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Coping Mechanism Versus Health-Related Quality of Life (HRQoL) Among Methadone Maintance Treatment (MMT) Program Participants

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Abstract

There is evidence that coping strategy could be associated with health-related quality of life (HRQoL) among people with life threatening illnesses. However, such information from opioid abusers is still insufficient and limited. This study aimed to 1) describe the overall HRQoL status and preferred coping strategies, 2) correlate between HRQoL and coping mechanisms and 3) compare coping strategies of patients with different HRQoL levels. A convenient sample of opiate abusers from seven Methadone Maintenance Treatment (MMT) centres in East Coast of Peninsular Malaysia was enrolled. The Malay Brief COPE and WHOQOL-BREF were administered to evaluate coping strategies and HRQoL status. Data was analysed using descriptive and non-parametric statistics (SPSS 16). Sixty patients participated (mean age=34.7 years; < 15 years of addiction=51.7%; employed=91.7% and rural residents=65.0%). Overall, they fared the best physically but reported worse HRQoL in Environmental issues. Religion was the most preferred coping strategy (83.4%). Significant positive associations between Overall HRQoL versus Religion and Planning were detected (r_s=+0.34, $p<0.01$; r_s=+0.30, $p<0.05$ respectively). Environment issue was also significantly linked to Instrumental Support and Positive Reframing (r_s=+0.38, $p<0.01$; r_s=+0.31, $p<0.05$ respectively). Social Relationship and Physical Functioning were negatively correlated with Denial (r_s=-0.40, $p<0.01$; r_s=-0.26, $p<0.05$ respectively). Those with poor HRQoL employed Denial significantly more frequently (Total Score < sample median). MMT patients frequently adopted Religion, Planning, Positive Reframing and Instrumental Support as coping strategies in dealing with their addiction problems however, those coping through Denial were associated with poor HRQoL status.
Keywords: Coping, health-related quality of life, methadone maintenance treatment.

Introduction

Opioid abuse in Malaysia has begun as early as during the eighth century and its incidence has increased during the British colonial era. A recent global review indicated that the prevalence of injected drug use was

1.33% among the population aged 15 to 64 years in Malaysia, which is among the highest in the world (Mathers et al., 2008). According to the local statistics from the Malaysia National Anti-Drug Agency (NADA) in 2009, a staggering 15,736 persons have been identified as dependent on drugs compared to 12,352 individuals in 2008 (NADA, 2009). Heroin and morphine were the drugs of choice, accounting for 54% of usage followed by cannabis at 33% (NADA, 2009). The use of amphetamine-type stimulants was similarly reported to be on the increase at about 8% of the drugs used in the country in 2009 while other drugs such as cocaine, codeine and psychotropic drugs account for the remaining 5% (NADA, 2009). Based on the races, heroin and morphine were mostly preferred by the Malays and Chinese meanwhile heroin and cannabis were generally associated with the Indian population (NADA, 2009).

Until recently, drug addiction has become a major social intimidation in this country prompting the government to declare drug as a national disaster and consequently established stringent law enforcement plus rehabilitation programmes for drug abusers (MOH, 2005). These various strategies intend to impede drug use, in parallel with to the mission of attaining a drug-free society by 2015 (Fauziah, & Kumar, 2009). Since 2005, persons addicted to opioid in Malaysia have received methadone on a voluntary basis through the Methadone Maintenance Treatment (MMT) programme which was widely prescribed through government hospitals, private and community clinics, prisons and National Anti-Drug Agency (NADA) centres. Until September 2010, 47 out of 192 MMT centres (24.5%) available in Malaysia are situated in the East Coast of Peninsular Malaysia (MOH, 2011). There are now more than 10,000 opioid dependents receiving methadone substitution in this country (MOH, 2009). Extensive research into MMT has yielded consistent evidence that it is effective in reducing illicit opiate use, mortality rates, HIV/AIDS risk behaviours, transmission of hepatitis B and hepatitis C and drug related criminal behaviours (Connock et al., 2007). This MMT programme has also helped retain patients in treatment, is cost-effective and has been shown to improve family stability (Connock et al., 2007; Krambeer, McKnelly, Gabrielli, & Penick, 2001). Nevertheless, the relapse rates among chronic opiate users are still increasing and this has given a major clinical implication to the benefits of MMT programme. One of the most important outcomes for the evaluation of MMT programme effectiveness involves changes in health-related quality of life (HRQoL) which has become a vital indicator in healthcare evaluation (Maeyer, Vanderplasschen, & Broekaert, 2010). HRQoL is defined as the subjective perception of the impact of health status, including disease and treatment, on physical, psychological, social functioning and well-being (Leidy, Revicki, & Geneste, 1999). In the context of drug addiction, opiate use has been shown to impose negative effects on health status as well as HRQoL (Roe, Beynon, Pickering, & Duffy, 2010).

Nonetheless, HRQoL alone is not adequate to deal with addiction problem and its consequences since patients still need to learn to cope with its misfortunes. Therefore, it is also crucial to provide information related to coping skill in this specific cohort, in line with the previous findings indicating that coping could influence HRQoL (Roesch, 2005; Smedema, Catalona, & Ebener, 2010). The importance of coping mechanisms in the psychosocial adjustment of individuals with chronic diseases could not have been over emphasized (Smedema, Catalona, & Ebener, 2010). Coping is described as a dynamic process which changes over time, differing among individuals and is concerned with the thoughts and actions made in stressful situation (Carver, 1997). This definition also includes "constantly changing cognitive and behavioural efforts to manage the specific external or internal demands that are appraised as faxing or exceeding the resources of the person" (Lazarus & Launier, 1978). In the literature of coping, various styles have been reported to be related to psychological, physical and social well-being (Cohen & Lazarus, 1979; Ursin, 1978).

To-date, opioid abusers' HRQoL status in relation to their coping styles is a less studied topic and little is known about this information especially among persons with drug addiction problems. Almost all studies which assessed HRQoL profiles and coping styles in opioid abusers have involved respondents with concomitant infection whereby these diseases themselves might influence their well-being and coping style. Therefore, it is vital too to investigate these parameters in a "healthier" cohort of respondents to allow comparisons between drug abusers with different health status. This study was thus performed with the main intention of

describing and investigating the relationship between coping and HRQoL parameters as well as to compare coping styles in respondents with different HRQoL profiles.

Methods

Sampling and study protocol

This prospective cross-sectional pilot study involved patients who were enrolled in the MMT programmes in seven MMT centres in Terengganu, Malaysia including two public hospitals - Hospital Sultanah Nur Zahirah, Hospital Hulu Terengganu, four health clinics - Kuala Kemaman, Seberang Takir, Marang, Kuala Besut and one NADA centre. It was conducted for a one-month period. The sample size was determined according to the descriptive observational cross-sectional study formula specific for pilot study in which at least 59 patients were needed for this study at 90% power after considering a 20% drop-out (Naing, 2009).

Ethical approval

Before the study began, official approvals were obtained from the Clinical Research Centre and the Medical Research and Ethics Committee of the Ministry of Health, Malaysia via online application (reference: (6) dlm.KKM/NIHSEC/08/0804/P10-324). Prior to that, verbal contacts were made to all study sites authorities to explain the intention of the study, the period involved and what was required from the patients and hospital staff. Further discussions were made with the MMT coordinators in Terengganu, all hospital directors, District Health Officers and the heads of psychiatry department. The study commenced once official clearance was provided by all the parties involved.

Data collection procedure

To begin with, the researchers explained about the study and invited participation from the potential patients in the MMT study centres. The study inclusion criteria were patients who satisfied the following characteristics: age more than 18 years, able to provide the written consent, established dependency or addiction through Opiate Treatment Index and scheduled urine test by the physician in-charge, capable to answer and complete the questionnaire and volunteer opioid abusers underwent MMT programme. The exclusion criteria consisted of all these traits: age 18 years and below, did not give written consent, incapable of completing questionnaires neither in written form nor by interview, being diagnosed with acute medical and/or psychiatric disorder, exhibiting violent behaviour, suicidal tendency or psychotic profile as well as being infected with HIV/AIDS, hepatitis B and hepatitis C.

An information sheet was provided to enhance their understanding on the nature of the study as well as to clarify the particulars needed, the instrument used and what was required from them. Verbal and written consents from patients were obtained simultaneously. Those who consented were asked to complete a brief form entailing their socio-demographic details. Subsequently, they proceeded to complete the Malay WHOQOL-BREF and Malay Brief COPE-27 (Lua, Cosmas, & Nurul Hudani, 2007; WHO, 1996). Each site coordinator (who was usually the pharmacist in-charge) was identified and briefly-trained to help with the patient identification and MMT record data collection. Help in clarifying the questions, reading them aloud or circling the answers was offered whenever there was a need.

Instruments

Malay WHOQOL-BREF

This is the HRQoL tool of choice recommended by the Ministry of Health's guidelines and policy for MMT programme (MOH, 2005). Besides being widely used, it has proven to be reliable and valid (Hasanah, Naing, & Rahman, 2003; Skevington, Lotfy, & Connell, 2004; WHOQOL Group, 1998). It represents a shorter ver-

sion of the WHOQOL-100, containing 26 items assessing four major domains; Physical Health (7 items), Psychological (6 items), Social Relationship (3 items) and Environment (8 items) (Murphy, Herrman, Hawthorne, Pinzone, & Evert, 2000). Two items evaluating Overall HRQoL and General Health are also included. Each question is scored on a Likert-type response from 1 to 5 (not at all, a little, moderately, mostly, completely) in which higher values indicate better functioning and well-being. Response scores on negatively-phrased questions (items 3, 4 and 26) were transposed. The mean of all items in each domain was calculated and multiplied by four to make it comparable to the WHOQoL-100 scores due to unequal number of items in each domain. Each final domain score ranged from a minimum of four to a maximum of twenty. For the stand-alone questions (Overall HRQoL and General Health), score transformation was not required. Where there were more than 20% of missing data in a subscale, the assessment was recommended to be discarded (WHO, 1996). For a single missing item, mean replacement was the option. If more than two items were missing from the domain, the domain score was not calculated with the exception of the Social Relationship domain (mean calculated if ≤ one item missing).The Total HRQoL score was derived by summing the mean overall scores according to the guidelines in the manual (WHO, 1996).

Malay Brief COPE-27

This instrument consisted of 27 items assessing 14 domains as those in the original Brief COPE (Carver, 1997; Lua, Cosmas, & Nurul Hudani, 2007). Similarly, 14 dimensions of coping were focused in the scales examining Acceptance, Active-Coping, Behavioural Disengagement, Denial, Emotional Support, Instrumental Support, Humour, Substance Use, Planning, Positive Reframing, Religion, Self-Blame, Self-Distraction and Venting. Every dimension contains two items except for Humour. One major change was the deletion of item 28 (making fun of the situation) from the Humour scale since the overall cronbach's alpha value increases after its exclusion. Furthermore, it is considered less appropriate in Malaysian culture since Malaysian in general do not "make jokes or fun" about their problem or during illness. Instead of utilising a 28-item of parent instrument, the Malay Brief COPE containing 27 items was used due to this issue (Lua, Cosmas, & Nurul Hudani, 2007). Responses were scored on Likert-type scale, ranging from "I haven't been doing this at all" (score = 1) to "I have been doing this a lot" (score = 4), whereby higher scores denoted higher frequency of practice. The instrument could either be self- or interviewer-administered. Each scale's total was computed as sum of responses to the two items which made up the scale (Carver, 1997; Lua, Cosmas, & Nurul Hudani, 2007).

Statistical Analysis

This study employed the Statistical Package for Social Sciences version 16 (SPSS 16) for data analysis. All socio-demographic data were analysed descriptively and presented as frequencies and percentages. Wherever relevant, chi-square test for goodness of fit was employed to test for homogeneity of categorical variables. Since data was not normally distributed as indicated in the significant value of Shapiro-Wilk statistic ($p < 0.05$), tests for subsequent univariate analysis were carried out using non-parametric techniques. The chi-square (χ^2) for goodness of fit was utilised to test for homogeneity of the proportion of categorical variables. Spearman's correlation coefficient (rs) was used to measure the strength and direction of correlation between HRQoL domains and coping strategies. A strong association indicates that the more frequent a strategy is adopted, the better the HRQoL. For the purpose of between-group comparisons, the patients were regrouped into; Good HRQoL and Poor HRQoL. Patients who generated the Total HRQoL Score equal to or higher than the group median was considered to possess Good HRQoL level while those with Total HRQoL score lower than the group median was considered as having Poor HRQoL. The Mann-Whitney U test was the analysis of choice for utilised to test for between-group score comparisons. The value of $p < 0.05$ was considered significant.

Results

Description of the sample

Participations were received from 60 out of 63 opioid-dependent patients, (response rate = 95.2%) receiving treatment and services at the Psychiatric Department of all centres. For the overall sample, the mean age of the

patients was 34.7 years, ranging from 24 to 56 years. They were all Malay Muslim males and most have had secondary education (78.3%), addiction period of less than 15 years (51.7%) and were living with family (88.3%). About half of the sample were considered as having "low level of education" (≤ PMR). Majority earned less than RM1000 (USD 317) monthly (68.4%). All patients were started on 20mg methadone dose on admission and this was increased gradually according to their individual needs. The mean of the latest dosage during study period was 56.1mg. Further details are shown in Table 1.

Table 1. Socio-demographic characteristics of study participants (n = 60).

Continuous Variables	**Mean**	**Standard Deviation**	**Median**	**Minimum-Maximum**
Age (years)	34.7	7.0	33.0	24.0 – 56.0
Dosage (mg)	56.1	19.6	55.0	20.0 – 120.0
Categorical Variables	**Frequency (n)**	**Percentage (%)**	**χ^2(df)**	**p value***
Marital status			24.1(2)	< 0.001
Single	21	35.0		
Married	35	58.3		
Divorced	4	6.7		
Occupation			41.1(3)	< 0.001
Professional	1	1.7		
Supportive	23	38.3		
Self-employed	31	51.7		
Unemployed	5	8.3		
Income status†			48.9(5)	< 0.001
RM 2501 and above	2	3.3		
RM 2001 – RM 2500	1	1.7		
RM 1501 – RM 2000	2	3.3		
RM 1001 – RM 1500	12	20.0		
RM 501 – RM 1000	25	41.7		
RM 500 and below	16	26.7		
Education			92.7(3)	< 0.001
Degree or equivalent	1	1.7		
STPM/ Diploma (equivalent to Cambridge A-levels)	4	6.7		
Secondary	47	78.3		
Primary	8	13.3		
Living arrangement			82.3(2)	< 0.001
Family	53	88.3		
Alone	7	11.7		
Living area			5.4(1)	0.020
Urban	21	35.0		

General HRQoL level

Across the entire sample, HRQoL level was considered moderate. This was shown by the Total HRQoL score ranging from 10.7 to 18.7 (mean = 14.9 ± 1.7, median = 14.8). Among all the domains, Environmental issues emerged with the lowest rating (mean = 14.6 ± 1.9, median = 14.5) while Psychological, Physical and Social Relationship demonstrated moderate profiles. On the other hand, the mean and median score values of the General Health outcomes did not differ much than Overall HRQoL – Table 2.

Table 2. The general distribution of the health-related quality of life (HRQoL) scores, (minimum = 1.0; maximum = 20.0).

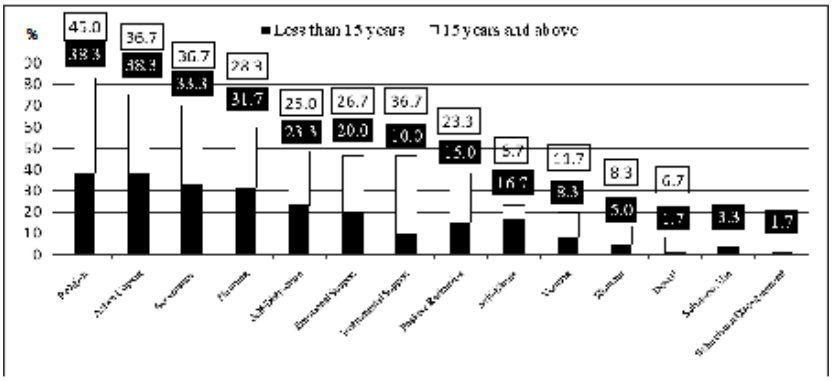
WHOQoL-BREF Items / Domains	Median (Mean ± SD)	Minimum	Maximum
*Overall HRQoL**	4.0 (3.8 ± 0.7)	1.0	5.0
*General Health**	4.0 (3.8 ± 0.8)	1.0	5.0
Physical Health	15.4 (15.5 ± 2.2)	9.7	20.0
Psychological	14.7 (15.0 ± 2.0)	9.3	19.3
Social Relationship	14.7 (14.4 ± 2.7)	5.3	20.0
Environment	14.5 (14.6 ± 1.9)	10.5	19.5
Total HRQoL	14.8 (14.9 ± 1.7)	10.7	18.7

* Untransformed scores (1.0 – 5.0).

Coping strategies

Among all the coping mechanisms reported by our respondents, Religion was the most popular (83.4%). More than half of the respondents also preferred Active Coping (75.0%), Acceptance (70.0%) and Planning (60.0%). However, Denial, Emotional Support, Instrumental Support, Humour, Self-Distraction, Substance Use, Positive Reframing, Religion, Self-Blame and Venting were only fairly favoured (3.3 – 48.4%) while Behavioural Disengagement was the least popular mechanism-of-choice (1.7%). Overall, patients with lower addiction duration (<15 years) were relatively practising most of the coping ways investigated compared to their respective counterparts – Figure 1.

Figure 1. Types of coping mechanism stratified by different addiction duration of study respondents.



Correlation between HRQoL and coping mechanism

In terms of the relationships between coping mechanism and HRQoL parameters, significant positive associations

between Overall HRQoL versus Religion and Planning were detected (rs = + 0.34, p<0.01; rs = + 0.30, p<0.05 respectively) although the association was only moderate. In addition, Substance Use was positively correlated with General Health while Environment issue was also significantly linked to Instrumental Support and Positive Reframing (rs = + 0.38, p<0.01; rs = + 0.31, p<0.05 respectively). On the other hand, Social Relationship and Physical Functioning were negatively correlated with Denial (rs = - 0.40, p<0.01; rs = - 0.26, p<0.05 respectively). No significant association between any coping style and the Psychological component of WHOQOL-Bref was demonstrated - Table 3.

Table 3. Correlation between HRQoL and coping mechanisms.

COPING MECHANISMS	HRQoL ITEMS /DOMAINS (r_s)						
	Overall HRQoL	*General Health*	*Physical Health*	*Psychological*	*Environment*	*Social Relationship*	*Total HRQoL*
Acceptance	-0.05	+0.12	+0.03	-0.10	-0.04	+0.16	-0.03
Active-Coping	-0.01	+0.07	-0.09	-0.19	-0.04	+0.05	-0.13
Behavioural Disengagement	-0.14	+0.03	-0.06	+0.06	-0.06	-0.15	-0.04
Denial	-0.24	-0.01	**-0.26***	-0.18	+0.07	**-0.40 †**	-0.18
Emotional Support	+0.02	-0.10	-0.09	+0.01	+0.22	+0.08	+0.04
Instrumental Support	+0.18	+0.16	+0.05	+0.20	**+0.38 †**	+0.25	+0.25
Humour	-0.04	-0.09	+0.09	+0.17	+0.08	+0.07	+0.12
Self-Distraction	-0.04	-0.18	-0.23	-0.17	-0.10	-0.08	-0.22
Substance Use	+0.25	**+0.26***	-0.15	-0.02	-0.04	+0.08	-0.06
Planning	**+0.30***	+0.05	-0.06	+0.01	+0.14	+0.18	+0.05
Positive Reframing	+0.15	+0.01	+0.14	+0.17	**+0.31***	+0.22	+0.24
Religion	**+0.34 †**	+0.11	-0.19	-0.08	+0.06	+0.17	-0.02
Self-Blame	-0.03	-0.08	-0.10	-0.01	-0.05	-0.14	-0.10
Venting	-0.17	-0.07	-0.07	+0.11	+0.13	+0.05	+0.08

r_s = Spearman's correlation coefficient * *p<0.05* † *p<0.01*

Coping mechanisms between patients with different HRQoL profiles

In total, there were 33 patients (55.0%) with an Overall Score above the median (i.e. 14.8), representing patients with good HRQoL. Another 27 patients (45.0%), scored below the median (hence categorised as having poor HRQoL). In the latter group, Denial proved to be the most popular and significant way to cope with their daily lives (p<0.05). On the other hand, those who reported scores of above median HRQoL (regarded as enjoying good HRQoL) seemed to deal with their addiction problem more frequently via Emotional Support, Instrumental Support, Planning, Positive Reframing and even Humour - Figure 2.

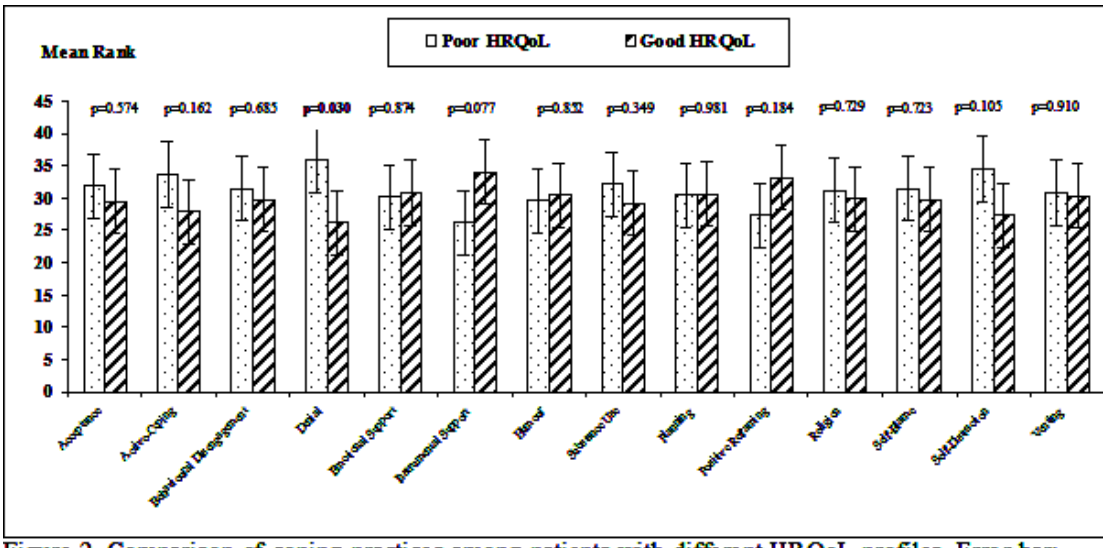


Figure 2. Comparison of coping practices among patients with different HRQoL profiles. Error bar: 5% error, SD=1.

Discussion

The assessment of HRQoL is now well-known as a fundamental component of healthcare as evidenced by numerous health outcome studies. In the reality, people are living longer with a chronic life-threatening illness including those with drug addiction problems who experience tremendous amount of stress that impact upon HRQoL (Bloom, & Carliner, 1988; Redfield & Burke, 1988). The psychological concept of coping associated with stress is commonly related to all HRQoL domains that generate distress to an individual. As a result, individuals develop strategies to manage stress or health problems as well as to improve their overall HRQoL (Lazarus, & Folkman, 1984). However, limited studies have been conducted among the "healthier" cohort of opioid abusers (i.e. without concomitant infection) particularly to investigate the extent of relationship between HRQoL and coping.

With regard to general HRQoL, only moderate level was shown within our sample. Overall, they were relatively good physically probably because being without other health problems, they would have not been plagued by pain or extreme physical discomfort which could restrict their activities of daily living. Understandably, these patients were more energetic, in good working capacity and probably had good quality of sleep as compared to those with concomitant medical illnesses (Manocchia, Keller, & Ware, 2001).

However, they reported worse HRQoL in Environmental issues which emphasized on patient safety and physical environment, income status, access to information and leisure activities, satisfaction level towards health services as well as accommodation and transportation . This unfavourable outcome could be caused by the financial constrains, lack of freedom and lack transportation to seek treatment as encountered by most opioid abusers. From our interview sessions, lack of community acceptance was particularly cited as one of the reasons leading them to avoid public activities and sports, thus explaining their dissatisfaction in this domain. However, concrete evidence to support these findings still requires extensive investigations due to limited HRQoL studies among illicit drug abusers without infectious diseases in our country.

Pertaining to coping mechanisms, unsurprisingly the most-frequently practised mechanism among MMT respondents was Religion. Numerous studies have also revealed similar findings suggesting the importance of turning to religion when confronted with serious pathological conditions and chronic illnesses (Lua, Cosmas, & Nurul Hudani, 2007; Tuncay, Musabak, Gok, & Kutlu, 2008; Muhammad Saiful Bahri Yusoff et al., 2011). In our study population, all of them were raised as Muslims. Since Islam teaches the rule of life and concept of "halal" (lawful) and "haram" (forbidden), one of its principles was to prohibit harmful and unnecessary sub-

stances like illicit drugs. In the face of problems, these principles appeared to be one of their best guidance. People usually turn to religion in an attempt to rise above their problems, which is deemed useful for the individual's well-being and happiness, thus explaining the implementation of Religion as a way to deal with sickness (Grzymala-Moszczynska, & Beit-Hallahmi, 1996; Lua, Cosmas, & Nurul Hudani, 2007). The finding which indicated Behavioural Disengagement as the least-practised coping skill could be explained through the remarks by over 60% of patients who claimed that they have given up trying to deal with their problems and sometimes did not even make any effort to cope as well as to solve the related problems. This reflects the difficulties associated with drug addiction consequences. Nevertheless, their readiness to seek treatment for addiction to some extent could at least promote positive attitudes towards applying good and active coping styles. This result seemed to reflect that patients should be continuously preached on positive motivational support and counselling session to enhance their awareness, knowledge and attitude related to addiction as well as to encourage use of more effective coping strategy.

The positive association between Overall HRQoL and Religion indicated that the more pious respondents were, the better their well-being was. Spirituality, religion and personal beliefs (SRPB) have been suggested by the WHOQOL SRPB Group to play crucial roles in determining HRQoL (WHOQOL SRPB Group, 2006). Such findings clearly depicted religion as an important issue to highlight in dealing with addiction problem, hence stressing the significance of fulfilling patients' spiritual needs in the event of craving and relapse prevention. Through our close observation during this study, successfully-discharged patients from this programme were more likely to report better HRQoL and they possessed firmer religious background. In fact, they were strongly of the opinion that healthcare providers should recommend spirituality, faith of prayer as means of coping styles to patients in rehabilitation process.

Our findings have further revealed a significant association between Overall HRQoL and a problem-focused coping strategy i.e. Planning. Essentially, respondents were attempting to device strategies about what to do next and were also thinking hard about what steps can be taken to improve their condition, in efforts to enhance their cognitive function as well as their Overall HRQoL. These results also implied that most of the respondents could somehow positively appraise their stressful problems and tried to adopt effective coping strategies such as Planning to maintain their well-being.29 Correct planning of action and careful evaluation of the positive as well as the negative consequences of their decision might help lead to an optimal resolution to the problem.

Coping through Instrumental Support i.e. seeking for advice, help or information from others also seemed very useful to our patients (Carver, Scheier, & Weintraub, 1989). This finding has been proven by the positive association between Environment issue and Instrumental Support. It indicated that MMT patients urgently required support from others such as family members, friends, community members and healthcare providers in order to share the burden of their problems and facilitate the treatment received. Continuous advice and accurate information about their medication's side-effects coupled with clearer understanding of the harmful effects of illicit drug use could encouragingly promote positive adaptation and empower patients to prevent relapse.

On the other hand, Environmental issue was discovered to be positively linked to adaptive coping i.e. Positive Reframing. By replacing negative, self-defeating thoughts with positive and affirming feelings, patients might have felt that a threatening problem is resolved. For an example, opiate abusers are frequently associated with limited job skills and less income status. However, if patients are pushed to work hard to overcome their problems, this would be an opportunity to minimise their weaknesses and at the same time promote their well-being especially in Environmental issues. In a previous study, those coping though Positive Reframing were associated with less distress, more comfort and better HRQoL impact (Fortune, Smith, & Garvey, 2005).

Expectedly, both HRQoL parameters of Social Relationship and Physical Functioning were inversely linked to Denial. This coping strategy could be thought of as avoidance approach to diminish the immediate feelings of

anxiety, helplessness and distress (Vosvick et al., 2002). Unsurprisingly, patients with poor HRQoL level were also coping more often via Denial compared to those with good HRQoL level. This result seemed to reflect that HRQoL and negatively-oriented coping (such as Denial) appeared to be negatively associated (Kunzendorff, Scholl, & Scholl, 1993). Denial is considered to be self-destructive, which could lead patients to persistently abuse drugs until relapse occurs. Researchers have found that persons with chronic illnesses with no definite cure may assign their illness to uncontrollable factors and therefore tend to use more emotion-focused coping strategies such as Denial (Blakely et al., 1991; Neerinckx, Van Houdenhove, Lysens, Vertommen, & Onghena, 2000). Consequently, this particular strategy should not be recommended for people with addiction problems due to its unfavourable implication towards their well-being.

Respondents with good HRQoL on the other hand dealt with their problem more effectively via Emotional Support, Instrumental Support, Planning, Positive Reframing and Humour. This was desirably in parallel with the findings obtained by Merz and colleagues (2009) who discovered that Humour acts as a predictor for good HRQoL outcomes in the event of chronic diseases. Effective adoption of these problem-focused coping strategies in managing addiction problems in contrast to emotion-focused coping strategies such as Denial, Behavioural Disengagement could likely improve the well-being of drug addicts (Tuncay, Musabak, Gok, & Kutlu, 2008).

Research related to coping mechanism and HRQoL status among the local population of drug abusers are evidently still lacking. In view of this issue, it seems timely to elucidate these subjective concepts extensively apart from solely focusing on the effectiveness of pharmacological approaches. Additionally, such information could allow comparison with other findings on coping with numerous chronic medical illnesses. As observed from our results, active or problem-focused coping strategies that were shown to be useful included acceptance of fate, planning to do something about one's problems, positively reframing the mind set (positive thinking), obtaining support from others (Instrumental Support) as well as referring to religious beliefs. Through our observation during the conduct of this study, the overall management of the MMT programmes did not thoroughly emphasize on spiritual component compared to those at rehabilitation centres (which strengthens their knowledge on religions) highlighting the importance of spiritual incorporation in MMT management. On the other hand, negative or avoidance strategies such as Behavioural Disengagement and Denial should not be encouraged due to their unfavourable associations with almost all aspects of well-being.

The limitations of our study included a relatively small sample size which has probably diminished the possibility of detecting any statistical significance among the variables investigated. Consequently, our findings could possibly have not been representative of the entire population with drug addiction problem within Malaysia. In addition, only univariate analysis was employed to test for between groups differences in which findings could be strengthen if multivariate analysis could have been conducted. Nonetheless, a brief overview on the relationship between coping and HRQoL has been provided via this investigation particularly with regard to the drug-dependent population.

Conclusion

Our study concluded that the overall HRQoL status of MMT patients (with no concomitant infection) in Terengganu was relatively moderate and could still be improved. Their most preferred coping strategy was Religion while Behavioural Disengagement was the least popular. Overall HRQoL was positively associated with Religion and Planning while both Instrumental Support and Positive Reframing were linked to Environment issue. In contrast, coping via Denial was negatively associated with Social Relationship and Physical Functioning. Moreover, patients with good well-being coped better through problem-focused coping strategies rather than unfavourable emotion-focused coping styles in dealing with their addiction problems. Continuous efforts should be carried out to enhance health outcomes for opioid abusers with particular focus on HRQoL and the subsequent suitable coping strategies. Nonetheless, longitudinal research to investigate the sustainability of the

latter methods in preserving HRQoL is needed in order to substantiate this conclusion.

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