2, 3, 23). Many factors can increase the risk of suicide attempts among youth. Studies in the American community have shown that disorders such as antisocial personality, various phobias, anxiety disorders, depression, and dysthymia have the strongest association with substance use disorders or dependency (1-3, 22, 23).

Given the above explanations regarding the importance of examining defensive mechanisms, suicidal thoughts, and psychopathy traits in the field of addiction, and considering that most studies conducted in this area have not examined these three variables in relation to each other and specifically among substance users, and also in view of the fact that few studies have compared these variables in groups of women and men dependent on substances, this study aims to fill this gap by comparing defensive mechanisms and suicidal thoughts in women and men dependent on substances.

## 2. Methods and Materials

### *2.1. Study Design and Participants*

The current study employed a retrospective (causal-comparative) research design. The statistical population in this study consisted of all substance-dependent individuals in Gilan province. The sample included 112 substance users (56 women and 56 men). Given that in the causal-comparative method, each subgroup must have at least 15 individuals, but to increase external validity and account for potential attrition, 56 individuals were selected for each subgroup. The chosen number of participants was also due to the limited number of individuals attending addiction rehabilitation centers who were willing to participate in the study and complete the questionnaires. Ultimately, these individuals were selected from the intended population based on inclusion criteria after obtaining their informed consent and expressing a willingness to cooperate. The inclusion criteria were an age range of 18 to 65 years, basic literacy skills sufficient to understand the questionnaire items, at least one year of drug use prior to cessation, and no specific psychiatric or neurological disorders (based on the clinical records). Exclusion criteria included being over 65 or under 18 years of age, illiteracy, less than one year of drug use prior to cessation, and having specific psychiatric or neurological disorders.

Initially, researchers visited addiction rehabilitation centers in Gilan province and collaborated with center officials to access patient lists and records for data collection. A brief interview was conducted to gain the trust and cooperation of participants, who were informed before responding to the questionnaires that their personal information would remain confidential and that participation in the research was voluntary. Participants were also encouraged to answer the questionnaires anonymously to ensure truthful responses. Ultimately, the self-report Defense Style Questionnaire (DSQ-40) and Beck Scale for Suicide Ideation (BSSI) were completed by the participants.

### *2.2. Measures*

#### *2.2.1. Suicide Ideation*

The Beck Scale for Suicide Ideation is a 19-item self-report instrument designed to detect and measure the severity of attitudes, behaviors, and planning toward committing suicide, developed by Beck, Kovacs, and Weissman in 1979. The scale is set on a 3-point ordinal scale from 0 to 2. The total score for an individual is calculated by summing these scores, ranging from 0 to 38. The scale assesses aspects such as the desire for death, active and passive suicidal desires, the duration and frequency of suicidal thoughts, feelings of self-control, deterrents to suicide, and the individual's readiness to commit suicide. The BSSI includes 5 screening questions. If responses indicate active or passive suicidal inclination, then the respondent must continue with the next 14 questions. For example, a positive response, meaning 1 or 2, to question number 5 (0-I have no desire to commit suicide, 1-I have some desire, 2-I have a strong desire), suggests an inclination toward active or passive suicide, requiring the remaining 14 questions to be answered; otherwise, it is not necessary to proceed. Scores of 0 mean "none," 1 "somewhat," and 2 "high". Cronbach's alpha for this scale has been reported as 0.90 and 0.85 for inpatient and outpatient settings respectively, indicating high internal consistency. The validity of this scale was examined in 2015 by Esfahani et al., using Cronbach's alpha and split-half


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reliability methods, with results of 0.83 and 0.85, respectively (24-26).

### 2.2.2. *Defense Style*

The DSQ-40, based on a hierarchical model of defenses, was developed by Andrews, Singh, and Bond in 1993. It consists of 40 questions rated on a 9-point Likert scale (from strongly agree to strongly disagree) and evaluates 20 defense mechanisms across three levels: mature, neurotic, and immature. In this questionnaire, individuals rate their agreement on a 9-point scale. Scores for each defense mechanism range from 2 to 18, with scores above 10 indicating the use of that mechanism. The overall style is determined by averaging scores for each style and comparing these averages. The individual is identified as having the defensive style with the highest average. Andrews and colleagues reported test-retest reliability coefficients ranging from 0.46 to 0.86 in 1993, and Cronbach's alpha for mature, neurotic, and immature styles as 0.68, 0.58, and 0.80, respectively. The DSQ-40 was also validated and normed in Iran by Heydari Nasab (2006). The validation process involved translating the questionnaire into Persian, addressing any linguistic deficiencies, and verifying its content validity, concurrent validity, and construct validity, showing that it maintains the validity of the original version. Besharat, Sharifi, and Eiravani (2001) estimated Cronbach's alpha for the Persian version for mature, immature, and neurotic styles as 0.75, 0.73, and 0.74, respectively, and a test-retest reliability coefficient of 0.82 over a 4-week interval (7).

### 2.3. *Data Analysis*

Given that the current study compares defensive mechanisms and suicidal thoughts in substance-dependent men and women, the data were analyzed on both descriptive and inferential levels. Initial analysis focused on descriptive findings, mean, and standard deviation, followed by inferential statistics using multivariate analysis of variance (MANOVA) to determine the significance of differences between the two groups.

## 3. Findings and Results

Of the 112 participants in this study, there were 56 females and 56 males.

**Table 1**

*Description of Respondents Based on Demographic Variables*

| Variable | Men (n = 56) | Women (n = 56) | Total (n = 112) |
|---|---|---|---|
| Education (Frequency (%)) | | | |
| Below High School | 31 (55.4%) | 23 (41.1%) | 54 (48.2%) |
| High School Diploma | 16 (28.6%) | 27 (48.2%) | 43 (38.4%) |
| Bachelor's Degree | 7 (12.5%) | 4 (7.1%) | 11 (9.8%) |
| Master's Degree and Above | 2 (3.6%) | 2 (3.6%) | 4 (3.6%) |
| Marital Status (Frequency (%)) | | | |
| Single | 29 (51.8%) | 16 (28.6%) | 45 (40.2%) |
| Married | 23 (41.1%) | 20 (35.7%) | 43 (38.4%) |
| Separated | 4 (7.1%) | 20 (35.7%) | 24 (21.4%) |
| Criminal Convictions (Frequency (%)) | | | |
| Yes | 28 (50%) | 11 (19.6%) | 39 (34.8%) |
| No | 28 (50%) | 45 (80.4%) | 73 (65.2%) |
| Type of Drugs Used (Frequency (%)) | | | |
| Opioids | 22 (39.3%) | 8 (14.3%) | 30 (26.8%) |
| Methamphetamines | 7 (12.5%) | 15 (26.8%) | 22 (19.6%) |
| Multiple Substance Use | 24 (42.9%) | 32 (57.1%) | 56 (50%) |
| Hallucinogens | 3 (5.4%) | 1 (1.8%) | 4 (3.6%) |
| Age (Mean (SD)) | 37.196 (8.512) | 31.839 (9.007) | 34.518 (9.129) |
| Duration of Drug Use (Mean (SD)) | 15.268 (8.374) | 9.357 (6.740) | 12.313 (8.129) |

Descriptive information about the respondents based on demographic variables is provided in Table 1.



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**Table 2**

*Means and Standard Deviations of Defensive Mechanisms and Suicidal Thoughts by Gender*

| Variable | Gender | Count | Mean | Standard Deviation |
|---|---|---|---|---|
| Rationalization | Male | 56 | 10.536 | 4.847 |
| | Female | 56 | 12.732 | 4.956 |
| | Total | 112 | 11.634 | 5.003 |
| Projection | Male | 56 | 8.982 | 4.417 |
| | Female | 56 | 10.018 | 5.898 |
| | Total | 112 | 9.500 | 5.213 |
| Denial | Male | 56 | 10.732 | 4.511 |
| | Female | 56 | 10.857 | 4.923 |
| | Total | 112 | 10.795 | 4.700 |
| Omnipotence | Male | 56 | 10.589 | 4.619 |
| | Female | 56 | 12.179 | 4.791 |
| | Total | 112 | 11.384 | 4.752 |
| Devaluation | Male | 56 | 9.554 | 5.009 |
| | Female | 56 | 10.036 | 4.706 |
| | Total | 112 | 9.795 | 4.844 |
| Acting Out | Male | 56 | 11.429 | 4.177 |
| | Female | 56 | 10.964 | 5.034 |
| | Total | 112 | 11.196 | 4.611 |
| Passive-Aggressivity | Male | 56 | 10.107 | 3.985 |
| | Female | 56 | 10.375 | 3.927 |
| | Total | 112 | 10.241 | 4.011 |
| Displacement | Male | 56 | 9.911 | 3.866 |
| | Female | 56 | 11.964 | 4.038 |
| | Total | 112 | 10.938 | 4.037 |
| Magical Thinking | Male | 56 | 10.232 | 4.706 |
| | Female | 56 | 9.839 | 5.572 |
| | Total | 112 | 10.036 | 4.824 |
| Total Score for Immature Defense Mechanisms | Male | 56 | 10.687 | 5.592 |
| | Female | 56 | 11.076 | 5.811 |
| | Total | 112 | 10.724 | 5.338 |
| Sublimation | Male | 56 | 10.429 | 4.556 |
| | Female | 56 | 12.161 | 4.759 |
| | Total | 112 | 11.295 | 4.718 |
| Idealization | Male | 56 | 10.304 | 4.544 |
| | Female | 56 | 10.250 | 4.918 |
| | Total | 112 | 10.277 | 4.714 |
| Humor | Male | 56 | 10.821 | 4.529 |
| | Female | 56 | 13.036 | 4.729 |
| | Total | 112 | 11.929 | 4.741 |
| Predictability | Male | 56 | 10.607 | 4.535 |
| | Female | 56 | 12.839 | 4.430 |
| | Total | 112 | 11.723 | 4.602 |
| Total Score for Mature Defense Mechanisms | Male | 56 | 10.500 | 3.091 |
| | Female | 56 | 12.004 | 2.061 |
| | Total | 112 | 11.252 | 2.946 |
| Reaction Formation | Male | 56 | 11.875 | 3.939 |
| | Female | 56 | 14.357 | 4.441 |
| | Total | 112 | 13.116 | 4.569 |
| Rationalization | Male | 56 | 9.536 | 4.419 |
| | Female | 56 | 11.929 | 5.005 |
| | Total | 112 | 10.732 | 4.851 |
| Nullification | Male | 56 | 10.196 | 4.546 |
| | Female | 56 | 13.571 | 5.012 |
| | Total | 112 | 11.884 | 4.564 |
| Total Score for Neurotic Defense Mechanisms | Male | 56 | 10.808 | 3.243 |



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|---|---|---|---|---|
| | Female | 56 | 13.205 | 3.134 |
| | Total | 112 | 12.007 | 3.395 |
| Total Score for Suicidal Thoughts | Male | 56 | 11.107 | 9.906 |
| | Female | 56 | 5.161 | 6.441 |
| | Total | 112 | 8.134 | 8.837 |

According to the results obtained, the significance values related to the gender factor for the variables of immature defensive style, mature defensive style, and neurotic defensive style are greater than 0.01 (Table 3).

**Table 3**

*Results of Multivariate Analysis of Variance for Comparing Defensive Mechanisms in Men and Women*

| Source of Variation | Variable | SS | Df | MS | F | p | Effect Size | Observed Power |
|---|---|---|---|---|---|---|---|---|
| Adjusted Model | Immature Defensive Style | 187.436 | 34 | 5.513 | 0.699 | 0.876 | 0.236 | 0.593 |
| | Mature Defensive Style | 386.789 | 34 | 11.376 | 1.519 | 0.067 | 0.401 | 0.962 |
| | Neurotic Defensive Style | 545.636 | 34 | 16.048 | 1.683 | 0.031 | 0.426 | 0.980 |
| Constant | Immature Defensive Style | 303.191 | 1 | 303.191 | 38.431 | 0.000 | 0.333 | 1.000 |
| | Mature Defensive Style | 739.123 | 1 | 739.123 | 98.695 | 0.000 | 0.562 | 1.000 |
| | Neurotic Defensive Style | 748.818 | 1 | 748.818 | 78.549 | 0.000 | 0.505 | 1.000 |
| Age | Immature Defensive Style | 0.592 | 1 | 0.592 | 0.075 | 0.785 | 0.001 | 0.058 |
| | Mature Defensive Style | 13.933 | 1 | 13.933 | 1.086 | 0.177 | 0.024 | 0.270 |
| | Neurotic Defensive Style | 2.697 | 1 | 2.697 | 0.283 | 0.596 | 0.004 | 0.082 |
| Duration of Drug Use | Immature Defensive Style | 1.488 | 1 | 1.488 | 0.189 | 0.665 | 0.002 | 0.071 |
| | Mature Defensive Style | 12.708 | 1 | 12.708 | 1.697 | 0.197 | 0.022 | 0.251 |
| | Neurotic Defensive Style | 33.168 | 1 | 33.168 | 3.479 | 0.066 | 0.043 | 0.453 |
| Gender | Immature Defensive Style | 7.11 | 1 | 7.11 | 0.901 | 0.345 | 0.012 | 0.155 |
| | Mature Defensive Style | 3.902 | 1 | 3.902 | 0.521 | 0.473 | 0.007 | 0.110 |
| | Neurotic Defensive Style | 1.768 | 1 | 1.768 | 0.185 | 0.668 | 0.002 | 0.071 |
| Marital Status | Immature Defensive Style | 12.816 | 2 | 6.408 | 0.812 | 0.448 | 0.021 | 0.184 |
| | Mature Defensive Style | 2.174 | 2 | 1.087 | 0.145 | 0.865 | 0.004 | 0.072 |
| | Neurotic Defensive Style | 27.353 | 2 | 13.677 | 1.435 | 0.244 | 0.036 | 0.299 |
| Criminal Conviction | Immature Defensive Style | 1.141 | 1 | 1.141 | 0.145 | 0.705 | 0.002 | 0.066 |
| | Mature Defensive Style | 1.743 | 1 | 1.743 | 0.233 | 0.631 | 0.003 | 0.076 |
| | Neurotic Defensive Style | 10.001 | 1 | 10.001 | 1.049 | 0.309 | 0.013 | 0.173 |
| Type of Drug Used | Immature Defensive Style | 42.581 | 3 | 14.194 | 1.799 | 0.154 | 0.066 | 0.451 |
| | Mature Defensive Style | 8.309 | 3 | 2.77 | 0.37 | 0.775 | 0.014 | 0.120 |
| | Neurotic Defensive Style | 57.043 | 3 | 19.143 | 2.008 | 0.120 | 0.073 | 0.497 |
| Gender * Marital Status | Immature Defensive Style | 6.519 | 2 | 3.259 | 0.413 | 0.663 | 0.011 | 0.115 |
| | Mature Defensive Style | 6.083 | 2 | 3.415 | 0.456 | 0.635 | 0.012 | 0.122 |
| | Neurotic Defensive Style | 20.048 | 2 | 10.024 | 1.051 | 0.354 | 0.027 | 0.228 |

According to the results obtained, the significance value related to gender for this variable is less than 0.05. Therefore, the second hypothesis of the study is confirmed for this variable, and there is a significant difference in suicidal thoughts between men and women dependent on substances. The average score for suicidal thoughts in men is 11.107, significantly higher than the average score for suicidal thoughts in women, which is 5.161 (Table 4).

**Table 4**

*Results of Analysis of Variance for Comparing Total Scores of Suicidal Thoughts in Men and Women*

| Source of Variation | SS | Df | MS | F | p | Effect Size | Observed Power |
|---|---|---|---|---|---|---|---|
| Adjusted Model | 4465.37 | 34 | 131.334 | 2.406 | 0.001 | 0.515 | 0.999 |
| Constant | 137.127 | 1 | 137.127 | 2.512 | 0.117 | 0.032 | 0.347 |
| Age | 0.042 | 1 | 0.042 | 0.001 | 0.978 | 0.000 | 0.050 |
| Duration of Drug Use | 15.022 | 1 | 15.022 | 0.275 | 0.601 | 0.004 | 0.081 |
| Gender | 274.083 | 1 | 274.083 | 5.021 | 0.028 | 0.061 | 0.600 |
| Marital Status | 80.141 | 2 | 40.070 | 0.734 | 0.483 | 0.019 | 0.170 |



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|---|---|---|---|---|---|---|---|
| Criminal Conviction | 13.629 | 1 | 13.629 | 0.250 | 0.619 | 0.003 | 0.078 |
| Type of Drug Used | 162.201 | 3 | 54.067 | 0.990 | 0.402 | 0.037 | 0.260 |
| Gender * Marital Status | 718.613 | 2 | 359.306 | 6.582 | 0.002 | 0.146 | 0.900 |
| Gender * Criminal Conviction | 4.683 | 1 | 4.683 | 0.086 | 0.770 | 0.001 | 0.060 |
| Gender * Type of Drug Used | 309.943 | 3 | 103.314 | 1.892 | 0.138 | 0.069 | 0.472 |
| Marital Status * Criminal Conviction | 342.42 | 2 | 171.210 | 3.136 | 0.049 | 0.075 | 0.586 |
| Marital Status * Type of Drug Used | 319.58 | 4 | 79.895 | 1.463 | 0.222 | 0.071 | 0.434 |
| Criminal Conviction * Type of Drug Used | 585.077 | 2 | 292.538 | 5.359 | 0.007 | 0.122 | 0.828 |
| Gender * Marital Status * Criminal Conviction | 75.861 | 2 | 37.931 | 0.695 | 0.502 | 0.018 | 0.163 |
| Gender * Marital Status * Type of Drug Used | 68.981 | 2 | 34.490 | 0.632 | 0.534 | 0.016 | 0.152 |
| Gender * Criminal Conviction * Type of Drug Used | 4.431 | 1 | 4.431 | 0.081 | 0.776 | 0.001 | 0.059 |
| Marital Status * Criminal Conviction * Type of Drug Used | 35.154 | 2 | 17.577 | 0.322 | 0.726 | 0.008 | 1.000 |
| Gender * Marital Status * Criminal Conviction * Type of Drug Used | 15.282 | 1 | 15.282 | 0.280 | 0.598 | 0.004 | 0.082 |
| Error | 4203.621 | 77 | 54.592 | | | | |
| Total | 16079 | 112 | | | | | |
| Total Adjusted | 8668.991 | 111 | | | | | |

## 4. Discussion and Conclusion

Unfortunately, there is a scarcity of research comparing defensive mechanisms between men and women who use substances. The findings of this study are consistent with the results of prior research (4, 9, 27-30).

To explain this finding, it is important to note that various studies have been conducted on gender differences and defensive mechanisms, yet some studies on the gender differences in the use of defensive mechanisms among men and women have presented contradictory findings. To possibly explain these contradictory findings, the role of cross-cultural factors could be suggested, as these factors might enhance or inhibit the use of certain defenses through socialization patterns (9).

Although no significant statistical differences in defensive mechanisms between men and women dependent on substances were observed, the analysis of the results from the averages of each defensive mechanism by the participants revealed that women tend to use somatization more, while men predominantly utilize acting out. In other words, female participants tend to manage internal/external stresses and emotional conflicts through physical symptoms. This can be explained by the higher prevalence of internalizing mechanisms in women compared to men, and the higher prevalence of externalizing mechanisms in men relative to women. A plausible explanation for this finding is that social mechanisms play a significant role by reinforcing that the traditional socialization pattern of women includes restraining overt hostility and aggression, whereas such expressions are more socially acceptable in men.

It is crucial to recognize that in identifying the differences or similarities between defensive mechanisms used by men and women, it should be considered that both genders use similar defensive mechanisms, albeit with varying intensities and consequences in the use of some mechanisms, such as projection and identification. For instance, although the defensive mechanism of projection is more intense in men according to psychoanalytic theories, it is also a prominent defense in some women. This suggests that differences in the use of each defensive mechanism are more related to perceived gender identity rather than biological sex. Furthermore, the frequent use of denial, leading to unstable, unpredictable personalities accompanied by anxiety in both men and women, is viewed as indicative of cognitive dysfunction, inability to focus on the core of problems, and self-centered, selfish personality traits in both sexes (7, 8).

The analysis showed that there is a significant difference in suicidal thoughts between men and women dependent on substances. Very few studies have compared suicidal thoughts between men and women substance users. This study's findings are inconsistent with the prior research (16-18), who found that suicidal thoughts were more prevalent among women substance users than men.

To explain this hypothesis, it can be said that according to the research by Chai et al., the use of opioids is associated with the highest percentage risk of increased suicidal thoughts and self-harm (17). As the use of opioids and opiates was significantly higher among the male samples in



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this study than among female users, suicidal thoughts were also more prevalent in men, showing a significant difference in suicidal thoughts between the two sample groups. In terms of suicide etiology in women, Hirschi's social control theory could be mentioned. According to this theory, suicide in women is a sign of weak social and family bonds. In other words, women with less attachment to relatives and family and fewer social norms usually do not consider the negative consequences of their actions on others. These individuals are also very limited in terms of social interactions and relationships with friends and relatives. On the other hand, when an individual contemplates and commits suicide, they have undoubtedly failed to achieve their social goals or have not invested significantly to achieve them; otherwise, they would not risk their position by committing suicide (3, 18).

Additionally, several factors that seem to explain the differences in suicidal thoughts between men and women are as follows: Men are less likely than women to seek emotional or psychological help from people or support systems, impulsive behaviors are observed more in men than in women, and protective factors such as pregnancy and the presence of a child are specific to women (16). Also, women may be more considerate of others, and viewing suicide in the context of relationships may create less motivation for death among women. Moreover, the reasons for gender differences in suicide can be sought in social expectations and differences in gender roles. For instance, concerning the high rate of suicide attempts among Iranian men, the sociology of emotions approach could be cited. This theory considers emotion as a cultural and social matter, such that cultural patterns affect the people of a society and individuals develop those emotions that they believe should be expressed in society. Thus, it seems that Iranian cultural ideologies related to male gender roles, such as being strong and stereotypical gender perceptions about women being emotional, have influenced men's experiences and made them less expressive of their problems and emotions. Therefore, in stressful situations, the likelihood of suicide increases in men (16).

A limitation of this study is the control of respondents' honesty in the questionnaires. This means that the data for this research were collected using self-report questionnaires. Therefore, participants might have under- or overestimated their characteristics on the related scale or may have preferred to provide socially desirable responses, which could have affected the findings. Due to the limited number of female drug rehabilitation camps in Gilan province and consequently the limited number of female substance user samples, and given that the sample was selected conveniently, it is recommended that the results be generalized cautiously and that the research be replicated on the target population. Since the research method used was causal-comparative, and in this method, we deduce the cause from the effect, it is not possible to provide an exact explanation of the causal relationship. Future research is advised to use clinical interviews in addition to self-report questionnaires for more accurate data collection. It is recommended that the research be repeated in larger samples. This research was conducted in drug rehabilitation camps in Gilan province, and it is suggested that future research focus on addicts in drug rehabilitation clinics, addicts who have not yet ceased substance use, and former addicts who have been fully treated. Future researchers are advised to control for some confounding intervening variables such as family, economic, and social status of substance users. Considering the decreasing age of addiction in the country, it is recommended that the Ministry of Education prepare comprehensive educational programs for students from an early age regarding various aspects of addiction so that children and adolescents can acquire the necessary knowledge about drugs in a principled and scientific way. It is suggested that teenagers who may have psychopathic traits be referred to relevant centers for precise identification and then treatment to prevent the potential for addiction and delinquency in the future.

## Authors' Contributions

K.S.N. designed the study, coordinated the data collection, and led the development of the research instruments. S.A.M., the corresponding author, conducted the data analysis using multivariate analysis of variance, interpreted the findings, and was primarily responsible for drafting and revising the manuscript. Both authors contributed to the literature review, discussion of the results, and critical revisions of the manuscript for important intellectual content. They have reviewed and approved the final version of the manuscript for publication.



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## Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

## Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethics Considerations

The study placed a high emphasis on ethical considerations. Informed consent obtained from all participants, ensuring they are fully aware of the nature of the study and their role in it. Confidentiality strictly maintained, with data anonymized to protect individual privacy. The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki. This article is derived from the first author's master's thesis at Lahijan Branch, Islamic Azad University, Lahijan, Iran, and has an ethics code IR.IAU.LIAU.REC.1401.017 from the Ethics Committee of Islamic Azad University, Lahijan Branch. We would like to express our deepest appreciation to all participants in this study.

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