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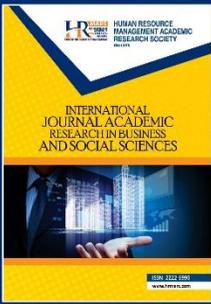
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## Translation and validation of the Treatment Motivation Questionnaire (TMQ) to Malay Version

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### Abstract

**Introduction:** Motivation plays a significant role in treating any illness, especially for patients with addiction problems. Moreover, motivation is a factor that influences patients to look for treatment possibilities, follow instructions of the treatment, and mainly make prosperous long-term changes.

**Objective:** The purposes of this study are to translate and validate the Malay version of the Treatment Motivation Questionnaire (TMQ) among opioid use disorders in Methadone treatment. This questionnaire is to study patient's motivation for entering treatment.

**Method:** Translation, back-translation, pilot testing, and validation of the final TMQ were all part of the four-phase technique for translating and validating generic questionnaires. The inter-correlation item and the Cronbach's alpha coefficient were used to assess the final TMQ's overall internal consistency.

**Results:** The Malay TMQ had excellent Cronbach's alpha values of 0.942. In addition, it had a good factor loading values for most items except one item under 'confidence in treatment' ( $r=0.0082$ ) and eliminating that item from scoring increased the alpha coefficient of the scale of TMQ. Correlations among scales were between .616 and .96.

**Conclusions:** This study demonstrates that the Malay version of the TMQ is a valid and reliable tool used to measure treatment motivation in Malay-speaking populations.

**Keywords:** Treatment Motivation Questionnaire, Translation, Validation, Opioid Use Disorder, Methadone

### Introduction

Treatment motivation is demonstrated to significantly correlate to treatment commitment, retention, and an essential factor in the substance abuser's readiness for treatment and treatment success (Cahill et al., 2003). Treatment motivation, defined as the ability to accept and be ready for change, can vary depending on the time and situation (Bulut & Bozkurt, 2019). High

treatment motivation predicts lower relapse, retention and produces better treatment outcomes (Dillon et al., 2016; Wild et al., 2016) found that clients with low internal motivation at the beginning of admission may drop out early; client users who require high intrinsic motivation are great for use with high cognitive commitment.

The drug users' psychological experience is a crucial factor determining whether they will turn to drugs or quit them. The fulfilment of the psychological needs constitutes drug users' internal motivation, which drives them to quit drugs and pursue healthy development (Chan et al., 2019). However, some of the research found that motivation is still a challenge when most of those who recover from drug rehabilitation treatment will return to their original habit of drug addiction (Wegman et al., 2017) due to craving urges. In addition, studies showed that the drug-seeking behavior (Almeman, Ismail & Mohamad, 2017) cause high dropout in Methadone treatment (Hong et al., 2017), and the invitation of old friends as well as the inability to cope with stress (Salleh, 2012).

According to Melemis (2010), motivation is part of the significant intrinsic factors contributing to relapse. He explained three levels of drug treatment difficulty: i) the importance of the motivation to change, ii) the behavior change to stop drugs, and iii) the desire to maintain recovery. Besides Methadone treatment, a psychological approach is an established approach in covering the intrinsic issues. For example, the results of a local study of Ibrahim et al (2012) found that negative emotions, social stress, and personal conflict of the addict who has recovered can lead to a drug addict returning to drug use.

Existing literature broadly illustrates the causes of drug abuse and relapse (Mohamad et al., 2014; Robson et al., 2015). Drug relapse causes are divided chiefly into individual variables and social/environmental factors (Chan et al., 2019; Miller & Carroll, 2011). Individual differences, such as gender, co-occurring drug use, early trauma and adversity, history of drug use (Wemm & Sinha, 2019), and low self-control and self-determination, are important individual determinants (Chan et al., 2019). Addicts who currently are not seeking or receiving treatment have fewer self-reported psychological, social, and drug-use problems than those in treatment. These discrepancies could be due to (a) a lack of self-awareness among untreated participants or (b) more immediate motivations for seeking treatment among those under treatment (Ayres et al., 2014; Scherbaum & Specka, 2008) found that interventions using motivational interviewing based on self-determination theory affected improvement in health and self, crime reduction, stress, and drug use. Greater motivation also occurred in the participants, and this range of motivations increased self-efficacy and helped in the cognitive confusion that arose. Similarly, the study by Chan et al (2019) used the theory of self-determination as a framework to examine the psychological experiences of drug addicts and their decision to take drugs or not, with particular emphasis on the concept of relativity.

In recognition of the need for operational definition, the Treatment Motivation Questionnaire (TMQ) based on self-determination theory (Deci & Ryan, 1987) was used in this study. This instrument determines four domains of motivation: internal motivation, external motivation, help-seeking, and confidence in treatment (Cahill et al., 2003; Millere et al., 2014). However, until recently, there was no study examining the validity of the TMQ in a Malay speakers population. Therefore, this study examines the translation and validity of the TMQ in screening for treatment motivation in a Malay-speaking population of opioid use disorder patients.

## Objectives

The present study was designed to:

- i. translate the Treatment Motivation Questionnaire (TMQ) into Malay version.
- ii. test the reliability and internal consistency of the TMQ Malay version.
- iii. explore the structural validation of the TMQ Malay version.

## Methodology

### Study Design

This study applied a quantitative observational cross-sectional in this study.

### Data Collection

Ninety participants were selected randomly from five Methadone Clinics under the purview of the Ministry of Health (MOH), Malaysia. To be eligible for treatment, participants should meet the diagnosis for Opioid Use Disorder (moderate or severe) based on DSM-5 criteria (APA, 2013). In addition, the following inclusion criteria for participants are listed below:

1. The patient is above 18 years old.
2. The patient received at least three months of treatment with Methadone.
3. The researchers have obtained consent and cooperation for voluntary intervention.
4. The participants do not have chronic mental illnesses such as schizophrenia and bipolar disorder.
5. If the patient has a chronic infectious disease, such as HIV/AIDS and tuberculosis (TB), they should be admitted until they are stable, under the care and supervision.

The administration of TMQ consistently decreases the risk of assessment bias by the trained research assistants. Participants need to fill up the TMQ questionnaires within 30 minutes. Socio-demographic data, i.e., education, occupation, and status, were also collected using customized data collection forms.

### Translation

We translated the TMQ into the Malay language version after obtaining permission from the developer of the original English translation (Deci & Ryan, 2000). Forward and two bilingual individuals made backward translations of the questionnaires with counseling backgrounds. First, they independently translated the original English measures into Malay and then combined them into a single Malay translation. Two other bilingual translators then translated back into English. No change was suggested in the back-translated questionnaire and, therefore, satisfied with the Malay translations. In addition, constituting an expert committee is produced the prefinal version of the translation to review all versions of the translations and determine whether the translated and original versions achieve semantic, idiomatic, experiential, and conceptual equivalence (Beaton et al., 2000). Finally, we tested the final Malay translations on 50 candidates as a pilot test to verify the clarity and breadth of the TMQ. To ensure the optimal objective of the translation, the researcher conducted interviews with participants in the pilot project. The results of the latter pilot study revealed that TMQ was clear and understandable to participants. In addition, during the translation process, the researcher considered three aspects i) translation equivalence, ii) conceptual equivalence, and iii) measurement equivalence (metrics) in line with Matsumoto's (1996) suggestion that different cultural backgrounds should have equivalence.

### **Validation**

Three addiction therapy professionals fluent in Malay and English checked the content validity. The criteria selection of the experts including having more profound knowledge in addiction therapy, various experiences and produce a comprehensive study in the research in the field. All experts have examined the instrument's construction and each item's level and provided feedback based on the study's objectives.

### **Reliability**

We tested the reliability of TMQ using internal consistency of the questionnaire by Cronbach's alpha coefficient, and alpha equal to or greater than 0.70 was considered satisfactory (Nunnally, 1994).

### **Data Analysis**

Data were analyzed using the SPSS version 21.0. The presented descriptive statistical data using mean values, standard deviations, and percentages for the demographic variables. Meanwhile, to assess the relationship between different variables, Pearson's correlation is used. We used Cronbach's alpha coefficients, corrected item-total correlation, and inter-item correlation matrix analysis to assess the internal consistency reliability. A Cronbach's alpha of  $\geq 0.7$  and item-total correlation of  $>0.2$  was considered statistically acceptable (Nunnally, 1994]. Only statistically significant differences at  $p < 0.05$  were reported.

### **Ethical Consideration**

The ethical approval of the Medical Research and Ethics Committee of the Ministry of Health of Malaysia was obtained on 13 January 2018 (reference number: NMRR-16-2841-32666 (IIR)) to carry out further tests in opioid dependents in five Methadone treatment clinics. Participants signed a written informed consent form before participating in the study.

### **Results**

We recruited opioid use disorder patients from Methadone clinics in Klang Valley, Malaysia, based on a random selection. We included participants who consented to participate in the study and were able to read and understand Malay. We offered representatives in each clinic a questionnaire to all participants in the methadone clinics and collected it within two weeks. More than 30% of the participants were between 41 and 50 years old. The participants were almost equally married and single, and only 16% were widowed/widower. The data showed that the smoking method was more prevalent among participants. In addition, the data showed that participants had attempted to quit substance abuse without treatment before starting methadone treatment. Table 1 shows the demographic profile of the participants.

Table 1: Demographic profile of the participants.

<i>Demographic</i>		<b>N=90</b>	
		<i>f</i>	<i>(%)</i>
<b>Gender</b>	Male	90	100
<b>Age</b>	21 - 30 years	7	7.78
	31 - 40 years	33	36.67
	41 - 50 years	30	33.33
	51 - 60 years	14	15.56
	61 - 70 years	6	6.67
<b>Status</b>	Single	42	46.67
	Married	32	35.55
	Widow/Widower	16	6.67
<b>Occupation</b>	Unemployed	24	26.67
	Odd jobs	35	38.89
	Employed	4	4.44
	Business	27	30
<b>Duration of addiction</b>	0 - 10 years	25	57.78
	11 - 20 years	37	41.11
	21 - 30 years	28	31.11
<b>Use of other illicit drugs</b>	Yes	82	91.11
	No	8	8.89
<b>Heroin administration</b>	Smoke (Chase)	45	50
	Intravenous	40	44.44
	Snort	5	5.56
<b>Start of heroin abuse (Age)</b>	12 - 17 years	19	21.11
	18 - 23 years	47	52.22
	24 - 29 years	19	21.11
	30 - 35 years	4	4.44
	36 - 41 years	1	1.11
<b>Previous attempt to quit</b>	Yes	56	62.22
	No	34	37.78

### Translation Process

It took approximately two months to finalize the process. Two independent translators had done the initial translation from the English language to the Malay language. The bilingual translators translated the questionnaire into Malay to better reflect the nuances of the target language. The authors of this study were the focus group that made the synthesis.

### Validity Analysis

We emailed the final draft of the TMQ Malay version with the original English scale to experts for content validity. They filled out a form stating whether or not they agreed to the translation of each article and provided comments or alternative translations. To receive feedback on content validity, the researcher created a content validity form adapted from Lim (2007). The form

contains three components consisting of; i) Item Relevance, ii) Content Coverage, and iii) Item Format. For component i) and ii), the evaluation are using a 5 -point scale of 1 = Not Suitable, 2 = Less Suitable, 3 = Suitable, 4 = Somewhat Suitable, and 5 = Very Suitable. For evaluation on component 2, the evaluation scale is; 5=Very Comprehensive, 4=Somewhat Comprehensive, 3=Comprehensive, 2=Less Comprehensive, and 1=Not Comprehensive. Findings from Table 2 show that the percentage of experts' agreement for the TMQ questionnaire is high and exceeds 80%. These findings indicate that the TMQ questionnaire is acceptable and applicable in the context of this study.

Table 2TMQ instrument content validity

<b>Bil.</b>	<b>Component</b>	<b>Expert Panel</b>	<b>Percentage</b>	<b>Results</b>
1.	Item relevance	Expert 1	93.1	Accepted
		Expert	98.4	Accepted
		Expert 1	100	Accepted
2.	Content Coverage	Expert 1	95	Accepted
		Expert 1	90	Accepted
		Expert 1	100	Accepted
3.	Item Format	Expert 1	96.6	Accepted
		Expert 1	100	Accepted
		Expert 1	100	Accepted

Table 3 shows the correlation between sub-scales with overall items exceeding 0.30, indicating that the discriminant validity of the subscales in TMQ was satisfactory.

Table 3 Inter-subcales correlation of TMQ

		Correlations				
		TMQ	external	internal	seeking	confidenc e
TMQ	Pearson	1	.767**	.960**	.887**	.616**
	Correlation					
	Sig. (2-tailed)		.000	.000	.000	.000
	N	90	90	90	90	90
external	Pearson	.767**	1	.705**	.552**	.385**
	Correlation					
	Sig. (2-tailed)	.000		.000	.000	.000
	N	90	90	90	90	90
internal	Pearson	.960**	.705**	1	.826**	.459**
	Correlation					
	Sig. (2-tailed)	.000	.000		.000	.000
	N	90	90	90	90	90
seeking	Pearson	.887**	.552**	.826**	1	.410**
	Correlation					
	Sig. (2-tailed)	.000	.000	.000		.000
	N	90	90	90	90	90
confidenc e	Pearson	.616**	.385**	.459**	.410**	1
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	90	90	90	90	90

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### Reliability and Item Analysis

We calculated it as instructed in the TMQ instruction manual. Table 4 shows the mean scores and standard deviation for all TMQ 26 items. The most frequently endorsed item was item 1, 'I really want to make some changes in my life.' This item is under internal motivation. "I am not sure this program will work for me" was the item under that was endorsed the least. Cronbach's alpha was 0.942. All items, if deleted, would decrease the total scale of Cronbach's alpha. All items correlated with the total scale to a good degree (lowest  $r = 0.161$ ) except item 13, "I am not sure this program will work for me," with  $r = 0.082$ . inter-item correlations range between 0.101 and 0.588, as shown in Table 5.

Table 4: Item-total statistics of TMQ

	Mean	Std. Deviation	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1	6.01	1.473	.707	.700	.939
Q2	5.40	1.606	.729	.670	.939
Q3	4.40	2.065	.404	.596	.943
Q4	5.64	1.531	.822	.834	.938
Q5	5.84	1.586	.843	.854	.937
Q6	4.92	1.874	.617	.681	.940
Q7	5.40	1.668	.778	.880	.938
Q8	5.22	1.810	.708	.847	.939
Q9	5.56	1.447	.809	.888	.938
Q10	4.94	1.712	.494	.571	.941
Q11	5.70	1.402	.817	.811	.938
Q12	3.61	2.097	.211	.458	.946
Q13	3.51	1.996	.311	.439	.944
Q14	5.41	1.483	.691	.689	.939
Q15	5.70	1.561	.840	.874	.937
Q16	3.83	1.360	.064	.334	.945
Q17	5.40	1.634	.781	.827	.938
Q18	5.11	1.679	.598	.788	.940
Q19	5.32	1.708	.736	.806	.938
Q20	5.54	1.552	.778	.814	.938
Q21	3.58	2.000	.302	.463	.944
Q22	5.39	1.504	.665	.742	.939
Q23	5.77	1.469	.752	.752	.938
Q24	3.97	2.143	.268	.556	.945
Q25	5.40	1.599	.739	.807	.938
Q26	5.76	1.524	.825	.862	.938

Table 5 Inter-item correlation matrix analysis of TMQ

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26
Q1	1.00	.625	.479	.615	.679	.346	.469	.408	.551	.241	.601	.276	.308	.461	.608	.113	.577	.454	.544	.533	.292	.505	.588	.175	.532	.652
Q2	.625	1.000	.317	.694	.695	.488	.657	.572	.648	.474	.578	.137	.212	.576	.694	.026	.538	.408	.550	.628	.134	.507	.592	.102	.582	.670
Q3	.479	.317	1.000	.362	.472	.127	.266	.171	.308	.029	.298	.451	.100	.111	.278	.104	.238	.220	.275	.247	.341	.156	.272	.361	.247	.374
Q4	.615	.694	.362	1.000	.828	.617	.677	.605	.669	.464	.704	.058	.207	.580	.731	.031	.713	.571	.693	.650	.215	.617	.707	.188	.619	.738
Q5	.679	.695	.472	.828	1.000	.563	.691	.623	.685	.469	.727	.188	.235	.558	.757	.108	.601	.517	.682	.747	.280	.539	.611	.213	.619	.728
Q6	.346	.488	.127	.617	.563	1.000	.675	.655	.667	.542	.628	.056	.203	.517	.514	.177	.506	.414	.510	.575	.036	.437	.548	.066	.468	.509
Q7	.469	.657	.266	.677	.695	.675	1.000	.856	.857	.583	.734	.103	.218	.691	.707	.089	.588	.345	.491	.705	.176	.461	.584	.158	.542	.684
Q8	.408	.572	.171	.605	.623	.655	.856	1.000	.798	.573	.660	.056	.273	.623	.624	.113	.559	.424	.424	.621	.073	.405	.527	.155	.613	.566
Q9	.551	.648	.308	.669	.685	.667	.856	.798	1.000	.580	.748	.116	.313	.678	.717	.101	.575	.321	.495	.685	.261	.442	.638	.303	.593	.669
Q10	.241	.474	.029	.464	.469	.542	.583	.573	.580	1.000	.583	.019	.097	.461	.519	.091	.390	.202	.248	.523	.000	.410	.379	.074	.361	.464
Q11	.601	.578	.298	.704	.727	.628	.734	.660	.748	.583	1.000	.193	.180	.606	.759	.050	.676	.473	.576	.727	.195	.631	.609	.161	.570	.791

Q1 2	.27 1	.13 7	.45 1	.05 8	.18 8	.05 6	.10 3	.05 6	.11 6	.01 9	.19 3	1.0 00	.14 2	.02 7	.12 2	.11 5	.21 6	.16 6	.14 2	.14 9	.32 2	.06 6	.09 1	.17 0	.02 7	.12 5
Q1 3	.30 8	.21 2	.10 0	.20 7	.23 5	.20 3	.21 8	.27 3	.31 3	.09 7	.18 0	.14 2	1.0 00	.24 3	.12 2	.16 0	.18 1	.19 7	.31 0	.14 5	.26 0	.10 5	.27 9	.31 9	.22 4	.08 2
Q1 4	.46 1	.57 6	.11 1	.58 0	.55 8	.51 7	.69 1	.62 3	.67 8	.46 1	.60 6	.02 7	.24 3	1.0 00	.69 0	.06 6	.65 5	.36 9	.47 0	.62 9	.12 0	.48 7	.60 1	.18 5	.57 9	.66 1
Q1 5	.60 8	.69 4	.27 8	.73 1	.75 7	.51 4	.70 7	.62 4	.71 7	.51 9	.75 9	.12 2	.12 2	.69 0	1.0 00	.08 2	.71 7	.56 2	.69 8	.82 0	.16 1	.68 7	.70 4	.13 5	.72 4	.81 9
Q1 6	.11 3	.02 6	.10 4	.03 1	.10 8	.17 7	.08 9	.11 3	.10 1	.09 1	.05 0	.11 5	.16 0	.06 6	.08 2	1.0 00	.03 0	.02 8	.08 1	.01 5	.17 2	.17 5	.03 1	.08 3	.13 4	.13 2
Q1 7	.57 7	.53 8	.23 8	.71 3	.60 1	.50 6	.58 8	.55 9	.57 5	.39 0	.67 6	.21 6	.18 1	.65 5	.71 7	.03 0	1.0 00	.66 4	.65 0	.60 0	.21 4	.71 8	.59 2	.29 9	.66 5	.71 2
Q1 8	.45 4	.40 8	.22 0	.57 1	.51 7	.41 4	.34 5	.42 4	.32 1	.20 2	.47 3	.16 6	.19 7	.36 9	.56 2	.02 8	.66 4	1.0 00	.75 9	.39 5	.07 4	.52 1	.60 7	.08 5	.66 5	.54 2
Q1 9	.54 4	.55 0	.27 5	.69 3	.68 2	.51 0	.49 1	.42 4	.49 5	.24 8	.57 6	.14 2	.31 0	.47 0	.69 8	.08 1	.65 0	.75 9	1.0 00	.58 2	.25 4	.57 2	.71 1	.15 9	.65 2	.63 1
Q2 0	.53 3	.62 8	.24 7	.65 0	.74 7	.57 5	.70 5	.62 1	.68 5	.52 3	.72 7	.14 9	.14 5	.62 9	.82 0	.01 5	.60 0	.39 5	.58 2	1.0 00	.27 8	.53 9	.59 8	.14 7	.61 3	.74 6
Q2 1	.29 2	.13 4	.34 1	.21 5	.28 0	.03 6	.17 6	.07 3	.26 1	.00 0	.19 5	.32 2	.26 0	.12 0	.16 1	.17 2	.21 4	.07 4	.25 4	.27 8	1.0 00	.10 4	.12 7	.47 1	.13 8	.16 1
Q2 2	.50 5	.50 7	.15 6	.61 7	.53 9	.43 7	.46 1	.40 5	.44 2	.41 0	.63 1	.06 6	.10 5	.48 7	.68 7	.17 5	.71 8	.52 1	.57 2	.53 9	.10 4	1.0 00	.58 0	.11 9	.69 1	.70 9
Q2 3	.58 8	.59 2	.27 2	.70 7	.61 1	.54 8	.58 4	.52 7	.63 8	.37 9	.60 9	.09 1	.27 9	.60 1	.70 4	.03 1	.59 2	.60 7	.71 1	.59 8	.12 7	.58 0	1.0 00	.13 0	.63 8	.72 7
Q2 4	.17 5	.10 2	.36 1	.18 8	.21 3	.06 6	.15 8	.15 5	.30 3	.07 4	.16 1	.17 0	.31 9	.18 5	.13 5	.08 3	.29 9	.08 5	.15 9	.14 7	.47 1	.11 9	.13 0	1.0 00	.10 6	.10 1

Q2	.53	.58	.24	.61	.61	.46	.54	.61	.59	.36	.57	.02	.22	.57	.72	.13	.66	.66	.65	.61	.13	.69	.63	.10	1.0	.71
5	2	0	7	9	9	8	2	3	3	1	0	7	4	9	4	4	5	5	2	3	8	1	8	6	00	8
Q2	.65	.67	.37	.73	.72	.50	.68	.56	.66	.46	.79	.12	.08	.66	.81	.13	.71	.54	.63	.74	.16	.70	.72	.10	.71	1.0
6	2	9	4	8	8	9	4	6	9	4	1	5	2	1	9	2	2	2	1	6	1	9	7	1	8	00

## Discussion

The present study aimed to translate and validate the TMQ into Malay in a Malay speaking group opioid use disorders in Methadone treatment. Evidence for validity and reliability of the Malay TMQ was found in the translation, content validity, and reliability analysis in internal consistency. Firstly, The TMQ has minimal empirical evidence to support validity and reliability. However, we found that these four subscales supported predictive validity when using the TMQ to assess client motivation for substance abuse treatment, as Cahill et al. (2003) suggested. In addition, Ryan, Plant & O'Malley (1995) found that convergent validity was supported by assessing the TMQ scores, problem severity, and clinicians' ratings of client motivation for treatment. Secondly, in our study, we found the corrected item-total correlation values were higher than 0.30 and significant in the degree of  $p < 0.001$ . The only correlation between item 13th and all items on the scale was low ( $r = 0.0082$ ). This item is under the subscale Confidence in treatment. A similar study with Evren et al (2006) found a low correlation between Confidence in treatment and the 14th item included in that subscale. This issue may be due to several items in subscale confidence used reverse item which impacts the internal consistency. Subsequent studies suggest that mixing positively and negatively worded items can adversely affect measure consistency/unidimensionality (Ping, 2004).

Thirdly, the TMQ's internalized motivation calculation is made from the averaging of 11 questions, while the externalized motivation calculation is made from averaging four questions. This may make the externalized motivation calculation less precise. In addition, the externalized motivation can quickly vary depending on the cognitive functioning associated with the present environmental influences. Fourthly, TMQ is a measure developed on an outpatient sample and thus may not be sensitive enough to fully capture aspects of motivation in individuals appropriate for residential treatment. Using this measure with other samples, including additional outpatient and residential groups, would offer additional information regarding the validity of this measure. We suggest utilizing multiple measures, including information about patients from those working with them in treatment, spouses, family members, and friends, to better understand this measure and motivation in general.

## Conclusion

The TMQ is a commonly used tool with a few translations worldwide. The Malay version of the TMQ is a valid and reliable measure to assess treatment motivation in a Malay sample. We hope our study will encourage researchers and practitioners to conduct more studies in Malaysia regarding treatment motivation in other modalities. However, our study has several limitations. Initially, the study was carried out under opioid use disorder patients under methadone treatments; therefore, it cannot be generalized. Second, it would be better if the reliability was examined through test-retest and not limited to the internal consistency tests. Third, we did not do convergent validity by comparing the scale to another gold standard.

## Reference

- Almeman, A. A., Ismail, R., & Mohamad, N. (2017). Methadone Maintenance Therapy (MMT) in Malaysia: An observational clinical study. *Australasian Medical Journal* 10(4): 314.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (Vol. 10). Washington, DC: American Psychiatric Association.
- Ayres, R., Ingram, J., Rees, A., Neale, J., Beattie, A. & Telfer, M. (2014). Enhancing motivation within a rapid opioid substitution treatment feasibility RCT: a nested qualitative study. *Substance Abuse Treatment, Prevention, and Policy* 9(1): p.44.
- Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, 25(24), 3186-3191.
- Bulut, S., & Bozkurt, İ. (2019). The effect of treatment motivation levels on patients sent to a conditional substance abuse treatment program. *Universitas Psychologica*, 18(1), 1-16.
- Cahill, M. A., Adinoff, B., Hosig, H., Muller, K., & Pulliam, C. (2003). Motivation for treatment preceding and following a substance abuse program. *Addictive behaviors*, 28(1), 67-79.
- Chan, G. H., Lo, T. W., Tam, C. H., & Lee, G. K. (2019). Intrinsic motivation and psychological connectedness to drug abuse and rehabilitation: The perspective of self-determination. *International Journal of Environmental Research and Public Health* 16(11): 1934.
- Chan, G. H., Lo, T. W., Tam, C. H. & Lee, G. K. (2019). Intrinsic motivation and psychological connectedness to drug abuse and rehabilitation: The perspective of self-determination. *International Journal of Environmental Research and Public Health* 16(11): 1934.
- Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of personality and social psychology*, 53(6), 1024.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268.
- Dillon, P. J., Kedia, S. K., Isehunwa, O. O., & Sharma, M. (2020). Motivations for treatment engagement in a residential substance use disorder treatment program: A qualitative study. *Substance Abuse: Research and Treatment*, 14, 1178221820940682.
- Evren, C., Saatcioglu, O., Dalbudak, E., Danismant, B. S., Cakmak, D., & Ryan, R. M. (2006). Factorial structure and reliability and validity of Turkish version treatment motivation questionnaire (TMQ) in alcohol dependents. *Journal of Dependence*, 7(3), 117-122.
- Hong, N. A., Prisca, Z., Hien, H., Thuc, D. C., & Nhan, N. T. (2017). Factors determining dropping out from treatment among methadone clients: a qualitative study in Can Tho City, Vietnam. *HIV & AIDS Review. International Journal of HIV-Related Problems*, 16(1), 32-39.
- Ibrahim, F., Samah, B. A., Talib, M. A., & Sabran, M. S. (2012). Drug Addicts and the High Risk Situations of Relapse. *e-Bangi*, 9(1).
- Hin, L. C. (2007). *Penyelidikan pendidikan: Pendekatan kuantitatif dan kualitatif*. Selangor: McGraw- Hill (Malaysia).
- Matsumoto, D. (1996). *Culture and psychology*. Pacific Grove, CA: Brooks/Cole.
- Melemis, S. M. (2010). *I Want to Change My Life: How to Overcome Anxiety, Depression, & Addiction. Modern Therapies*.
- Miller, W. R., & Carroll, K. M. (Eds.). (2011). *Rethinking substance abuse: What the science shows, and what we should do about it*. Guilford Press.

- Millere, A., Pūce, A., Millere, E., Zumente, Z., Sudraba, V., Deklava, L., Millere, I., Caune, L., & Vagale, A. (2014). Treatment motivation factor analysis of patients with substance use disorders in Latvia. *Procedia-Social and Behavioral Sciences*, 159, 298-302.
- Mohamad, N., Ismail, R., Latif, A., Zubaidi, A., Mohamad, M., & Toriman, M. E. (2014). *Terapi Penggantian Metadon Penderitaan Kebergantungan Opioid yang boleh diubati*. Terengganu: Penerbit Universiti Sultan Zainal Abidin.
- Nunnally, J. C. (1994). *Psychometric theory* 3E. Tata McGraw-hill education.
- Ping Jr, R. A. (2004). On assuring valid measures for theoretical models using survey data. *Journal of business research*, 57(2), 125-141.
- Robson, N., Rashid, R., Nazar, M., and Habil, H. (2015). Treating heroin addiction: Bridging the past and future—a Malaysian experience. *Asia-Pacific Psychiatry*, 7(1), pp.121-125.
- Ryan, R. M., Plant, R. W., & O'Malley, S. (1995). Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement, and dropout. *Addictive behaviors*, 20(3), 279-297.
- Salleh, M. J. (2012). *Permasalahan Penagihan Dadah: Tinjauan Di Pusat Serenti Selangor*. In: International Seminar on Community Development - SAPKO 2012, 7 to 9 April 2012, Kuala Terengganu.
- Scherbaum, N., & Specka, M. (2008). Factors influencing the course of opiate addiction. *International Journal of Methods in Psychiatric Research*, 17(S1), S39-S44.
- Wemm, S. E., & Sinha, R. (2019). Drug-induced stress responses and addiction risk and relapse. *Neurobiology of stress*, 10, 100148.
- Wild, T. C., Yuan, Y., Rush, B. R., & Urbanoski, K. A. (2016). Client engagement in legally-mandated addiction treatment: A prospective study using self-determination theory. *Journal of Substance Abuse Treatment* 69: 35–43.