Gender, family income, and the risk of mental emotional disorders in selected population

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Abstrak

Latar belakang: *Penyakit tidak menular (PTM) adalah penyakit kronik yang sering berhubungan dengan kondisi mental. Tujuan analisis ini adalah untuk mengetahui hubungan faktor-sosial ekonomi dan beberapa faktor yang lain dengan gangguan mental emosional (GME).*

Metode: *Analisis ini menggunakan sebagian data dasar penelitian kohor PTM Badan Penelitian dan Pengembangan Kesehatan pada tahun 2011 pada sebagian penduduk di Kota Bogor (Jawa Barat). Pemilihan daerah dilakukan secara purposif. Dari 2361 subjek, subjek yang dianalisis sebanyak 81,1% (1914) orang. Usia subjek 25-65 tahun. GME diukur dengan Self Reporting Questionnaire (SRQ) yang terdiri 20 butir pertanyaan dan diisi sendiri oleh responden atau dibantu oleh pewawancara. Subjek diindikasikan mengalami GME apabila menjawab minimal 6 pertanyaan dengan jawaban "ya". Analisis statistik yang digunakan adalah regresi Cox dengan waktu yang tetap dengan menggunakan program STATA versi 10.0.*

Hasil: *Proporsi GME pada penelitian ini sebesar 27,9%. Penduduk dengan penghasilan keluarga rendah dibandingkan yang lebih tinggi mempunyai risiko 26% lebih besar menjadi GME [risiko relatif suaian (RRa) = 1.26; 95% interval kepercayaan (IK) = 1.08–1.47]. Berdasarkan jenis kelamin, perempuan mempunyai risiko 43% lebih tinggi (RRa = 1.43; 95% IK = 1.22–1.68).*

Kesimpulan: *Penduduk yang memiliki penghasilan keluarga rendah dibandingkan penghasilan keluarga lebih tinggi mempunyai risiko lebih tinggi mengalami GME.* ***(Health Science Journal of Indonesia 2015;6:23-28).***

Kata kunci: *penghasilan keluarga, gangguan mental emosional, SRQ*

Abstract

Background: Non-communicable diseases (NCDs) is a chronic disease that is often associated with mental conditions. The objective of this analysis was to assess the association between socioeconomic factors and other factors to mental emotional disorders (MED) in a selected population in Bogor, West Java.

Methods: This analysis used part of baseline data of NCD cohort study carried out by the National Institute of Health Research and Development in 2011. There were 1914 subjects out of a total of 2361 subjects. Sample was choosen purposively. The age ranged from 25-65 years. MED was assessed using Self Reporting Questionnaire (SRQ) which consisted of 20 questions, and answered the questions themselves or assisted by an interviewer. MED was indicated if there was at least 6 "yeses". Statistical analysis was by Cox regression with constant time using STATA 10.0 version.

Results: The proportion of MED was 27.9%. Low rather than high family income subjects had 26% more risk to be MED [adjusted relative risk (RRa) = 1.26; 95% confidence interval (CI) = 1.08 – 1.47)]. In terms of gender, females had 43% more risk to be MED (RRa = 1.43; 95% CI = 1.22 - 1.68).

Conclusion: Low rather than high family income subject had more risk to be MED. ***(Health Science Journal of Indonesia 2015;6:23-28).***

Keywords: Family income, mental emotional disorders

Analysis of global burden of disease 2010 indicated, among others, that mental emotional disorders (MED) was one of 15 contributors to the burden of disease in Indonesia.[1] People who had mental disorders were more susceptible to other diseases, including non-communicable diseases (NCD).

Several social factors are related to MED. The important social factors related to MED are economic, education, age, residence, occupation, and marital status.[2,3] The most frequent diseases associated with MED are coronary heart disease (CHD), type 2 diabetes mellitus (DM), and cancer.[4-6] Furthermore, MED can reduce chronic disease patients' adherence to treatment.[7] Some researchers mentioned socio-economic factors play a greater role against mental disorders, whereas chronic diseases will aggravate the mental condition of the individual.[8,9]

In Indonesia, data on MED or psychological distress in population were obtained from the National Basic Health Research (*Riskesdas*) conducted in 2007 and 2013.[10,11] In 2007, the prevalence of MED in Indonesia population was 11.6%, while in 2013 was 6%.[10,11] In Bogor, West Java, the MED prevalence in 2007 was 27.3%, while in 2013 was 14.5%.[10,11] Old age, female, and low education were dominant factors related to MED.[12,13] This analysis aimed to assess the relationship between the level of family income and other factors with MED in Bogor, West Java.

METHODS

This study used part of basic data sets of 2011 NCD cohort study. The cohort study was carried out in a purposively selected village in Bogor, West Java.[14]

Sample

Subjects were permanent residents in the selected village in Bogor. Data collection was conducted in September 2011 in the selected areas, consisted of 39 neighborhoods.

Health cadres distributed invitation letters to all selected household (approximately 2315 households) heads aged 25 to 65 years to come to the Center for Applied Health Technology and Clinical Epidemiology office to join the study. The day before, the cadres reminded candidate subjects to fast the night before the meeting. The number of subjects who came was 2361. The subject's response rate was 51%.

The instrument for assessing the MED was the Self Reporting Questionnaire (SRQ) 20 translated into Bahasa Indonesia developed by World Health Organization (WHO). It consisted of 20 questions.[15]

Subjects were given a questionnaire to be filled by themselves, while subjects unable to read or write, or who had eye refraction problems and do not bring glasses were assisted by trained workers who read the texts. A subject was classified MED when they answered "yes" to at least 6 of the questions "yes" at least 6 out of questions.[16]

In this study, the subjects were divided into several subgroups: age (25-34 years, 35-44 years, 45-54 years, and 55-65 years); education (low = no education to finished junior high school, middle = graduated from senior high school; high = higher than senior high school education).

The level of family income was assessed from the total estimated amount of total household member income divided by the number of household members listed on the family card and still dependent to the family in terms of financial. It was grouped into five categories (lowest quintile was quintile 1 while the highest was quintile 5). This was further grouped into 60% of the bottom quintile (1, 2, and 3 quintile) and the top 40% quintile were divided into quintile 4 and 5.

A subject was categorized as having coronary heart diseasse (CHD) when she/he had ever experienced chest pain followed by at least one of the following symptoms: pain increased with additional activities, and/or in a hurry, and/or in emotional state, chest pain diminished or disappeared by putting a tablet under the tongue, spread to the neck and/or arm and or to arm or back, accompanied by cold sweats and or dizziness or shortness of breath.

Diabetes mellitus (DM) was diagnosed if a subject took anti-DM medicine, or had ever had DM diagnosed by a doctor, nurse, midwife, or had fasting blood glucose $\geq$ 126 mg/dl, or 2 hours postprandial blood sugar $\geq$ 200mg/dl.

Stroke was identified if a subject was diagnosed as stroke by health personnel, and had ever experienced any of the symptoms of stroke based on history by interviewer, and was confirmed by a neurologist with a series of neurological examinations.

A subject was categorized as having hypertension, if the subject met criteria according to the Joint National Commission (JNC) 7 i.e. when the mean systolic blood pressure was >140 mmHg or mean diastolic blood pressure was > 90 mmHg. Examination of

blood pressure was done two times on the right arm with intervals of three minutes.

Upon cleaning the data, the total data that could be analyzed were 2351 subjects. Ten subjects were dropped from analysis because their ages were less than 25 year old.

Fasting subjects were 1942, 1927 had their blood pressure examined completely with a digital sphygmomanometer and 1919 subjects successfully had their blood glucose examined. Of the 1919 subjects, 5 subjects did not have family member income data. Finally, a total final of 1914 subjects could be analyzed.

Relative risk analysis was used in order to identify risk factors related to MED using Cox regression with constant time.[17] Data analysis were processed using STATA 10 statistical program.

RESULTS

Subjects who did the SRQ 20 themselves were 71.8%, while the remaining 28.2% was guided by trained enumerators.

Table 1 showed that 27.9% [534/(534+1380)] subjects experienced MED. Most of the subjects were 35-44 years with middle education, and of low income families. The groups with MED and without MED were similarly distributed with respect to age, marital status, hypertension status, and stroke status.

Furthermore, compared with their respective reference groups, older subjects with lower education, coronary heart disease, and DM were more likely to have a higher risk to be MED.

Table 2, the final model, showed that females had 43% greater risk to be MED. In terms of family income, low family income compared with higher family income had 26% greater risk to be MED.

Table 1. Some socio-demographic, clinical characteristics and the risk of MED

	Mental emotional disorders				Crude relative risk	95% confidence Interval	P
	No (n=1380)		Yes (n= 534)				
	n	%	n	%			
Age (years)							
25-34	359	74.2	125	25.8	Reference		
35-44	384	68.9	173	31.0	1.09	0.86 -1.39	0.448
45-54	398	72.4	152	27.6	0.86	0.66 - 1.12	0.268
55-65	239	74.0	84	26.0	0.79	0.58 - 1.09	0.156
Education							
High	83	84.7	15	15.3	Reference		
Middle	814	73.7	291	26.3	1.56	0.89 - 2.57	0.120
Low	483	67.9	228	32.0	1.68	0.98 – 2.90	0.057
Marital status							
Unmarried	117	76.5	36	23.5	Reference		
Married	1171	72.7	440	27.3	0.94	0.65 - 1.34	0.726
Divorce	92	61.3	58	38.7	1.18	0.75 – 1.86	0.463
Hypertension							
No	952	72.8	355	27.2	Reference		
Yes	428	70.5	179	29.5	0.95	0.77 – 1.16	0.602
Coronary heart disease							
No	1,065	76.7	323	23.3	Reference		
Yes	315	59.9	211	40.1	1.65	1.37 – 1.99	0.000
Diabetes mellitus							
No	1264	72.8	473	27.3	Reference		
Yes	116	65.5	61	34.5	1.23	0.93 – 1.62	0.142
Stroke							
No	1352	72.5	513	27.5	Reference		
Yes	28	57.1	21	42.9	1.26	0.81 – 1.98	0.305

Table 2. Several dominant risk factors and the risk for mental emotional disorders

	Mental emotional disorder				Adjusted relative risk	95% confidence interval	P
	No (n=1380)		Yes (n= 534)				
	n	%	n	%			
Gender							
Male	641	78.7	173	21.3	Reference		
Female	739	67.2	361	32.8	1.43	1.22 - 1.68	0.000
Family income							
High (quintile 4-5)	520	75.4	161	27.6	Reference		
Low (quintile 1-3)	860	69.7	373	30.3	1.26	1.08 - 1.47	0.004

*Adjusted to each other between variables listed on this table and coronary heart disease

DISCUSSION

This study had several limitations, among others, other factors that had an influence on the MED such as life stressors, environmental situations (overcrowding, pollution, noise, and climate change), physical illness, and personality types were not analyzed.

This study used the SRQ-20 to assess MED. This tool revealed MED experienced in the last 30 days and was better in assessing mental disorders neurosis.[15] People who had a history of mental illness in the past or have any kind of disruption that was not neurosis probably could not be detected with this questionnaire.

The age group of subjects was limited to the population aged 25-65 years in order to address more the risk factor of NCD in this age group.

In this study, CHD was determined based on the history of having CHD symptoms, actual CHD diagnosis were confirmed by history of illness, physical examination as well as electrocardiography (ECG).

This study showed that low income subjects had a higher risk to be MED. This finding was in line with the results of studies in other countries, using the SRQ-20 as a tool to assess common mental disorders.[2] Other studies conducted in Accra, Ghana, and Karachi, Pakistan, also showed that the lower socioeconomic groups had higher MED.[3,8] In general, subjects with low economic level were almost always more at risk to MED than the group with better economic conditions.[18,19]

The results of this study revealed that females had more risk to be MED. This finding was similar with a previous study which also noted that women had more risk to be MED.[12,13]

In this study, DM did not have an influence on MED. However, subject who had type 2 DM and especially depression were more likely to experience MED.[4,18]

This prospective cohort study in Bogor puts MED as one risk factor of major non-communicable diseases. The diseases considered when collecting data included CHD, stroke, cancer and chronic obstructive pulmonary disease (COPD), but cancer and COPD were not analyzed in this study because of predicted very small number of cases.

These diseases were only as an intermediate factor of MED.[19] Otherwise poor health behaviors such as smoking, drinking alcohol, poor diet and others causes of non-communicable diseases were usually associated with MED.[9] This study did not assess occupational factors, but based on other studies mentioned, informal workers had a higher risk of non-psychosis mental disorders.[20]

This study showed the results did not differ much with the other results of previous large surveys in Indonesia.[10-14] The tool used to assess MED in this study was used in other developing countries such as in Vietnam, and Afghanistan.[21,22] SRQ-20 was a special tool for adults and could be validated according to the age group targeted in the survey.[23]

Originally, MED used as a risk factor for NCD. If subjects indicated experienced MED, they should consult a doctor to ensure their mental health condition because there is a possibility they might require mental health treatment. Mental health examination could be done in a primary health center or other health facility.[24] If there is no improvement, the doctor should refer to secondary or tertiary health services. A survey in the United Arab Emirates even completed survey of mental health with other measuring devices that were more specific after

the initial screening using SRQ.[25] It was necessary since MED has become a common condition and could occur in all people with mental stress that require adaptation. Another MED diagnostic tool that was more complete than SRQ is the Symptom Check List-90 (SCL-90) or the Mini International Neuropsychiatric Interview (MINI).

In conclusion, females were more at risk to be MED, and in terms of family income, lower rather than higher family income subjects had 26% more risk to be MED.

Acknowledgment

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