SUICIDE IN SINGAPORE

By B. H. Chia and W. F. Tsoi

SYNOPSIS

This is a study of 382 cases in which the verdict of suicide was returned by the coroners during the period July 1969 to July 1971. In spite of rapid social, economical and environmental changes, the rate of suicide in Singapore had not increased but fluctuated around the figure of 9 per 100,000 population. The methods of suicide had changed. There was marked variation in the rate of suicide, methods of suicide and precipitating factors for suicide among the three major ethnic groups. Highest rate of suicide was found in cases living in the slums of Singapore and not as believed in the high-rise flats in the housing estates. The three commonest methods of suicide were: jumping from heights, hanging and self-poisoning. Major precipitating factors were: psychiatric illness (36%), physical illness (29%), disturbed social and personal relationship (18%) and economical stress (10%). It was found that in Singapore the mental illness with the highest suicidal risk was Schizophrenia and not Affective illness as in the west.

The first comprehensive review on Suicide in Singapore was by Murphy (1954), who did a statistical and sociological analysis of data from 1900, concentrating mainly over three periods between 1930 and 1953. This was followed by a period of lull during which, Singapore had undergone radical social, economic and political changes, until Ting and Tan (1969) who reviewed briefly the pattern of suicide in Singapore based on post-mortem reports during the ten year period of 1955 to 1964, and observed the effects of economic and social changes on the Indian suicide rate, and the lack of certain seasonal cultural influence on the Chinese suicide rate. A fairly comprehensive survey by Hassan and Tan (1970) dealt mainly on the sociological aspect of suicide which concluded inter alia that suicide was related to certain 'critical' life cycles and areas of residence in Singapore.

In this paper, an attempt has been made to examine the problem from the epidemiological, social and psychiatric angle, and to draw conclusions that may serve as a practical guide to medical practitioners in the management of cases and reveal the various factors that had high positive correlations to suicide.

METHOD OF STUDY

With the kind permission and the most helpful co-operation of the Singapore State Coroner, all the case files in which the verdict of suicide was returned by the coroners during the period July 1969 to July 1971, were examined together wi.h all the documents and medical reports pertaining to each case. Special attention was paid to data relating to physical illness and evidence of symptoms and signs of mental illness. When reports indicated that the deceased had suffered from mental illness, attempts were made to trace and examine his case notes from Woodbridge Hospital (the only mental hospital of Singapore). Based on all available information a clinical diagnosis was made on every possible case.

RESULTS

TABLE I

SUICIDE RATE PER ANNUM

Year	No. of Cases	Rate per 100,000 of Population
1961	159	9·4
1962	139	8·0
1963	155	8·7
1964	147	8·1
1965	146	7·8
1966	193	10·1
1967	186	9·5
1968	223	11·2
1969	188	9·3
1970	181	8·7

SUICIDE RATE

Death by suicide in Singapore constituted 1·7% of the total deaths. The rate of suicide during the period of study of 382 cases was 9·2 per 100,000 population, which placed Singapore in

B. H. CHIA, M.B., B.S., D.P.M., A.M., Private Psychiatrist.

W. F. TSOI, M.B., B.S., D.P.M., M.R.C.P.G., Psychiatrist, Woodbridge Hospital, Singapore.

the middle of the international suicide range. As shown in Table I, the suicide rate had not fluctuated much during the past ten years, 1961 to 1970. In fact the rate had remained fairly constant ever since 1900, except during the period of Japanese occupation (1940-1944) when it rose to 16·3 per 100,000.

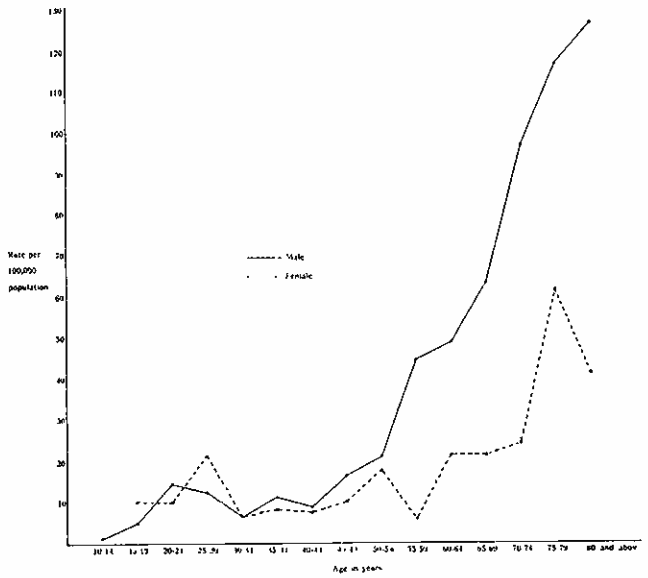

Fig. 1. Suicide in Singapore by age and sex from July 1969 to July 1971.

TABLE II

AGE AND SEX DISTRIBUTION

Age	Male		Female	
	Total No.	Rate/ 100,000	Total No.	Rate/ 100,000
10 - 14	2	0·7	—	—
15 - 19	11	4·4	23	9·6
20 - 24	30	14·4	20	9·9
25 - 29	16	12·0	27	20·4
30 - 34	10	7·3	10	7·3
35 - 39	13	11·1	9	8·3
40 - 44	10	9·3	7	7·5
45 - 49	14	15·8	7	9·3
50 - 54	16	21·2	12	17·9
55 - 59	30	44·1	4	6·4
60 - 64	24	48·0	10	20·9
65 - 69	21	63·7	7	20·6
70 - 74	16	96·8	5	23·6
75 - 79	9	116·5	9	71·5
80 & Above	5	126·3	4	40·9
Unknown	1	—	—	—

Suicide in Singapore by age and sex of cases from July 1969 to July 1971.

AGE AND SEX

Fig. 1 and Table II showed that for the male the suicide rate remained low until the age of 40 years when it began to rise sharply to the record height of 126 per 100,000 of population at the age of 80.

There were three peaks for the female curve at the age groups of 25-29, 50-54 and 75-79. From the breakdown of the precipitating factors for the suicide of women at these age groups, it was found that for the ages of 25-29, mental and marital problems were important; for 50-54, mental illness and for 75-79, physical illness and poverty were important factors. It was also interesting to note that the female curve dipped after the age of 75-79 unlike that of the female suicide curve in Hong Kong which continued to rise (Yap, 1958).

The youngest male patient was a 10 year old boy who died of Malathion poisoning and the oldest was a 90 year old woman. Suicide below the age of 10 is known to be rare. Toolan (1962) found only 3 cases under the age of 10 in the whole of the United States of America in 1958. Taking all ages into account, the male suicide rate was higher than that of the female. The sex ratio of 1·4 male to 1 female was very similar to the finding obtained by Yap (1958) in Hong Kong.

TABLE III

MARITAL STATUS

Marital Status	Total No. of Cases	%	Control* %
Male:			
Single	93	43·4	66·9
Married	111	51·9	30·8
Separated/Divorced	3	1·4	0·6
Widowed	7	3·3	1·7
Unknown	14	—	—
Female:			
Single	49	32·0	60·1
Married	69	45·1	31·2
Separated/Divorced	6	3·9	0·7
Widowed	29	19·0	8·0
Unknown	1	—	—

*Singapore Sample Household Survey 1966.

MARITAL STATUS

It was found in this study that married, widowed and divorced persons for both sexes were much more numerous than expected (Table III). Single females had the lowest suicide rate and single persons as a whole were found to

TABLE IV

OCCUPATION

Occupation	Male			Female		
	No. of Cases	%	Control %	No. of Cases	%	Control %
Professional, technical and related workers	4	3·5	4·9	3	10·0	13·6
Administrative, executive and managerial workers	5	4·4	2·2	—	—	0·4
Clerical and related workers	5	4·4	12·0	1	3·4	11·8
Sales workers	16	14·1	17·0	1	3·4	9·9
Agricultural, fishery, forestry and related workers	4	3·5	3·4	—	—	3·9
Quarrymen, miners and related workers	1	0·9	0·2	—	—	0·02
Workers in transports, communication occupation	12	10·6	10·4	—	—	1·4
Craftsmen, production process, workers and labourers N.E.C.	18	15·8	29·3	7	23·1	22·5
Workers in services, sports, recreation occupations	37	32·7	17·2	16	53·4	36·5
Workers not classifiable (odd jobs)	4	3·5	0·2	—	—	—
Students (never worked before)	5	4·4	3·2	2	6·7	—
Unknown	2	2·2	—	—	—	—

A breakdown of occupations compared with data obtained from a 1966 Singapore Sample Survey.

TABLE VI

SEX AND METHOD

Methods	Male	%	Female	%	Total %	1952 Total %*
Jumping	95	41·6	74	48·0	44·8	9
Hanging	88	38·6	35	22·7	30·7	36
Drowning	7	3·1	7	4·5	3·8	7
Self Poisoning:						
Insecticide	9		10			
Methyl Salicylate	3		10			
Caustic soda	2	8·8	6	19·5	14·2	38
Drugs	6		3			
Soap powder	—		1			
Burning	7	3·1	3	2·0	2·5	
Cutting	4	1·8	—	—	0·9	8
Gunshot	4	1·8	—	—	0·9	
Combined	1	0·4	2	1·3	0·8	—
Others	2	0·8	3	2·0	1·4	1

*Data obtained from: 'Mental Health in Singapore—Suicide' (Murphy).

be much less numerous than expected—a finding different from that found by Yap in Hong Kong. Our findings were similar to those found in the Western countries—London (Sainsbury) and United States.

OCCUPATIONAL STATUS

Table IV showed that all the occupational groups were represented but not in proportion. The suicide rate was highest amongst 'workers in services, sports, recreation occupations' and lowest in clerical and craftsman occupations. 51% of males were unemployed or pensioners, and of these 33% were mentally ill and 40% physically ill. 37% of females were inactive housewives or unemployed. 85% of these were physically or mentally ill at time of suicide.

TABLE V

ETHNIC DISTRIBUTION

Race	Male		Female		Sex Ratio Male to Female
	Total No. of Cases	Rate per 100,000	Total No. of Cases	Rate per 100,000	
Chinese	197	12·4	140	8·90	1·4 to 1
Indian	19	10·9	10	8·70	1·3 to 1
Malay	7	2·2	3	0·98	2·2 to 1

Rate of suicide among the major ethnic groups.

ETHNIC GROUPS

Singapore is a multi-racial city. Table V showed that the Chinese males had the highest suicide rate, and the Malay females the lowest.

The Chinese who first settled in Singapore originally, were from different southern provinces of China and this has resulted in the linguistic differences. There were 6 prominent different dialect groups. They were Hokkien, Teochew, Cantonese, Khek, Hainanese and Hokchiu. The Hokkiens comprised the most numerous group and also economically the most prosperous. They were mainly engaged in trade and commerce. The Cantonese were mainly artisans while the Hainanese were concentrated in hotel, catering and domestic service. The Cantonese and Hainanese and Hokchiu as sub-groups were over-represented. Important precipitating factors for suicide amongst Hokkiens were indebtedness and reprimands by the elders. For the Cantonese the striking factor was poverty.

The Malays had the lowest suicide rate. For the Malays the common causes of suicide were mental illness, physical illness and love problems. There was no record that the Malays committed suicide for marital, financial and other inter-personal conflicts. This difference between the two ethnic groups could be explained by different cultural beliefs and values, and the influence of the Islam religion. The Singapore Chinese, on the whole, considered acquisition of materialistic wealth the most important goal in life. The Malays in Singapore however, attached great importance to easy and graceful living. The majority of them were contented if their basic needs were provided, together with a little extra money during their festive seasons. The Malays in Singapore valued above all harmony in intimate inter-personal relationship. When marriage failed to produce emotional contentment, or caused strife and anxiety, divorce was the usual solution to the problem (Djamour, 1965). The Indians did not differ much from the Chinese in respect to suicide and causation.

METHODS OF SUICIDE

Since the study of Murphy (1954), the method of suicide has changed. This has also been shown in the study by Ting and Tan (1969). An analysis in Table VI showed that jumping from height (44·8%) and hanging (30·7%) were by far the most common methods. Another method that was becoming increasingly prevalent was self-poisoning with insecticide (Malathoin and Paraquat), methyl salicylates and sedative drugs. Poisoning by caustic soda accounted for only 2·5% compared with 33% in 1952. This drop was the result of legislation passed in 1958 which forbade the sale of caustic soda across the counter. A new method of suicide had emerged recently—burning oneself with kerosene, of which there were 9 cases in this series.

Amongst the suicide victims living in Housing and Development Board flats, jumping from heights accounted for 67% of cases compared to 31% of cases living in other types of dwellings. It was felt that the method was adopted because it was the most easily available method at the time of crisis; and the outcome of such a method was also usually fatal. Only 59% of cases residing in Housing and Development Board Flats jumped from their own flat, 38% of cases jumped from flats in same neighbouring or far away housing estates, and 3% of cases jumped from other types of high buildings such as hotel, hospital and private flats. 47 cases living in other forms of dwellings came to the Housing and Development

Board estate to commit suicide by jumping. This figure represented 33% of the total cases of suicide by jumping in such flats in Singapore. Jumping from heights was also a common method of suicide by patients staying in hospitals. There were 7 cases in this series, an important note to bear in mind when nursing potentially suicidal patients in hospitals.

SUICIDE RATE IN THE VARIOUS ELECTORAL DIVISIONS IN SINGAPORE

The population census of Singapore (1970) divided Singapore into 59 electoral divisions. To make use of these latest data, the cases of suicide were allocated into these 59 electoral divisions according to their places of residence. An attempt was also made to allocate each electoral division into one of the following areas: 'Urban, Housing Estate, Suburban and Rural'. These sub-divisions were not clearly demarcated. For example there would be small housing estates in certain divisions classified as urban area. Table VII showed the suicide rate in some of the typical representative electoral divisions allocated according to the various areas in Singapore.

TABLE VII

ELECTORAL DIVISION

Electoral Division	No. of Cases	No. of Cases Living in H.D.B. Flats	Rate per 100,000 Population
Urban Areas:			
Kreta Ayer	12	2	97·3
Bras Basah	10	2	78·2
Havelock	10	2	48·7
Hong Lim	6	—	45·1
Housing Estate:			
Bukit Merah	21	18	30·3
Queenstown	10	10	23·7
Toa Payoh	22	20	20·4
Bukit Ho Swee	5	5	15·2
Suburban Areas:			
Upper Serangoon	5	—	15·9
Moulmein	9	—	11·2
Katong	3	—	7·5
Serangoon	2	—	7·1
Rural Areas:			
Chua Chu Kang	11	—	23·5
Sembawang	4	—	11·9
Ponggol	3	—	7·5
Nee Soon	2	—	4·9
Kampong Chai Chee	1	—	4·2
Kampong Kembangan	1	—	2·1

Suicide rate in the various electoral divisions.

'URBAN, SUBURBAN, RURAL AND HOUSING ESTATES'

In the urban or central area of the city were situated the slums consisting mainly of 2-3 storeyed shop-houses, many of which were about one hundred years old. After the war, because of shortage of housing, the living space within these buildings was partitioned and sub-divided into small cubicles, thus creating the most crowded city-slums. Often ten or more families were found to occupy one shop-house which before the war had been occupied by one family. Also within the city areas, where there were vacant lands, squatters would be found staying in buildings erected out of timber, planks and scrap materials. In these types of buildings there was no privacy, lighting was inadequate and modern sanitation non-existent. Communal facilities such as schooling, proper market, open spaces and children's playgrounds were also not sufficiently provided (Teh, 1969). It was not surprising, therefore, that the rate of suicide in such areas was the highest in Singapore (Kreta Ayer, 97·3 per 100,000 population).

During the last decade, because of its rapid and massive urban renewal programmes and its policy of making the maximum use of land, the government built 120,669 low-priced housing units in multi-storeyed flats within the city. In 1970, 34·6% of the population were staying in these flats. These flats were the alternative cheap and improved housing and living environments offered by the government for the slum-dwellers.

The purpose of resettlement was to create as little social and economical hardship as possible. The inhabitants were, as far as possible, located in housing estates near their previous slum-dwellings and often the families of the slum community were relocated together in one estate so as to prevent them from having the feeling of being 'uprooted' from their kin and friends (Choe, 1969).

The suicide rate in housing estates was lower than that found in the urban areas (Toa Payoh, 20·4 per 100,000 population per annum; Queenstown, 23·7 per 100,000 population).

The 'sub-urban' areas in Singapore were occupied mainly by the middle and higher income groups in Singapore. The suicide rate in the sub-urban and rural areas in Singapore was generally lower (Katong 7·5 per 100,000 population and Nee Soon 4·9 per 100,000 population).

TABLE VIII

CAUSES AND PRECIPITATING CAUSES

Causes and Precipitating Causes		No. of Cases	%
Psychiatric illness		136	35·5
Physical illness		110	28·8
Inter-personal Conflicts:			
Marital problems		21	
Love		14	
Being scolded	13		
Being beaten up	1	16	18·0
Being bullied	2		
Quarrel		11	
Job problem		7	
Economic:			
Poverty		25	
Debt		11	9·9
Poor business		1	
Police		4	1·0
Other Causes:			
Pregnancy		1	
National service		1	0·8
Sexual perversion		1	
Unknown		23	6·0

TABLE IX

Psychiatric Illness	Cases Not Admitted to Hospital for In-patient Care	Cases having Previous In-patient Care
Schizophrenia—paranoid psychosis	12	54
Depressive illness	46	7
Personality disorder	8	—
Severe anxiety state	1	—
Puerperal psychosis	1	—
Arteriosclerotic dementia	2	—
Epilepsy with personality disorder	—	1
Epilepsy with psychosis	—	1
Unclassified	3	—
TOTAL	73	63

Breakdown of cases suffering from Psychiatric illness.

TABLE X

Symptoms and Behaviours of the Cases Suffering from Schizophrenia	No. of Cases
Aggressive and noisy behaviour	24
Abnormal behaviour	22
Previous suicidal attempts	17
Hallucinations	16
Insomnia	16
Paranoid symptoms	13
Ideas of suicide	13
Depression	7
Fear	3

Symptoms and behaviours of suicide patients suffering from Schizophrenia.

PSYCHIATRIC ILLNESS AND SUICIDE

A total of 136 cases were found to suffer from psychiatric illness (Table VIII). This constituted 35·5% of all cases, which corresponded with the statement by Stengel that on the average one third of the people who committed suicide had been suffering from a neurosis or a psychosis or a severe personality disorder. Of these, 66 cases (49%) were Schizophrenia-paranoid psychosis and 53 cases were depressive illness (38%). This finding was very different from those obtained from studies of suicide in United Kingdom. In the West, depressive illness or melancholia was the mental disorder with the highest suicide risk (Stengel, 1964).

The mean age for personality disorder was 22 years old; for Schizophrenia 32; for paranoid Schizophrenia 42 and for depressive illness 46. The marital status for Schizophrenia was 2 singles to 1 married. However, for depressive illness the ratio was reversed: 1 single to 2 married (Chia, 1971). The 6 cases suffering from personality disorder were all single. The majority of cases suffering from personality disorder and depressive illness who committed suicide had not received any psychiatric treatment. However, 81% of cases suffering from psychosis who committed suicide had received in-patient psychiatric care and treatment, and 3 cases were previously treated by private psychiatrists. 6 cases died from self-poisoning with overdosage of drugs prescribed to them for their illness: barbiturate (5 cases) and largactil (1 case).

It was reported that suicide was rare in organic dementia. In this survey there were 2 cases suffering from Arteriosclerotic Dementia. There were also 1 case of epilepsy with psychosis and 1 case of epilepsy with personality disorder.

There were 3 cases of infanticides and 2 cases of murder followed by suicide and 1 case of suicide pact. All the cases of infanticides were female and they threw their children from heights before jumping down themselves. They were all suffering from severe depression. Both of the cases of murder were male and one was suffering from severe depression and the other from Schizophrenia.

Table IX showed that 63 cases had received previous psychiatric treatment from a mental hospital. It was possible to trace the case-records of only 49 cases. The majority of these cases were suffering from Schizophrenia-paranoid psychoses. In the analysis of these cases it was found that the duration of illness before suicide varied from 3 months to 16½ years. 68·3% of cases committed suicide within 6 months after leaving the hospital. As shown in Table X, the common symptoms,

were: hallucinations (auditory), paranoid delusions, insomnia and depression. Many of the patients were very disturbed, noisy and aggressive and 17 cases had repeated episodes of suicidal attempts.

MEDICAL HISTORY

In 110 cases (29%) there was evidence of physical illness. 82·7% of these were above 45 years old. 70·8% of the male were either unemployed, pensioners or too old to work. Many were unemployed because they were incapacitated by their illness. The mean age was 58. The sex ratio was 2 males to 1 female. Most of the physical illnesses were of the chronic type. Examples were: cardio-vascular respiratory disease (29 cases); pulmonary tuberculosis (25 cases); asthma (16 cases); cancer (12 cases); diabetes (7 cases); epilepsy, chronic infection of limbs, and physical disability after fall (5 cases each); kidney disease and blindness or poor eye-sight (4 cases); rheumatism (3 cases); cirrhosis of liver, gall-bladder disease, spastic and post meningitis (1 case each).

Post-mortem findings in 58 female cases showed that 5 cases were pregnant and in 35 cases (60% of the total post-mortem findings), the uterus was found to be pre-menstrual (15 cases); beginning of menstruation (5 cases) and menstruating (15 cases).

Alcohol content was detected in 9 cases. The methods of suicide in these 9 cases were: hanging (4 cases), drowning (3 cases) and jumping from heights (2 cases). There was history of chronic alcoholism in 7 cases, opium addiction in 9 cases and morphine addiction in 1 case.

SUICIDE LETTERS

Notes or letters were left by 44 cases. Often they were farewell notes. Many showed their sufferings, depressive thoughts, lack of desire to live and their grievances. Some wrote about rejected loves.

Many showed considerable thoughtfullness for those left behind and begged for forgiveness for bringing disgrace to the family and exculpated others from their acts. Some, however, were very resentful and felt that they were driven to death and would obtain revenge. Few felt that they were going to a better world and would repay their debts in the next world.

Detailed instructions were left behind by 2 cases. One wrote letters to government officials warning them of a 'devilish disease' existing in his home and issued warnings to his kin to beware and take precautions. One left instructions on how to arrange for her funeral after her death and how to behave during the occasion.

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