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Public awareness, attitudes and understanding toward epilepsy among Singaporean Chinese

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Abstract:

Objectives: To explore the public awareness, attitudes and understanding among Singaporean Chinese toward epilepsy and to compare this with similar surveys in the region. *Methods:* A public survey conducted at a half-day community health fair in a local housing estate. *Results:* Of 214 respondents sampled, 85% had heard or read about epilepsy, 56% had witnessed a seizure, and 36% knew someone with epilepsy. Forty-four percent of the respondents did not know what to do if they witnessed a seizure but 32% would put something into the mouth of someone having a seizure. Whilst only 13% would object to their children associating with epilepsy sufferers, 36% would object to their children marrying an epilepsy sufferer. Thirty-eight percent would not employ an epilepsy sufferer though 66% would do so should seizures not interfere with the applied job. Sixty-eight percent associated an epileptic attack with convulsions but most were unaware of non-convulsive forms of epilepsy. Twenty-two percent did not know what treatment to recommend their friends and relatives should they suffer from epilepsy but 60% would recommend Western medicine. In the similar surveys conducted in Taiwan (1992) and China (1988), more respondents seemed to know someone with epilepsy (70% and 77% respectively). The proportion of Singaporean & Malaysian Chinese who would object to their children marrying an epilepsy sufferer (36% & 43% respectively) is very much lower than that encountered with Chinese from Taiwan (72%) and China (87%). With regards to understanding the cause of epilepsy, symptoms and treatment recommendations, Chinese in our survey seem to respond similarly with those from Taiwan, China and Malaysia.
Conclusion: A high proportion of Singaporean Chinese lack adequate knowledge about epilepsy and its immediate and long-term management. Reluctance with marriage and employment is still evident. There appear to be differences with regard to attitudes toward epilepsy sufferers between Chinese in this region.

Key words: Epilepsy, Singapore, Chinese, awareness

INTRODUCTION

Public awareness, attitudes and understanding toward epilepsy and epilepsy sufferers affect the extent to which the latter are able to integrate into their society. Regional surveys in China[1], Taiwan[2] and Malaysia[3] have demonstrated the existence of such a bias among the Chinese. In Singapore, no survey of public sentiment toward epilepsy and its sufferers has been published. It remains unclear, however, if such bias is uniform among racial groups or if geography, education, or other factors may alter public impression of epilepsy and those afflicted with it. Our survey seeks to explore sentiments of local Chinese towards epilepsy and to compare this with other Chinese in this region.

METHODS

For the purpose of comparison, we adopted the 10 questions used in Henan, China[1] and Taiwan[2] with slight modification to suit the local context. Two other questions (#4 and #8) were added. The survey was conducted over a half-day community health fair organized at a community centre in a local housing estate. Respondents were given the option of filling either the English or Chinese versions of the questionnaire. These were self-filled, with translation for those who only spoke dialects and explanation of terms by a team comprising the authors and a neurology unit trials co-ordinating nurse. No restriction was placed on the number of family members allowed to participate in the study but family members filled their questionnaires simultaneously and apart from each other.

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Age was categorized into 15-29, 30-49, 50-64, >65 years, similar to Chinese, Taiwan and Malaysian studies.[1-3] Education was categorized into 5 categories: no formal education, primary, secondary, polytechnic college, university and above. Occupation was categorized into 6 categories: medical and paramedical professionals; non-medical professionals; students including the compulsory army recruits and police; other workers, retired or unemployed and homemakers.

Statistical analyses were performed with the SPSS statistical package. Answers such as "not familiar with epilepsy", "not sure" were excluded from analyses. Chi-squared tests were utilised for tests of significance ($p<0.05$) between responses and demographic variables in univariate analysis. Multiple logistic regression was performed for responses with more than one demographic variable showing significance to determine the significance of independent variables.

RESULTS

Two hundred and fourteen Singaporean Chinese participated in the survey, 73 (34%) males and 139 (66%) females with an age range spanning 18-75 years (mean 44 years). More than 70% of our respondents were married and about 35% had one or more children. All levels of education were fairly well represented. Results of the survey are summarized in Tables 1-6. Survey questions are divided into 3 categories: awareness of epilepsy, questions # 1-4 with summaries of responses in Tables 1 & 2; attitudes towards epilepsy, questions # 5-8 with summary of responses in Table 3; understanding of epilepsy, questions # 9-12 with summary of responses in Tables 4-6.

Awareness of Epilepsy

Eighty-five percent of respondents had heard or read about epilepsy though only 56% had seen someone having a fit or seizure. Thirty-six percent respondents knew someone with epilepsy. Though younger age, those with no offspring, professional occupation, whether medical or non-medical, and better education seem to favour having heard about epilepsy, multiple regression reveals the highest (and independent of the rest) correlation to be better education (Table 1). Knowing someone with epilepsy and having seen someone having a seizure correlated with respondents from the medical and paramedical profession.

Responses to the additional question (#4) with regards to administering first-aid to epilepsy sufferers are summarized in Table 2. Two out of 5 respondents who were not familiar with fits would not know what to do if they saw someone having a seizure. One respondent suggested pricking the finger of the epilepsy sufferer till it bled.

Attitudes towards Epilepsy

Seventy-three percent of respondents would not object to their children associating with epilepsy sufferers. Having heard of epilepsy seems to correlate with a lower likelihood to object to such association ($p=0.025$). 36% however would object to their children marrying an epilepsy sufferer; 43% would not, whereas 21% remained non-committal. Those respondents who were married , with 3 or more children or who did not know anyone with epilepsy were significantly more likely to register such objection. Thirty-eight percent of respondents would not employ someone with epilepsy though 42% would (20% non-committal). The additional question on whether respondents would employ an epilepsy sufferer should his seizures not interfere with his job elicited a favourable response in 66%. Female sex, older age, lower educational level, married, those with children, retired or unemployed, homemakers, respondents who had not heard of or seen anyone having a seizure individually correlated with a higher reluctance to employ epilepsy sufferers, though multiple regression showed only female sex ($p=0.022$) & those with children ($p=0.004$) to be independently significant.

Understanding of Epilepsy

Tables 4-6 summarizes the responses to questions on cause of epilepsy. Only 4% respondents thought that epilepsy was a form of insanity (question #9). Table 4 summarizes what respondents thought was the cause of epilepsy. Thirty percent of respondents thought that epilepsy was a brain disease, disorder or injury. This was correlated to younger age (15-29), higher education, being single, no children, medical or paramedical profession. Multiple regression found only medical or paramedical profession ($p=0.009$) and higher education ($p=0.022$) to be independently significant. Thirty-two percent respondents thought that epilepsy was hereditary. This correlated with younger age (15-29) and being single; the latter ($p=0.021$) still remained significant independent of age.

Table 1: Responses to questions about familiarity with epilepsy

Parameter	No. of responders	Q1 Yes (%)	Q1 No (%)	Q2 Yes (%)	Q2 No (%)	Q3 Yes (%)	Q3 No (%)
	214	85	15	36	58	56	38
Age (yr)							
15-29	47	91	9	38	62	57	43
30-49	78	90	10	42	53	62	33
50-64	59	75	24	27	59	51	39
>65	18	72	28	22	72	56	33
Sex							
Male	73	86	14	34	58	58	34
Female	139	84	15	36	59	56	39
Marital Status							
Never married	56	93	7	39	61	63	37
Married*	157	82	18	34	58	54	38
No. of offspring							
0	64	94	6	37	63	64	36
1-2	83	89	11	36	53	52	39
≥3	53	72	26	32	62	58	36
Education							
Never went to school	25	68	32	16	80	36	56
Primary	38	63	34	32	50	47	37
Secondary	47	87	13	30	64	60	36
Polytechnic	36	94	6	50	47	64	28
University	67	96	4	42	57	61	39
Occupation							
Professional (medical)	36	97	3	58	39	86	14
Professional (non-medical)	38	92	8	39	58	45	53
Student	11	82	18	9	82	64	27
Other workers	42	86	14	33	64	55	40
Retired, unemployed	26	77	23	19	69	46	46
Homemaker	54	74	24	31	57	48	39

Three questions were asked. Q1. Have you ever heard or read about the disease called "epilepsy", "seizure" or "convulsion"? Q2. Do you know anyone with epilepsy or fits? Q3. Have you seen anyone having a fit or seizure?

*Married: Includes a few divorced, separated persons, widows and widowers

Table 2: Response to question #4: "What would you do if you saw someone having a fit or seizure?"*

Response	%
Not Familiar with fit or seizure	22
Don't know what to do	22
Nothing can be done	6
Put something in the mouth	32
Apply pressure on body points and massage	7
Apply medicated oil	14
Give water	0.5
Pray	2
Lie person on side, maintain airway and prevent harm	12

Multiple answers were allowed.

Table 3. Responses to questions about attitudes toward epilepsy.

Parameter	No. of responders	Q5 Yes (%)	Q5 No (%)	Q6 Yes (%)	Q6 No (%)	Q7 Yes (%)	Q7 No (%)	Q8 Yes (%)	Q8 No (%)
	214	13	73	36	43	42	38	66	19
Age (yr)									
15-29	47	17	68	34	51	62	21	77	13
30-49	78	12	79	37	44	46	37	78	12
50-64	59	12	69	34	34	29	41	46	27
>65	18	17	67	55	28	28	56	44	39
Sex									
Male	73	8	98	36	42	51	25	64	16
Female	139	15	71	36	42	38	44	66	21
Marital Status									
Never married	56	11	75	29	57	61	23	80	11
Married*	157	13	73	38	38	36	43	61	22
No. of offspring									
0	64	9	75	28	53	59	20	81	8
1-2	83	14	73	34	46	36	47	64	22
≥3	53	9	75	49	26	34	42	55	26
Education									
Never went to school	25	20	68	28	56	20	68	36	44
Primary	38	11	53	34	29	26	37	37	26
Secondary	47	13	83	47	39	36	40	72	19
Polytechnic	36	8	81	31	47	50	31	86	6
University	67	13	76	34	51	60	30	79	13
Occupation									
Professional (medical)	36	8	89	25	69	56	39	89	11
Professional (Non-medical)	38	11	71	34	39	55	26	82	8
Student	11	9	73	27	36	36	27	64	27
Other workers	42	17	67	40	38	52	24	60	14
Retired, unemployed	26	19	69	54	27	38	42	46	35
Homemaker	54	11	70	33	39	22	54	54	28

Four questions were asked. Q5. If you had children, would you object to them playing or associating with people who sometimes had seizures or fits? Q6. If you had children, would you object to having them married a person who sometimes had seizures? Q7. If you were an employer, would you employ someone with epilepsy or fits? Q.8. If you were or became an employer, would you employ someone with epilepsy whose fits do not interfere with his job?

*Married: Includes a few divorced, separated persons, widows, widowers.

Table 4. Response to question #10: "What do you think is the cause of epilepsy?" *

Response	S'pore 1999 (%)	M'sia[3] 1998 (%)	Taiwan[2] 1992 (%)	China[1] 1988 (%)
Not familiar with epilepsy or fits	16	12	14	13
Don't know	18	26	34	40
Brain disease, disorder, injury	30	12	20	25
Hereditary, inherited disease	32	25	28	17
Birth defect	16	24	14	12
Mental or emotional stress or disorder	15	8	8	17
Blood disorder	1	2	2	2
Insanity**	5	9	7	9

* Multiple answers were allowed.

** Response to question #10: "Do you think epilepsy or fits is a form of insanity?"

Table 5: Response to the question #11: "What do you think is an epileptic attack?" *

Response	S'pore 1999 (%)	M'sia[3] 1998 (%)	Taiwan[2] 1992 (%)	China[1] 1988 (%)
Don't know	18	7	13	10
Convulsions, shaking	68	84	61	84
Loss of consciousness	29	35	52	59
Transient change of behaviour	15	12	19	7
Period of amnesia	13	10	10	15

* Multiple answers were allowed

Table 6: Response to question #12: "If your relatives or friends have epilepsy, what kind of treatment would you suggest?"

Response	S'pore 1999 (%)	M'sia[3] 1998 (%)	Taiwan[2] 1992 (%)	China[1] 1988 (%)
Don't know what to recommend	22	9	18	17
No need to treat	1	1	3	1
Cannot be treated	4	4	4	1
Medicine from Western doctor	60	80	63	55
Surgery	6	-	4	-
Medicine or herbs from traditional doctor	15	11	15	25
Acupuncture	9	2	3	14
Ask for God's help	7	1	3	1
Get own medicine from the drugstore	1	-	-	-
Get health food	9	-	-	-

* Multiple answers allowed.

There was no correlation between objection to children marrying an epilepsy sufferer and thinking that it was an inherited condition. Eighteen percent did not know the cause of epilepsy. Among the causes mentioned were ingestion of goat's meat, wrong foods during pregnancy, having had a cat thrown at them.

Table 5 summarizes the responses to questions on presentation of epilepsy. About 68% thought an epileptic attack to be convulsions & shaking and 29% thought that it involved loss of consciousness. The latter was correlated with age 30-49 years and medical or paramedical profession. Transient change of behaviour and a period of amnesia were only seen as seizure presentation by between 12-16% respondents. This correlated only with the medical or paramedical profession.

Table 6 explores the respondents' recommendations to treatment of epilepsy. Whilst 22% respondents did not know what treatment to recommend, almost 60% believed Western medicine could treat epilepsy. This correlated with younger age, higher education, professional occupations; student, military, security occupations; those who had heard of, know of or have seen a seizure. The latter 2 variables ($p=0.029$ & $p=0.001$ respectively) together with higher education ($p=0.001$) were still found to be significantly correlating after correcting for the rest of the correlating variables. Those >30 years of age, who were married or who were homemakers or retired tended to believe that herbs or traditional medicine could treat epilepsy. Homemakers and retirees ($p=0.043$) were still significant after correcting for age and marital status. Having heard of, knowing someone with epilepsy nor having seen someone with epilepsy did not correlate with this belief.

DISCUSSION

The purpose of the study was two-fold: to

investigate public knowledge, attitudes and understanding of epilepsy and its sufferers among Singaporean Chinese, and to compare the findings with those published in this region. It is pertinent to note, however that our sample populations differ with that in the Taiwan[2] and China[1] studies in terms of demography. Our study sample had a higher proportion of younger, unmarried, childless, and better educated respondents. Compared with the Malaysian study[3], our study sample also had a higher proportion of younger, better educated respondents. The ratio of females : males was also higher in our sample compared to the other three study populations. The studies in China, Taiwan and Malaysia[1-3] were all based on urban as well as rural populations, whereas the present study population was urban. There was also a time gap of about 10 and 5 years between the present study and that from China and Taiwan.[1,2] Although the questions asked were largely similar, there were some differences in administering the questionnaires. The three previous studies were all conducted in streets, parks, markets and door-to-door visits, with questionairres filled by interview conducted by physicians and medical students. The present study was however, conducted in a health fare with the questions being self-filled.

Despite the differences, awareness of epilepsy appear comparable: 85% of local respondents having heard of epilepsy compared with 87% in Taiwan, 93% in China and 99% in Malaysia. A much higher percentage of respondents from China (77%) and Taiwan (70%) seemed to know someone with epilepsy compared to locally (36%) and in the neighbouring Malaysian study (38%). There was an associtionbetween rural living, lower level of educaiton with knowing someone who have epilepsy in the Malaysian study. The association was attributed to the closely knit community in the rural area and those receiving less formal education.[3]

Although a significant percentage of local respondents (85%) have heard of epilepsy and slightly above half (56%) have actually seen someone having a seizure, only a little over 10% of respondents knew the correct first-aid treatment for a person having seizures. The most common response was the almost a third of respondents who would put something in the mouth of someone having a seizure, with risks of dental injury and aspiration. This may arise from the fear that the epilepsy sufferer may bite his tongue.

Objecting to children associating with epilepsy sufferers is comparable between both Singaporean & Malaysian Chinese and those in the Taiwan study, 13%, 9% and 18% respectively, but markedly lower than that in the China study (57%). A strikingly disparate response with regards to objecting their children marrying an epilepsy sufferer is noted - 36% & 43% objecting among Singaporean & Malaysian Chinese respectively versus 72% in Taiwan and 87% in China. The proximity in geography with similarity in culture may explain the greater similarity in responses among the Singapore and Malaysian studies versus China and Taiwan studies.

While only 42% of Singaporean Chinese would employ someone with epilepsy, 66% would do so if seizures did not interfere with the epilepsy sufferer's job. This is encouraging for both epilepsy sufferers and physicians engaged in treating this disabling condition to strive for seizure-freedom or reduction. Special vocation placement and matching services are also important to integrate epilepsy sufferers into their society.

As for the responses to questions on understanding of epilepsy, the answers were generally similar to that in China, Taiwan and Malaysia, with only close to a third attributing the illness to a disorder of the brain.[1-3] Whereas most responders were familiar with convulsion as manifestion of epilepsy, only 12-15% knew of the non-convulsive seizure types manifesting as transient change of behaviour and amnesia. Although only 15% and 9% of the responders would recommend traditional medicine and acupuncture in this study, Tsai from Taiwan has noted that half of the patients would seek such treatment in the chronic course of epilepsy.[4]

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