Original Article

A Psychometric Properties of the Malay-version Police Stress Questionnaire

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Abstract

Background: **Police Stress Questionnaire (PSQ) was developed to measure police-specific stressors. The present study was the first to have translated the PSQ to Malay. This study aims to test the reliability, construct validity, and component structure of the Malay-version PSQ.**

Method: **A set of survey consisted of the Malay-version PSQ, General Health Questionnaire (GHQ-12), Job Content Questionnaire (JCQ), Global Stress Questionnaire (GSQ) and General Self-rated Health (GSRH) were distributed to 300 traffic police officers in Kuala Lumpur and all traffic police officers in a few districts of Pahang and Negeri Sembilan.**

Results: **The response rate was 65.5% (N = 262). The reported Cronbach's alpha coefficient was 0.93 for Operational PSQ (PSQ-Op) and 0.94 for Organisational PSQ (PSQ-Org). Findings indicated that the PSQ had positive construct validity with the GSRH, GSQ, and GHQ. After excluding four factors related to lifestyles, all police-specific stressors were highly loaded (0.50) in one component.**

Conclusion: **It is confirmed that the Malay-version PSQ, excluding the four factors related to lifestyle, was uni-dimensional, reliable, and a valid questionnaire. This study proffers a potentially better instrument for assessing the stressors among Malaysian police.**

Keywords: *stress questionnaire, police force, reliability, validity, factor analysis*

Introduction

The Police Stress Questionnaire (PSQ) was developed by McCreary and Thompson as an alternative to the general work stress questionnaire, such as Occupational Stress Indicator (OSI), Job Stress Scale (JSS) and A Shorten Stress Evaluation Tool (ASSET), to measure stressors among police officers (1–4). McCreary and Thompson suggested that these general work stress questionnaires failed to incorporate those stressors that were unique or specific to highly stressful occupations such as policing (1).

McCreary and Thompson conducted focus group sessions involving 55 police officers in the United States of America (USA) (1). Based on these sessions, they concluded that stressors in policing can be divided into operational and organisational factors. The Operational Police Stress Questionnaire (PSQ-Op) assesses stressors associated with performing the job of policing. Meanwhile, the Organisational Police Stress Questionnaire (PSQ-Org) assesses stressors associated with the organisation and organisation culture in the work environment. Both scales have good internal consistency reliabilities. The Cronbach's alpha coefficient is 0.93 for PSQ-Op and 0.92 for PSQ-Org. These scales use a seven-point-Likert Scale (1 = no stress at all, 2 = filler, 3 = filler, 4 = moderate stress, 5 = filler, 6 = filler and 7 = a lot of stress) (1).

This PSQ had been increasingly used in previous studies as a tool to measure stressors in policing. Some of these studies were conducted in Canada, the United States of America (USA), and South Africa (1,5–7). However, the studies in the USA and South Africa did not report the internal consistency estimates for the PSQ among the population studies. Till date, studies regarding the use of PSQ in other languages have not been reported. Principle component analysis (PCA) has not been done previously to test if the two scales of

PSQ-Op and PSQ-Org were significantly different between each other.

The constructs validity of the PSQ has been tested by McCreary and Thompson with the OSI, JSS, and ASSET (1–4). Their findings indicated that the PSQ was significantly correlated with these three questionnaires. However, the amount of shared variance was low, suggesting that the PSQ-Op, and PSQ-Org possess excellent discriminant validity with regard to these general stress constructs (1).

The PSQ has never been used in any research in Malaysia. In addition, there are no previous studies dealing with stress among Malaysian police officers, using job-specific questionnaire (8–10). Therefore, the present study took the first step by adapting a police-specific questionnaire to measure stress among Malaysian police officers. Because the main language for Malaysians is Malay, translation of the original English version of PSQ to Malay is needed to make it meaningful to Malaysian culture and to get equivalent or comparable results. It cannot be assumed that a test designed in the USA, in American English, based on the American specific culture conceptions of psychological processes and constructs can be directly applied to other cultures.

Therefore, the present study aimed to test the reliability, construct validity, and component structure of the Malay-version PSQ among 328 Malaysian police officers.

Materials and Methods

Pilot study

The English version of PSQ was translated and back-translated by two Malay native speakers who were highly fluent in English. Their English language skills were recognised by two English native speakers. In the present study, the Malay-version PSQ was distributed to 14 Malaysian traffic police officers in a pre-test. These police officers were working at the Royal Malaysian Police of Seremban. The objective of this pre-test was to ensure that the wording and clarity is apparent to all study participants.

Study design and study sample

The Malay-version PSQ were distributed to all traffic police officers in Kuala Lumpur, and a few semi-rural districts in Pahang and Negeri Sembilan in a cross sectional study. Non-probabilistic purposive sampling was employed in this study. The study participants were traffic police officers working at the Traffic Branch, Department of Internal Security and Public Order, the Royal Malaysian Police. Additional inclusion and exclusion criteria were not used. With regards to sample size, Comrey and Lee (11) proposed a few categories of sample size specific for conducting factorial analysis: (a) 100 = poor; (b) 200 = fair; (c) 300 = good; (d) 500 = very good; (e) 1000 or more = excellent. Therefore, on the basis of these categories, this study aimed to recruit a minimum of 300 study participants.

Questionnaire

A set of questionnaire consisted of the Malay-version PSQ, 12 item-General Health Questionnaire (GHQ-12), Job Content Questionnaire (JCQ), a single-item Global Stress Questionnaire, a single-item General Self Rated Health questionnaire (GSRH), and questions on socio-demographical characteristics were distributed to each potential study participant (12–15). Further explanation for each standardised questionnaire is mentioned below.

The General Health Questionnaire (GHQ-12)

The GHQ-12 was designed to be able to detect minor psychiatric disorders among respondents (12). The GHQ-12 has been used in previous studies to assess mental health status of police officers (16–18). It has two major categories of phenomena: (a) at a risk of having psychological and mental disorders (cases); and (b) not at a risk of having psychological and mental disorders (non-cases) (19). The GHQ-12 has good internal consistency reliability with Cronbach's alpha, ranging from 0.82 to 0.90, depending on the length of the version of the GHQ used (12). The Malay-version GHQ-12 was tested for its internal consistently by Quek et al. among urological patients (20). Their findings showed that the Cronbach's alpha value was acceptable (0.79).

The Job Content Questionnaire (JCQ)

The JCQ was selected for this study to measure generic work stressors associated with the traffic police officers' job. It is widely used and has acceptable internal consistency reliability (Cronbach's alpha coefficient is 0.73 for women and 0.74 for men) (13). The reliability of the Malay -version JCQ was tested by Hadi, et al. among teachers (21). Results of their studies indicated that the Cronbach's alpha coefficients were acceptable: decision latitude (0.75); psychological job demand (0.50); and social support (0.84) (22–24).

A single-item Global Stress Questionnaire (GSQ)

This single-item global stress questionnaire has acceptable test-retest reliability (kappa and intra-class correlations between 0.66 and 0.74). It has a moderate validity in correlation with three long and comprehensive questionnaires, i.e. Hassles and Uplifts Scale (r = 0.50), Perceived Stress Scale (r = 0.36) and Health Initiative Life Events (r = 0.38) (14). This item was translated to Malay using back-translating procedure. No studies among police officers were found to be using this questionnaire.

A single-item General Self Rated Health Questionnaire (GSRH)

The GSRH was incorporated in the survey to measure the perceived global health of the respondents. The GSRH has good test-retest reliability (r = 0.74, $p < 0.001$) and adequate validity, as established via correlation with scores in the General Health Survey (SF-12V) (r = 0.56, $p < 0.001$) (15). This item was also translated using back-translating procedure. No studies among police officers were found to be using this questionnaire.

Procedure of data collection

A briefing on the study rationale and study method was given by the investigator to the Head of District Traffic Branch in each district. Folders were given to the Head of District Traffic Branche to be distributed to all the traffic police officers in the study areas. Each folder contained a survey form, a consent letter form, an information sheet, an invitation letter, an envelope and a security tape. Each participant was asked to put the completed form and consent letter in the envelope provided and seal it with the security tape. A locked box was placed near the reception counter at each police station. The investigator was the only person who had access to these boxes. The respondents were given one month to complete the surveys. The investigator visited the police stations every week for one month to collect the returned surveys from the locked box in each district. Contact details of the investigator were available in the information sheets. The participants were allowed to contact the investigator to withdraw consent within four weeks of the completion of the survey. This study was approved by the Faculty Human Ethics Committee, La Trobe University Australia (reference number: FHEC09/68). Permission to conduct research was granted by the Department of Prime Minister Malaysia and the Royal Malaysian Police.

Data analysis

Data analysis in the present study was performed using software developed by IBM, the IBM SPSS (Statistical Package for the Social Sciences) version 20.0. Reliability tests were run to test the internal consistency of the scales in the PSQ using the Cronbach's alpha value as an indicator. The internal consistency refers to how closely related a set of items are as a group, which indicates the consistency of the scales in reflecting the construct they are measuring. The desirable Cronbach's alpha was 0.70 and above, which is noted by Kline (25) as an acceptable value for reliable scales.

Correlation statistical analyses were conducted to test the construct validity between the items in PSQ and in other selected questionnaires including the GHQ, JCQ, GSQ, and GSRH. Because the scores in these questionnaires were continuous data, Pearson correlations tests were chosen to analyse the bivariate correlations between the measures. The *P* value was deemed significant if it was less than 0.05 (two sided).

Then, PCA was run to explore the interrelationship among items in the PSQ and identify patterns of the items by highlighting their similarities and differences. In the PCA, a set of observations of possibly correlated items is converted into a set of values of linearly uncorrelated items (26).

Results

A total of 328 study participants were recruited for this study and 262 (79.89%) of them completed the PSQ. Therefore, data from only 262 study participants were included for exploratory factor analysis. The study participants were mostly Malay (90.80%), male (87%), married (84.7%), and had completed at least upper secondary school education (88.3%). Only 5.4% of the study participants achieved tertiary education level. More than half of the study participants (61.1%) lived in Kuala Lumpur and the remaining lived in semi-rural areas of Pahang and Negeri Sembilan. The majority of the participants in this study were Corporal or Lance Corporal (64.4%), followed by Sergeants or Major Sergeants (20.7%), Constables or Assistant Constables (10%), Inspectors or Chief Inspectors (3.4%), Sub-inspectors (0.8%), and Superintendents and higher ranks (0.8%) (Table 1).

Reliability test

The reliability test of the PSQ was analysed using Chronbach's alpha. The Cronbach Alpha coefficient is 0.93 for PSQ-Op and 0.94 for PSQ-Org. Both scales have good internal consistency reliabilities. These results indicated that the Malay-version of both PSQ-Op and PSQ-Org are reliable instruments.

Table 1: Socio-demographical background of the 328 Malaysian traffic police officers

Variables	Mean (SD)	f (%)
Age (years)	38.84 (9.99)	
Sex		284 (86.59)
Male		44 (13.41)
Female		328 (100)
Total		
Education levels		
Lower-secondy		41 (12.80)
Upper-secondary		264 (82.20)
Tertiary		16 (5.00)
Total		321 (100)
Job tenure (years)	12.12 (9.64)	
Study location		
Rural		127 (38.72)
Urban		201 (61.28)
Total		328 (100)
Department		
Fieldwork		160 (57.76)
Administrative		117 (42.24)
Total		277 (100)

Abbreviations: SD = Standard Deviation; f = frequency (s).

Construct validity

The correlation between the Malay-version PSQ and GSQ, GSRH, GHQ, and JCH were measured using Pearson correlation coefficient. Results from the correlation analyses are shown in table 2. Results indicated that the total scores of the PSQ are moderately correlated with the total scores of the GSQ and the GSRH questionnaire and weakly correlated with the total score of the GHQ. There was no significant association between the Malay-version PSQ and the Malay-version JCQ. Our findings indicated that the PSQ has a positive construct validity with the GSRH, GSQ and GHQ.

Exploratory factor analysis

36 items of the PSQ were subjected to PCA (Table 3 and Figure 1). A preceding assessment was run to test the suitability of data for the factor analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was 0.94 and the Bartlett's Test of Sphericity value was significant ($P < 0.001$). These results indicated that the data were appropriate for factor analysis. The number of factors retained were based on a few pieces of information: (a) Kaiser's criterion with the minimum eigenvalues of 1; (b) Screeplot in such a manner that only components above the elbow of the plot were retained; (c) parallel analysis for 100 randomly generated samples; (d) minimum factor loading of 0.3 and (e) meaningful interpretation of factors. PCA revealed the presence of five components with eigenvalues more than 1, explaining 42.96%, 6.33%, 4.71%, 4.05%, and 3.27% of the variance respectively. The screen plot revealed a clear break after the first component. On the basis of the Cattell's scree test, it was decided to retain two components for further analysis (19).

The results of Parallel Analysis further

Table 2: Inter-correlation for the Police Stress Questionnaire and the Global Stress questionnaire, the Global Health questionnaire, and the General Health Questionnaire

Variables	Pearson-correlation (r)			
	Global Stress	GSRH	GHQ	JCQ
PSQ	0.30**	0.31**	0.19**	0.10
Factor 1	0.29**	0.29**	0.18**	0.10
Factor 2	0.35**	0.42**	0.18**	−0.04

Abbreviations: GSRH = General Self-rated Health; GHQ = General Health Questionnaire; JCQ = Job Content Questionnaire; PSQ = Police Stress Questionnaire, **$P < 0.01$.

Table 3: Exploratory Factor Analysis for the Malay version of Police Stress Questionnaire (PSQ)

	Pattern matrix		Structure Matrix		Communalities
	1	2	1	2	
Unequal sharing of work responsibilities	0.773		0.787		0.620
Perceive pressure to volunteer free time	0.820		0.795		0.634
Constant changes in policy/legislation	0.884		0.810		0.677
Feeling like you are always on the job	0.792		0.779		0.607
Inconsistent leadership style of the superior	0.866		0.794		0.650
Leaders over-emphasized the negatives (e.g. supervisor evaluations, public complaints)	0.839		0.779		0.621
The feeling that different rules apply to different people (e.g. favouritism)	0.756		0.747		0.558
Lack of resources	0.785		0.749		0.567
Work related activities on days off (e.g. court and community events)	0.667		0.717		0.524
Overtime demands	0.655		0.714	0.429	0.523
Traumatic events (domestic, death, injury and witness tragic accidents)	0.652		0.702	0.408	0.503
The need to be accountable for doing your job	0.498	0.354	0.660	0.582	0.535
Limitation to your social life	0.654		0.689	0.375	0.479
Occupational related health issues (e.g. back pain, neck pain, joint pain)	0.644		0.683	0.380	0.472
Excessive administrative duties	0.677		0.689	0.336	0.476
Internal investigations	0.595		0.669	0.433	0.467
Feeling like you always have to prove yourself to the organisation	0.524		0.645	0.505	0.607
Fatigue	0.617		0.667	0.392	0.455
Friends /family feel the effects on the stigma associated with your job	0.706		0.688		0.474
Inadequate equipment	0.808		0.711		0.541
Lack of training on new equipment	0.619		0.660	0.372	0.441
If you are sick or injured your co workers seem to look down on you	0.573		0.646	0.422	0.437
Risk of being injured on the job	0.673		0.667		0.446
Working alone at night	0.491		0.621		0.450
Staff shortages	0.808		0.699		0.534
Lack of understanding from family and friends about your work	0.491		0.617	0.500	0.440
Too much computer work	0.509		0.614	0.462	0.418
Dealing with the court system	0.494		0.604	0.466	0.410
Negative comments from the public	0.623		0.631	0.302	0.398
Shift work	0.371	0.409	0.558	0.579	0.444
Upholding a higher image in public	0.382		0.519	0.474	0.340
Paperwork		0.406	0.470	0.536	0.351
Managing your social life outside work		0.654	0.412	0.705	0.507
Eating healthily at work		0.872		0.809	0.670
Making friends outside the job		0.726	0.450	0.779	0.618
Finding time to stay in good physical condition (e.g. exercise)		0.702	0.349	0.715	0.512

supported this decision, which showed only two components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (36 × 262). The two decided components explained a total of 49.29% of the variance, with Component 1 contributing 42.96% and Component 2 contributing 6.33%. Oblimin rotation was performed to better interpret these two components. Following Oblimin rotation the two components showed a moderate inter-correlation (r = 0.46). Inspection of the pattern matrix showed a relatively clear two-factor solution.

The items that load highly on component 2 (0.60 and above) all appear to relate to lifestyle factors. They were of the scale of managing social life outside work, eating healthy at work, making friends outside the job and finding time to stay in good physical condition (e.g. exercise). Items highly loaded in Component 1 contained both organisational and operational police specific stressors. On the basis of the communalities value, all items reported a communality value above 0.30, indicating that these items fit well with each other. A further PCA analysis was re-run using the same method mentioned above for all items after excluding the four items related to lifestyle factors. Results of this analysis showed that all the items with a factor loading of 0.5 were loaded in Component 1. Therefore, these results indicated that the scales in the Malay-version PSQ are uni-dimensional.

To further support the results of the PCA regarding the uni-dimensionality of the scales in the Malay-version PSQ, correlation analyses between the scales in organisational police stressors and in operational police stressors were run via Pearson correlations. Results showed that both scales were strongly correlated (r = 0.80).

Discussion

Previous studies regarding stress in Malaysian police used general questionnaires to measure stress and stressors (8–10). These questionnaires were used to assess work stressors that commonly exist in other occupations. However, according to McCreary and Thompson these general questionnaires fail to recognise stressors that appear to be specific to police work such as dealing with court system, arresting criminals or offenders and witnessing tragic accidents (1). This is the first reported study on stress in Malaysian policing, which used a police-specific stress questionnaire.

The present study tested the reliability of the Malay-version of Police Stress Questionnaire (PSQ). Results indicated that the Cronbach's alpha coefficients were good (0.93 for PSQ-Op and 0.94 for PSQ-Org). These values were found to be similar with the findings in Canada on the

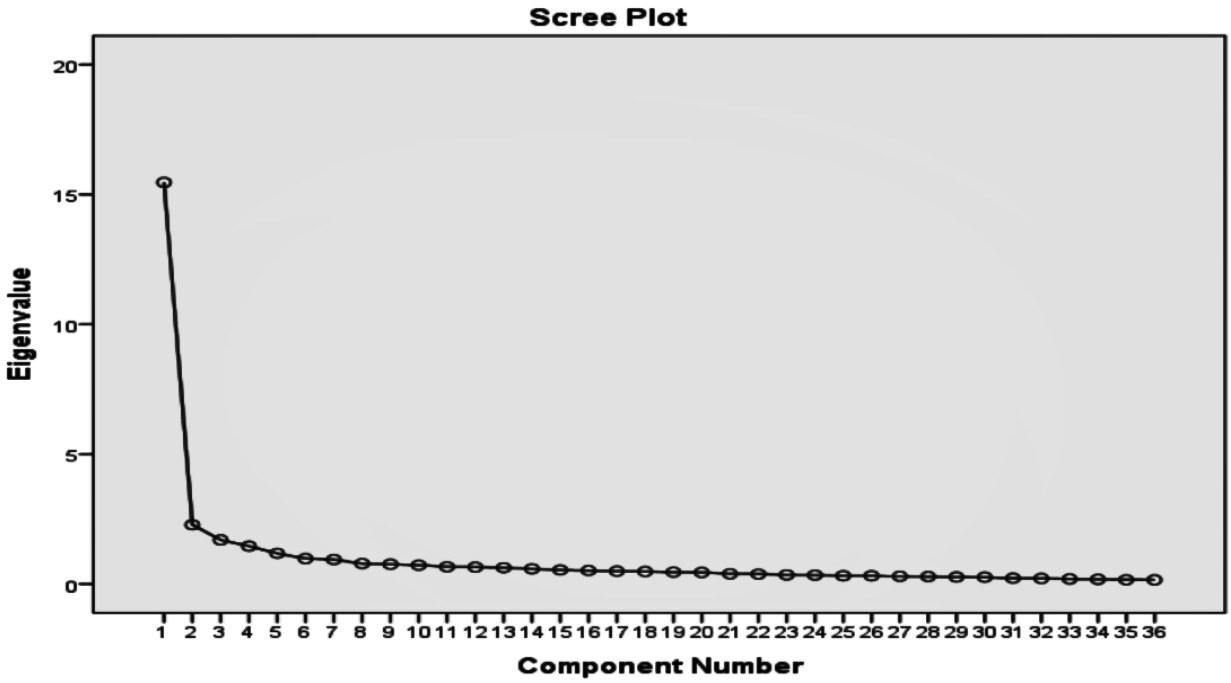

Figure 1: The distribution of components in the Malay-version of PSQ from the exploratory factor analysis.

original English version of the PSQ reported by the inventors of this questionnaire, which was 0.93 for PSQ-Op and 0.92 for PSQ-Org (1). The reliability of the original English version of this questionnaire was also tested by Shane among 461 American police officers in 2010 (5). Although the Cronbach Alpha found in his study were lower than those found in the present study, his results showed reasonable internal consistency reliability ranged between 0.68 and 0.85. In summary, findings of the present study indicated that the Malay-version of PSQ is reliable to be used in future studies among Malaysian police.

An exploratory factor analysis was run to determine the nature of the underlying factor structure of the PSQ. Results of this analysis indicated that the factors were loaded into police specific work stressors and lifestyle factors. The interpretation of the two components was not consistent with the previous claim of McCreary and Thompson, the inventors of the PSQ (1). Although sources of police stress are generally accepted to be divided into organisational and operational police stressors, very limited number of studies have tested this assumption (28,29). Results of this study confirmed that the scales of police stressors in the Malay-version of the PSQ-operational and the PSQ-organisational, excluding the four factors related to lifestyle, were uni-dimensional.

These results, related to factor structure, were in contrary to the findings of Shane (5) in the USA, who found that the organisational stressor scales of the English version PSQ were indexed into six factors. These factors were: 1) co-worker relations; 2) training and resources; 3) leadership and supervision; 4) bureaucracy; 5) internal affairs and accountability; and 6) management and organizational capacity (5). As mentioned earlier in the introduction, the disparity of these results may be because of the cross-cultural factors. A psychosocial test that is written in English cannot be predicted to produce a sound measure of the same construct in Malay or any other language population. Therefore, results of the present study do not support the use of these items of the Malay-version PSQ to assess police stressors as separate scales among Malaysian police.

Moreover, the present study measured the construct validity of the Malay-version PSQ with other Malay-version international stress measures such as the General Health Questionnaire (GHQ-12), the General Self Rated Health (GSRH), and the Global Stress Questionnaire (12–15). Results showed that the PSQ scores infer general stress and health measured by these three Malay-version questionnaires. As expected, the more stress the study participants perceived about their work, the higher their stress level and the lower their health condition would be. The low significant correlations between PSQ and the other three questionnaires could be best explained by the items in the GHQ and GRSH, which only measure the general health of the respondents. These two questionnaires do not specifically measure the psychological state of respondents.

Meanwhile, the moderate significant correlation between PSQ and the Global Stress Questionnaire can be clarified by the comparability of this single item questionnaire with longer questionnaires assessing stress. Littman et al. compared this single item questionnaire with the 53-item of the Hassles and Uplifts Scale, the 4-item of the Perceived Stress Scale, and the 10-item of the Women's Health Initiative Life Events questionnaire (14), (30–32). The results of their studies indicated that this single item stress questionnaire was weak to moderately correlated with these three longer questionnaires measuring stress (r = 0.20–0.49) (30–32).

The construct validity between the Malay-version PSQ and Malay-version JCQ psychological demand was measured in the present study and the results showed that these two questionnaires were not significantly correlated. These findings showed that the scales in the PSQ measure different stressors than those in the JCQ. These findings confirmed that the general questionnaire on stress factors is not capable of identifying unique stressors in policing. Thus, PSQ, a police-specific stress questionnaire is able to give more details on the actual stressors in policing compared to the scales in the JCQ-psychological demand.

Although care was taken to ensure a good study design, some obvious study limitations and delimitations are unavoidable. For example, under-reporting or over-reporting might have occurred, particularly on controversial issues, (e.g. reporting negative things about superiors), even though study participants were assured of confidentiality. A larger sample size and more representative for all Malaysian police officers will increase the precision of the collected data collected.

Conclusion

In summary, the Malay-version PSQ has acceptable reliability and is a valid instrument that enables researchers to assess perceived

stressors among Malay speaking Malaysian police officers. Findings of this study suggested that the PSQ-ops and the PSQ-org is best to be used in a single questionnaire. Items related to lifestyle can be used as a separate instrument to assess the additional stressors in Malaysian policing. In conclusion, this study proffers a potentially better instrument for assessing the stressors and stress among Malaysian police.

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Conflict of Interest

None.

Fund

None.

Authors' Contributions

Conception and design, analysis and interpretation of the data, and drafting of the article: IR
Critical revision of the article for the important intellectual content, final approval of the article, provision of study materials or patient, statistical expertise, obtaining of funding, administrative, technical or logistic support and collection and assembly of data: IR, EZA, SMS, ASNI

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