Using the 12-item General Health Questionnaire (GHQ-12) to Assess the Psychological Health of Malaysian College Students

Nor Sheereen Zulkefly

Dept. of Psychiatry, Faculty of Medicine and Health Sciences

Universiti Putra Malaysia, 43400 UPM Serdang, Malaysia

Tel: 60-3-8947-2545   E-mail: sheereen84@yahoo.com

Rozumah Baharudin (Corresponding author)

Dept. of Human Development and Family Studies

Faculty of Human Ecology, Universiti Putra Malaysia

43400 UPM Serdang, Malaysia

Tel: 60-3-8946-7082   E-mail: rozumah@yahoo.com

Abstract

The primary objective of this study was to assess the psychological health of students at a local university in Malaysia using General Health Questionnaire (GHQ-12). Additionally, the study was carried out to determine the reliability and factor structure of the GHQ-12. Sample comprised 386 students (female=177, male=209) who were selected using multistage cluster sampling. A self-administered questionnaire was used to collect the data required. Results showed that slightly more than half (52.9%) of the respondents scored low on the GHQ-12, and a substantial proportion (47.1%) of them scored high, indicating an unhealthy psychological state. Nevertheless, no differences were observed between the genders. Reliability analysis showed satisfactory results, with a Cronbach's alpha of 0.70. Meanwhile, factor analysis revealed that GHQ-12 was a measure of psychological distress, with a three-factor structure (Psychological Distress, Social and Emotional Dysfunction and Cognitive Disorder), which jointly accounted for 51.9% of the variance. The findings of the study therefore affirm that the GHQ-12 is a good measure for assessing the overall psychological well-being of students in Malaysia.

Keywords: Psychological health, College students, General Health Questionnaire, GHQ-12 Factor structure, Malaysia

1. Introduction

Malaysia, as a nation, aims to be a developed country by the year 2020. The former leader of the country envisioned Malaysia as a developed country not only in terms of its socio-economy, but also in its psychological, spiritual and cultural aspects (Mohamad, 1991). Malaysia aspires to develop its society to have a strong moral, ethics and religious values and orient it towards science and technology, where contribution is highly emphasized. Additionally, Malaysia hopes that the citizens will have a good mental framework which allows them to be psychologically liberated, secured and non-subservient as well as in constant pursuit of excellence. The nation strongly encourages its people to gain their college education. Citizens with higher education are able to create a bright and successful future, and thus support the nation's vision to attain a developed country status. Inadvertently, college students are experiencing high demands and expectations that have been placed upon them (Pfeiffer, 2001). These have created stress on them to perform well in their studies (Nelson, Dell'Oliver, Koch, & Buckler, 2001) and students who are unable to cope with the pressures of studying are often more prone to experience mental, emotional, physical and psychological problems. Some studies (e.g. Sherina, Lekhraj, & Nadarajan, 2003; Zaid, Chan, & Ho, 2007) carried out locally show that emotional problems are one of the major causes for university students to experience psychological casualties such as depression and anxiety. Moreover, it has also been noted that students with psychological problems experience disruptions in their developmental and educational tasks. As a result, students may not be able to perform well or obtain good achievement in their academic pursuit. On the contrary, they may experience stress which is resulted from academic workload and extreme pressure for success, making them even prone to experience mental disturbances (Sherina *et al*., 2003; Zaid *et al*., 2007) or psychiatric illnesses such as antisocial and suicidal behaviour, substance abuse, depression,

anxiety and eating disorders (Dahlin, Joneborg & Runeson, 2005). Therefore, it appears necessary for students to be in their good and balanced psychological health in order to excel in their pursuit and for a successful future by contributing positively towards human capital resources of the country.

Psychological health, as measured in the present study, is defined as a state of being in which a student is balanced both emotionally and intellectually. A psychologically healthy student is capable of thinking clearly, developing socially and learning new skills with ease. However, as students are at a crucial stage of development, they are more prone to experience mental illnesses in the transition from being an adolescent to an adult (Giugliano, 2004). Reports on cases of young adults suffering from mental illness have made the issue a national concern in Malaysia. In 2006, the 3rd National Health and Morbidity Survey, conducted by the Ministry of Health Malaysia, reported that more teenagers between the ages of 16 to 19 years old were found to experience mental health problems compared to other age groups investigated in the same survey (Anon, 2006). Moreover, in another study conducted by the same Ministry, a considerable proportion of adolescents were also reported to suffer from mental illness (Anon, 2006). The Ministry reported that out of 400,227 individuals treated for mental illness in 2008, 14.4% were adolescents. Therefore, research on the psychological health of college students is important if the aim is to identify distress experienced by these students, determine the contributing factors that lead to their distress, and ultimately design a treatment plan that can be used to improve students' quality of life and reduce their risks of experiencing mental illness.

For the purpose of the present study, the GHQ-12 was chosen as a screening tool for psychological problems faced by college students in Malaysia. The accessible population for the present study was the students of Universiti Putra Malaysia, Serdang. The GHQ, which was originally developed by Goldberg, has been widely used in various cultures as a screening tool to determine whether an individual is at risk of developing a psychiatric disorder (Goldberg & Williams, 1988). It is worth mentioning that the GHQ is extensively used by researchers and has been found to be reliable and well-validated (Goldberg et al., 1997). The GHQ was originally designed to be used in adult populations. However, it is noted in the GHQ manual that the scale has been used with adolescents (Goldberg & Williams, 1988). A total of 82 papers reviewed have been found to utilize the GHQ with adolescents (Tait, Hulse & Robertson, 2002). The GHQ comes in four versions, and these include GHQ-60, GHQ-30, GHQ-28 and GHQ-12. The original version of the GHQ contains 60 items and is known for its multi-dimensional aspects. The GHQ-12 is the shortest version and commonly used as a screening tool in a public setting. It is usually regarded as testing only a single dimension of psychological health (Gao et al., 2004). However, some previous research have shown that the GHQ-12 has two (e.g. Picardi, Abeni, & Pasquini, 2001; Werneke, Goldberg, Yalcin, & Ustun, 2000) and three (e.g. Cheung, 2002; Picardi et al., 2001; Werneke et al., 2000) meaningful underlying factors.

The present study was primarily designed to determine the psychological health of a group of undergraduate students studying at Universiti Putra Malaysia. The study also aimed to determine the reliability and factor structure of the GHQ-12. As adolescents are prone to experiencing psychological disturbances during the crucial college education period, it is therefore interesting to explore how the young generation from a developing country, like Malaysia, cope with the academic pressures and societal demands. To date, published information related to Malaysian adolescents' psychological health is still limited. Furthermore, data on the mental health status of Malaysians are mostly accessible from hospitals or teaching institutions, where clinical trials are usually conducted (Deva, 2004).

2. Method

2.1 Sampling and sample characteristics

The present study involved 386 students residing at the different hostels at Universiti Putra Malaysia, Serdang. Given the natural grouping, i.e. the heterogeneous and yet homogeneous elements of the accessible population (15, 149 college students of Universiti Putra Malaysia in specific), the present study utilized the multistage cluster sampling technique to identify and select the respondents. The estimated sample size required for the study was 375 in order to obtain a confidence interval level of .95, at least 80% power for analysis, and minimal error. Thus, the respondents recruited for the present study were considered as sufficient enough for generalization to be made to the theoretical population of young adults in the university setting in Malaysia.

2.2 Procedures

A self-administered questionnaire was delivered in a packet to the students at their residential colleges, and was collected three days later by trained enumerators. Prior to data collection, permission was obtained from the relevant authorities at Universiti Putra Malaysia and the Ministry of Education, Malaysia. Enclosed in the packet for the students was a cover sheet explaining the purpose of the study, the structure and instructions for the

questionnaire, a consent form, and a declaration on the anonymity and confidentiality of the respondent. The questionnaire was also pre-tested on a sample of undergraduates who were randomly selected. However, they were not included as the respondents in the present study. The purpose of the pre-testing was to determine the appropriateness of the questionnaire for the target respondents.

2.3 Measures

The psychological health of the respondents was measured using the 12-item General Health Questionnaire (GHQ-12) (Goldberg, 1972). The questionnaire was translated into the Malay language by a panel of translators, using the repeated 'forward-backward' procedure. The translators are fluent in both English and Malay. The translation procedure was conducted several times until an agreement was reached for the final Malay version. Nonetheless, the researchers finally decided to present the 12-item GHQ in the questionnaire in both English and Malay to the respondents, as both languages are commonly used by most Malaysian students. This was also seen as a way to enhance the students' understanding of each item in the GHQ scale since Malay is the mother tongue of the majority of the respondents in the study.

The GHQ is a screening tool which was used to identify the severity of psychological distress experienced by an individual within the past few weeks. This scale focuses on breaks in normal functioning rather than on life-long traits; therefore, it only covers disorders or patterns of adjustment associated with distress. Each item on the scale has four responses from "better than usual" to "much less than usual." For the purpose of this study, the GHQ scoring method (0-0-1-1) was chosen over the simple Likert scale of 0-1-2-3, as this particular method is believed to help eliminate any biases which might result from the respondents who tend to choose responses 1 and 4 or 2 and 3, respectively (Goldberg & Williams, 1988). The scores were summed up by adding all the items on the scale ranging from 0 to 12. Due to the various thresholds of the GHQ-12, the mean GHQ score for a population of respondents was suggested as a rough indicator for the best cut-off point (Goldberg, Oldehinkel & Ormel, 1998). Therefore, based on the mean GHQ score for this sample, the cut-off point 5/6 was used to determine the respondents' level of psychological well-being. Some examples of the items in the GHQ-12 are: 1) *Been able to concentrate on whatever you are doing*; 2) *Lost much sleep over worry*; 3) *Felt constantly under strain;* and 4) *Been losing self-confidence in yourself.*

2.4 Statistical Analysis

2.4.1 Descriptive Analysis

A descriptive analysis was performed to determine the distributional characteristics of all the variables studied, including the students' level of psychological health. The totals, means, standard deviation, along with the minimum and maximum scores on the GHQ, were calculated. Thus, the independent t-test analysis was also performed to determine if the GHQ scores would vary across the two genders.

2.4.2 Reliability

Meanwhile, the reliability of the measurement used in the present research is dependent on whether its components are consistent with one another and can be reproduced using a similar methodology and yield similar outcomes (Joppe, 2000). Reliability is also a matter of whatever technique is used and applied repeatedly to the same object, it will yield the same result each time (Babbie, 2008). The internal consistency of the 12-item GHQ in the present study was tested using the Cronbach's alpha. A coefficient value between 0.50 and 0.70 is typically reliable (Guilford, 1965). Tung-Xiung (1985) stated that a psychological scale with an alpha value higher than 0.40 shows a good internal consistency.

2.4.3 Factor Analysis

A factor analysis was conducted to identify the underlying variables that would eventually help explain the correlation patterns within the variables of the GHQ-12. In addition, the factor analysis was done to identify a small number of factors in a larger number of manifest variables. Thus, the minimum sample size required is 300 cases in order to determine the reliability of the factor analysis (Field, 2005). The present study had a sample of more than 300 students and this was deemed adequate to conduct factor analysis.

Prior to the analysis, the GHQ was tested using the Kaiser-Meyer-Olkin (KMO) Test and Bartlett's Test of Sphericity to determine its factorability. In particular, the KMO determines the suitability of using factor analysis on data, while the Bartlett's Test of Sphericity is employed to determine the appropriateness of the sample size for conducting the analysis.

Subsequently, the factor structure of the GHQ was obtained by performing a principal component analysis with varimax rotation. The number of factors was determined by the Eigenvalue greater than 1.00. According to

Howitt and Cramer (2005), the factors that contribute to the variable have a higher absolute value of loading. Any values of loading, greater than 0.30, are considered as potentially meaningful. The present study suppressed all the value loadings to less than 0.30 by changing the value to 0.00. The principle component analysis with varimax rotation yielded results on the factor loading values, variances, communalities and variance percentage. The variables were grouped according to the loading size and they were arranged from high to low value.

3. Results

3.1 Characteristics of the Samples

Table 1 presents the respondents' background information. A larger proportion of the respondents were found to be males (54.1%), and their age spanned from 18 to 32 years, with a mean of 20.87 (Sd. = 1.61). Given the fact that the residential colleges included in this study were largely populated by Malay students, the sample comprised more Malay students (82%) than those of the other races (Chinese = 14% and Indians = 4%). The study noted that the students registered for an average of 17 (Sd.=2.01) credit hours of courses per semester, and their cumulative grade point average was moderate (mean=3.10 out of 4.00, Sd.=0.41).

3.2 Respondents' Level of Psychological Health

The descriptive analysis showed that the mean GHQ score for the sample was 4.89 (Sd.=2.53). Using the cut-off point of 6, the study revealed that 203 (52.9%) of the respondents scored 5 and below on the GHQ-12, while 181 (47.1%) others obtained scores 6 and higher (Table 3). These findings seem to indicate that the proportion of the students who are psychologically healthy was just slightly higher than those who were vulnerable to develop and experience psychological problems.

The additional analysis carried out to compare the level of psychological health between genders indicated that the male students (mean=4.97, Sd.=2.50) obtained a higher mean GHQ score than the females (mean=4.79, Sd.=2.56). However, this finding was found to be insignificant (t=-0.70, df=382, $p \leq 0.41$).

3.3 Reliability

The internal consistency was also measured to determine the reliability of the GHQ. For this, the Cronbach's alpha for the whole sample was found to be 0.70, indicating satisfactory results. The values for the male (Cronbach's alpha=0.64) and the female (Cronbach's alpha=0.71) sub-samples were found to be satisfactory as well.

3.4 Factor structure

The results gathered for the factorability of the GHQ using the Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin (KMO) Test are presented in Table 2. The analysis showed that the Bartlett's test of Sphericity was significant at alpha .01 level, while the KMO value was 0.80. Therefore, it could be concluded that all the variables in the analysis had a factorability value.

The principal component analysis with the varimax rotation was performed on the GHQ-12. The results are shown in Table 3. The GHQ-12 was found to contain three underlying factors. These factors were identified as psychological distress, social and emotional dysfunction, and cognitive disorder, which altogether accounted for 51.9% of the variance. The first factor, i.e. psychological distress, was aimed to represent the psychological problems faced by individuals. This factor contained five items which include: 1) losing confidence, 2) feeling unhappy, 3) thinking of self as worthless, 4) feeling unhappy and depressed, and 5) unable to overcome difficulties. The second factor, i.e. the social and emotional dysfunction, is a combination of the variables representing the inability of an individual to perform normal social and emotional functions in life. This factor included five items, namely: 1) enjoy normal activities; 2) able to concentrate; 3) play useful parts in things; 4) able to make decisions; and 5) face up to problems. The third factor, i.e. cognitive disorder, was pooled to represent the inability of an individual to have a normal cognitive judgment regarding things that happen in life. The cognitive disorder factor comprised two items: 1) lost much sleep over worry, and 2) felt constantly under strain.

4. Discussion

The study was designed to assess the psychological health of undergraduate students in a university in Malaysia, using the 12-items General Health Questionnaire (GHQ-12), and to determine the reliability and factor structure of the GHQ-12. The findings gathered in the study indicated that although more than half (52.9%) of the students scored below the cut-off point of 6, a considerable proportion (47.1%) scored above this cut-off point. This seems to suggest that a substantial portion of the students have the potential to develop and experience psychological problems. The pressures faced by Malaysian students to excel in higher education in order to gain

social mobility, in addition to helping the country progress towards a developed nation status by the year 2020, seemed to put a good number of them at risk of psychological distress.

Meanwhile, the information on the internal consistency of the GHQ-12 indicated that the scale is reliable to be used for measuring the psychological health of these Malaysian college students. Any future research on young adults in Malaysia, which is to be conducted under a similar methodology using the GHQ-12, will yield similar results. The factor analysis revealed that the GHQ possessed good structural characteristics and it comprised three factors known as psychological distress, social and emotional dysfunction, and cognitive disorder. These findings are consistent with the results of some previously reported studies (Campbell, Walker & Farrel, 2003; Daradkeh, Ghubash & El-Rufaie, 2001; Doi & Minowa, 2003; Picardi et al., 2001; Salama-Younes, Montazeri, Ismail & Roncin, 2009). The GHQ-12 can be concluded as a multi-dimensional scale that assesses several distinct aspects of distress, rather than merely a general construct (Vanheule & Bogaerts, 2005). Some researchers have identified three factor solutions for the Arabic GHQ-12 and labelled them as general dysphoria, lack of enjoyment, and social dysfunction (Daradkeh, Ghubash, & El-Rufaie, 2001). In another study of male adults in Japan, the factor structure on the GHQ-12 yielded three factors, namely psychological distress, social dysfunction and happiness (Doi & Minowa, 2003). A recent study conducted in France likewise reported three factors which were anxiety/depression, social dysfunction and loss of confidence, as evidenced from their factor structure of the GHQ-12 (Salama-Younes, Montazeri, Ismail & Roncin, 2009). A review on the factor analytic research of the GHQ-12 revealed that the factors of social functioning and loss of confidence are often found in three factor models (Campbell, Walker & Farrell, 2003). Picardi *et al*. (2001) found the GHQ-12 consisted both two (general dysphoria and social dysfunction) and three (social dysfunction, anxiety and self-esteem) factor solutions. Meanwhile, some studies (e.g. Montazeri *et al*., 2003; Werneke *et al*., 2000) found that the GHQ-12 consisted of only two factor loadings. Montazeri *et al*. (2003) found two factor loadings, and one of them is psychological distress. Werneke *et al*. (2000) found that the GHQ-12 consisted of two factors, namely depression and social dysfunction. Based on the findings of past studies, it could therefore be concluded that psychological distress or dysphoria (factor of mixed depression and anxiety) to some studies, social dysfunction and loss of confidence are the components that are consistently tapped by the GHQ-12 (Campbell *et al*., 2003).

As noted in the earlier section, the GHQ-12 is only a screening tool and may not tap into the severity of mental disturbances. Nevertheless, the present findings would be a cause for concern to various parties including parents, educationists, researchers, practitioners and policy makers. Malaysia's vision for a developed nation by the year 2020 could be hampered if the young generations, comprising about 32% or almost one third of the population (*Population by Age Group*, 2008). were psychologically unstable. Therefore, both prevention and intervention strategies need to be formulated to ensure that the psychological state of Malaysia's young population, including those studying in universities, does not decline. However, the findings of this study are very specific. The participants of the study were specifically selected, and thus they could be generalized to other college students with similar characteristics.

5. Conclusion

Using the GHQ-12, the study revealed that Malaysian college students were psychologically healthy in general. However, a considerable proportion of them had been identified as on the verge of facing psychological distress. In conclusion, the GHQ-12 was found to be reliable and the findings from the factor analysis supported the idea that the GHQ-12 contained three factor structures, namely psychological distress, social and emotional dysfunction and cognitive disorder. The findings of the present study also indicated that the GHQ-12 is a useful instrument to be used for assessing the overall psychological well-being of university students.

References

Anon. (2006). *3rd National Health and Morbidity Survey*. Kuala Lumpur: Ministry of Health Malaysia.

Babbie, E. (2008). *The Practice of Social Research*. Belmont, California: Wadsworth Publishing.

Campbell, A., Walker, J., & Farrell, G. (2003). Confirmatory factor analysis of the GHQ-12: can I see that again? *Australian and New Zealand Journal of Psychiatry, 37*, 475–483.

Cheung, Y. B. (2002). A confirmatory factor analysis of the 12-item General Health Questionnaire among older people. *International Journal of Geriatric Psychiatry, 17*, 739–744.

Dahlin, M., Joneborg, N., & Runeson, B. (2005). Stress and depression among medical students: a cross-sectional study. *Med Educ, 39*, 594-604.

Daradkeh, T. K., Ghubash, R., & El-Rufaie, O. E. (2001). Reliability, validity, and factor structure of the Arabic version of the 12-item General Health Questionnaire. *Psychol Rep 89*, 85-94.

Deva, M. P. (2004). Malaysia Mental Health Country Profile. *International Review of Psychiatry, 16*(1-2), 167-176.

Doi, Y., & Minowa, M. (2003). Factor structure of the 12-item General Health Questionnaire in the Japanese general adult population. *Psychiatry Clin Neurosci, 57*, 379-383.

Field, A. (2005). *Research Methods II: Factor Analysis on SPSS.* [Online] Available: http://www.sussex.ac.uk/Users/andyf/teaching/rm2/factor.pdf (10th March 2006).

Gao, F., Luo, N., Thumboo, J., Fones, C., Li, S.-C., & Cheung, Y.-B. (2004). Does the 12-item General Health Questionnaire contain multiple factors and do we need them? *Health and Quality of Life Outcomes, 2*(1), 63.

Giugliano, R. J. (2004). The Systemic Neglect of New York's Young Adults With Mental Illness. *Psychiatr Serv 55*(4), 451-453.

Goldberg, D. (1972). *The detection of psychiatric illness by questionnaire: A technique for the identification and assessment of non-psychotic psychiatric illness*. London, New York: Oxford University Press.

Goldberg, D., Gater, R., Sartorius, N., Ustun, T., Piccinelli, M., Gureje, O., et al. (1997). The validity of two version of the GHQ in the WHO study of mental illness in general health care. *Psychol Med 27*, 191-197.

Goldberg, D., Oldehinkel, T., & Ormel, J. (1998). Why GHQ threshold varies from one place to another. *28*(04), 915-921.

Goldberg, D. P., & Williams, P. (1988). *A user's guide to the General Health Questionnaire*. Windsor UK: NFER-Nelson.

Guilford, J. P. (1965). *Fundamental statistics. Psychology and education.* (4th ed.). New York: McGraw-Hill.

Howitt, D., & Cramer, D. (2005). *Introduction to SPSS in Psychology For SPSS 10,11,12 and 13* (3rd ed.). Essex, England: Pearson Education Limited.

Joppe, M. (2000). The Research Process. [Electronic Version]. [Online] Available: http://www.ryerson.ca/~mjoppe/rp.htm (February 25, 2008).

Mohamad, M. (1991). The Way Forward. *Malaysian Business Council.* [Online] Available: http://www.wawasan2020.com/vision/

Montazeri, A., Harirchi, A., Shariati, M., Garmaroudi, G., Ebadi, M., & Fateh, A. (2003). The 12-item General Health Questionnaire (GHQ-12): translation and validation study of the Iranian version. *Health Qual Life Outcomes, 1*(1), 66.

Nelson, N. G., Dell'Oliver, C., Koch, C., & Buckler, R. (2001). Stress, coping, and success among graduate students in clinical psychology. *Psychol Rep, 88*, 759-767.

Pfeiffer, D. (2001). *Academic and Environmental Stress Among Undergraduate and Graduate College Students: A Literature Review.* University of Wisconsin-Stout.

Picardi, A., Abeni, D., & Pasquini, P. (2001). Assessing psychological distress in patients with skin diseases: reliability, validity, and factor structure of the GHQ-12. *Journal of the European Academy of Dermatology & Venereology, 15*, 410–417.

Population by Age Group. (2008). Kuala Lumpur, Malaysia: Department of Statistics Malaysia.

Salama-Younes, M., Montazeri, A., Ismail, A., & Roncin, C. (2009). Factor structure and internal consistency of the 12-item General Health Questionnaire (GHQ-12) and the Subjective Vitality Scale (VS), and the relationship between them: a study from France. *Health Qual Life Outcomes 7*(1), 22.

Sherina, M. S., Lekhraj, R., & Nadarajan, K. (2003). Prevalence of Emotional Disorders among Medical Students in a Malaysian University. *Asia Pasific Family Medicine, 2*, 213-217.

Tait, R. J., Hulse, G. K., & Robertson, S. I. (2002). A review of the validity of the General Health Questionnaire in adolescent populations. *Australian and New Zealand Journal of Psychiatry, 36*, 550–557.

Tung-Xiung., W. (1985). Reliability and validity analize of attitude and behavior: theory, response and meditate. *Public Opin Acad J (Taiwan)*, 29-53.

Vanheule, S., & Bogaerts, S. (2005). Short Communication: The factorial structure of the GHQ-12. *Stress and Health, 21*, 217–222.

Werneke, U., Goldberg, D. P., Yalcin, I., & Ustun, B. T. (2000). The stability of the factor structure of the General Health Questionnaire. *Psychol Med, 30*, 823-829.

Zaid, Z. A., Chan, S. C., & Ho, J. J. (2007). Emotional Disorders among Medical Students in a Malaysian Private Medical School. *Singapore Med J, 48*(10), 895.

Table 1. Sample Characteristics (N=386)

Variables	n	%
Age		
18-22	326	84.5
23-27	58	15.0
28-32	2	0.5
Mean: 20.87		
Sd: 1.61		
Sex		
Male	209	54.1
Female	177	45.9
Race		
Malay	302	78.2
Chinese	52	13.5
Indian	14	3.6
Others	18	4.7
Semester of Study		
2 and below	124	32.1
3-5	217	56.4
6-8	42	10.9
above 9	2	0.5
Mean	3.36	
Sd	2.04	
Min	1	
Max	11	

The table shows the descriptive statistics of the respondents' background information. The respondents were drawn from the three major races in Malaysia, while the minority came from other ethnic groups.

Table 2. Kaiser-Meyer-Olkin (KMO) Test and Bartlett's Test of Sphericity General Health Questionnaire

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.80
Bartlett's Test of Sphericity	Approx. Chi-Square	1200.41
	Df	66
	Sig.	.000

Note. Df=Degree of Freedom

The table shows that the result of the Bartlett's test of Sphericity was significant at $p \leq .001$, and the Kaiser-Meyer-Olkin value was 0.80.

Table 3. Varimax rotated factor structures on the GHQ-12

GHQ-12 Item	Factor I Psychological Distress	Factor II Social and Emotional Dysfunction	Factor III Cognitive Disorder
Feeling unhappy	.84		
Thinking of self as worthless	.82		
Losing confidence	.78		
Feeling unhappy and depressed	.75		
Could not overcome difficulties	.51		
Capable making decision		.68	
Face up problems		.64	
Able to concentrate		.63	
Enjoy normal activities		.55	
Play useful part in things		.52	
Under strain			.72
Lost much sleep			.71
Eigenvalue	3.39	1.83	1.01
% Variance	28.25	15.24	8.43

The table shows the three factor structures of the GHQ-12 obtained from the principal component analysis varimax rotation.