Reliability of a Malay-translated questionnaire for use in a hand-arm vibration syndrome study in Malaysia

Su T A, Hoe V C W

ABSTRACT

<u>Introduction</u>: Validity and reliability of the information relating to hand-transmitted vibration exposure and vibration-related health outcome are very important for case finding in hand-arm vibration syndrome (HAVS) studies. In a local HAVS study among a group of construction workers in Kuala Lumpur, Malaysia, a questionnaire translated into Malay was created based on the Hand-transmitted Vibration Health Surveillance – Initial Questionnaire and Clinical Assessment, from Vibration Injury Network. This study was conducted to determine the reliability of standardised questions in the questionnaire used in the study.

<u>Methods</u>: 15 subjects were selected randomly from the sampling frame of the HAVS study. Test-retest reliability was conducted on all items contained in parts 1–6 of the questionnaire and clinical assessment form, with an interval of 13–14 days between the first and second administration. Kappa coefficient and percentage agreement were calculated for all standardised questions.

<u>Results</u>: The kappa coefficient and percentage agreement for all standardised questions varied from −0.174 to 1.000 and 66.7 to 100.0 percent, respectively. The kappa coefficient for important questions related to current vibratory tool usage, tingling, numbness and hand grip weakness were 0.714, 0.432, −0.077 and −0.120, respectively, while the percentage agreement for current vibratory tool usage, finger colour change, tingling, numbness and hand grip weakness were 85.7 percent, 92.8 percent, 79.5 percent, 85.7 percent and 71.4 percent, respectively. Intra-rater reliability on the extent of vibration exposure was good, with the intra-class correlation coefficient (95 percent confidence interval) ranging from 0.786 (0.334–0.931) to 0.975 (0.923–0.992).

<u>Conclusion</u>: Critical questions on vascular, neurological and musculoskeletal symptoms of HAVS were found to be reliable. The history on the extent of vibration exposure revealed good reliability when explored by the investigator alone. This questionnaire is considered reliable to be used in the study of HAVS among construction workers working in a construction site.

Keywords: hand-arm vibration syndrome, questionnaire reliability, vibration exposure

INTRODUCTION

One of the most important requirements in the research on the hand-arm vibration syndrome (HAVS) is the accurate and reliable collection of information relating to hand-transmitted vibration exposure and vibration-related health outcome among the subjects.[1,2] Although the most accurate method of hand-transmitted vibration exposure data collection is by direct observation, direct measurement of the vibration level and total exposure time for each subject, this method is extremely difficult to carry out and requires a high input of human resources, equipment and cost.[2,3] As a trade-off for high accuracy, most researchers measure the vibration level directly but obtain the exposure duration information from subjects using standardised questionnaires, thus saving significant cost and time of investigation.[4] In addition, the vibration-related health outcome information can only be obtained by questionnaire, clinical examination and administration of some special tests. Hence, the reliability and validity of the information obtained from the questionnaire are of utmost importance in accurate determination of vibration exposure and the diagnosis of HAVS.

In the study on HAVS among a group of construction workers working in a large construction project located in the centre of Kuala Lumpur, capital of Malaysia, a questionnaire with Malay translation was created based on the Hand-transmitted Vibration Health Surveillance – Initial Questionnaire and Clinical Assessment, from an

Personnel Management Unit, Management Services Division, Ministry of Health Malaysia Federal Government Administration Centre, Putrajaya 62590, Malaysia

Su TA, MBBS, MPH
Medical Officer

Occupational and Environmental Health Unit, Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur 50603, Malaysia

Hoe VCW, MBBS, MPH
Occupational Health Physician

Correspondence to:
Dr Anselm Su Ting
Tel: (60) 1 9857 3011
Fax: (60) 3 6250 1864
Email: anselmsuting @yahoo.com

international research group on vibration hazard called Research Network on Detection and Prevention of Injuries due to Occupational Vibration Exposures (Vibration Injury Network).[5] Since the questionnaire was newly designed and modified from a health surveillance questionnaire and clinical assessment format, its validity, sensitivity and specificity cannot be determined due to limitations in the standard diagnosis of HAVS in a local setting. However, the degree of consistency and stability of some of the questions in the questionnaire can be determined through two types of reliability assessments, i.e. the inter-rater reliability and test-retest reliability.[6,7] Since only one investigator interviewed and examined all the study subjects in the study (because of logistic and financial limitations), the inter-rater reliability was not applicable. Hence, only test-retest reliability was performed to assess the reliability of some of the objective questions used in the questionnaire. The main objectives of this study were to determine the reliability of some of the standardised questions in the questionnaire for use in the study of HAVS among construction workers in one of the large construction projects in Malaysia, and to describe in detail the methodology, results and limitations of the test-retest reliability study on standardised questions in the above-mentioned questionnaire.

METHODS

The questionnaire was translated into the Malay language through iterative forward-backward procedures by two translators with similar education, background and language proficiency and printed in both languages. Only standardised questions in the questionnaire were selected for the test-retest reliability assessment. These standardised questions were asked exactly as phrased in the questionnaire form to all study subjects during the study. The reason for standardisation was to avoid internal inconsistency during the interview process especially on the items which are considered important in the diagnosis of HAVS. The list of standardised questions which corresponded to various sections in the questionnaire is shown in Appendix 1. The current study was also considered as a pilot test of the questionnaire to be used in another study, "A cross-sectional study of hand-arm vibration syndrome among a group of construction workers in Kuala Lumpur, Malaysia".

15 subjects were selected randomly from the sampling frame of the HAVS study. Data collection for the test-retest reliability assessment was performed by interviewing the subjects using a similar questionnaire to that used in an actual HAVS study. The interview was conducted twice for each subject with an interval of 13–14 days between the first and second sessions. In the first session, the purpose and conduct of the study was explained to every subject followed by written consent before the start of each interview session. All subjects were interviewed on all items contained in parts 1–6 of the questionnaire and clinical assessment form used in the HAVS study. All standardised questions listed in Appendix 1 were delivered in Malay to all subjects due to language preferences and were phrased exactly as written in the questionnaire. In the second session, questions in parts 2–6 of the questionnaire were asked again in the same manner to the same group of subjects. Part 1 of the questionnaire was not repeated because these variables were considered constant for each individual and should not be subjected to reliability testing. The consent obtained during the first interview session was considered valid throughout the research period and was not obtained during the second session. Unique coding was allocated for identification of each subject during the first and second sessions to avoid confusion and mismanagement of information during the data analysis. The data cleaning and data entry were only performed after the second interview session to reduce the chances of intra-rater non-independent ratings. Reference to answers from the first questionnaire was prohibited during the second interview session.

Data was entered directly into statistical software using the Statistical Package for Social Sciences version 13.0 (SPSS Inc, Chicago, IL, USA). The study variables included all variables listed in Table I in addition to gender, nationality, ethnicity, educational level, weight, height, current job duration, number of vibratory tools used per subject, duration of vibration exposure for each tool and total duration of vibration exposure. Total duration of vibration exposure for each vibratory tool was calculated by multiplying the duration of exposure per day by frequency of exposure, where the total duration of vibration exposure for each subject was computed by adding the vibration exposure duration of all vibratory tools used by each subject.

Test-retest reliability was assessed using the Kappa statistic (κ) because responses to all the standardised questions listed in Appendix 1 were either in nominal or ordinal scale.[8-10] κ is a measure of "true" agreement, indicating the proportion of agreement beyond that expected by chance, and is defined in the following formula:

$$\kappa = \frac{\text{Observed agreement} - \text{chance agreement}}{1 - \text{chance agreement}}$$

$$\text{or,} \quad \kappa = \frac{P_0 - P_c}{1 - P_c}$$

where κ is the Kappa statistic, P_o is the proportion of observed agreements and P_c is the proportion of agreements expected by chance.[9] Prevalence and bias adjusted Kappa (PABAK)[9] was calculated for critical items related to the

Table I. Basic parameters for study subjects.

Parameters	Value
Age (years)	
Mean (SD)	28.3 (4.2)
Range	22.0–34.2
Height (cm)	
Mean (SD)	164.3 (6.8)
Range	154.0–176.0
Weight (kg)	
Mean (SD)	55.4 (6.7)
Range	40.0–68.0
Education level (%)	
Primary	35.7
Secondary	50.0
No formal education	14.3
Ever used a vibratory tool? (%)	
Yes	71.4
No	28.6
Current job duration (months)	
Median	22.0
Range	7.0–48.0

Table II. Kappa value interpretation based on Landis and Koch.[10]

κ	Strength of agreement
< 0.00	Poor
0.00–0.20	Slight
0.21–0.40	Fair
0.41–0.60	Moderate
0.60–0.80	Substantial
0.80–1.00	Almost perfect

diagnosis of HAVS to eliminate the paradoxical effect of prevalence and bias on κ value. PABAK is defined in mathematical equation as:

$$PABAK = \kappa \, (1 - PI^2 + BI^2) + PI^2 - BI^2$$

where PI or prevalence index represents the difference between the two agreement cells, and BI or bias index represents the difference between the two disagreement cells in a typical 2 × 2 contingency table. The PI and BI are defined as:

$$PI = a - d, \text{ and}$$
$$BI = b - c$$

where a, b, c and d represent the values of each of the four cells of a 2 × 2 table as shown below:

		Interview 2	
		Yes	No
Interview 1			
Yes		a	b
No		c	d

The κ value was calculated for each standardised question using the Statistical Package for Social Sciences version 13.0. (SPSS Inc, Chicago, IL, USA). The κ value is interpreted according to the scale proposed by Landis and Koch[10] as shown in Table II. The percentage agreement was also calculated for each standardised question in view of the limitation of κ if the constant value was obtained for any of the variables. Percentage agreement was defined as percentage of subjects giving similar scores in both interview sessions compared to the total number of subjects interviewed. Some of the standardised questions

have further exploratory questions to enquire the details of a particular answer to the parent question. These exploratory questions were measured either in a categorical or continuous scale. Due to the small number of subjects and low prevalence of positive answers triggering further exploratory questions, most of these exploratory questions were not answered, and hence κ could not be calculated.

An additional analysis was also conducted for the intra-rater reliability on the extent of vibration exposure. Under Sections 2.2.1 and 2.2.2, the extent of vibration exposure was explored and obtained from the subjects by the usual interview technique without standardised questions. Since the majority of the subjects have hand-transmitted vibration exposure, the degree of agreement on the extent of vibration exposure between the first and second interview sessions can be calculated. The test-retest reliability for continuous data related to the duration of vibration exposure is assessed using intra-class correlation coefficient (ICC).[11-12] Since there was only one rater in this study and the reliability was measured using the mean value from two tests, the calculation of ICC in this study was based on a fixed rater design with the reliability of mean ratings. Thus, the model for ICC calculation is a two-way mixed effects model with average measure reliability using SPSS version 13.0. The value of ICC was interpreted similar to κ, as described above.

RESULTS

One subject was excluded from the analysis due to language problems and misunderstanding of the standardised questions. All the other 14 subjects were male and from Indonesia. Table I shows the basic parameters for the 14 subjects in this study. The distributions for all the quantitative variables were normal except for current job duration, where Shapiro-Wilk test reveals a p-value of 0.046. κ for standardised questions listed in Appendix 1 varied from –0.174 (SE 0.127) to 1.000 (SE 0.267). The test-retest reliability of all standardised questions is summarised in Table III. κ coefficient for some of the questions cannot be calculated because all subjects gave constant responses to the questions in at least one of the interview sessions.

However, the percentage agreement for all questions was fair to good in general, ranging from 66.7% to 100.0%.

The standardised question on current vibratory tool usage had a good reliability ($\kappa = 0.714$), while the question on previous vibratory tool usage revealed fair agreement ($\kappa = 0.317$). However, a combination of both questions gives a perfect reliability ($\kappa = 1.000$) on revealing whether or not a subject has ever been exposed to the use of a vibratory tool. Although κ for questions related to finger colour change cannot be calculated, the percentage agreement for this question is 92.8%. The question on finger tingling had moderate test-retest reliability ($\kappa = 0.432$). Although the standardised question on numbness had poor test-retest reliability ($\kappa = -0.077$), the combination of both questions on the presence of either tingling or numbness symptom still revealed fair agreement ($\kappa = 0.317$) in the answers obtained from the two interview sessions. Besides, the percentage agreement of the question related to numbness was 85.7%. Prevalence and bias-adjusted κ revealed moderate to substantial agreement on items related to numbness, tingling, hand grip weakness and musculoskeletal problems of the upper limbs and neck (Table IV).

The standardised questions related to the vibration hazard perception ($\kappa = 0.847$), previous smoking status ($\kappa = 0.659$) and current smoking status ($\kappa = 1.000$) had substantial to almost perfect reliability. The test-retest reliability of standardised questions related to the presence of hand grip weakness and awareness of vibration hazard protective devices were poor. Intra-rater reliability was calculated for the extent of vibration exposure, smoking duration and daily number of cigarettes smoked. ICC for each of the relevant items is shown in Table V. In general, the intra-rater reliability on the extent of vibration exposure was good, with ICC ranging from 0.786 (95%CI 0.334–0.931) to 0.975 (95%CI 0.923–0.992). The 95% CI of the total duration of vibration exposure for each tool and that for the total of three vibratory tools were consistently narrower than the daily duration of vibration exposure.

DISCUSSION

Only selected questions listed in Appendix 1 were standardised and subject to test-retest reliability testing. The basis for the selection of these questions was that they were straight-forward with objective answers. Furthermore, questions related to finger colour changes, tingling, numbness, and musculoskeletal weakness are critical in the diagnosis of HAVS, and standardisation of the way the questions were phrased is important for research purposes in achieving information consistency. Further exploratory questions related to each of the above symptoms have also

been standardised. However, test-retest reliability for these questions cannot be performed because the prevalence of positive answers to these questions was very low in this study. Questions to explore the extent of vibration exposure cannot be standardised because it required subjective questioning with explanations and a dynamic two-way communication to get accurate frequency, duration and type of vibratory tools used. However, the test-retest reliability of the extent of vibration exposure was still carried out to evaluate the intra-interviewer reliability as this information was important in the evaluation of the HAVS.

Drop-out rate, especially during the second administration, is a common limitation of the test-retest reliability test leading to non-response biases. In the current study, although drop out was not observed due to the assistance rendered by the site safety supervisors, the interviewer observed uncooperativeness, uneasiness and impatience in some subjects during the second interview session because of the time taken off from their work. Despite this observation, chi-square test and paired t-test showed no significant difference for all items except questions related to current smoking status, smoking duration, vibration hazard knowledge and knowledge on vibration prevention method.

It was noticed that the combination of both answers between current ($\kappa = 0.714$) and previous vibratory tool usage ($\kappa = 0.317$) yielded perfect κ agreement ($\kappa = 1.000$), despite marked differences in its original values. The reason for this phenomenon could be the subjects' misunderstanding of the terms, "current" and "previous", in the question related to vibratory tool usage during the first and second interview sessions. What the investigator intended to differentiate was the usage of vibratory tools while the subject was working within the current construction site, as compared to his vibratory tool usage prior to the current construction project, including any other construction site within the same company before the subject began working on the current one. Since the combination of both answers revealed perfect κ agreement, the subjects' response of usage of vibratory tools was considered to be at least reliable. In the evaluation of vibration exposure in the HAVS study, the presence or absence of vibratory tool usage among subjects was of more importance than whether they used the tools in the current or previous construction site.

It is noted that for the majority of the items where the κ value cannot be calculated, the percentage agreement was quite high. The reason the κ value could not be calculated was because the κ statistic calculation expects variability between similar variables on two different occasions,

Table III. Test-retest reliability for standardised questions.

Section	Question	κ (95% CI)	Strength*	% agreement
2.2.1	Have you ever used powered tools that vibrated your hands in your current construction work?	0.714 (0.348–1.000)	Substantial	85.7
2.2.2	Have you ever used any powered tools that vibrated your hands in any of your previous jobs?	0.317 (−0.190–0.824)	Fair	71.4
2.3.1	Do you have a second job currently?	ψ	–	100.0
2.4.1	Have you ever been exposed to chemical agents at the workplace?	§	–	92.8
3.1.1	Have you ever smoked?			
3.1.2	Do you still smoke? Yes (Current smoker)	1.000 (1.000–1.000)	Almost perfect	100.0
	No (Previous smoker)	0.659 (0.247–1.000)	Substantial	85.7
3.1.3	Do you snuff or chew tobacco regularly?	ψ	–	100.0
3.2.1	Do you drink alcohol?	ψ	–	100.0
3.3.1	In your spare time (i.e. outside work), have you ever regularly used a tool or machine that made your hands vibrate for morethan one hour per week?	ψ	–	100.0
4.1.1	Do you suffer from any long-term medical illness?	ψ	–	100.0
4.1.2	Have you ever sustained an injury to your neck, shoulder, arm or hand?	§	–	92.8
4.2.1	Have you ever received surgery in the following areas of your body?	ψ	–	100.0
4.2.2	Have you taken any medication for the past one month?	0.243 (−0.166–0.653)	Fair	71.4
4.2.3	Are you taking any long-term medication?	ψ	–	100.0
5.1.1	Have you ever experienced any colour change in your fingers at any time?	§	–	92.8
5.2.1	Have you ever experienced a tingling (pin and needles) sensation in your fingers?	0.432 (−0.100–0.965)	Moderate	78.5
5.3.1	Do your fingers go numb?	−0.077 (−0.252–0.098)	Poor	85.7
5.4.1	Did/do you suffer from muscle/joint troubles in the upper limbs?	0.300 (−0.242–0.842)	Fair	71.4
5.4.2	Did/do you suffer from muscle/joint troubles in the neck?	0.176 (−0.357–0.710)	Slight	71.4
5.4.4	Do you suffer from weakness in your hand grip?	−0.120 (−0.349–0.109)	Poor	71.4
5.5.1	Do you experience cold fingers?	§	–	92.8
5.5.2	Do you have difficulty in picking up, handling or manipulating small objects (e.g. screws, buttons, small needles, etc)?	ψ	–	100.0
5.5.3	Do you have difficulty in opening tight jars?	ψ	–	100.0
6.1.1	Do you agree that regular use of vibratory tools is hazardous to your health?	0.847 (0.654–1.000)	Almost perfect	88.9
6.1.2	Are you aware of any devices that can protect you from the vibration hazard?	−0.174 (−0.503–0.155)	Poor	66.7
6.2.3	If an anti-vibration device is not provided, what do you do to minimise the vibration effect?	Φ	–	66.7

ψ All subjects responded "no" for the questions on both interview sessions.
§ All subjects responded consistently for at least one of the interview sessions.
Φ The variables in both sessions do not match because subjects did not choose the same answers.
* Based on Landis and Koch[10]

Table IV. Prevalence and bias-adjusted kappa for selected questions.

Section	Question	PABAK	Strength (PABAK)
5.2.1	Have you ever experienced a tingling (pin and needles) sensation in the fingers?	0.57	Moderate
5.3.1	Do your fingers go numb?	0.72	Substantial
5.4.4	Do you suffer from weakness of hand grip?	0.43	Moderate
5.4.2	Did/do you suffer from muscle/joint troubles in the neck?	0.43	Moderate
5.4.1	Did/do you suffer from muscle/joint troubles in the upper limbs?	0.43	Moderate

Table V. Test-retest reliability for extent of vibration exposure and smoking.

Items	ICC (95% CI)
Extent of hand-transmitted vibration exposure	
No. of vibratory tools used	0.917 (0.743–0.974)
Daily vibration exposure to a concrete breaker	0.786 (0.334–0.931)
Total duration of vibration exposure to a concrete breaker	0.942 (0.819–0.981)
Daily vibration exposure to a drill	0.837 (0.493–0.948)
Total duration of vibration exposure to a drill	0.916 (0.737–0.973)
Daily vibration exposure to a grinder	0.964 (0.886–0.988)
Total duration of vibration exposure to a grinder	0.971 (0.910–0.991)
Total duration of vibration exposure to all vibratory tools	0.975 (0.923–0.992)
Smoking duration	0.883 (0.637–0.963)
No. of cigarettes smoked per day	0.970 (0.907–0.990)

otherwise the calculation is invalidated. In such a situation, approximation and calculation of percentage of agreement are more appropriate in the assessment of the test-retest reliability.

Although the κ agreement for question related to finger numbness and hand grip weakness was poor, the percentage agreement was fairly good. This is due to the paradox effect (prevalence effect) in κ statistic.[13,14] This paradox effect could be adjusted and visualised by calculating PABAK, as illustrated in Table IV. Following the adjustment, it was found that questions related to finger numbness, hand grip weakness and tingling had a moderate to substantial agreement, which corresponded to the percentage agreement.

One of the reasons for poorer κ reliability between the question related to numbness and the question related to tingling, is the subjects did not distingaish the difference between "tingling" and "numbness". Although "numbness" is also termed "kebas" in the Indonesian language, it is not commonly used and understood by most Indonesians. Since the questation on tingling sensation was asked first, the majority of subjects also answered "no" to the question on numbness sensation because they did not make a distinction between tingling and numbness. Apart from these two particular terms, all subjects were able to speak and communicate in the Malay language effectively. Since almost all questions in the questionnaire were straightforward and easy to understand without use of technical terms, it was unlikely that any subtle difference between the Malay and Indonesian languages resulted in different interpretations among the participants for the other questions.

The main limitation of this study was its small sample size, resulting in a wide CI for unadjusted κ and requirement for a high κ value to achieve a higher power of study. As the original questionnaire is used mainly for health surveillance, the historical data was not available for sample size estimation in the current study. Since this study shared the same sampling frame with the main study, "A cross sectional study of hand-arm vibration syndrome among a group of construction workers in Kuala Lumpur, Malaysia", which comprised a total of only 240 workers, the increase in sample utilisation in the current test-retest reliability study decreased the sample size and power of the HAVS study. Due to a tight work schedule at the current study site, the management discouraged the repetition of the interview session, which thus posed further restriction on the demand for a bigger sample size. Due to these limitations of the HAVS study as a whole, only 15 subjects were recruited in this study. Hence, a repeated reliability study with a bigger sample size prior to future HAVS research utilising the current questionnaire is strongly urged.

In summary, the majority of the standardised questions have a good test-retest reliability. Critical questions on the vascular, neurological and musculoskeletal symptoms of HAVS were found to be generally reliable from κ statistic and/or percentage agreement calculations. The history on the extent of vibration exposure revealed good reliability when explored by the investigator alone. Thus, this questionnaire is considered reliable to be used in the study of HAVS among construction workers working in a construction site.

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Appendix 1.

Standardised questions for test-retest reliability testing.

Section	Question
2.2.1	Have you ever used powered tools that vibrated your hands in your current construction work? *(Adakah anda pernah menggunakan alat berkuasa yang menggetarkan tangan anda dalam kerja pembinaan ini?)*
2.2.2	Have you ever used any powered tools that vibrated your hands in any of your previous jobs? *(Adakah anda pernah menggunakan alat berkuasa yang menggetarkan tangan anda dalam apa-apa pekerjaan yang pernah anda buat sebelum ini?)*
2.3.1	Do you have a second job currently? *(Adakah anda mempunyai kerja sampingan kini?)*
2.4.1	Have you ever been exposed to chemical agents at the workplace? *(Adakah anda pernah terdedah kepada bahan kimia di tempat kerja?)*
3.1.1	Have you ever smoked? *(Adakah anda pernah merokok?)* If yes, when did you start smoke regularly? *(Jikalau ya, bilakah anda mula merokok secara tetap?)*
3.1.2	Do you still smoke? *(Adakah anda masih merokok?)* If no, when did you give up smoking? *(Jikalau tidak, bilakah anda berhenti merokok?)* If yes, how much do you smoke? *(Jikalau ya, berapa batangkah yang anda merokok dalam sehari?)*
3.1.3	Do you snuff or chew tobacco regularly? *(Adakah anda biasa menyedut atau mengunyah tembakau?)*
3.2.1	Do you drink alcohol? *(Adakah anda minum arak?)*
3.3.1	In your spare time (i.e. outside work), have you ever regularly used a tool or machine that made your hands vibrate for more than one hour per week? *(Pada masa lapang, adakah anda pernah menggunakan apa-apa alat atau mesin secara tetap yang membuatkan tangan anda bergetar melebihi satu jam seminggu?)*

4.1.1   Do you suffer from any long-term medical illness?
(Adakah anda menghidap apa-apa penyakit jangka panjang?)

4.1.2   Have you ever sustained an injury to your neck, shoulder, arm or hand?
(Adakah anda pernah mengalami kecederaan pada tengkuk/leher, bahu, lengan atau tangan?)

4.2.1   Have you ever received surgery in the following areas of your body?
(Adakah anda pernah menjalani pembedahan ke atas bahagian berikut tubuh anda?)

4.2.2   Have you taken any medication for the past one month?
(Adakah anda mengambil apa-apa ubat dalam masa satu bulan yang lepas?)

4.2.3   Are you taking any long-term medication?
(Adakah anda mengambil apa-apa ubat jangka panjang?)

5.1.1   Have you ever experienced any colour change in your fingers at any time?
(Pernahkah anda mengalami apa-apa perubahan warna pada jari-jari anda pada bila-bila masa?)

5.2.1   Have you ever experienced a tingling (pin and needles) sensation in your fingers?
(Pernahkah anda mengalami keadaan di mana jari-jari anda berasa berdenyut-denyut sedikit (menggelenyar) serupa cucukan pin dan jarum?)

5.3.1   Do your fingers go numb?
(Adakah jari-jari anda berasa kebas?)

5.4.1   Did/do you suffer from muscle/joint troubles in the upper limbs?
(Adakah/Pernahkah anda mengalami penyakit otot/sendi pada anggota atas (lengan dan tangan) badan?)

5.4.2   Did/do you suffer from muscle/joint troubles in the neck?
(Adakah/Pernahkah anda mengalami penyakit otot/sendi pada bahagian tengkuk/leher?)

5.4.4   Do you suffer from weakness in your hand grip?
(Adakah anda mengalami kelemahan genggaman tangan?)

        If yes, which hand(s)?
(Jikalau ya, tangan mana?)

5.5.1   Do you experience cold fingers?
(Adakah anda mengalami kesejukan pada jari-jari anda?)

5.5.2   Do you have difficulty in picking up, handling or manipulating small objects (e.g. screws, buttons, small needles, etc)?
(Adakah anda mempunyai kesusahan untuk mengutip, mengguna dan mengendalikan objek yang kecil (cth: skrew, butang, jarum kecil, dsb)?

5.5.3   Do you have difficulty in opening tight jars?
(Adakah anda mempunyai kesusahan untuk membuka penutup bekas kaca yang ketat?)

6.1.1   Do you agree that regular use of vibratory tools is hazardous to your health?
(Adakah anda bersetuju bahawa sering menggunakan alat-alat bergetar boleh membahayakan kesihatan anda?)

6.1.2   Are you aware of any devices that can protect you from the vibration hazard?
(Adakah anda menyedari apa-apa alat yang boleh melindungi anda daripada bahaya getaran?)

6.2.3   If an anti-vibration device is not provided, what do you do to minimise the vibration effect?
(Jikalau alat pelindung getaran tidak dibekalkan, apakah yang anda lakukan untuk mengurangkan kesan daripada getaran?)