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DEVELOPMENT AND PSYCHOMETRIC PROPERTIES OF ADDICTION RECOVERY SCALE

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ABSTRACT--*Addiction recovery is the process of change in which individuals improve their health and well-being, yet it is difficult to find an instrument to measure this recovery process. Thus, this study was aimed to develop the Addiction Recovery Scale and evaluate its' psychometric properties. The instrument was developed to measure four dimensions of addiction recovery with 137 respondents participated in the study. Reliability and validity of the instrument were tested using Cronbach alpha and factor analysis. Results of principal component analysis extracted four factors with acceptable eigen values and the percentage of variance explained for all factors was 41.4%. All the factors have good factor loadings between .333 to .807. Reliability analysis also showed satisfactory Cronbach alpha for all four dimensions from .809 to .978. The development of this instrument has shown the importance of the dimensions of religiosity and belief, stability and security, health, and emotional stability in addiction recovery. Through the use of this instrument, it enables agencies related with drug treatment and rehabilitation programmes to monitor the recovery of individuals involved in drug addiction.*

Keywords-- *addiction recovery, reliability, validity, factor analysis*

I INTRODUCTION

In order to achieve a drug free community, effort has to be given to combat drug addiction seriously and aggressively. In addition, rehabilitation programmes involving evaluation require rehabilitation officers to have competence in the treatment of drug addiction. One of the focus in treatment programme is clients' evaluation on the level of dependence from addiction behaviour. Therefore, an instrument with good reliability and validity needs

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to be used in the process of screening and evaluation. The screening and evaluation on the other hand does not only examine clients' readiness to change. Several other psychological aspects have to be measured in order to ascertain that an individual has recovered from addiction.

Recovery is a process of voluntarily sustained control over substance use which maximizes health and well-being and participation in the rights, roles and responsiblities of society (Groshkova, Best & White, 2013). Addiction recovery is also defined by the Substance Abuse and Mental Health Services Administration as a change process through which individuals improve their health and well-being, live with a purpose and tries to achieve their full potential. According to this definition, there are four dimensions which "support life in recovery" namely: (1) health - managing one's disease, and living a healthy life emotionally, physically and financially, (2) home - creating a safe and secure place to live, (3) purpose – participate in daily activities that provide a sense of purpose: volunteer, school, job, family caretaking, participate in society, and (4) community- relationships and social networking that give support, love, friendship, and hope.

This is consistent with a study conducted by Neale et al. (2014) who used Delphi group method involving 25 experts (addiction psychiatrists, n=10; rehabilitation officers, n=9; detoxification staff, n=6) which suggested that the measurement of addiction recovery was measured using 15 domains: (1) substance abuse, (2) treatment/support, (3) psychological health, (4) physical health, (5) use of time, (6) education/training/employment, (7) income, (8) residence, (9) relationship, (10) social functioning, (11) antisocial behaviour, (12) well-being, (13) identity/self-awareness, (14) purpose/aspiration, and (15) spirituality.

Various factors have been linked as predictors towards drug addiction, among them is the complex interaction between environmental factors, neurobiological changes caused by drugs, comorbidity, personality traits and response towards stress (Kreek et al., 2005); social factors such as risk factors, exposure to negative lifestyle, low socioeconomic status which causes negligence in children (Spooner & Hetherington, 2005); peer influence and curiosity among adolesccents (Pedersen et al., 2013).

A study by Fauziah et al. (2012) evaluated treatment effectiveness through recovery aspects measured based on individual factors (confidence and resilience) and social environment (family, community and employer support). In addition, individuals experiencing addiction problem need to have readiness to change if they want to be free of addiction. A study of readiness to change by Fauziah et al. (2010) found that majority of the respondents who obtained high scores in readiness to change were those who were in recognition and taking action stages. In contradiction, majority of the respondents who were still at ambivalence stage were uncertain that they can control problems relating to drug addiction. Assessment of recovery and tendency to relapse is thus an issue that has yet to determineits objective indicators to enable accurate information on treatment effectiveness to be obtained.

Religiosity and spirituality werefound in many studies to have correlations in studies about crime, substance abuse, family health, physical and mental well-being, self-esteem and coping (Brown, 2006; Bazargan, Sherkat & Bazargan, 2004; Cotton et al., 2006; Wallace & Bergeman, 2002; Weaver et al., 2006; Yeterian, Bursik & Kelly,

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2018). At individual level, qualitative andquantitative studies support the findings that religiosity was negatively associated with substance abuse and it is beneficial in recovery process (Brown, 2006; Bazargan, Sherkat & Bazargan, 2004). Empirical evidence also shows that religiosity and spirituality are protective factors that prevent alcohol and drug abuse in multiple groups (Hodge, 2001; Marsiglia et al., 2005; Walker et al., 2007).

In addition, Yeterian, Bursik and Kelly (2015) conducted a study among 127 outpatient adolescentsundergoingsubstance abuse treatment. Results showed that abstinence did not change significantly during the follow-up period, however drug-related consequences and psychological distress decreased significantly. The researchers also found that religiosity did not predict changes in abstinence or psychological distress over time, but did predict reductions in drug-related consequences over time. Jarusiewicz (2000)on the other hand conducted a cross sectional study on 20 relapsed respondents and 20 respondents who have recovered from hospital rehabilitation centers with 60% of the respondents were male. Results showed that individuals who were in recovery process have higher level of trust and spirituality.

Fleury et al. (2014) found that stigmatization was the major predictor of substance dependence. Several studies show that people with substance dependence, with or without co-occurring disorders, are stigmatized and discriminated against (Tuchman, 2010). Pokhrel et al. (2010) conducted a study comparing US and Russian adolescents and found that lack of social self-control was significantly related with higher alcohol and hard drug use in the Russian sample and higher cigarette use in the US sample. In addition, higher sensation-seeking showed significant associations with higher cigarette and alcohol use in the Russian sample and higher alcohol, marijuana, and hard drug use in the US sample.

Findings from Visher et al. (2003) showed that to reduce the risk of relapse and succeed in social integration process, individuals need support and positive acceptance from existing social network in a community.Each individual who was incarcerated has new experiences, needs and skills that were brought back to the community (Waleed, 2010). The experience of undergoing sentence in the prison gives opportunities for individuals to change their behaviour and negative thoughts and strengthen the relationship with family after they are released from prison (Waleed, 2010). Listwan et al. (2010) and Taylor (2016) explained that support and encouragement from family members can increase the well being of individuals and reduce the emotions to rebel. Cheung and Cheung (2003) also found that support, motivation andinvolvement of family members in helping individuals to interact with community can reduce the rate of recidivism and relapseand contribute towards a successful social integration process.

Based on the studies reviewed, the objectives of the present study are to: (1) develop the Addiction Recovery Scale for clients in drug rehabilitation centers; (2) determine that the scale has construct validity through factor analysis; and (3) determine that the scale has good reliability.

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II METHODS

This study employed a cross sectional survey design. A total of137 respondents were chosen for the study. All of the respondents were clients at a drug rehabilitation center in central Malaysia and have undergone at least three months of rehabilitation programme.

The process of instrument development began with defining the construct to be measured which was addiction recovery. The definition used in this study refers to the definition given by Substance Abuse and Mental Health Services Administration as the process of change in which individuals improve their health and well-being, live with purpose and strive to achieve their full potential.Therefore, theAddiction Recovery Scale was developed to comprisefour dimensions: (i) religiosity and belief, (ii) stability and security, (iii) health, and (iv) emotional stability.

A 4-point Likert scale was used for this instrument. The next step was to develop the items by refering to the literature and existing psychological instruments. Apart from that, the development of the items also went through a series of panel discussion among the researchers. The process of testing the items on the other hand employed techniques of validity and reliability which were construct validity and internal consistency.

III RESULTS

Demographic Profile

The study was conducted among 137 respondents in a rehabilitation center in central Malaysia. Table1 shows the demographic information of the respondents. The age of respondents was between 21 to 56 years old with a mean of 33.68. All respondents were male. A total of 131 (95.6%) respondents were Malay, 2 (1.5%) were Chinese, and 3 (2.9%) were Indians. For marital status, majority of the respondents weresingle which was 86 respondents (62.87%), 34 (24.8%) were married, 6 (4.4%) were divorced/separated, and 10 (7.3%) were widowers.

Table 1: Respondents' demographic profile

Demography		**Frequency**	**Percentage (%)**
Gender	Male	137	100.0
Etnic	Malay	131	95.6
	Chinese	2	1.5
	Indian	4	2.9
Marital Status	Single	86	62.8
	Married	34	24.8
	Divorced/Separated	6	4.4
	Widower	10	7.3

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Results of Factor Analysis

Construct validity of this instrument was tested using factor analysis. Factor analysis is a procedure that is often used by researchers to identify, arrange and reduce a big number of items into specific domains under a construct.The first step in performing factor analysis is by identifying the intercorrelations of items in which items with high correlations will be put under a specific construct as they measure similar concept. Factors are then extracted by taking the factors and arranging the factors according to the constructs measured. The communality values obtained from this factor extraction is between 0.0 to 1.0. Communality values show the proportion of variance for each factor. Apart from that, only factors with eigen values equal or larger than 1.0 will be extracted as a factor for reaearch variable, while factors with eigen values less than 1.0 will be eliminated from the factor list. Factors that are extracted using Principal Component Analysis (PCA) method are then rotated using varimaxrotation method whereby all items with high intercorrelationswill be grouped under one factor.

The measurement of Keiser-Meyer Olkin (KMO) and Bartlett's test of sphericity were used to predict whether the data tend to factor well (Hair et al., 2010). KMO measurement measures the degree of intercorrelation among items. Barlett's test of sphericity on the other hand is used to examine whether there are significant correlations among variables. This test is also used to identify whether intercorrelations among items are adequate and items are suitable to run for factor analysis. Factor analysis is suitable to be conducted if the KMO value is 0.60 and above (Hair et al., 2010).

Construct validity was analyzed using factor analysis through forced method by determining four factors and factor loading of 0.30. TheAddiction Recovery Scale was analyzed by four dimensions namely religiosity and belief, stability and security, health, and emotional stability. The KMO values andBartlett's test of sphericity suggested that all items were satisfactory and suitable to be used in the study of addiction recovery (Table 2). PCA has extracted four factorswith acceptable eigen values which were 13.94 for factor 1, 7.90 for factor 2, 7.03 for factor 3, and 5.05 for factor 4. Percentage of variance explained (PVE) for all four factors was 41.4%. All factors also have good factor loadings (Table2).

Table2: Results of factor analysis for Addiction Recovery Scale

Factor	Number of items	Eigen values	Percentage of variance
Factor 1 - Religiosity and belief	34	13.94	17.00
Factor 2 - Stability and security	17	7.90	9.63
Factor 3 – Health	12	7.03	8.58
Factor 4 –Emotional stability	11	5.05	6.16
Total	74		41.37

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Results of Reliability

Reliability analysis of Cronbach alpha was conducted after factor analysis was completed. Reliability test was analyzed for all items through internal consistency analysis using Cronbach alpha. Calculation of Cronbach alpha(α) with alpha if item deleted was used to evaluate the internal consistency with values of $\alpha \geq 0.70$ as cut-off values. However, values of 0.60 are considered suitable for exploratory analyses (Nunnally, 1978). Corrected item-total correlation after elimination of items was used for further assessment towards homogenous scale when a lower alpha was obtained. Table3shows the results of Cronbach alpha for the scale based on four dimensions.

Table3: Reliability of the Addiction Recovery Scale based on dimensions

Dimension	**Cronbach alpha**
Religiosity and belief	0.954
Stability and security	0.884
Health	0.809
Emotional stability	0.978
Total	0.928

IV DISCUSSION AND CONCLUSION

This study has developed a scale to measure addiction recovery which consisted of 74 items and four dimensions. The first dimension in this scale was religiosity and belief which obtained the highest eigen value and percentage of variance. This indicates that religiosity and belief of an individual plays a very important role in achieving total recovery from drug addiction. By engaging in religious practices such as performing prayers and *zikr* (meditation), doing good deeds and staying away from religious prohibitions, individuals can distract their thoughts from craving for drugs. This also strengthens their belief and faith in God which can help them to cope with problems and difficulties.This is in line with Nurshuhada, Wan Shahrazad and Norulhuda (2018) who state that the practice of *zikir* or meditation can cleanse the soul because during this meditation, individuals recite verses from the holy Quran and this will empty their mind and prevent them from thinking about drugs. Jarusiewicz's (2000) study also found that individuals who were in recovery process have higher level of trust and spirituality. The results are also consistent with Fauziah et al.'s (2017) study who found that spiritual and religious programmes can help give strength to addicts to change their abstain from drug taking behaviour.

The second dimension in this scale was stability and security. Individuals who are incarcerated and placed in rehabilitation centers can experience negative consequences as they are at risk with stigmatization and negative perception from the community after they are being released (Frost 2011; Fleury et al., 2014; Tuchman, 2010). Apart from that, the stigma will make them face difficulties in securing suitable employment. Therefore, stability and security is seen as crucial in recovery as having stable and secure home and employment will ensure they can have the means to support themselves and their family. The feeling of having stability and security also will

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encourage former drug addicts to feel as part of the community and can contribute meaningfully to their social environment. In contrast, without stability and security indivuals will isolate themselves and cannot integrate socially with the community which can lead to relapse.

Obtaining health and well-being is also an important aspect in maintaining recovery. This involves physical health such as maintaining healthy lifestyle and psychological well-being by having self-acceptance, environmental mastery, autonomy, personal growth, positive relationships and having purpose in life (Mohammad Izzat Akmal & Wan Shahrazad, 2018) Psychological well-being can be achieved if individuals have positive thoughts, can develop self potential and strive to find meaning in life (Luthan et al., 2007).

Individuals with drug addiction problem often have emotional stability that leads them to have low self-control, behave aggressively and cannot cope with stress and frustration. Those in recovery need to increase their emotional stability because low emotional stability may be related with depression, stress, anxiety, aggressive behaviour and inability to control anger. Treatment and rehabilitation needs to educate individuals on how to control their emotions during counselling. This is consistent with the findings of Rokiah (2010) who found the rehabilitation programmes that include guidance and counselling, religion and morality, skills and vocational training can be accepted well among clients in rehabilitation centres.These can help individuals to increase their resilience and indirectly prevent them from relapse.

Recovery process involves a complex interaction of factors such as pyschological, spiritual and social factors. The emergence of new types of drugs have caused substance abuse to become more chronic as it can also lead to mental health problems (Nazira et al. 2019). Substance abuse involving psychoactive drugs have also led to psychopharmacological effects such as aggressive behaviour, mental disorder and criminal behaviour (Nazira et al. 2019). This causes an increase in crime rates which affect social capital and human resource of a nation as a large amount of money has to be allocated to treat, rehabilitate and reform individuals involved in drug addiction and crime (Treffers, 2016).

In conclusion, this study has developed the Addiction Recovery Scale to be used in the screening process to determine addiction recovery level of clients in drug rehabilitation center. The scale was found to have good validity and reliability. The development of this scale has shown the importance of the dimensions of religiosity and belief, stability and security, health and emotional stability in addiction recovery. Through the use of this scale, it enables agencies related with drug treatment and rehabilitation program to monitor the recovery of individuals involved in drug addiction.

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