

The minnesota nicotine withdrawal scale psychology essay



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Tobacco, according to World Health Organization (WHO), is one of the biggest public health threats the world has ever faced. Several reports conclude that cigarette smoking is the massive avoidable cause of premature death and disability worldwide (U. S. Department of Health and Human Services, 2004; Hatsukami et al., 2008). In Malaysia, the prevalence of smoking is moderately high and the NHMS III reported the overall smoking rate of 21.5%, and rates of 46.4% and 1.6% among male and female above 18 years of age, respectively (Ministry of Health Malaysia, 2006).

Furthermore, the mortality rate from smoking-related diseases (from cancer, respiratory and cardiovascular diseases) in Malaysia was 1017 per 100000 population and 19134 per 100000 population for respiratory diseases and cardiovascular diseases, respectively (World Health Organization, 2003). The Malaysian government has initiated smoking cessation clinics as part of its National Tobacco Control Program (NTCP).

Cigarette and other tobacco forms are addictive in nature due to the nicotine contained in them. Nicotine dependence causes physical withdrawal as well as lifelong addiction. When tobacco use is stopped, nicotine withdrawal syndrome emerges, because the body has developed a homeostatic response (Hatsukami et al., 2008; American Psychiatric Association, 1994; Donovan and Marlatt, 2005; Benowitz, 1999). The nicotine withdrawal syndrome has been well described and can be a hallmark sign of dependence (Hughes and Hatsukami, 1986; Hughes et al., 1990). Symptoms of the nicotine withdrawal syndrome include irritability, frustration, or anger; anxiety; difficulty concentrating; restlessness; decreased heart rate; and increased appetite or weight gain (American Psychiatric Association, 1994).

Typically, nicotine withdrawal symptoms appear within two hours after the last cigarette, peak between one to two days after cessation and last up to a few weeks on average (Hughes et al., 1990; Piasecki et al., 1998; Fiore M. C. et al., 2000). However, other studies have showed that there can be substantial variability in both the trajectory of symptoms and time course of withdrawal (Piasecki et al., 1998).

Unfortunately in any of the previous case, nicotine withdrawal syndrome is an important obstacle to successful quitting and this may cause smoking relapse. Therefore, an effective counselling for smoking cessation should emphasize coping skills with stress and withdrawal symptoms as well as provision of social support as part of the treatment (Donovan and Marlatt, 2005)

Craving is often considered as an important concept in smoking addiction and the most prominent and bothersome symptom experienced during nicotine withdrawal during the abstinence attempt (Orleans et al., 1991; Shiffman and Jarvik, 1976a; West et al., 1989). According to an expert group meeting which organized by United Nation International Drug Control Programme (UNDCP) and WHO Craving is defined as “ the desire to experience the effect(s) of a previously experienced psychoactive substance” (United Nations International Drug Control Programme and World Health Organization, 1992).

Several studies have concluded that craving hinders successful smoking cessation and that it correlates with relapse after periods of abstinence (Allen et al., 2008; Doherty et al., 1995; Ferguson et al., 2006; Killen and

Fortmann, 1997; Killen et al., 1991; Niaura et al., 1988; Orleans et al., 1991; Shiffman et al., 1997; Shiffman and Jarvik, 1976a; Swan et al., 1996).

Moreover, the effects of positive outcome expectations of smoking on relapse appear to be completely mediated by craving (Dijkstra and Borland, 2003). Accordingly, assessment of withdrawal symptoms with urge to smoke concept form an integral part of assessing health and quality of life in smokers in order to predict relapse, understand the nature of nicotine dependence and improve cessation treatment (West et al., 2006; Welsch et al., 1999).

A number of questionnaires with varying coverage of symptoms, quantitative indices of nicotine withdrawal symptoms and psychometric properties have been developed for this purpose. For measuring the withdrawal symptoms, there are a number of self-report measures of nicotine withdrawal have been developed and used broadly in basic and clinical research on smoking cessation (as previously discussed in Chapter two).

The MNWS is considered as the briefest scale among the self-report measures of nicotine withdrawal symptoms currently available and the psychometric properties of the scale have been reported as good as other, longer ones (Etter and Hughes, 2006; West et al., 2006). The original MNWS was developed by Hughes and Hatsukami in 1986. It consists of nine nicotine withdrawal symptoms including craving. The scale later was modified to reflect changes made in the fourth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for nicotine withdrawal (Jorenby et al., 1996). the total score of the scale range from 0 to 36 depending on

participant's rate for the symptoms as not present (0), slight (1), mild (2), moderate (3), and severe (4).

Table 3. 1 Summary of Smoking Assessment Measures

Purpose

Instrument(s)

Author(s)

Assessment of withdrawal symptoms

the Minnesota Nicotine Withdrawal Scale (MNWS)

(Hughes and Hatsukami, 1986; Hughes and Hatsukami, 2008)

the Smoker Complaint Scale

(Schneider and Jarvik, 1983)

the Smoking Withdrawal Questionnaire (SWQ)

(Shiffman and Jarvik, 1976a)

the Wisconsin Smoking Withdrawal Scale (WSWS)

(Welsch et al., 1999)

the Cigarette Withdrawal Scale

(Etter, 2005)

the Mood and Physical Symptoms Scale (MPSS)

(West R. and Hajek P., 2004)

the Profile of Mood States Manual

(McNair et al., 1989)

a scale to use on a hand-held computer

(Shiffman et al., 1996)

Assessment of craving

Questionnaire of Smoking Urges

(Tiffany and Drobes, 1991; Cox et al., 2001)

Shiffman-Jarvik Scale

(Shiffman and Jarvik, 1976b)

Craving scale

(Shiffman et al., 2003)

In the past decade, most of studies used either one- or two-item questionnaire to assess craving. Because of that, the assessment of craving is rather one-sided and the psychometric properties cannot be determined. In 1991, Tiffany and Drobes developed the 32-item Questionnaire on Smoking Urges (QSU). This self-report tool intends to capture different aspects of craving ranging from positive expectations about the effects of smoking to more general, overwhelming urges to smoke.

Factor analysis for the QSU showed that it consists of two clearly obvious underlying factors, which can be described as “ the desire and intention to

smoke with an anticipation of pleasure from smoking” and “ the relief from nicotine withdrawal or negative affect with an urgent and overwhelming desire to smoke” (Tiffany and Drobes, 1991).

However, because of its length, the QSU became less appropriate and impractical in clinical and laboratory settings where a fast assessment of craving is important with additional measures. With this in mind, Cox et al. developed the QSU-Brief, which is an abbreviated version of the QSU consisting of only ten items that can be completed in about two minutes to represent the two factors found in the longer QSU (Cox et al., 2001). Factor 1 includes items assess the positive (the desire and intention to smoke, pleasure) and factor 2 includes items assess the negative reinforcing aspects of tobacco (the desire to smoke in anticipation of relieving negative effect) (Davies et al., 2000; Cox et al., 2001). In this questionnaire, factor 1 includes the items 1, 3, 6, 7, and 10, while factor 2 includes the items 4, 8, and 9. In spite of the inclusion of items 2 and 5 in factor 2 of the original QSU, they are not assigned to any subscale of the QSU-Brief as they are appeared to be uncertain by loading on both factors (Cox et al., 2001). Further studies confirmed these favourable psychometric properties (Cappelleri et al., 2007; Cepeda-Benito and Reig-Ferrer, 2004). Since then the 10-item QSU-Brief has been used in a wide variety of studies (Attwood et al., 2008; Bradley et al., 2008; LaRowe et al., 2007).

The decision to develop the Malay version of MNWS and QSU-Brief was based on the fact that there was only one scale for the assessment of nicotine withdrawal symptoms in Malay (the 28-item of the Wisconsin Smoking Withdrawal Scale that done by Awaisu et al in 2010) for use in clinical

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research and routine clinical practice in Malaysia or other Malay speaking population. Another one is to aid in the measurement of these symptoms which will help to understand why some interventions may be more useful in quit smoking than others. In addition, MNWS (as mentioned above) is considered as the briefest scale among the self-report measures of nicotine withdrawal symptoms currently available. For choosing the QSU-Brief, there was no translated scale to evaluate craving to smoke in Malay language for research and clinical practice. We therefore subjected MNWS and QSU-Brief for translation and validation process for future use by clinicians and researchers.

Methodology

This part explains the methodology used for the validation of MNWS and QSU-Brief including design, participants, sample size, translation and statistical analysis used.

Study design and setting

A cross-sectional study design was adopted for the conduct of the study. This study was conducted at the Quit Smoking Clinic of Penang General Hospital, at Penang State, Malaysia. The Penang General Hospital is the largest public tertiary hospital in the state of Penang.

Participants

The participants of the study were smokers who attend the Quit Smoking Clinic in Penang General Hospital. A convenience sampling method was used to collect the study participants. To be included in the study, participants need to be: Adult smoker (male or female) aged more than 18 years old;

able to read, understand and complete the Malay language scales independently.

Subject was excluded if he/she had a past or present history of mental illness; use concomitant medication of antidepressant, antianxiety, or sedatives; alcohol or drug abuse or Subject who in the researchers' opinion will be unlikely to commit to the study. The data collection was done from September 1st 2011 to January 31st 2012.

Sample size

In general, it is highly recommended to use at least 10 subjects for each item of a questionnaire or an instrument scale for the validity evaluation (Nunnally and Bernstein, 1994; Hair et al., 1998; Streiner and Norman, 2003). However, a target sample size of 100 patients was estimated to give good precision to the reliability and validity of the study (Peat et al., 2002). Others suggest that five subjects for each item are adequate in most cases (Tabachnick and Fidell, 2007).

In this study, it was decided to depend on the recommendation of 10 subjects for each item. The QSU-Brief consisted of 10 items and it was estimated that 100 smokers were needed for the purpose of validation. Furthermore, the MNWS consisted of nine items and it was estimated that 90 smokers were needed for the purpose of validation. Additional 30% as drop out was considered to be necessary for the study to overcome the erroneous results and to increase the reliability of the conclusion. A convenience sample of (total = 133) smokers who attend Quit Smoking Clinic was identified from September, 2011 to the end of January, 2012. In addition,

approximately more than a half of the collected sample ($n = 75$) was randomly selected and agreed to a one month reliability test-retest analysis.

Instrument

A structured questionnaire (Appendix __) was used for the collection of data that needed for the validation study and it consists of four sections: (1) participants' socio-demographic information, patient's smoking status history, and Carbon monoxide (CO) concentration value; (2) Malay version of the Fagerstrom Test for Nicotine Dependence (FTND-M); (3) Malay version of 10-item QSU-Brief (Anne et al., 2011); (4) and Malay version of 9-item MNWS.

An exploratory statement (Appendix __) was included an information sheet describing the purpose of the study, the estimated time needed to complete it and with an attached consent form. A socio-demographic information section included subject's age, gender, race, marital status and education level. The smoking related information involved: number of cigarettes smoked per day, age when starting smoking, duration of smoking and CO level value which measured by the Smokerlyzer MicroCO meter which made by Micro Medical Limited company. This device measures the concentration of CO on the breath. It has been consider the subject as smoker when the CO level more than 6 part per million (ppm). Typical values for expired CO in smokers, together with the alarm light status, are given in Table 3. 2.

Table 3. 2 Typical values for expired CO in smoker, together with the alarm light status**CO (ppm)****Cigarette consumption****Indicator****0 – 6**

Non smoker

Green

7 – 10

Light smoker

Yellow

11 – 20

Smoker

Orange

Above 20

Heavy smoker

Red

In addition, it includes a single item to assess participants' confidence in quit smoking. Furthermore, the subject was asked if he had previous quit smoking attempts. The second section of questionnaire contains 6-item of Malay version of FTND-M (Anne et al., 2011) of the original Fagerstrom Test

for Nicotine Dependence (FTND) (Heatherton et al., 1991) which is a 6-item scale assessing smoking habit and dependence. FTND-M had moderate internal consistency (Cronbach's alpha of 0.67) and its total score correlates significantly with the exhaled CO level (Spearman's $r = 0.46$, $P < 0.01$). The scoring system of FTND-M consists of five score ranges as the following: (0-2 points: very low addiction), (3-4 points: low addiction), (5 points: medium addiction), (6-7 points: high addiction), and (8-10 points: very high addiction).

Third section includes the translated MNWS which involves 9 items to assess urge to smoke, depressed mood, irritability, anxiety, poor concentration, restlessness, increased appetite and difficulty going to sleep and difficulty to stay asleep using a 5-point Likert scale. Scores range from 0 (not at all) to 4 (extreme) (Hughes and Hatsukami, 1986; Jorenby et al., 1996).

The last part represents the translated QSU-Brief which consists of 10 items that captures several different aspects of craving, ranging from positive expectations about the effects of smoking to more general, overwhelming urges to smoke. Individuals are instructed to respond to statements using a 100-point scale ranging from strongly disagree to strongly agree. It can be completed in less than 2 min (Cox et al., 2001). Higher scores indicated greater craving. This questionnaire was developed to be self-administered and refers to the 24-hr period that immediately precedes the administration of the scale. It was developed and was proofed to have acceptable psychometric properties, retains the two dimensions identified in the original QSU (Cox et al., 2001; Cappelleri et al., 2007).

Linguistic validation process

In order to develop any patient-reported outcomes measures such as MNWS and QSU-Brief for cross cultural comparisons, it requires achieving “conceptual equivalence” between the original instrument and the target translation instrument (Patient-Reported Outcomes and Quality of Life Database (PROQOLID); Herdman et al., 1997; Wild et al., 2005). In the current study, the conceptual equivalence occurs when the source language (English) of the MNWS and QSU-brief are not different from the translated versions (Malay) in meaning and content of the context (Herdman et al., 1997). This is achieved through a procedure called linguistic validation and cultural adaptation (Wild et al., 2005). This process include two essential and complementary steps: translation step to achieve linguistic validity of the questionnaire in the desired language and a psychometric evaluation. After taking permission from the two developers’ scales to translate them into Malay language (personal communications), all parts of the data collection form were translated altogether according to standard guidelines (Guillemin et al., 1993; Wild et al., 2005) as follows (Figure 3. 1):

A forward translation (one-way translation) of the original questionnaire or scale was carried out by translation from English to the target language (Malay) to create a version that was semantically and conceptually as close as possible to the original scale. The translation was done by two qualified independent linguistic translators who are lecturers in the School of Language, Literacies and Translation, Universiti Sains Malaysia. They are both native Malaysian speakers and proficient in English. Each translator formed a forward translation of the original questionnaire into the target

(Malay) language without any mutual consultation. This process generated two translated Malay versions that contain words and sentences that cover both the medical and usual Malay speaking language with its culture nuance. Two of the researchers, who are Malaysians and they spoke English fluently, reviewed the two primary versions and compared them with the original regarding ambiguities and discrepancies of words, sentences and meanings. Thereafter, they reconciled by merging the two forward translations into a single preliminary-initial translated version.

Blind back-translation of the first reconciled translated Malay version done by another third professional translator who are native Malay speakers and proficient in English. For this step, the third translator was completely blind to the original version of the instruments. This will allows for clarification of words and sentences used in the translations. Subsequently, back translation review was done by comparison of the back-translated versions of the two instruments with the original to highlight and investigate discrepancies between the original and the reconciled translation, which is then reviewed in the process of resolving the issues. Inconsistencies were resolved in a consensus meeting and a pre-final Malay version, ready for a pilot testing, was generated.

The pre-final version of the instruments were distributed to 20 Malaysian smokers who were native speakers of Malay by a counsellor who was fluent in both Malay and English involved in the respondent testing or cognitive debriefing. The participants completed the questionnaire and commented on the questions. Then, A review of feedback from the participants of the respondent testing and they were discussed by the researchers.

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The final form of the Malaysian questionnaire was accomplished and prepared for the reliability and validity study. The questionnaire takes approximately 10 minutes to complete.

Figure 3. 1 Schematic presentation of linguistic validation procedures

Procedure

Data collection forms were administered to the participants after 6 to 7 days of their quit smoking date. A counsellor in Stop Smoking Clinic was available for those patients who make face-to-face interview to overcome non-response by those who could not read the questionnaire. The counsellor read the items for them and collects their answers. After they complete answering the questionnaire the counsellor assess their Carbon monoxide levels by making participants take a deep breath and hold it for 20 s before exhaling in to a carbon monoxide monitor, the MicroCo meter. All the interviews were conducted during their usual visiting to Stop Smoking Clinic. Finally, the patients were thanked for their participation in the study after the interviews finished.

A total of 133 out of 145 patients were suitable to be involved in the statistical analysis of both MNWS and QSU-Brief validation (about 92%). As mentioned earlier, only 75 participants out of the 133 were randomly selected participants who accepted to complete the test-retest reliability after one month.

Statistical analysis

General Statistic

All statistical analyses were conducted by using SPSS version 18.0 (SPSS Inc., Chicago, IL). The significance level was set at P value less than 0.05. Descriptive statistics were used to describe demographic and smoking-related characteristics of the subjects for the QSU-Brief and MNWS sample separately. Descriptive analyses were performed for quantitative (continuous) variables by calculating mean \pm standard deviation (SD), while percentages and frequencies were determined for qualitative (categorical) variables. The chi square (χ^2) test employed for categorical variables and Kruskal-Wallis test for continuous variables were performed to evaluate the differences between the groups.

Psychometric statistics

Psychometric testing of Malay version of the MNWS and the QSU-Brief involved determining initial estimates of reliability (internal consistency and homogeneity) and convergent validity. For reliability assessment, the internal consistency was assessed using Cronbach's alpha. Test-retest reliability was done by using Spearman's Rank Correlation Coefficient test. As a common rule, the criterion for accepting Cronbach's alpha is a score above 0.7 (Robert, 2011; George and Mallery, 2003).

In order to assess the validity of the scales, Factor analysis and convergent validity was employed to validate the psychometric properties of the scales. To determine the factor structure of the translated scales, an exploratory principle component analysis with orthogonal rotation was conducted on the

items of both scales. To verify that the data set is suitable for factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) (Kaiser, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1954) were applied. Criteria used to select the number of factors and the number of items within a factor for the principle component analysis (PCA) included: eigenvalue greater than 1; item-factor loading of at least 0.4 (Pallant, 2011). Convergent validity was used to support the validation of the scales. Convergent validity is established when there is hypothetical correlation between the results of desired measure and other variables (McIntire and Miller, 2006; Portney and Watkins, 1993).

In MNWS and QSU-Brief, the validity was assessed through the association of total score of each scale with several variables using Spearman Rank Correlation Coefficient test. It has been assuming that there is a positive correlation between CO concentration value and total score for both scales. Similarly, high FTND total score (smoker with high nicotine dependence) was assumed to have an association with the total score for the scales (having higher withdrawal symptoms and craving to smoking). Consequently, all participants filled out the Malay version of FTND (Anne et al., 2011), which is a 6-item measure assessing smoking habit and dependence. Depending on preliminary results, there was a positive correlation between number of cigarettes smoked per day with the total score of MNWS (Littel et al., 2011). Thus, it was theorized that there is a relationship between this variable and both scales.

Tobacco smoking is currently progressively recognized as a chronic disease characterized by the frequent cycle of relapses and remissions (Fiore et al., <https://assignbuster.com/the-minnesota-nicotine-withdrawal-scale-psychology-essay/>

2008; Fiore M. C. et al., 2000). It has been thought that nicotine is responsible for tobacco dependence (Henningfield et al., 1985). The presence of unsuccessful quit attempts suggests that these individuals may be unable to cope with their craving and nicotine withdrawal symptoms (Abrams et al., 1987; John et al., 2004; Shiffman, 1984; White et al., 2006). Thus, it was hypothesized that a positive relationship would be present between past-year quit attempts and the MNWS and QSU-Brief.

Furthermore, the presence of many quit attempts also proposes that the judgment of smoker on his or her capability to maintain abstinence of smoking is lacking, thus suggesting low perceived self-efficacy. Perceived self-efficacy is defined as “ people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986). Thus it was expected that an inverse correlation between a smoker’s perceived self-efficacy and the two scales would be found.

In addition, it was hypothesized that the total score of FTND (by using the validated Malay version) and CO-level have a positive correlation with total score of both scales (Araujo et al., 2006; Littel et al., 2011). Correlations were interpreted using the following criteria: 0 - 0.25 = little or no correlation, 0.25 - 0.5 = fair correlation, 0.5 - 0.75 = moderate to good correlation and greater than 0.75 = very good to excellent correlation (Cohen, 1988). Spearman correlation was selected because data of the scales and few other variables displayed a non-normal distribution.

Ethical approval

This study was conducted after it was approved by the Institute of Public Health (IPH), the National Institutes of Health (NIH) and the Medical Research and Ethics Committee (MREC) of the Ministry of Health, Malaysia (Appendix _ and Appendix _). The study protocol, informed consent and other relevant documents were reviewed and approved by the ethical committee of this institution. Before starting the interviews, a written consent form was provided to all of the participants. All participants were assured that their personal information would be kept confidential (Appendix _).

Results

This section provides an account of the results obtained in the translation and validation of the MNWS and QSU-Brief of the study and the analytical strategies applied to arrive at the results. It further provides detailed interpretations of the findings obtained. The results were presented in separate sections of this chapter were the MNWS validation was presented first after explain the smoking and socio-demographic characteristics for the both in the following section.

Smoking and socio-demographic characteristics for MNWS and QSU-Brief

The final analysis for MNWS and QSU-Brief involved 133 participants, with 75 patients completing the test-retest portion. The socio-demographic characteristics for the subjects were described in Table 3. 3. The mean age of our population was (47. 7 ± 14. 0) with a majority of male genders (99. 2%) with only one female (0. 8%) of the whole sample size (N = 133). This majority in male gender it reflects smoking patterns among general

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population in Malaysia. The highest proportion of our population were Chinese (39. 1%) followed by Malay (37. 6%) and Indian (23. 3%). Most of the smokers in our cohort finished their secondary high school education (46. 6%). For smoking-related characteristics, the mean for number of cigarettes smoked per day was (14. 92 ± 9. 1). Unfortunately, more than seventy seven percent of our population did not have previous quit attempts.

Table 3. 3 Socio-demographic and smoking-related information for MNWS and QSU-Brief validation's subjects (N = 133)

Minimum - Maximum

Age

47. 7 ± 14. 0

18 - 76

Gender [N (%)]

Male

Female

132 (99. 2%)

1 (0. 8%)

Race [N (%)]

Malay

Chinese

Indian

50 (37.6%)

52 (39.1%)

31 (23.3%)

Educational status [N (%)]

No formal education

Primary

Secondary

Collage/University

4 (3.0%)

59 (44.4%)

62 (46.6%)

8 (6.0%)

Marital status [N (%)]

Single

Married

19 (14.3%)

114 (85.7%)

Age starting smoking

18.43 ± 5.4

8 - 54

Number of cigarettes smoked / day

14.92 ± 9.1

2 - 40

Duration of smoking

29.26 ± 13.2

2 - 60

Previous quit attempts [N (%)]

Yes

No

30 (22.6%)

103 (77.4%)

Data were presented as (Mean ± SD) with minimum to maximum values unless otherwise indicated

Out of 133 smokers, 107 (80.5%) were high nicotine dependence level and for the medium, low, and very low nicotine dependence level were 20 (15.0%), 2 (1.5%) and 4 (3.0%), respectively according to FTND levels (Figure 3.1).

Figure 3. 1 The pattern of smokers according to level of nicotine dependence

Table 3. 4 displays the distribution of demographic and smoking related-information among the four level of nicotine dependence. There were significance differences in number of cigarettes smoked per day ($P < 0. 001$), number of previous quitting attempts ($P = 0. 032$), CO-level ($P < 0. 001$), MNWS total score ($P = 0. 003$) and QSU-Brief ($P < 0. 001$) among these different types of dependence levels. There were no significant differences among age, gender, race, education status, marital status, duration of smoking and chances for quitting.

Table 3. 4 Socio-demographic characteristic of smoker among the four level of nicotine dependence (N= 133).

Very low NDL (n= 107)

Low NDL (n= 20)

Medium NDL (n= 2)

High NDL (n= 4)

P value

Age*

47. 1 \pm 14. 4

48. 0 \pm 13. 5

55. 5 \pm 7. 78

57. 5 \pm 1. 7

0.230

Gender**(N)

Male

Female

106

1

20

0

2

0

4

0

0.971

Race**(N)

Malay

Chinese

Indian

42

38

27

8

10

2

0

1

1

0

3

1

0.321

Marital status** (N)

Single

Married

15

92

3

17

1

1

0

4

0.429

Education status** (N)

No formal education

Primary

Secondary

Collage/University

2

49

50

6

2

7

9

2

0

1

1

0

0

2

2

0

0.805

Number of cigarettes/day*

11.9 ± 5.9

25.5 ± 9.7

25.0 ± 7.1

36. 25 ± 7. 5

a < 0. 001

Duration of smoking*

28. 7 ± 13. 8

29. 5 ± 11. 2

39. 5 ± 6. 3

38. 25 ± 4. 2

0. 188

Number of quitting attempts*

0. 3 ± 0. 7

0. 6 ± 1. 2

1. 50 ± 0. 7

0. 50 ± 1. 0

0. 032

CO-level*

12. 4 ± 4. 4

19. 3 ± 4. 8

18. 500 ± 2. 1

22.500 ± 3.4

a < 0.001

Total score of MNWS*

13.2 ± 4.8

20.5 ± 4.0

22.0 ± 1.4

26.50 ± 2.1

0.003

Total score of QSU-Brief*

463.8 ± 118.3

541.0 ± 71.1

500.0 ± 42.4

567.5 ± 17.1

a < 0.001

Table 3.4 continued...

Chances for quitting ^{**}(N)

Very High

High

Neutral

Low

16

28

60

3

0

5

14

1

0

<