

## **Stress and Depression: A Comparison Study between Men and Women Inmates in Peninsular Malaysia**

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### **Abstract**

*The objectives of this study were to compare the prevalence of stress and depression between men and women inmates, and to determine the association between stress and depression. A cross-sectional study involving 426 inmates (227 males, 199 females) was designed. Two self-report surveys were used to collect data related to stress and depression. Descriptive and statistical analyses were conducted to achieve the objectives. The findings showed that stress and depression were high among inmates, especially female inmates. Comparison analysis confirmed that stress and depression were significantly higher in female inmates than in male inmates. Furthermore, stress and depression showed significant association in both male and female inmates. It can be concluded that high prevalence of stress and depression among inmates was associated, and male and female inmates had different level of stress and depression.*

**Keywords:** prevalence, stress, depression, inmates, association.

### **1. Introduction**

In the past few decades, research involving prison population has been increasing due to the rapid growth of the population (e.g., Birmingham, 2004; Sacks, 2004; Gussak, 2009). Some of the researches focus on the underlying factors that contribute to criminality among the inmates (e.g., Sacks, 2004; Rogstad & Rogers, 2008), while some other researches emphasise on effective treatment and rehabilitation programmes for the inmates (e.g., Langan & Pelissier, 2001; Parsons, Walker, & Grubin, 2001; Gussak, 2009). Several risk factors towards the criminal offending have been highlighted. Among the factors are psychiatric disorders such as substance-related disorders, personality disorders, and affective disorders. Subsequently, these risk factors are related to the effectiveness of the existing rehabilitation programmes as well as the success of the latest programmes.

Apart from being the underlying factors contributing to criminal offending, psychiatric disorders are often associated with repeat offending and in-prison offending (Baillargeon, Binswanger, Penn, Williams, & Murray, 2009; Coid et al., 2009; Fazel & Yu, 2011). Inappropriate rehabilitation received during imprisonment has often been related to the unwanted outcome. The underlying factors particularly those involving psychiatric disorders are in need of specific and appropriate treatment (Fraser, Gatherer, & Hayton, 2009). Other than substance-related disorder that essentially needs proper treatment, psychiatric disorders such as depression and stress-related disorder also require specific rehabilitation during imprisonment.

Stress and depression are two common problems in prison population (Birmingham, 2004; Gunter, 2004; Drapalski, Youman, Stuewig, & Tangney 2009; Lafortune, 2010). Both problems are often associated with imprisonment experiences among inmates, especially female inmates (Boothby & Durham, 1999; Birmingham, 2004; Gunter, 2004). Stress can be defined as “*a chronically high level of mental arousal and bodily tension that exceed a person’s capacity to cope, results in distress, disease, or an increased capacity to cope*” (Neidhardt, Weinstein, & Conry, 1990, p. 2). On the other hand, depression, which is one of most common psychiatric disorders in prison, can be defined as “*persistent depressed mood, loss of interest and enjoyment, and reduced energy, which lead to increased fatigability and diminished activity*” (WHO, 1992).

The episodes of depression are usually related to the experience of sudden or prolonged stressful events (Gunter, 2004; Drapalski et al., 2009). It is common for newly admitted inmates to suffer from depression for certain period of time due to shock or stress of the new environment (Zlotnick et al., 2008; Piselli, Elisei, Murgia, Quartesan, & Abram, 2009).

In addition, stress and depression among inmates have often be related to the risk of self-harm and suicide in prison (Ireland & York, 2012), which obviously are costly to the prison institutions (Toch, 1992).

The first objective of the current study was to compare the prevalence of stress and depression between male and female inmates involved in this study. This was followed by the second objective, which was to determine the association between stress and depression among male and female inmates. This association was then compared to understand the effect of stress towards depression in each gender group.

## **2. Methodology**

### **2.1 Participants**

A cross-sectional study design was employed in this study. The sampling sources were prisons in Peninsular Malaysia, with four prisons were selected as the sampling frame. There were two groups of participants: male and female inmates. The number of participants was calculated using single-proportion formula. The calculated numbers of participants were 85 for male inmates and 42 for female inmates. Upon completion of data collection, there were 227 male inmates and 199 female inmates.

In the current study, purposive-sampling method was used to select the participants. The selection of participants was based on inclusion and exclusion criteria, in addition to the availability of the participants during the data collection. The inclusion criteria were inmates at the selected prison, age of between 21 to 55 years old, and able to read and write on their own. The exclusion criteria were inmates who were sentenced to life imprisonment or on death row, age of less than 21 or more than 55 years old, had prior acute or chronic illness, and had prior diagnosis of mental illness.

### **2.2 Measures**

The *Perceived Stress Scale* (PSS) is the most widely used psychometric instrument for measuring perception of stress. It was designed by Cohen and colleagues (1983) to detect how stressful respondents find their lives. It contains 10 items and uses a 5-point Likert scale: 0 = *never*, 1 = *almost never*, 2 = *sometimes*, 3 = *fairly often*, 4 = *very often*. It is simple and easy to understand. In this study, the total scores were obtained by summing up all the items, with items number 4, 5, 7, and 8 were reversed-scored. Higher scores reflected higher and longer duration of stress. The reliability of PSS was 0.85 (Cohen, Kamarck, & Mermelstein, 1983).

The *Center for Epidemiologic Studies Depression scale* (CES-D) is a screening instrument designed to measure common symptoms of depression (Radloff, 1977). It contains 20 items using four-point Likert scale. The scale is as follows: 0 = *rarely or none of the time*, 1 = *some or little of the time*, 2 = *occasionally or moderate*, 3 = *most or all of the time*. The questions are related to certain depression symptoms such as poor appetite, sleep disturbance, and loss of concentration. It is reliable and valid for making a quick assessment of behavioural, cognitive, and affective symptoms of depression (Naughton & Wiklund, 1993). In this study, the score was obtained by the summing the scales for each item, except for items 4, 8, 12, and 16, which were reverse-scored. Higher scores showed greater levels of depression. The reliability of the CES-D was between .85 and .90 (Radloff, 1977).

### **2.3 Data collection**

The research protocol of the current study was reviewed and approval was received from the Research Ethics Committee (Human) of Universiti Sains Malaysia. In addition, permission to conduct the study was obtained from Malaysian Prison Department. Data collection was conducted at the respective prisons. Prior to the data collection, the selected participants were gathered in group at a hall or rehabilitation room at the prison. A brief explanation regarding the purpose and procedure of the study was given to the participants. Each participant was ensured of their confidentiality and right to withdraw from the study at any time during the process. As the participants agreed to participate in the study, a participant information sheet and a consent form were given to be signed. The process of data collection then commenced. Set of self-report surveys was distributed to the participants and they were asked to complete the surveys based on their own experiences and perception. The average time taken to complete the measures was seven minutes.

## 2.4 Analysis

The collected data was analysed using statistical software, the Social Package for Social Sciences (SPSS) version 19.0. Descriptive statistic was computed to summarise participant's demographic information and to calculate percentage of occurrence.

To compare the stress and depression between male and female inmates, independent *t*-test was run since all the variables were numerical. Significant (*p*) value was set at .05. In addition, separate simple linear regression was conducted to explore the association between stress and depression in each gender group. In the regression analysis, stress was the predictor variable and depression was the outcome variable.

## 3. Results

### 3.1 Demographic Information

The highest number of male inmates was within 30 to 39 years old, while the highest number of female inmates was within 20 to 29 years old. Table 1 presents the demographic information of the participants. The mean age of male inmates was 33.95 years and 32.4 years for female inmates. In both gender groups, the majority were Malay (56.8% and 59.8%, respectively). The highest number of the male inmates was single (52.9%), while the highest number of female inmates was married (39.7%). Moreover, in both groups, majority of the participants had a permanent job prior to incarceration (45.4% and 36.7%, respectively). In terms of imprisonment, more than 50% of male inmates were sentenced to more than one year of incarceration, while 50% of female inmates were on remand.

### 3.2 Descriptive analysis

In advance of descriptive analysis, the authors calculated the alpha values for the *Perceived Stress Scale* (PSS) and the *Center for Epidemiologic Studies Depression scale* (CES-D). The coefficient value for the PSS was .70, while the alpha Cronbach's alpha coefficient for the CES-D was .75. Thus, both measures verified adequate reliability.

Following the analysis, more than half of the male inmates scored high for stress, with about 40% were screened positive with depression. The results of the descriptive analysis are shown in Table 2. Female inmates demonstrated higher occurrence of stress and depression than male inmates, with more than 70% scored high for stress and were positively screened with depression. Apparently, stress and depression were higher in female inmates than male inmates. In total, more than half of the participants of this study scored high for stress and depression.

To compare stress and depression between male inmates and female inmates, independent *t*-test was run. The test was conducted to confirm the difference in stress and depression between the gender groups. The result is tabulated in Table 3.

Difference in the mean score of stress and depression between male inmates and female inmates in the current study was found significant ( $p < .01$ ). As shown in Table 3, female inmates had higher mean score of stress (mean=17.34) and depression (mean=20.34) compared to male inmates. The significant *t*-test result confirmed the earlier descriptive findings, where female inmates had significantly higher presence of stress and depression than male inmates.

### 3.3 Statistical analysis

In the current study, stress was expected to contribute towards the occurrence of depression among the participants. To identify the association between stress and depression, simple linear regression was conducted. The result is shown in Table 4.

The association between stress and depression in male inmates and female inmates was found significant ( $p < .001$ ). This finding demonstrated that stress as the predictor variable significantly contributed towards depression among male inmates and female inmates in the current study. Based on the coefficient values ( $r^2$ ), stress explained higher percentage of variation (34%) in depression among male inmates compared to female inmates (20%). These finding showed that there were other factors that may largely explain the presence of depression in male and female inmates besides stress.

#### **4. Discussions**

Among inmates in the current study, presence of stress was considerably high. In addition, positive screening of depression was notable, indicating the high likelihood for depressive disorders among the inmates. These findings were supported by the previous studies that report stress and depression are highly prevalence among prison population (e.g., Birmingham, 2004; Gunter, 2004; Drapalski et al., 2009; Lafortune, 2010). Between male and female inmates, the latter demonstrated higher incidence of both stress and depression.

These findings showed that female inmates had higher tendency to suffer from stress and depression compared to male inmates, as previously found in other studies (e.g., Boothby & Durham, 1999; Butler & Allnut, 2003; Gunter, 2004; Zlotnick et al., 2008; Drapalski et al., 2009).

The high occurrence of stress among female inmates showed that women are more susceptible towards stressful circumstances. Women often have more sources of stress such as socioeconomic problems, family affairs, and educational restraints (Gunter, 2004; Hammen, 2005; Fountoulakis, Iacovides, Kaprinis, & Kaprinis, 2006; Reed et al., 2009). These circumstances are even more significant among inmates who are being imprisoned and restricted from freedom to achieve something like those outside the prison wall (Houck & Loper, 2002). Demographically, the highest numbers of female inmates in the current study were married. This showed that most of the female inmates had a family and most probably with a child or children. The burden of being separated from their child (or children) especially a young one(s) could become a major source of stress among them (Houck & Loper, 2002; Gunter, 2004). Being a parent, particularly a mother, is indeed a stressful condition for the inmates, thus their imprisonment became an additional burden to the existing parenting stress (Moloney & Moller, 2009). These included restricted contact with child (or children), custody issues, loss control over parental role, and many other issues that could arise for being imprisoned mother (Johnson & Sarason, 1978; Houck & Loper, 2002). In addition, women are more likely than men to experience stressors in the forms of past victimisation such as childhood trauma, intimate partner violence, and sexual assaults (Gunter, 2004; Hammen, 2005; Reed et al., 2009).

On the other hand, male inmates in the current study demonstrated considerably high incidence of stress and depression. The stress experienced by the male inmates may be related to their current imprisonment. The restriction to achieve economical success as well as the limited bonding with the outside world may contribute towards their stress (Rutherford & Duggan, 2009). Nevertheless, when compared to their female counterpart, male inmates showed lower incidence of stress and depression. Unlike female inmates, more than half of the male inmates were unmarried and thus had lesser burden towards family affairs. The occurrence of stress and depression among male inmates supported the prevalence of psychiatric disorders among prison population (Birmingham, 2004; Drapalski et al., 2009; Lafortune, 2010). Both male and female inmates showed tendency to suffer from depressive disorder and thus required appropriate treatment and rehabilitation.

Based on the finding, stress strongly contributed to the occurrence of depressive disorder among the inmates (Houck & Loper, 2002; Ireland & York, 2012). Several previous studies explore the relationship between stress and depression, mostly focusing on the clinical sample (e.g., Mundt, Reck, Backenstrass, Kronmüller, & Fiedler, 2000; Hammen, 2005; Fountoulakis et al., 2006; Candrian et al., 2008). Related studies involving prison population are rather few. Houck and Loper (2002) explored the relationship between parenting stress and prison adjustment among incarcerated mothers. Significant level of stress and depression were identified among their studied sample. From the findings, relationship between stress and depression was suggested. Nevertheless, it was unclear whether parental stress and depression were related among the inmates since no prior evaluation of mental health was available before their incarceration. Thus, the high parental stress and depressive symptoms during incarceration cannot be confirmed as their current or prolonged problems (Houck & Loper, 2002).

In a study involving clinical in-patients with major depression, relationship between stress and depression was suggested as a function of individual coping strategy (Mundt et al., 2000). In the study, depressed patients were found more affected by stressful life events compared to those without depression within the first three months of hospitalisation. In addition, higher number of stressful events was found among relapsed depressed patients, of which demonstrated the significant association between stress and depression. The study emphasised on the subjective evaluation of stressful life events by individual patients hence concluded individual coping strategy as the factor that contributed to stress and depression relationship (Mundt et al., 2000). Hammen (2005) in his paper highlighted the significant relationship between stress and depression in general context.

Stressful family environment in addition to social disadvantages such as low income and undereducated was often synonymous to depressed women. He also highlighted the role of childhood stressful experiences towards the development of depression in adulthood. These childhood stressful experiences included family conflict, trauma experiences, and family violence (Hammen, 2005).

In a study to explore the causal relationship between stressful life events and the onset of major depression among female twins, the association was found highly significant where stressful life events undoubtedly increased the risk for major depression disorder (Kendler et al., 1999). Fountoulakis and colleagues (2006) in their research on clinically depressed patients found higher prevalence of depression among women. Compared to men, depression among women was more likely to be influenced by socio-demographic stressors such as family-related problems and education status rather than psychosocial and life events stressors. Depression among men on the other hand was independent of any of the aforementioned stressors, indicating that any of the stressors may function similarly towards the onset of depression in men (Fountoulakis et al., 2006).

The mechanism of effect of life stress has been discussed in previous literature. Johnson and Sarason (1978) who studied on locus of control orientation suggested that perception of control over life change played its role in determining the effect of life stress. Vulnerability to the effects of life stress such as depression and anxiety was the highest among those who went through high levels of life change but perceived no control over the changes (Johnson & Sarason, 1978). This was particularly true for negative life change, for example imprisonment where individuals have no control over the sudden life change. As a result, they have to endure the life change and suffer from the effect of life stress. This validated hypothesis (Johnson & Sarason, 1978) may provide explanation for the significant association between stress and depression among inmates in the current study.

Presence of stress and depression has been related to negative behaviours among inmates, such as self-harm and suicidal behaviours (Fountoulakis et al., 2006; Gunter, Chibnall, Antoniak, Philibert, & Hollenbeck, 2011; Ireland & York, 2012). In a study among female inmates, Ireland and York (2012) investigated self-injurious behaviour in relation to psychological distress and coping style among the inmates. Psychological distress in this study represented difficulty in emotional functioning such as severe depression and anxiety. Severe depression was specifically found predictive of self-injurious behaviours, which supported the significant association between depression and self-injury among inmates. Increased psychological distress was also found to increased risk of self-injury. The study however did not fully explain the function of emotional coping towards self-injurious among the inmates (Ireland & York, 2012). Among offenders serving community works, depression was identified as a strong predictor for suicidal ideation and attempts (Gunter et al., 2011). In addition, presence of trauma that was often related to stress also predicted suicide among the samples (Gunter et al., 2011). These destructive effects of stress and depression underscored the needs to identify the problems among inmates so that appropriate treatment and rehabilitation can be applied.

Several limitations were acknowledged in the current study. The first limitation was the absence of clinical diagnosis to confirm the findings of this study. As there was no source of reference from the local studies with regard to the subjects of the study, this study aimed to serve as a pioneering study towards future studies among the related subjects. Thus, the current study sought to establish an empirical knowledge as a foundation for the future studies by using quantitative and descriptive analysis only. In future studies, it is recommended that in-depth methods such as clinical diagnosis and qualitative data collection to be employed to establish more precise findings.

The second limitation of the current study was the recruitment of the prisons. Currently in Malaysia, there are 30 prisons including two women prisons, with nine of them are at the island of Borneo (states of Sabah and Sarawak). Statistically, inmates from all prisons should be included in the study to represent inmates in Malaysia in equal proportion. However, due to logistic issues, only four prisons in Peninsular Malaysia were selected as the sampling frame. The inmates in these four prisons represented the majority of inmates in Malaysia, including those in Sabah and Sarawak. Nonetheless, the current study was considered representative of Malaysian inmates. Thus, in future studies, it is recommended to include inmates in every state of Malaysia.

Based on the findings and the limitations, several recommendations could be suggested for future studies as well as the improvement of the current correctional programmes used in prison. The high prevalence of stress and depression in the prison setting indicated the needs for proper evaluation and treatment of the respective problems.

Thus, it is suggested that screening of the problems, particularly of psychiatric disorders, should be conducted regularly. It is to evaluate the current mental state of the inmates, in addition to the existing physical health evaluation. Besides, detailed clinical diagnosis should be emphasised on those with positive screening of the problems. Several programmes such as stress management, group counselling, and depression therapy should be included in the correctional programme in prison, especially for those with the problems. The inmates should also be given a freedom to express their stress and depressed feeling whenever necessary in order to lessen their burden and to avoid a bitter consequence in the future.

### **5. Conclusion**

High prevalence of stress and depression among inmates in the current study provided evidence of the impact of imprisonment, especially among female inmates. These findings underscored the importance to evaluate level of stress and presence of depression in prison setting. In addition, the significant association between stress and depression marked the needs to explore the underlying factors for psychiatric disorders. Examples are experiences of traumatic events and risky socio-demographic background, which may contribute to life stress. Difference in depression between male and female inmates highlighted the separate needs for each gender group, as suggested by many previous studies (e.g., Langan & Pelissier, 2001; Sacks, 2004; Rogstad & Rogers, 2008).

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### **References**

- Baillargeon, J., Binswanger, I. A., Penn, J. V., Williams, B. A., & Murray, O. J. (2009). Psychiatric disorders and repeat incarcerations: The revolving prison door. *American Journal of Psychiatry*, *166*, 103-109.
- Birmingham, L. (2004). Mental Disorder and Prisons. *Psychiatric Bulletin*, *28*, 393-397.
- Boothby, J. L., & Durham, T. W. (1999). Screening for depression in prisoners using the Beck Depression Inventory. *Criminal Justice and Behavior*, *26*(1), 107-124.
- Butler, T., & Allnutt, S. (2003). *Mental illness among New South Wales prisoners*. New South Wales, Australia: NSW Correction Health Service.
- Candrian, M., Schwartz, F., Farabaugh, A., Perlis, R. H., Ehlert, U., & Fava, M. (2008). Personality disorders and perceived stress in major depressive disorder. *Psychiatry Research*, *160*, 184-191.
- Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of Perceived Stress. *Journal of Health and Social Behavior*, *24*, 386-396.
- Coid, J.W., Yang, M., Ullrich, S., Zhang, T., Sizmur, S., Farrington, D., & Rogers, R. (2009). Most items in structured risk assessment instruments do not predict violence. *Journal of Forensic Psychiatry and Psychology*, *22*(1), 3-21.
- Drapalski, A.L., Youman, K., Stuewig, J., & Tangney, J. (2009). Gender differences in jail inmates' symptoms of mental illness, treatment history and treatment seeking. *Criminal Behavior and Mental Health*, *19*, 193-206.
- Fazel, S., & Yu, R. (2011). Psychotic disorders and repeat offending: Systematic review and meta-analysis. *Schizophrenia Bulletin*, *37*(4), 800-810.
- Fountoulakis, K. N., Iacovides, A., Kaprinis, S., & Kaprinis, G. (2006). Life events and clinical subtypes of major depression: A cross-sectional study. *Psychiatry Research*, *143*, 235-244.
- Fraser, A., Gatherer, A., & Hayton, P. (2009). Mental health in prisons: Great difficulties but are there opportunities? *Public Health*, *123*, 410-414.
- Gunter, T. D., Chibnall, J. T., Antoniak, S. K., Philibert, R. A., & Hollenbeck, N. (2011). Predictors of suicidal ideation, suicide attempts, and self-harm without lethal intent in a community corrections sample. *Journal of Criminal Justice*, *39*, 238-245.
- Gunter, T.D. (2004). Incarcerated women and depression: A primer for the primary care provider. *Journal of the American Medical Women's Association*, *59*(2), 107-112.
- Gussak, D. (2009). Comparing the effectiveness of art therapy on depression and locus of control male and female inmates. *The Arts in Psychotherapy*, *36*, 202-207.

- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology, 1*, 293-319.
- Houck, K. D. F., Loper, A. B. (2002). The relationship of parenting stress to adjustment among mothers in prison. *American Journal of Orthopsychiatry, 72*(4), 548-558.
- Ireland, J. L., & York, C. (2012). Exploring application of the Interpersonal-Psychological Theory of Suicidal Behaviour to self-injurious behaviour among women prisoners: Proposing a new model of understanding. *International Journal of Law and Psychiatry, 35*, 70-76.
- Johnson, J. H., & Sarason, I. G. (1978). Life stress, depression and anxiety: Internal-external control as a moderator variable. *Journal of Psychosomatic Research, 22*, 205-208.
- Kendler, K. S., Karkowski, L. M., & Prescott, C. A. (1999). Causal relationship between stressful life events and the onset of major depression. *American Journal of Psychiatry, 156*, 837-841.
- Lafortune, D. (2010). Prevalence and screening of mental disorders in short-term correctional facilities. *International Journal of Law and Psychiatry, 33*(2), 94-100.
- Langan, N. P., & Pelissier, B. M. M. (2001). Gender differences among prisoners in drug treatment. *Journal of Substance Abuse, 13*, 291-301.
- Moloney, K.P., & Moller, L.F. (2009). Good practice for mental health programming for women in prison: Reframing the parameters. *Public Health, 123*, 431-433.
- Mundt, C., Reck, C., Backenstrass, M., Kronmüller, K., & Fiedler, P. (2000). Reconfirming the role of life events for the timing of depressive episodes. A two-year prospective follow-up study. *Journal of Affective Disorders, 59*, 23-30.
- Naughton, M.J., & Wiklund, I. (1993). A critical review of dimension-specific measures of health-related quality of life in cross-cultural research. *Quality of Life Research, 2*, 397-432.
- Neidhardt, E.J., Weinstein, M.S., & Conry, R.F. (1990). *No-gimmick guide to managing stress: Effective options for every lifestyle* (2<sup>nd</sup> Edition) (p. 2). North Vancouver: Self-Counsel Press, Inc.
- Parsons, S., Walker, L., & Grubin, D. (2001). Prevalence of mental disorder in female remand prisons. *Journal of Forensic Psychiatry, 12*, 194-202.
- Piselli, M., Elisei, S., Murgia, N., Quartesan, R., & Abram, K.M. (2009). Co-Occurring psychiatric and substance use disorders among male detainees in Italy. *International Journal of Law and Psychiatry, 32*, 101-107.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.
- Reed, E., Raj, A., Falbo, G., Caminha, F., Decker, M. R., Kaliel, D. C.,... Silverman, J. G. (2009). The prevalence of violence and relation to depression and illicit drug use among incarcerated women in Recife, Brazil. *International Journal of Law and Psychiatry, 32*, 323-328.
- Rogstad, J.E., & Rogers, R. (2008). Gender differences in contribution of emotion to psychopathy and antisocial personality disorder. *Clinical Psychology Review, 28*, 1472-1484.
- Rutherford, M., & Duggan, S. (2009). Meeting complex health needs in prisons. *Public Health, 123*, 415-418.
- Sacks, J.Y. (2004). Women with co-occurring substance use and mental disorders (COD) in the criminal justice system: A research review. *Behavioral Sciences and the Law, 22*, 449-466.
- Toch, H. (1992). *Mosaic of despair: Human breakdowns in prisons*. Washington, DC: American Psychological Association.
- World Health Organization (1992). *The ICD-10 classification of mental and behavioral disorders: Clinical description and diagnostic guidelines*. Geneva, Switzerland: Office of Publication, WHO.
- Zlotnick, C., Clarke, J. G., Friedmann, P. D., Roberts, M. B., Sacks, S., & Melnick, G. (2008). Gender differences in comorbid disorders among offenders in prison substance abuse treatment programs. *Behavioral Sciences and the Law, 26*, 403-412.

**Table 1: Demographic information of the participants**

<b>Information</b>	<b>Men (N=227) n (%)</b>	<b>Women (N=199) n (%)</b>
<b>Age group (years old)</b>		
20 – 29	75 (33.0)	89 (44.7)
30 – 39	99 (43.6)	67 (33.7)
40 – 49	46 (20.3)	31 (15.6)
50 and above	7 (3.1)	12 (6.0)
<b>Ethnicity</b>		
Malay	129 (56.8)	119 (59.8)
Chinese	43 (18.9)	48 (24.1)
Indian	46 (20.3)	24 (12.1)
Others	9 (4.0)	8 (4.0)
<b>Marital status</b>		
Single	120 (52.9)	55 (27.6)
Married	86 (37.9)	79 (39.7)
Divorcee	20 (8.8)	51 (25.6)
Widow	1 (.4)	14 (7.0)
<b>Employment</b>		
Permanent job	103 (45.4)	73 (36.7)
Always switching jobs	96 (42.3)	70 (35.2)
Unemployed	28 (12.3)	56 (28.1)
<b>Length of incarceration</b>		
On remand	15 (6.6)	99 (50.0)
Less than 6 months	21 (9.3)	40 (20.2)
More than 6 months	72 (31.7)	29 (14.6)
More than a year	119 (52.4)	30 (15.2)

**Table 2: The descriptive results for stress and depression in both groups**

<b>Variables</b>	<b>Frequency (%)</b>		
	<b>Men</b>	<b>Women</b>	<b>Total</b>
Stress	129 (56.8)	151 (75.9)	280 (65.7)
Depression	92 (40.5)	144 (72.4)	236 (55.4)

**Table 3: Independent t-test for stress and depression**

<b>Variables</b>	<b>Mean score</b>		<b>Standard error mean</b>		<b>Independent t-test</b>		
	<b>Men</b>	<b>Women</b>	<b>Men</b>	<b>Women</b>	<b>t</b>	<b>df</b>	<b>p-value</b>
Stress	15.79	17.34	.494	.584	-3.25	424	.001
Depression	17.06	20.34	.326	.351	-4.32	424	< .001

**Table 4: Simple linear regression for stress and depression**

<b>Groups</b>	<b>r<sup>2</sup></b>	<b>b (95% CI)</b>
Men	.34	.88 (.72, 1.04)*
Women	.20	.45 (.53, .93)*

Notes. \*  $p < .001$