PSYCHOLOGICAL WELL-BEING OF DRUG ADDICTS IN PREDICTING TREATMENT OUTCOMES

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Abstract

Purpose of the study: This study aims to investigate whether psychological well-being could predict treatment outcomes in drug addicts after they had received solution-based psychosocial intervention in a drug treatment setting. The psychological well-being of individuals is an important variable in discussing treatment outcomes after they were given psychosocial interventions.

Methodology: This study utilized a quasi-experimental research design using non-randomized pre-and post-test single group design. Fifty-seven participants were selected and they completed a pre- and post-assessment on psychological well-being changes and treatment outcomes questionnaire. Paired t-test and Pearson correlation were used to analyze the relationship between these two variables, while multiple linear regression was used to further explore whether participants' psychological well-being could predict their treatment outcomes.

Main Findings: Results indicated a significant relationship between these two variables and more than twenty percent in treatment outcomes were explained by psychological variance. Few contextual meanings of psychological symptoms should need to be emphasized in discussing the findings and future research direction.

Applications of this study: Having studied whether psychological well-being could predict treatment outcomes of drug addicts would benefit counselors and social workers who deal with addiction clients. The element of psychological well-being, such as mental health must be included in the treatment plan to increase the success of recovery amongst drug addict clients.

The novelty of this study: The conclusions from this study offer significant insight into the utilization of solution-focused intervention in non-Western populations and the relation between psychological well-being and treatment outcomes for drug addict clients. The findings expand the existing literature review on the psychological well-being of drug addicts in a way it takes into accounts the cultural context in discussing the outcomes.

Keywords: Psychological Well-being, Treatment Outcomes, Cultural, Addiction, Counselors.

INTRODUCTION

Psychological well-being has been considered as a protective factor of individuals against mental health problems. According to the World Health Organization (WHO, 2004), mental health is "a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and can make a contribution to his or her community". This poses that psychological well-being is important in producing good mental health. Gladerisi, Heinz, Kastrup, Beezhold, &Sartorious (2015) stated that this definition is progressing in a way that it explains mental health and psychological well-being are not merely a state of absence from mental illness. This also explains that a person with good mental health and psychological well-being experiences negative feelings (e.g., sadness, disappointment, anger, and failure, etc.), however, they can manage the feelings and that is a normal part of life. Their ability to manage the negative feelings and emotion regulation skills developed throughout life is important for long-term well-being.

Some researchers (e.g., Huppert, 2009) stated that psychological well-being is marked by feeling good and functioning effectively. Feeling good comprises a wide range of positive emotions (i.e., contentment, interest, confidence, and affection). Functioning effectively reflects a person's ability to have control in life, see their potentials, and pursue their goals (Huppert, 2009). Besides, psychological well-being is often linked with positive cognitive abilities that can be interpreted in one's behavior, such as they are more productive, socially engaged, and self-enabling attributes. This will lead to a happy life. However, happiness is not the only indicator of psychological well-being. Few determinants are responsible for general well-being; emotional well-being, social well-being, physical well-being, workplace well-being, and societal well-being (Davis, 2019). This explains that psychological well-being is a broad experience felt by a person.

To recognize that psychological well-being is a broad experience of a person's life and it is not merely a state of absence from mental illness (Gladerisi et al., 2015), psychological well-being needs to be studied in its own right. Psychological well-being has been studied across fields of disciplines to understand the functioning of certain groups.

Psychological well-being in the drug addiction field is considered as a critical variable that interacts with treatment to predict outcomes in substance abuse. This goes along with other variables such as client motivation (Hayes et al., 2010), client satisfaction Ghani, Brown, Khan, Wickersham, Lim, Dhaliwal, Kamarulzaman, & Altice (2015), and severity of

psychiatric symptoms (Compton et al., 2003). Addressing psychiatric symptoms (i.e., mood disorder and mental illness) in drug addicts became the attention of previous studies when discussing the addicts' psychological well-being. It influences drug addicts' coping strategies to manage relapse has been associated with producing better treatment outcomes (e.g., Matshah, Halik, Kimong, Ayub, Sam Mee, &SuKiong, 2014)). Previous studies provide insight into using an individual variation to examine outcomes in drug treatment. Taking into account this, the present study aims to use psychological symptoms of drug addicts to understand its impact on treatment outcomes after they have received solution-based psychosocial intervention in drug treatment settings.

LITERATURE REVIEW

In reviewing treatment outcomes in substance abuse treatment, previous studies have investigated many variables that interact with treatment to predict outcomes in substance abuse that include drug of choice (Nazar et al., 2009), client motivation (McCollum et al., 2003; Hayes et al., 2010), prior treatment history (Wright & Devine, 2015), and severity of psychiatric symptoms (Compton, Cottler, Jacobs, Ben-Abdallah, &Spitznagel, 2003).

In Malaysia, Ghani et al. (2015) investigated outcomes of substance abuse programs by evaluating the perspectives and satisfaction of clients enrolled in the Cure and Care drug treatment program. The researchers used a qualitative study for that purpose and twenty participants were interviewed ($n = 22$). The participants consisted of in-patient and out-patient clients who reported their drug of choice was opioids and amphetamine and had been receiving drug treatment for eleven months at the time of the interview. Ghani et al. report that two major themes emerged that indicates treatment outcomes in participants: diminished withdrawal symptoms and craving for drugs (drug abstinence). Moreover, they report that four components of the Cure and Care treatment program that positively contribute to outcome are methadone maintenance treatment, group therapy, religious instruction, and recreation.

Findings from Ghani et al. 's (2015) study suggest that addressing psychiatric symptoms in substance abuse clients in Malaysia (e.g., depression, anxiety, post-traumatic symptoms, adjustment disorder, etc.) is worthy of effort, considering substance abuse recovery is a complex situation. Prior studies conducted in Malaysia also suggest that psychiatric symptoms affect clients' coping strategies to manage relapse (Matshah et al., 2014), and play a major role in substance abuse treatment outcomes (Khan, Sulaiman, &Hassali, 2012). As such, this suggests that psychiatric symptoms affect a person's psychological well-being that leads to better treatment outcomes.

Compton et al. (2003) investigated the role of psychiatric symptoms in predicting drug treatment outcomes in substance abuse clients. They interviewed with substance-dependent clients newly admitted to treatment using the Diagnostic Interview Schedule (DIS) and re-interviewed them at the 12-month follow-up to assess the outcomes ($n = 401$). The outcomes were assessed based on the number of illicit drugs used, the number of illicit substance dependence criteria met, and the number of illicit substance dependence diagnoses at a one-year follow-up. The researchers used a multivariate regression model to test whether psychiatric symptoms would predict outcomes. They report that major depression has the most consistent impact on treatment outcomes, in which the mean number of clients with major depression were different as compared to clients without major depression for all three outcomes: illicit drugs used ($p< 0.02$), substance dependence criteria ($p< 0.01$), and dependence diagnoses ($p< 0.05$). Similarly, the mean number of clients with generalized anxiety was different when compared to clients without generalized anxiety for dependence diagnosis outcomes ($p< 0.05$). The findings from Compton et al's study confirm the impact of depression and anxiety on substance abuse treatment. However, despite its statistically significant results in predicting the outcomes, the researchers did not address to what extent the success of the treatment of psychiatric symptoms affects substance abuse treatment outcomes.

It is important to consider client variation to understand their responsiveness to drug treatment. Wright and Devine (2015) used early childhood and adolescent experience, prior treatment history, race, education, and psychological problems as independent variables to predict treatment outcomes in substance abuse treatment programs ($n = 152$). They report that the regression model for all variables found significance for education level, prior treatment history, and psychological problems in predicting treatment outcomes (i.e., substance-free days, employment, total good day, and days in treatment) as compared to clients with less education. Moreover, prior treatment histories were significant predictors of outcomes in employment and total good days. However, clients with mild psychological problems indicated better outcomes only in employment and no other outcomes. They conclude that education level is more important than psychological well-being in predicting treatment outcome.

Some previous researchers, such as Zhong, Jiang, Du, Zhao, San, and Su et al. (2016), argue that types of drugs are more critical in determining the psychological well-being of drug addicts. This is because prolonged use of any substance can cause multiple psychiatric symptoms that can be recoverable during abstinence. They investigated cognitive impairment and psychological well-being amongst methamphetamine drug users. They found that methamphetamine drug users showed poor psychological well-being and social adaptation as compared to the healthy control group. Poor psychological well-being is demonstrated in difficulties to manage daily financial spend, comprehension, communication, and medication management (Henry, Minasian, & Perry, 2010). Furthermore, methamphetamine drug users who showed poor psychological well-being exhibit cognitive impairment, which imposes more challenges and difficulties in rehab. Thus, addressing the psychological well-being of drug addicts may attribute to find the more

appropriate treatment for them. Previous studies provide insights into using an individual variation to examine outcomes in substance abuse treatment. Taking into account individual variation, this study uses periods of sobriety in addition to psychological well-being, to understand its impact on treatment outcomes.

METHODOLOGY

Population

This study utilized a quasi-experimental research design using non-randomized pre- and post-test single group design. The participants were drug addict clients who undergo drug treatment in a residential care setting, which was Cure and Care 1Malaysia Clinic - a government-assisted treatment and rehabilitation center in Malaysia. The clinic employed psychosocial modalities including early recovery, relapse prevention, spiritual guidance, and group and individual therapy. The clinic also provided the following medical care services: HIV and TB screening, regular medical check-ups, detoxification, and methadone maintenance therapy (MMT) (National Anti-Drug Agency, 2014, para. 2).

Fifty-seven participants were selected and they completed a pre- and post-assessment on psychological well-being changes and treatment outcomes survey. The inclusion criteria of the participants include they had had a history of abusing drugs, and they had undergone the detoxification process to remove the withdrawal before participating in the study. Participants who exhibited psychosis symptoms and were on maintenance therapy (i.e., methadone) were excluded in the study. The participants provided their consent for participation and Institutional Review Board approval was obtained before conducting the study.

Instruments

The Clinical Outcome Routine Evaluation (CORE)

The Clinical Outcome in Routine Measure - Outcome Evaluation (CORE-OMOM; Mellor-Clark, Barkham, Connell & Evans, 1999) was used to assess the status of the samples' psychological well-being throughout treatment. The CORE-OMOM consist of 34 items that measure four subscales of psychological well-being: symptoms that include depression, anxiety, and trauma (12 items); general well-being (4 items); life functioning (12 items); and risk/harm to self (6 items). The items are presented on a 5-point Likert scale (0 = not at all to 4 = most all the time). Evans et al. (2002) reported the Cronbach alpha as α =.94 for both; samples drawn from university settings and clinic settings.

The Outcome Questionnaire – 45.2

Lambert, Lunnen, Umphress, Hansen, and Burlingame (1994) were the original developers of the OQ. The OQ is a 45-item self-reporting scale used to measure the efficacy of clinical interventions in therapy, as well as to help enhance those interventions. The instrument is designed to be short, cost-effective, and measure changes over time. The treatment outcome is assessed by evaluating three subscales: symptom distress (SD, 25 items), social role functioning (SR, 9 items), and interpersonal relationships (IR, 11 items). The subscales are used to determine any problems in the patients' everyday functions, and to assess how interventions may be embedded in a treatment plan and tracked over time. Internal consistency for OQ was reported high for. The total score was .94 and .93, .78, and .70 respectively for the SD, IR, and SR subscales (Boswell et al., 2013).

Procedures

Participants were given solution-focused group therapy for four consecutive weeks, where they met a counselor for a two-hour session every week. Changes in the independent variable (psychological well-being) and dependent variable (treatment outcomes) were measured by collecting data before and after the therapy are given to the participants. This method of measurement allows the researcher to examine the effects of treatment. According to Dimitrov and Rumrill (2003), the pre- and post-test method is primarily used for measuring changes resulting from a treatment.

RESULTS

Fifty-seven (n = 57) clients met participant inclusion criteria; agreed to participate in the research and completed pre- and post-test measurements. All participants were males of Malay ethnicity, who identified their religion as Islam (n = 57). Their ages ranged from 19- to 60-years-old with a mean age of 33. The majority of participants (45.6%) were below the age of 30.

A paired samples t-test was conducted to compare psychological well-being and treatment outcomes in pretest and post-test. Results showed a statistically significant difference between pretest (M = 119.71, SD = 6.12) and post-test (M = 72.68, SD = 18.52) on psychological well-beings scores, t =20.28, p = .001. For treatment outcomes, results showed statistically significant differences between pre-test (M = 117.91, SD = 6.23) and post-test (M = 104.55, SD = 24.05) on treatment outcomes, t = 4.16, p = .001 [see Table 1].

Results in Table 1. showed a significant difference in psychological well-being and treatment outcomes upon completing the treatment. These suggest participants' psychological well-being and treatment outcomes significantly increase immediately post-treatment.

Table 1: Results of Paired T-test Between Pretest and Post-test on Psychological Well-being and Treatment Outcomes

Variable	Pretest		Post-test		95% CI	t	r
	M	*SD*	*M*	*SD*			
CORE	119.71	6.12	72.68	18.52	(42.38, 81.68)	20.28	.001
OQ	118.00	6.14	105.18	24.10	(6.93,19.99)	4.16	.001

p < .01

A Pearson' correlation (*r*) was computed to assess the relationship between scores of psychological well-being and treatment outcomes. There was a statistically significant relationship between the two variables (*r* = .719, *p* = .001) and the correlation is significant at the 0.01 level [see Table2].

Table 2: Means, Standard Deviation, and Intercorrelation for Psychological Well-Being and Treatment Outcomes

Variable	*M*	*SD*	Treatment Outcomes	Psychological
Treatment Outcomes	104.56	24.05	-	.719**
Psychological Well-Being	72.70	18.52	.719**	-

**p < .01

Based on the correlation value, it indicated that 52% of the participants' differences in treatment outcomes score is associated with their differences in psychological well-being ($r^2 = 0.52$). The result suggests a positive relationship between scores on psychological well-being and treatment outcomes, indicating that as the scores psychological well-being increased, scores on the treatment outcomes also tended to increase and conversely, as the scores on psychological well-being decreased, scores on the treatment outcomes also tended to decrease.

Multiple regression was conducted to assess if the set of predictors (aspects of psychological well-being: symptoms, life functioning, harm to self, and general well-being) could predict treatment outcomes. The correlation between the four predictors and treatment outcomes were statistically significant at the 0.01 level. The correlation between treatment outcomes and symptoms of psychological well-being was statistically significant, $R^2 = .828$, $p = .000$, suggesting that 68.5% of the variance in treatment outcomes is explained by the variance in symptoms. The correlation between treatment outcomes and life functioning, harm to self, and general well-being were also significant, $R^2 = .465$, $p = .000$, $R^2 = .425$, $p = .001$, and $R^2 = .280$, $p = .035$ respectively. The results can be found in Table 3.

Table 3: Means, Standard Deviation, and Intercorrelation for Treatment Outcomes and Symptoms, Life Functioning, Harm, and General Well-Being

Variable	*M*	*SD*	Treatment	Symptoms	Life	Harm	General
Treatment Outcomes	104.55	24.05	-	.828**	.465**	.425**	.280*
Symptoms	25.84	8.88					
Life Functioning	29.79	6.04					
Harm	6.10	5.90					
General Well-Being	10.95	2.32					

** p < .01; * p < .05

The model summary from the regression analysis gives $R^2 = .718$, showed that 71.8% of the participants' differences in treatment outcomes are accounted for by their differences in symptoms, life functioning, harm to self, and general well-being of psychological well-being, with a large effect size (adjusted $R^2 = .696$). Concerning examining the statistical significance of the regression coefficients for each predictor, symptoms in psychological well-being were statistically significant at the 0.01 level, $p = .001$, and no statistical significance other predictors.

In addition to psychological well-being, participants' period of sobriety is taken into account in regression analysis. The period of sobriety consisted of how long the participants had previously been able to maintain sobriety, in months. The results showed a significant negative correlation between the independent variable, period of sobriety, and dependent variable, treatment outcomes (R = -.38). The correlation coefficient of .38 indicated a medium effect size. This suggests that as the period of sobriety increased, scores on the treatment outcomes tended to decrease (i.e., better treatment outcomes) and conversely, as the period of sobriety decreased, scores on the treatment outcomes tended to increase (i.e., poorer treatment outcomes).

DISCUSSION / ANALYSIS

This research's finding supports previous studies on the positive relationship between psychological well-being and treatment outcomes among drug addict clients. The four aspects of psychological well-being were important to consider if they contributed to predicting treatment outcomes. Psychological symptoms, such as depression, anxiety, and trauma, that are frequently expressed in affective disorder symptoms also tend to be comorbid conditions of substance abuse. Previous researchers used affective disorder symptoms as indicators for treatment outcomes in substance abuse

treatment. For example, McLellan, Lewis, O'Brien, & Kleber (2000) reported that substance abuse treatment outcomes may be improved in clients with mild to moderate levels of the beginnings of psychopathology and decreased in patients with more severe psychiatric impairment. Compton et al., 2003, however, argued that clients should be given a psychological assessment upon entry to treatment (detoxification) because many affective disorder symptoms will subside upon abstinence. In this study, to address affective disorder symptoms and their relationship with treatment outcomes while reducing the likelihood of including withdrawal-associated symptoms, the participants went through the detoxification process to eliminate withdrawal symptoms and they had been in treatment for at least 30 days by the time of assessment.

Furthermore, findings of this study support previous research on the role of symptoms (i.e., depression, general anxiety, and trauma) in predicting treatment outcomes among substance abuse clients (Compton et al., 2003; Smock et al., 2008). In this study, symptoms of psychological well-being were found to be a significant predictor of treatment accounts even when other aspects of psychological well-being were held constant; specifically, symptoms account for 41.2% of the variance in treatment outcomes. Thus, this study's finding supports previous research on the role of symptoms (i.e., depression, general anxiety, and trauma) in predicting treatment outcomes among substance abuse clients (Compton et al., 2003; Smock et al., 2008). Similar to previous research, this study's finding recommends addressing symptoms in substance abuse clients is more important than addressing life functioning, risk/harm to self, and general well-being in predicting treatment outcomes.

In addition to psychological well-being a set of predictors to treatment outcomes, this study used drug addicts' variation in terms of their period of sobriety as an independent variable to predict treatment outcomes. The period of sobriety consisted of how long the drug addicts had previously been able to maintain sobriety in the past. Identifying this aspect in drug treatment programs is essential to acknowledge the period of success in the lives of drug addicts. Given a significant relationship between the period of sobriety and treatment outcomes in this study, the finding suggests that drug addicts with a longer period of sobriety might reflect their ability to maintain abstinence and the effectiveness of their coping strategies. That is, they might have a wider repertoire of coping strategies to select from, to deal with life stressors as compared to drug addicts with a shorter period of sobriety. In other words, drug addict clients with a longer period of sobriety are more likely to know what kind of coping strategies worked best for them in the past and are more likely to repeat them in drug treatment. The finding of this study supports a recommendation for future studies to examine coping strategies and drug abstinence to encourage an extended discussion on coping strategies and treatment outcomes in substance abuse programs.

In the body of knowledge of drug treatment, client variation in terms of the period of sobriety is overlooked in discussing treatment outcomes in substance abuse programs. Instead, client variation in terms of the amount of relapse and drug of choice was used to explain treatment outcomes (Narayanan et al., 2011). Nazar et al. (2009) reported that the effectiveness of drug abuse treatment programs largely depends upon types of drugs used by the individuals, as each type of drug affects drug recovery rates and chances for relapse. For example, Matshah et al. (2014) reported that clients whose drug of choice was methamphetamines indicated high chances for relapse. In future studies, a more thorough investigation of drug types and periods of sobriety are needed to provide a greater understanding of the relationship between them, and how those factors interact to impact treatment outcomes.

CONCLUSION

The purpose of the study was to investigate whether psychological well-being could be considered as a significant predictor to predict treatment outcomes in drug addict clients was achieved using regression analysis. Furthermore, clients' variation in terms of their period of sobriety was used to enrich the discussion and fill the gap of the treatment outcomes literature review. Despite compelling findings, cross-cultural issues still need to be considered when interpreting symptoms of psychological well-being to reach solid conclusions. One cross-cultural issue is the difference in symptomatology expression across cultures. Malaysia is one of the Southeast Asian countries that have been shown to have higher rates of expressed symptomatology (Cheng et al., 1993). The Asian population is more likely to demonstrate effective forms of symptoms that indicate emotional problems. Asian cultural groups are also more likely to report extreme feelings of worthlessness and guilt-related symptoms and the affective form of symptoms is more salient than the somatic forms (e.g., headache, pains, and other physical aches) when culturally-meaningful values are attached to those symptoms. Future research might use the understanding of how cultural differences (e.g., collectivism versus individualism, past-time orientation versus future-time orientation) affect treatment outcomes amongst individuals with drug abuse problems to develop appropriate interventions.

LIMITATION AND STUDY FORWARD

This study is not without its limitations. This study utilized a quasi-experimental research design using non-randomized pre- and post-test single group design in a residential care setting in Malaysia. The lack of randomization in the participant selection procedure limits the generalizability of this study's findings. Furthermore, participants of this study were the only male, thus the findings may not be generalizable to drug addicts female. In studying forward, future studies may include both genders, male, and female in discussing psychological well-being. Furthermore, a research

design that involves control groups could strengthen the data and expand the discussion on psychological well-being and treatment outcomes amongst drug addict clients.

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Farhana Sabri contributed to data collection and writing the first draft of the article. Marty Jencius contributed by editing the draft paper and writing additional information that is lacking.

REFERENCES

1. Boswell, D., White, J., & Sims, W. D., Harrist, R. S., & Romans. S. (2013). Reliability and validity of the outcome questionnaire – 45.2. *Psychological Reports: Mental and Physical Health, 112* (2), 1–10. https://doi.org/10.2466/02.08.PR0.112.2

2. Cheng, D., Leong, F. T., & Geist, R. (1993). Cultural differences in psychological distress between Asian and Caucasian American college students. *Journal of Multicultural Counseling and Development, 21,* 182 – 190. https://doi.org/10.1002/j.2161-1912.1993.tb00598.x

3. Compton, W. M., Cottler, L. B., Ph, D., Jacobs, J. L., Ben-Abdallah, A., &Spitznagel, E. L. (2003). The role of psychiatric disorders in predicting drug dependence treatment outcomes. *Am J Psychiatry, 160* (5), 889 – 895. https://doi.org/10.1176/appi.ajp.160.5.890

4. Davis, T. (2019, January 2). What is well-being?: definition, types, and well-being skills. *Psychology Today*. https://www.psychologytoday.com/us/blog/click-here-happiness/201901/what-is-well-being-definition-types-and-well-being-skills

5. Dimitrov, D. M., & Rumrill, P. D. (2003). Pretest-posttest designs and measurement of change. *Work (Reading, Mass.)*, *20*, 159–165.

6. Evans, C., Connell, J., Barkham, M., Margison, F., Mcgrath, G., Mellor-Clark, J., &Audin, K. (2002). Towards a standardized brief outcome measure: psychometric properties and utility of the CORE-OM. *The British Journal of Psychiatry, 180,* 51–60. https://doi.org/10.1192/bjp.180.1.51

7. Ghani, M. A., Brown, S.-E., Khan, F., Wickersham, J. A., Lim, S. H., Dhaliwal, S. K., & Altice, F. L. (2015). An exploratory qualitative assessment of self-reported treatment outcomes and satisfaction among patients accessing an innovative voluntary drug treatment center in Malaysia. *The International Journal on Drug Policy*, *26*(2), 175–82. https://doi.org/10.1016/j.drugpo.2014.10.002

8. Galderisi, S., Heinz, A., Kastrup, M., Beezhold, J., & Sartorius, N. (2015). Toward A New Definition of Mental Health. *World Psychiatry, 14 (2),* 231 – 233. https://doi.org/10.1002/wps.20231

9. Hayes, B. G., Curry, J., Freeman, M. S., Kuch, T. H. (2010). College Counseling Case Studies An Alternative Counseling Model for Alcohol Abuse in College: A Case Study, *Journal of College Counseling, 13*, 87–97. https://doi.org/10.1002/j.2161-1882.2010.tb00050.x

10. Henry, B.L., Minasian, A., Perry, W., 2010. Effect of methamphetamine dependence on everyday functional ability. *Addict. Behav. 3,* 593–598. https://doi.org/10.1016/j.addbeh.2010.01.013

11. Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology: Health and Well-being, 1 (2),* 137 – 164. https://doi.org/10.1111/j.1758-0854.2009.01008.x

12. Khan, T. M., Sulaiman, S. A., &Hassali, M. A. (2012). Factors associated with suicidal behavior among depressed patients in Penang, Malaysia. *Archives of Medical Science: AMS*, *8* (4), 697–703. https://doi.org/10.5114/aoms.2012.28601

13. Lambert, M. J., Lunnen, K., Umphress, V., Hansen, N., & Burlingame, G. M. (1994). *Administration and scoring manual for the Outcome Questionnaire* (OQ–45.1). Salt Lake City, UT: IHC Center for Behavioral Healthcare Efficacy. https://doi.org/10.1037/t00830-000

14. Matshah, N. B., Halik, M., Kimong, P. J., Ayub, N., Kwan, S., M., &SuKiong, P. V. (2014). Coping strategies, perceptions of the effectiveness of rehabilitation programs, and intention to relapse among former methamphetamine addicts. *Southeast Asia Psychology Journal, 2,* 77–94.

15. Mccollum, E. E., Trepper, T. S., & Smock, S. (2003). Solution-Focused Group Therapy for Substance Abuse : Extending Competency-Based Models, *Journal of Family Psychotherapy, 14*(4), 27–43. https://doi.org/10.1300/J085v14n04_03

16. McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D. (2000). Drug dependence, a chronic medical illness. *JAMA*, *284*(13), 1689. https://doi.org/10.1001/jama.284.13.1689

17. Mellor-Clark, J., Barkham, M., Connel, J., & Evans. (1999). Practice-based evidence and need for a standardized evaluation system: informing the design of the CORE system. *European Journal of Psychotherapy, Counseling, and Health, 3,* 357-374. https://doi.org/10.1080/13642539908400818

18. Narayanan, S., Vicknasingam, B., & Robson, N. M. H. (2011). The transition to harm reduction: Understanding the role of non-governmental organizations in Malaysia. International Journal of Drug Policy, 22(4), 311–317. https://doi.org/10.1016/j.drugpo.2011.01.002

19. National Anti Drugs Agency (2014, January). *The background of the establishment of C&C 1Malaysia*. Retrieved from http://www.adk.gov.my/web/guest/cnc1m

20. Nazar, M., Zakaria, M., & Salleh, G. (2009). The effectiveness of the Matrix Model for drug treatment in the community setting: A pilot study in NADA Kota Bahru and Kota Kinabalu. *Antidrug Journal of Malaysia, 6,* 1 – 16. Retrieved from http://www.adk.gov.my/html/pdf/jurnal/2009/jurnal_3.pdf

21. Smock, S. A., Trepper, T. S., Wetchler, J. L., McCollum, E. E., Ray, R., & Pierce, K. (2008). Solution-focused group therapy for level 1 substance abusers. *Journal of Marital and Family Therapy*, *34* (1), 107–20. https://doi.org/10.1111/j.1752-0606.2008.00056.x

22. World Health Organization (2004). *Promoting mental health: concepts, emerging evidence, practice*. (Summary Report) Geneva: World Health Organization.

23. Wright, J. D., & Devine, J. A. (2015). Factors that interact with treatment to predict outcomes in substance abuse programs for the homeless. *Journal of Addictive Disease, 14,* 169 – 181. https://doi.org/10.1300/J069v14n04_10

24. Zhong, N., Jiang, H., Du, J., Zhao, Y., Sun, H., Xu, D., ... & Zhao, M. (2016). The cognitive impairments and psychological well-being of methamphetamine-dependent patients compared with healthy controls. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *69*, 31-37. https://doi.org/10.1016/j.pnpbp.2016.04.005