

Modeling the Relationship of Social Support on Health Status

¹Mahadzirah Mohamad, ¹Nurhikmah Badarilah, ¹Nor Azman Mat Ali and ²Harmy Yusoff
¹Faculty of Economics and Management Science, Universiti Sultan Zainal Abidin (UniSZA),
Kampus Gong Badak, 21300 Kuala Terengganu, Terengganu Darul Iman, Malaysia
²Faculty of Medicine, Universiti Sultan Zainal Abidin (UniSZA), Medical Campus,
Jalan Sultan Mahmud, 20400 Kuala Terengganu, Terengganu Darul Iman, Malaysia

Abstract: Drug-abuse population were reported increasing all over the world along with the inmate's population. Drug abuser and inmates, considered as minority groups were reported receiving poor health treatment and untreated condition in most developing countries. Examining the health status among drug-abuse inmates would enable prison institutions to find the predicting factors that could improve health status among drug-abuse inmates. It was reported that factors such as social support could influence the improvement of health status among drug abusers. The main objective of this study was to find out whether social support does influence the health status of drug-abuse inmates or not. Self-administered questionnaires were distributed to drug-abuse inmates at several prisons in Malaysia. The selection of the respondents was conducted using simple random-sampling method. The instrument comprised of two major sections measuring social support and health status. The research hypotheses were tested using Structural Equation Modelling (SEM). This study discovered a positive relationship between social support and health status. The findings of the proved that social support does influenced inmate's health status.

Key words: Social support, health status, drug abuse, Structural Equation Modelling (SEM), inmates

INTRODUCTION

Drug use population is estimated to increase over 25% globally due to the rapid urbanization in developing countries. Approximately 0.3% of the world's adult population (15 mln. people) inject psychoactive drugs that can cause the transactions of blood borne viruses or HIV where they are virtually take the injection in a daily basis (Gowing *et al.*, 2015; Metrebian *et al.*, 2015). According to World Prison Brief (2000) Malaysia Prison population 2014 was 47,986 and in 2015 the drug abusers among total prisoners in Malaysia was 31, 068 compared to the 2014 total population of drug abusers among prisoners was 13, 499. It shows a huge amount of increase among drug-abuse inmates from last year population which is 39.42%. Agensi Antidadah Kebangsaan 2015 Annual Report stated that the average drug abuser relapsed case was 532 cases per month and 18 cases per day.

In 11th Malaysia Plan 2016-2020, it was stated Malaysia government has implemented and tried a variety of programs aimed to curb drug-distribution and also to improve the health status of drug abuser including inmates that were considered as a minority group in

Malaysia. It was also reported that drug abuser received poor health treatment because of various behavioral and socioeconomic factors like low incomes, education and employment (Bernier and Lellan, 2011).

Khairy Jamaluddin, the Malaysian Minister of Youth and Sport, admitted that drug-abuse problem nowadays is a chronic health status problem where the drug abuser needs to be given treatment rather than punishment like the previous policy adapted by the Malaysian government (Yap, 2016). Research shows that the family provide boost to an individual and effects their physical and physiological development (Zamani *et al.*, 2014). Thus, this study was done to find out whether social support does influence or not the health status of drug abused inmates.

Literature review

Health status: "Good health" and "well-being" are recognized as the key criteria to successful prisoner's rehabilitation and reintegration (Woodall, 2016). Most studies view health as a multidimensional concept (Alsman *et al.*, 2015). This multidimensional concept can be seen in the definition of health proposed by the

WHO (2016) as “state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2016). From the definition, there are three dimensions of measurement; physical, mental and social health. In order to reflect all health dimension, the general health dimension was included in the measurement; the concept of health status consisted of eight domains: physical functioning, role physical, bodily pain, general health perceptions, vitality, social functioning, role-emotional and mental health (Ware and Sherbourne, 1992). In this conceptualization, health status valuations measure overall level of health (for a state specified in terms of a set of domain-specific capacities).

Social support: Social support is the presence of other people who can be trusted people that make others loved for, reasons that cannot be explained. Social support is typically divided into subtypes which include emotional, instrumental, appraisal and informational support (Sahban *et al.*, 2015). According to Thoits (1995) emotional support is related to the amount of love and caring, sympathy and understanding or value available from others and House *et al.* (1988) refers to instrumental support as aid in kind, money or labor. Appraisal support, relates to help in decision-making, giving appropriate feedback or help in deciding which course of action to take (House *et al.*, 1988).

In prison context, it was uncovered that social support was important to prevent drug addicts relapse and be reimprisoned after their release from prison (Benda, 2005; Zimet *et al.*, 1988) developed Multidimensional Scale of Perceived Social Support (MSPSS) to measure social support. This scale has 12 items divided into 3 sources: family, friends and “a special person”. The MSPSS was specifically designed to focus on perceived or subjective evaluation of social support adequacy from these 3 particular sources as most other scales do not evaluate these 3 sources of support as distinct subscales. The MSPSS has been used in various cultural settings (Bruwer *et al.*, 2008). This measure assessed perceived social support in prison study (Nargiso *et al.*, 2014).

There are many studies found that social support has a positive effect on health and social support play an important role in the health of prisoners (Berkman *et al.*, 2000; Woodall, 2016). This is because how they respond to imprisonment is partially dependent upon how effectively they integrate into an institution’s social structure, learn to fit in with others and adapt to and cope with becoming detached from society, community and family (Viggiani, 2006).

MATERIALS AND METHODS

Questionnaire design and data collection procedure the first part of the questionnaire is on social support items adapted from the Multidimensional Scale of Support (MSPSS) (Zimet *et al.*, 1988). The MSPSS consists of 15 items using a 10 point Likert scale ranging from “strongly disagree” to “strongly agree”. The second part of the questionnaire consisted of items that are adapted by the Medical Outcomes Study 12-item short form survey (Ware, 2000). The questionnaire is a generic health status comprising of 8 dimensions; physical functioning, social functioning, limitations in usual role activities due to physical problems (role physical) limitations in usual role activities due to emotional problems (role emotional) mental health, vitality, bodily pain and general health perception. The items are measured using a 10 point Likert scale ranging from 1 “strongly disagree” to 10 “strongly agree”.

Target population and sampling plan: The 2 sampling techniques applied in this study are area sampling and simple-random sampling method. Firstly, the sampling method applied in this study is area sampling. According Hair *et al.* (2002) area sampling is formed by geographic designations clusters. This study decides to divide drug prisons institution in Peninsular Malaysia into 3 divisions based on Malaysian Prison Department record. The selection of specific prisons for this study depends on approval list given by Prison Policy Department. A formal letter has been written to Malaysia Prison Policy Department to conduct the research at the drug prisons. The selection of the respondents was conducted using simple random-sampling method. The respondents were selected from the sampling frame using the random numbers generated through the computer.

Pretest and pilot study: In this study, a pretest was conducted among drug abusers in Inabah rehabilitation center, Terengganu and 10 respondents were involved in the pretest to assess the consistency of their response. A pilot test for this study was conducted in northern prisons in the state of Penang and Kedah to test the questionnaire’s content validity. Through this pilot study, 100 respondents were selected and given questionnaires before the actual study was done.

Statistical analysis: Analysis of Moment Structure (AMOS) was used to analyze data collected that was keyed in beforehand by using Statistical Package for Social Science program (SPSS). The collected data was

subjected to several statistical analyses such as reliability test in order to assess the reliability of the instrument. Malhotra *et al.* (2013) stated that reliability test was applied to help the degree of consistency between the measurements. Other test that was conducted is validity test to measure the latent construct. Apart from that, descriptive analysis was also conducted in order to assist the researcher at demographic profile of respondents (Coakes, 2012).

Exploratory Factor Analysis (EFA) was done in order to determine the underlying structure among the variables in the analysis. Confirmatory Factor Analysis (CFA) was also done using the data collected in order to assess the constructs before continuing testing the goodness-fit of the proposed research model using SEM after EFA was conducted (Hair *et al.*, 2002). Goodness of fit for the measurement model was analyzed at this stage using CFA. Structural Equation Modelling (SEM) was used to model the inter-relationship among constructs in the study concurrently (Awang, 2015). SEM illustrated the causal relationships under study through a series of structural equations and then, these structural relations were modelled pictorially to make the theory of this study more understandable.

RESULTS AND DISCUSSION

Respondent profile: Respondents of this study consisted of 100% male drug-abuse inmates. Reasons for not including female inmates in this study is because the majority of drug-abuse inmates are male. Respondents in this study consisted of >1 races of which the majority is Malay with 97.7% followed by Indian and others 0.70 and 1.40%, respectively. Most of them were sentenced to a punishment of 1 year or less with value 65.3%. The majority of the respondents with 22.9% were youths in the productive age group of 31-35 years old and 47.1% of them had finished high school with highest education at Sijil Pelajaran Malaysia level. Most of the respondents with percentage of 64.8% were self-employed (doing odd-jobs) and earning an average income of RM 1,000-1,999 per month with 45.1%. Majority of them were single 51.4% and they indicated that the 1st time they got involved in drug-abuse incidents were when they were between the ages of 16-20 years old with 42.9%. The first 3 main reasons why they became involved in drug-abuse were because of curiosity followed by the influence of friends and to have fun.

Confirmatory factor analysis: Confirmatory Factor Analysis (CFA) was conducted in order to confirm EFA done before this. CFA also need to be done before modelling the interrelationship in Structural Equation

Table 1: Fit result for pool measurement Model 1

Indexes	Level of acceptance	Measurement Model 1
Absolute fit		
GFI	>0.90	0.915
RMSEA	<0.08	0.061
Incremental fit		
CFI	>0.90	0.966
TLI	>0.90	0.959
Parsimonious fit		
χ^2/df	>5.00	2.620

Modelling (SEM) (Hair *et al.*, 2002). Measurement model should meet unidimensionality, validity and reliability requirement before testing structural model. Factor loading of a measuring item that was below 0.6 and any squared multiple correlations (R^2) below than 0.4 need to be dropped from the analysis and supported by literature (Awang, 2005). Figure 1 shows the measurement model of social support on health status for the drug abused inmates for Model 1.

This measurement model uses 3 fit indices which are absolute fit, incremental fit and parsimonious fit and the fitness of this measurement model was assessed using several common fit indices such as GFI, RMSEA, CFI, TLI and χ^2/df . The coefficient values for GFI, CFI and TLI for Model 1 is closer and above 0.95 and the RMSEA value for Model 1 is <0.5 indicating a close fit with 0.061, thus represent reasonable errors of approximation in the population (Hooper *et al.*, 2008). The criteria of acceptance for χ^2/df were differ according to researchers where it can be as high as 5.0 and as low as 2.0 where in this study the value for Model 1 χ^2/df is 2.62 which is still in the range of acceptance as shown in Table 1 (Moss, 2016).

In order to test the measurement model reliability and validity Composite Reliability (CR) convergent validity (AVE) were used where the value should be >0.6 and 0.5, respectively (Malhotra *et al.*, 2013). As shown in Table 2, the CR value for Model 1, both Social Support (SS) and Health Status (HS) constructs is above 0.6, surpassing the recommended level. While for AVE value, SS construct surpasses the recommended 0.5 value with the value of 0.52 while the HS construct AVE value is 0.36 which is below the recommended value. Therefore, Model 1 cannot establish adequate reliability and validity due to the low AVE value of HS construct.

Figure 2 shows the new measurement model, namely Model 2 after conducting item purifications. Items with low factor loading in the problematic Model 1 (HS construct) that have low factor loading below 0.5 were eliminated. In this case, the sub-constructs of mental health have the lowest factor loading compared with another 2 sub-construct which are physical and emotional health from the health status construct. Thus, mental health was eliminated and a new test was conducted.

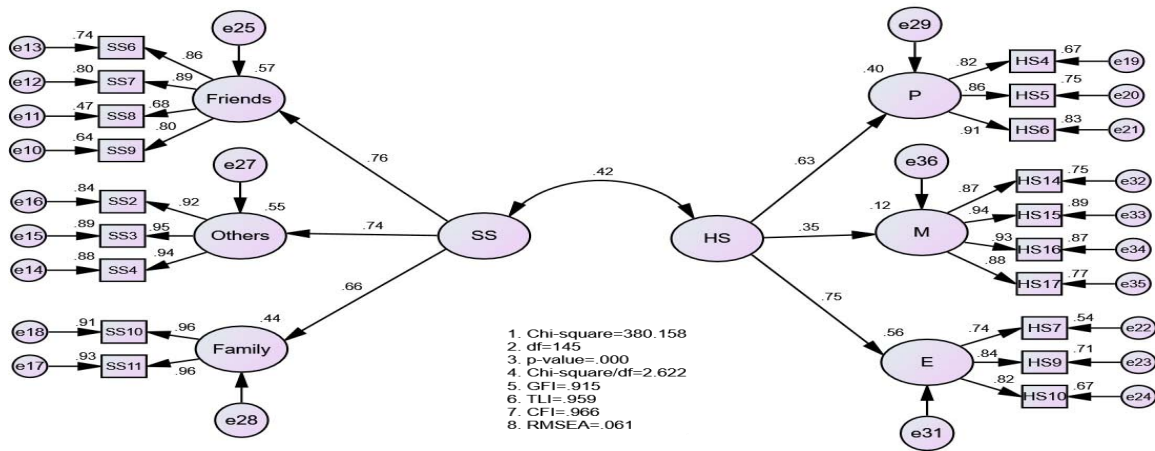


Fig. 1: Pool measurement Model 1 of social support on health status

Table 2: Reliability and validity of the items measured in Model 1

Construct/Items	Model 1		
	Factor loading	CR	AVE
Second order constructs			
Social support			
Friends	0.76	0.76	0.52
Significant others	0.74		
Family	0.66		
Health status			
Physical (P)	0.63	0.61	0.36
Emotion (E)	0.75		
Mental (M)	0.35		
First order constructs			
Friends			
My Friends really try to help me (SS6)	0.86	0.88	0.66
I can count on my friends when things go wrong (SS7)	0.89		
I have friends with whom I can share my joys (SS8)	0.68		
I have friends with whom I can share my sorrows (SS9)	0.80		
Significant others			
There is special person with whom I can share my joys (SS2)	0.92	0.96	0.88
There is special person with whom I can share my sorrows (SS3)	0.95		
I have a special person who is a real source of comfort to me (SS4)	0.94		
Family			
I get the emotional help I need from my family (S10)	0.96	0.96	0.92
I get the emotional support I need from my family (S11)	0.96		
Physical			
Bending, kneeling or stooping (HS4)	0.82	0.90	0.76
Walking several blocks (HS5)	0.88		
Walking one block (HS6)	0.91		
Emotional			
Accomplished less than I would like (HS7)	0.74	0.84	0.64
Had difficulty performing the work or other activities (for example, it took extra effort) (HS9)	0.84		
Cut down the amount of time you spent on work or other) activities (HS10)	0.82		
Mental			
I feel full of pep (HS14)	0.87	0.95	0.82
I felt calm (HS15)	0.94		
I felt peaceful (HS16)	0.93		
I have been a happy person (HS17)	0.88		

The coefficient values for GFI, CFI and TLI for Model 2 have achieved the required level with the value of 0.948, 0.941 and 0.976, respectively. The RMSEA value for Model 2 is 0.05 and the χ^2/df for Model 2 is 2.14 where

both of it is passed the acceptance value goodness of fit index for measurement model as shown in Table 3 (Coakes, 2012). Next, another reliability and validity test were conducted for Model 2. As shown in Table 4, the

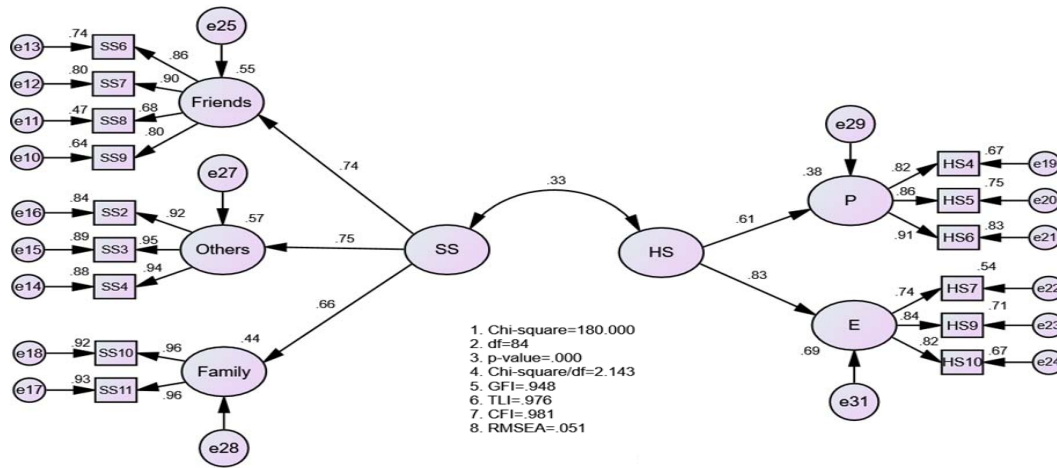


Fig. 2: Pool measurement Model 2 of social support on health status

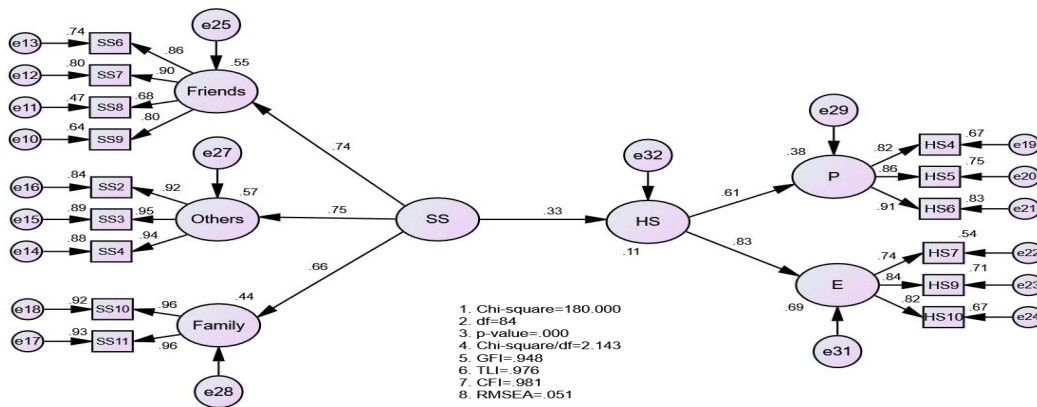


Fig. 3: Structured equation modelling of social support on health status

Table 3: Fit result for pool measurement model		
Index	Level of acceptance	Measurement Model 2
Absolute fit		
GFI	>0.90	0.948
RMSEA	<0.08	0.051
Incremental fit		
CFI	>0.90	0.981
TLI	>0.90	0.976
Parsimonious fit		
Chi.sq./df)	>5.00	2.140

CR value for Model 2 both SS and HS constructs is above 0.6, surpassing the recommended level. For AVE value, SS and for HS constructs surpasses the recommended value. The result presented in Table 1 conclude that all the constructs measured had fulfilled the reliability and validity requirements needed.

Structure equation modelling: The structural equation modelling in Fig. 3 illustrated the relationship between

social support on health status among drug-abuse inmates. The path coefficients for the model are illustrated in Table 2. As per predicted, social support does influence the health status of drug-abuse inmates. While Table 5 shows path coefficients between social support and health status of this model. Social support is considered as one of the influencer factors that determine a person health status during the process of recovering. This study is done in order to prove the hypothesis among the drug-abuse inmates that were in the process of recovering from the drugs. The findings indicated that social support does influence an inmate's health status. This implies that, the greater the support received by an inmate during their process of recovering, the higher the chances of them to recover from drug addictions. In the context of social support, others are referring to government and prison officers where they were jailed. Basically, inmates need their significant other in order to share their

Table 4: Reliability and validity of the items measured in model

Construct/Items	Model 1		
	Factor loading	CR	AVE
Second order constructs			
Social support			
Friends	0.74	0.76	0.52
Significant others	0.75		
Family	0.66		
Health status			
Physical (P)	0.61	0.69	0.53
Emotion (E)	0.83		
Mental (M)	Dropped		
First order constructs			
Friends			
My Friends really try to help me (SS6)	0.86	0.89	0.66
I can count on my friends when things go wrong (SS7)	0.90		
I have friends with whom I can share my joys (SS8)	0.68		
I have friends with whom I can share my sorrows (SS9)	0.80		
Significant others			
There is special person with whom I can share my joys (SS2)	0.92	0.96	0.88
There is special person with whom I can share my sorrows (SS3)	0.95		
I have a special person who is a real source of comfort to me (SS4)	0.94		
Family			
I get the emotional help I need from my family (S10)	0.96	0.96	0.92
I get the emotional support I need from my family (S11)	0.96		
Physical			
Bending, kneeling or stooping (HS4)	0.82	0.90	0.76
Walking several blocks (HS5)	0.86		
Walking one block (HS6)	0.91		
Emotional			
Accomplished less than I would like (HS7)	0.74	0.84	0.64
Had difficulty performing the work or other activities (for example, it took extra effort) (HS9)	0.84		
Cut down the amount of time you spent on work or other activities (HS10)	0.82		
Mental			
I feel full of pep (HS14)			Items dropped
I felt calm (HS15)			
I felt peaceful (HS16)			
I have been a happy person (HS17)			

Table 5: Path coefficients for the model social support on health status

Construct	Path	Construct	Estimate	SE	CR	p-values
Health Status (HS)	<---	Social Support (SS)	0.232	0.069	3.356	***
Others	<---	Social Support (SS)	1.000			
Family	<---	Social Support (SS)	0.831	0.085	9.807	***
Friends	<---	Social Support (SS)	0.828	0.083	9.925	***
Physical (P)	<---	Health Status (HS)	1.000			
Emotional (E)	<---	HS	0.958	0.272	3.528	***

feelings of sorrows and joys when a certain situation was happening to them during their detention periods and also as a place for them to talk and depend on when they are being released.

By sharing their feelings with their significant other, inmates hoped they be comforted by them and thus will boost their health status in terms of emotional status. Apart from that, this study also indicates that in order to stay healthy physically and emotionally, the role of friends as one of their social support apart from their significant other in inmate's life is important. Friends here can be referred to as either their prison-mate or cell-mate or friends that they had before being prisoned or before they were involved with drug-addictions problems. During the period of imprisonment having a friend in prison that willing to or can help an inmate during their activities that required physical strength not only will

increase physical health status of an inmates but also will increase inmate emotional health status. This study also indicates that having a friend that is willing to help and be counted on when things go wrong, can increase emotional health status especially if it involves some difficulties at workplace by sharing the burden of work together. When faced with difficulties during their imprisonment or when doing some other activities that resulted in less than what they had been expecting, inmates could use social support from their family members either in the form of emotional help or emotional support.

CONCLUSION

In conclusion, social support does influence inmate's health status. Inmates that received greater support from friends, significant others and family have

better physical and emotional health status. Drug-abuse inmates that were imprisoned near their hometown, might receive higher social support and thus boost their health status. Therefore, it was recommended for drug-abuse inmates to be imprisoned near their hometown in order to help boosting their health status.

LIMITATIONS

There were several limitations faced by researchers during the conduct of this research. The following are suggestions on how this research can be improved for future research. First, this research was conducted only with the male drug-abuse inmates. Other inmates imprisoned for other wrongdoing, like stealing and house breaking might give a different result on how actually social support might influence or might not influence inmate's health status. Female inmates also might show different results when this study conducted on them. Second, the situations in prison is not quite suitable to conduct research. Prison environment is stricter and more 'formal' compared to drug rehabilitation institutions where the clients in the drug rehabilitation is purely because of drug abuse while inmates in prison might be imprisoned due to other several crimes besides drug abuse.

SUGGESTIONS

Thus, it is suggested that this research be conduct in a rehabilitation center where the environment is less strict than prison. Researchers also can see whether drug abuser in rehabilitation center also needs social support from friends, significant other and family like drug-abuse inmates.

ACKNOWLEDGEMENT

The study is funded by the Niche Research Grant Scheme (NRGS-KPM) UniSZA/NRGS/2013/RR057 Universiti Sultan Zainal Abidin (UniSZA).

REFERENCES

AlsIman, E.T., M.M. Ahmad, M.A.B. Hani and H.M. Atiyeh, 2015. Health: A developing concept in nursing. *Int. J. Nurs. Knowl.*, Vol. 2,
Awang, Z., 2015. SEM Made Simple: A Gentle Approach to Learning Structural Equation Modeling. MPWS Rich Publication, Bangi, Malaysia.,
Benda, B.B., 2005. Gender differences in life-course theory of recidivism: A survival analysis. *Int. J. Offender Ther. Comp. Criminology*, 49: 325-342.

Berkman, L.F., T. Glass, I. Brissette and T.E. Seeman, 2000. From social integration to health: Durkheim in the new millennium. *Soc. Sci. Med.*, 51: 843-857.
Bernier, J.R. and M.K. Lellan, 2011. Health status and health services use of female and male prisoners in provincial jail. Atlantic Centre Excellence Women's Health, Ottawa, Canada. https://www.dal.ca/content/dam/dalhousie/pdf/ace-women-health/3/ACEWH_prisoners_health_provincial_jails_en.pdf.
Bruwer, D., R. Emsley, M. Kidd, C. Lochner and S. Seedat, 2008. Psychometric properties of the multidimensional scale of perceived social support in youth. *Compr. Psychiatry*, 49: 195-201.
Coakes, S.J., 2012. SPSS Analysis Without Anguish using SPSS Version. 20th Edn., John Wiley & Sons, Canberra, Australia.,
Gowing, L.R., R.L. Ali, S. Allsop, J. Marsden and E.E. Turf *et al.*, 2015. Global statistics on addictive behaviours: 2014 status report. *Addict.*, 110: 904-919.
Hair, J.F., R.P. Bush and D.J. Ortinau, 2002. Marketing Research: Within a Changing Information Environment. 2nd Edn., McGraw-Hill, New York, USA.,
Hooper, D., J. Coughlan and M. Mullen, 2008. Structural equation modelling: Guidelines for determining model fit. *Electron. J. Bus. Res. Methods*, 6: 53-60.
House, J.S., K.R. Landis and D. Umberson, 1988. Social relationships and health. *Science*, 241: 540-545.
Malhotra, N.K., I.B. Baalbaki and N.N. Bechwati, 2013. Marketing research: An applied orientation. Pearson Education Corporation, Upper Saddle River, New Jersey, USA.,
Metrebian, N., T. Groshkova, J. Hellier, V. Charles and A. Martin *et al.*, 2015. Drug use, health and social outcomes of hard to treat heroin addicts receiving supervised injectable opiate treatment: Secondary outcomes from the randomized injectable opioid treatment trial (RIOTT). *Addiction*, 110: 479-490.
Moss, S., 2016. Fit indices for structural equation modelling. SICO testing, Moss, Norway. <http://www.sicotests.com/psyarticle.asp?id=277>.
Nargiso, J.E., C.C. Kuo, C. Zlotnick and J.E. Johnson, 2014. Social support network characteristics of incarcerated women with co-occurring major depressive and substance use disorders. *J. Psychoact. Drugs*, 46: 93-105.
Sahban, M.A., M.D. Kumar and S.S. Ramalu, 2015. Instrument development: Entrepreneurial social support assessment instrument. *Res. J. Econ. Bus. Stud.*, 4: 21-36.

- Thoits, P.A., 1995. Stress, coping and social support processes: Where are we? What next? *J. Health Soc. Behav.*, 35: 53-79.
- Viggiani, D.N., 2006. Surviving prison: Exploring prison social life as a determinant of health. *Int. J. Prisoner Health*, 2: 71-89.
- WHO., 2016. Constitution of WHO: Principles. World Health Organization, Geneva, Switzerland. <http://www.who.int/about/mission/en/>.
- Ware, J.E. and C.D. Sherbourne, 1992. Erratum to the MOS 36-item short form health survey (SF-36): I. conceptual framework. *Pharmacoecon.*, 2: 98-98.
- Ware, J.J.E., 2000. SF-36 health survey update. *Spine*, 25: 3130-3139.
- Woodall, J., 2016. A critical examination of the health promoting prison two decades on. *Crit Public Health*, 26: 615-621.
- World Prison Brief, 2000. Institute for criminal policy research. World Prison Brief, Kuala Lumpur, Malaysia. <http://www.prisonstudies.org/country/malaysia>.
- Yap, A., 2016. Drug addiction a chronic health problem-KJ. Astro Awani Published, Kuala Lumpur, Malaysia. <http://www.astroawani.com/berita-malaysia/gejala-penagihan-dadah-satu-masalah-ke-sihatan-kronik-kj-94210>.
- Zamani, Z.A., R. Nasir, A. Desa, R. Khairudin and F. Yusooff, 2014. Family functioning, cognitive distortion and resilience among clients under treatment in drug rehabilitation centres in Malaysia. *Procedia Soc. Behav. Sci.*, 140: 150-154.
- Zimet, G.D., N.W. Dahlem, S.G. Zimet and G.K. Farley, 1988. The multidimensional scale of perceived social support. *J. Personality Assess.*, 52: 30-41.