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SEX AND SOCIAL CLASS DIFFERENCES IN MENTAL ILLNESS: THE CASE OF HONG KONG

by

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SEX AND SOCIAL CLASS DIFFERENCES IN MENTAL ILLNESS: THE CASE OF HONG KONG

(Summary)

A probability sample of 3,983 Chinese adults in urban Hong Kong were selected in order to study the sex and social class differences in the prevalence of psychiatric symptoms. It was found that there were higher rates of psychiatric symptoms among women than men, and among members of lower socioeconomic groups. Both relationships were independent of age and education. Sex has a stronger association with symptoms than has socioeconomic status.

The factor of achievement-aspiration discrepancies partially accounted for the social class differences in psychiatric symptoms. The control on achievement-aspiration discrepancies, however, led to an increase rather than a reduction of the sex-symptoms relationship. Attempts were made to suggest that in Chinese society, the relationship between sex roles and mental disturbance might be an artifact of the response bias in field studies.

SEX AND SOCIAL CLASS DIFFERENCES IN MENTAL ILLNESS: THE CASE OF HONG KONG[1]

Mental health researchers have identified a number of social factors that may be associated with the prevalence or incidence of functional psychiatric disorders. Some of the empirical findings are contradictory among studies using different methodologies or conducted in different times and places (Mishler and Scotch, 1965; Turner, 1972; and Dohrenwend, 1975). It has been recognized, however, that two of the highly consistent findings are the relationships of psychiatric disorders to sex roles and social class. In general, the overall rates of mental illness are higher among women than men (Davis, 1962; Langner and Michael, 1963; Phillips, 1966; Phillips and Segal, 1969; Gove and Tudor, 1973; and Clancy and Gove, 1974), and higher among members of lower socioeconomic groups (Faris and Dunham, 1939; Hollingshead and Redlich, 1958; Langner and Michael, 1963; Leighton, et al., 1963; Kohn, 1968; Dunham, 1970; and Hodge, 1970). As previous studies were mostly conducted in Western societies, could these two findings be generalized to Chinese populations which consistitute about one-fifth of the World population?

The most well known studies about the mental health of Chinese people is the one conducted by Lin and his associates (Lin, 1953; and Lin, Rin, Hsu and Chu, 1969). In their successive studies of the prevalence rates of various types of mental disorders among all the

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[1] This paper used part of the data in the Hong Kong Biosocial Survey which was funded by the Nuffield Foundation. The survey was mainly designed and conducted by Professor Stephen Boyden and Dr. Sheelagh Millar of the Australian National University and Dr. Y.K. Chan of The Chinese University of Hong Kong. The analysis of the data for this paper was supported by the Social Research Centre of The Chinese University of Hong Kong. The author wishes to acknowledge the research assistance of Mr. Yuet-wah Cheung.

inhabitants of three communities -- a village, a small town, and a section of a city -- in Taiwan in 1946-48 and in 1961-63, they discovered similar findings about the relationships of the overall rates of psychiatric disorders to sex and social class. More specifically, Chinese females showed a significantly higher rate of psychoneurosis, while lower class individuals were most likely to suffer from schizophrenia, mental deficiency and psychopathic personality. It was noted that there was a significant increase in the prevalence of all mental disorders over the 15 years, and that the increase was mainly due to the marked increase of females with psychoneurosis. Another study to be noted is the sample survey conducted by Mitchell (1969) in the urban areas of Singapore, Malaysia, Bangkok and Taipei in 1967-68. He found that among the Chinese population in these various areas, consistently women were more likely than men to be disturbed by emotional illness.

Hong Kong is situated on the southeast coast of Mainland China. It is basically a Chinese society, as a recent census indicates that about 98.3 per cent of the total population can be classified as Chinese in place of origin. It is also noteworthy that Hong Kong has achieved a higher level of social and economic development than many other Chinese societies in the Asian region (Hopkins, 1971). An objective of this paper is to find out whether or not the above-mentioned findings about the sex and social class differences in mental illness would hold among the Chinese people in the highly modernized society of Hong Kong. Our results may have implication to the future state of other Chinese societies which are moving toward modernity.

In a clinical investigation of mental illness in Hong Kong, Yap (1965) found that there were more female than male in-patients with affective illness who had been admitted to hospital for the first time. Mitchell's (1969) sample survey of the Chinese adults in the urban sector of Hong Kong discerned a higher level of emotional illness not only among women, but also among economically deprived individuals. Yap's study, however, included only individuals who were hospital in-patients. Mitchell collected data from a random sample of the community population and in this sense supplemented Yap's research. Mitchell's failure is that he merely reported the bivariate distributions without making attempts to control for "third" variables such as age and education. The objective of this study is to examine and elaborate the relationships of sex roles and social class to the "true" prevalence of mental illness among the Chinese residents in urban Hong Kong. The major questions raised in this paper are: How is the distribution of mental disorder in a community population associated with sex roles and social class? Are the effects of sex roles and social class on mental disorder independent of each other? Which one has a relatively stronger effect? Are their effects also independent of other factors such as age and education? Why is or isn't the prevalence of mental disorder related to sex roles and social class?

The hypotheses to be tested are stated below:

(1) Psychiatric symptoms will be more prevalent among women than men.

(2) The prevalence of psychiatric symptoms will be inversely related to the level of family socioeconomic status.

(3) Sex roles and family socioeconomic status will have independent relationships with psychiatric symptoms.

METHODS

Data were drawn from the Biosocial Survey conducted jointly by the Social Research Centre of The Chinese University of Hong Kong and the Human Ecology Group of Australian National University. A proportionate stratified random sample of 3,983 household heads between the ages of 20 to 59 were selected from the urban areas of Hong Kong in 1974. It is noteworthy that over 80 per cent of the four million people in Hong Kong resided in urban areas. In this study, Census district and housing type were used as criteria for stratifying the urban households, and the tables devised by Kish (1965:388-401) were employed to insure randomness of the sample. The sampling fraction was 0.62 per cent for each stratum. An interview schedule was devised and used for collecting the information from respondents. The response rate was about 71 per cent. Unsuccessful interviews were replaced by cases randomly selected from a supplementary list. From the sample design (for details, see Chan and Lau, 1974), we can see that the present research was in effect a study of the non-institutionalized adult population in the urban sector of Hong Kong.

The prevalence of psychiatric symptoms was measured by the 22 closed-end questions developed by Langner (1962) in the Midtown'

Mannhattan Study. The items were translated into Chinese. Responses to each question were dichotomized into "pathognomonic" and "non-pathognomonic" categories. Scores on the 22 items were summed for each respondent, producing a scale with a range potentially from 0 to 22. A higher score in the scale was indicative of more psychiatric symptoms.

Langner's scale is one of the most often used and evaluated instrument to estimate the "true" prevalence of mental disorder in non-institutionalized populations through the use of field survey techniques (Langner and Michael, 1963; Langner, 1965; Manis, Brawer and Kercher, 1963; Abramson, 1966; Dohrenwend, 1966; Phillips, 1966; Haese and Meile, 1967; Meile and Haese, 1969; Phillips and Segal, 1969; Dohrenwend and Crandell, 1970; Phillips and Clancy, 1970; Schader, Ebert and Harmatz, 1971; Gove and Tudor, 1973; and Seiler, 1973). The items in the scale are mainly dealing with relatively mild, rather than severe, forms of self-reported psychological and psychophysiological symptoms. Examining the data in the present study, we found that the Alpha coefficient (Cronbach, 1951) for the Chinese version of the total scale is .775, indicating a high degree of internal consistency among the 22 items. In an effort to determine the validity of the translated scale, Porritt and Miller (1976) found that every item of the scale could discriminate between the neurotic out-patients and a random sample of the "normal" population in Hong Kong at a statistically significant level, and that the correlations

of Langner's scale to Bradburn's (1969) Positive Affect, Negative Affect, and Affect Balance scales are -.216, .497, and -.467, respectively. In view of these tests, the Chinese version of Langner's scale appears to have acceptable reliability and validity.

As often used in previous studies, the point of discrimination between "well" and "sick" in the Langner's scale was made between the scores of 3 and 4 symptoms. In other words, a score of four or more was arbitrarily used as the indicator of psychiatric disorder.

Socioeconomic status of a family was indicated by housing status, family income, and material standard of the household. Housing status was dichotomized into low and high categories with scores of 0 and 1, respectively. Low housing status referred to those residing in Government's resettlement estates, simple stone structures, wooden sheds or roof-top cottages, while high housing status was consisted of the remaining types of accommondation. Family income status was divided into four levels, scored from 0 to 3, indicating the gross monthly income of the household under HK$1000, $1000-$1499, $1500-$2499, and $2500 or above, respectively. The material standard of a household was assessed by the interviewer, and was divided into low, medium, high categories with scores 0, 1, and 2, respectively.

The relationships of the above three socioeconomic indicators to the prevalence of psychiatric symptoms would be analyzed separately. In an effort to examine the overall relationship between socioeconomic status and psychiatric disorder, the three indicators of socioeconomic

status were dichotomized and then their scores were summed for each respondent to form a SES scale.[2] The total scores on the scale range from 0 to 3, with a higher score indicative of a higher level of family socioeconomic status.

Since correlational analysis would be carried out in this study, the variable of sex roles was transformed into a "dummy" variable (Suits, 1954). Femaleness was scored 1, while maleness was scored 0.

Age and educational status of the individuals would be introduced for control analysis. The four age-categories were 20-29, 30-39, 40-49, and 50-59 with scores from 0 to 3, respectively. Educational status was also divided into four categories which, scored from 0 to 3, were no schooling, primary school or private tutoring, secondary school, and post-secondary school.

The statistical significance of various relationships between variables will be tested by the chi-square model. Since most variables under study were skewed and were measured on an ordinal scale, Goodman and Kruskal's gamma would be employed to describe and summarize the strength and direction of association. The values of this non-parametric measure of association potentially range from -1 to +1, which can be operationally interpreted as the proportional reduction of errors in prediction (Costner, 1965). In the control analyses the partial gamma will be estimated (Davis, 1971), which is a weighted average of the zero-order gammas in various subgroups.

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[2] Housing status was already a dichotomous variable. In the variable of monthly income, the households with HK$1499 or less were scored 0, while those with $1500 or more were scored 1. Households with low material standard were scored 0, while those with medium or high standard were scored 1. Correlations among these three dichotomous indicators were .25 between housing and income, .30 between housing and material standard, and .32 between income and material standard. All relationships were statistically significant at the .001 level.

RESULTS

The total scores on Langner's scale actually ranged from 0 to 19, with 31.6 per cent of the respondents having four or more symptoms. From Table 1, psychiatric symptoms were more prevalent among women than men. The proportions with four or more symptoms were 36.7 per cent for women and 24.8 per cent for men, producing a percentage difference of 11.9. The chi-square test demonstrated that the relationship was statistically significant at the .001 level. The gamma coefficient suggests that should the sex of the respondents be known, 28 per cent of the errors in predicting mental health status can be reduced. The hypothesized relationship between sex and psychiatric symptoms was therefore confirmed.

Before analyzing the overall relationship between family socioeconomic status and the prevalence of psychiatric disorder, attempts were made to examine the association of psychiatric symptoms to each of the three socioeconomic indicators. The data were presented in Table 1.

Housing status was inversely related to psychiatric symptoms. 37.1 per cent of the respondents with low housing status reported four or more symptoms, as compared to 28.1 per cent of those with high housing status. Gross monthly income and material standard of the household were also negatively associated with psychiatric symptoms. The proportions with four or more symptoms (1) among the four income groups, from low to high, were 39.0, 32.1, 28.7, and 25.4, respectively,

TABLE I. PERCENT WITH 4 OR MORE SYMPTOMS BY SEX ROLES, HOUSING STATUS, MONTHLY HOUSEHOLD INCOME, MATERIAL STANDARD OF THE HOUSEHOLD, SES SCALE, AGE, EDUCATION, AND LIFE SATISFACTION (TOTAL N = 3983)

	Symptoms	Chisquare	Gamma	N
Sex Roles				
Male	24.8	63.74	.28	1702
Female	36.7	$p < .001$		2281
Housing				
Low	37.1	35.28	-.20	1572
High	28.1	$p < .001$		2411
Income				
Under HK$1000	39.0	21.68	-.17	817
$1000 - $1499	32.1	$p < .001$		1375
$1500 - $2400	28.7			1027
$2500 or above	25.4			590
Material Standard				
Low	35.8	14.22	-.14	1219
Medium	30.5	$p < .001$		2151
High	27.3			611
SES Scale				
0 (Low)	39.5	45.08	-.17	598
1	34.6	$p < .001$		963
2	31.7			1140
3 (High)	24.8			1107
Age				
20 - 29	31.4	12.89	.05	1104
30 - 39	27.0	$p < .01$		857
40 - 49	34.0			1150
50 - 59	33.4			872
Education				
No Schooling	37.9	28.90	-.13	786
Primary/Tutoring	31.2	$p < .001$		1807
Secondary	30.8			1072
Post-secondary	21.8			316
Life Satisfaction				
Low	51.7	104.70	-.28	449
Medium	33.1	$p < .001$		928
High	27.4			2413

and (2) among the respondents with low, medium, and high material standard were 35.8, 30.5, and 27.3, respectively. Consistently, therefore, the lower the scores on the three socioeconomic indicators, the greater was the prevalence of psychiatric symptoms. All relationships were inverse and linear, and were statistically significant at the .001 level. The gamma coefficients for the relationships of psychiatric symptoms to housing status, income level, and material standard were -.20, -.17, and -.14, respectively. Relatively speaking, housing status was the strongest correlate of psychiatric symptoms, followed by family income. Nevertheless, none of the three socioeconomic indicators was as strongly associated with symptoms as was sex roles.

Table 1 also presents the data about the overall relationship between socioeconomic status and psychiatric symptoms. The proportions with psychiatric impairment gradually decreased from 39.5 among the lowest SES group to 24.8 among the highest SES group. The gamma coefficient was -.17, and the relationship was significant at the .001 level. The hypothesis about the inverse relationship between family socioeconomic status and the prevalence of psychiatric symptoms was thus confirmed. A comparison of the gamma values shows that the prevalence of psychiatric symptoms was more associated with sex roles than with SES. The information about sex roles can lead to a 28 per cent reduction of the prediction errors, whereas knowing the ranking of respondents on the SES scale, we can only reduce 17 per cent of the errors.

Both sex roles and socioeconomic status have significant effects on mental disorder, but to what extent are their effects independent of one another? From Table 2, we can observe the relationship between sex and symptoms controlling for SES scale. In all SES groups, rates of mental disorder were consistently higher among women than men. The relationships were all significant at the .001 level. Furthermore, the partial gamma was .28, which was equal to the original zero-order value. Evidently, the sex-symptoms relationship was independent of socioeconomic status. A comparison of the zero-order gamma coefficients in various SES groups indicated that the relationship was relatively stronger among the respondents with low SES. The percentage difference between women and men in this group was 17.4, which was substantially greater than the percentage difference (11.9) in the entire sample.

TABLE 2. PERCENT WITH 4 OR MORE SYMPTOMS BY SEX ROLES AMONG VARIOUS SES GROUPS

Sex Roles	SES			
	0 (Low)[a]	1[b]	2[c]	3 High)[d]
Male	29.6	27.5	24.9	19.3
Female	47.0	39.6	36.6	29.1

(a) Chisquare = 17.96, $p < .001$; Gamma = .36
(b) Chisquare = 14.64, $p < .001$; Gamma = .27
(c) Chisquare = 17.15, $p < .001$; Gamma = .27
(d) Chisquare = 13.60, $p < .001$; Gamma = .26

TABLE 3. PERCENT WITH 4 OR MORE SYMPTOMS BY SES AMONG MALES AND FEMALES

SES	SEX ROLES	
	Male[(a)]	Female[(b)]
0 (Low)	29.6	47.0
1	27.5	39.6
2	24.9	36.6
3 (High)	19.3	29.1

(a) Chisquare = 12.92, $p < .01$; Gamma = -.15
(b) Chisquare = 33.03, $p < .001$; Gamma = -.19

Table 3 shows that the control on sex did not alter the inverse relationship between SES and psychiatric symptoms. In both sex groups, the lower the SES the greater was the proportion of respondents with four or more symptoms. In both sex groups the relationships were statistically significant at the .001 level. The partial gamma was -.17, which was the same as the original gamma. It was hence found that the inverse relationship between family socioeconomic status and the prevalence of psychiatric symptoms was independent of sex. Comparing the zero-order gammas in the two sex groups, the inverse relationship was relatively stronger among women than men.

Sex and SES were cross-classified into eight categories. Women in the lowest SES had the highest rate of mental disturbance,

while men in the highest SES had the lowest rate. There was a difference of 27.7 (47.0-19.3) per cent.

Are the relationships of psychiatric symptoms to sex roles and socioeconomic status independent of age and education? The data in Table 1 shows that age-differences in mental disorder were small, although the relationship was more or less linear. In general, older respondents, especially those aged 40 or over, tended to express more symptoms. The gamma coefficient, .05, also revealed the positive but slight relationship between age and psychiatric symptoms. Nevertheless, the relationship was significant at the .001 level.

It can also be observed from Table 1 that education and psychiatric symptoms were inversely related. The relationship was clearly linear and was statistically significant at the .001 level. There was a marked difference (16.1 per cent) in rates of mental disorder between respondents with no schooling and those with post-secondary education. According to the gamma coefficients, the effect of education on psychiatric symptoms was relatively stronger than that of age, but weaker than those of sex roles and SES.

Since age and education were significantly related to psychiatric symptoms, they should be controlled in the examination of the relationship between sex roles and symptoms and between SES and symptoms. The data were presented in Tables 4 and 5. There were more women than men with psychiatric impairment among various age and educational groups. Sex-differences were relatively greater among

the uneducated and among the old aged. The partial gamma for the relationship between sex roles and symptoms was .28 after controlling for age and was also .28 after controlling for education. These values were the same as the original zero-order gamma. The relationship between sex and symptoms was therefore independent of age and education.

TABLE 4. PERCENT WITH 4 OR MORE SYMPTOMS BY SEX ROLES AND SES AMONG VARIOUS AGE GROUPS

	Age			
	20 - 29	30 - 39	40 - 49	50 - 59
Sex Roles				
Male	25.3(a)	23.1(b)	24.0(c)	25.7(d)
Female	36.8	28.3	40.6	41.0
SES				
0 (Low)	39.0(e)	32.7(f)	41.5(g)	41.7(h)
1	34.6	29.2	35.8	38.9
2	29.9	28.1	33.6	35.6
3 (High)	27.6	18.4	28.1	22.3

(a) Chisquare = 15.59, $p < .01$; Gamma = .26
(b) Chisquare = 2.47, N. S. ; Gamma = .14
(c) Chisquare = 31.91, $p < .001$; Gamma = .37
(d) Chisquare = 20.65, $p < .001$; Gamma = .34
(e) Chisquare = 7.61, N. S. ; Gamma = -.13
(f) Chisquare = 10.74, $p < .05$; Gamma = -.18
(g) Chisquare = 9.51, $p < .05$; Gamma = -.14
(h) Chisquare = 21.06, $p < .001$; Gamma = -.24

TABLE 5. PERCENT WITH 4 OR MORE SYMPTOMS BY SEX ROLES AND SES AMONG VARIOUS EDUCATIONAL GROUPS

	Education			
	No Schooling	Primary/ Tutoring	Secondary	Post-Secondary
Sex Roles				
Male	21.3(a)	25.8(b)	26.0(c)	17.5(d)
Female	40.2	35.6	36.8	28.6
SES				
0 (Low)	40.8(e)	37.9(f)	42.5(g)	42.9(h)
1	42.1	31.0	35.7	31.3
2	37.5	29.8	33.2	21.1
3 (High)	24.3	9.6	25.1	20.4

(a) Chisquare = 11.76, $p < .001$; Gamma = .43
(b) Chisquare = 18.90, $p < .001$; Gamma = .23
(c) Chisquare = 13.29, $p < .001$; Gamma = .25
(d) Chisquare = 4.49, $p < .05$; Gamma = .31
(e) Chisquare = 11.55, $p < .01$; Gamma = -.15
(f) Chisquare = 9.30, $p < .05$; Gamma = -.11
(g) Chisquare = 14.63, $p < .01$; Gamma = -.20
(h) Chisquare = 2.96, N. S.; Gamma = -.15

Tables 4 and 5 also indicate that the control on age and education separately did not alter the inverse relationship between SES and psychiatric symptoms, and that the relationship was relatively stronger among respondents with secondary school education and among those aged 50-59. The partial gamma for the control of age was .17, and that for the control of education was .15. Since the original

gamma was .17, it can thus be concluded that the inverse relationship between family socioeconomic status and psychiatric symptoms was independent of age and of education.

In short, the control on age virtually had no effect on the relationships of psychiatric symptoms to sex and SES, while the control on education had a minor effect on the SES-symptoms relationship but no effect on the sex-symptoms relationship.

TABLE 6. STEPWISE MULTIPLE CORRELATIONS OF SEX ROLES, SES, AGE, EDUCATION AND LIFE SATISFACTION WITH PSYCHIATRIC SYMPTOMS

Independent Variable(s)	r/R	Variance explained (%)
Sex Roles	.127	1.61
SES	-.107	1.15
Life Satisfaction	-.157	2.47
Sex, SES	.169	2.86
Age, Education	.076	0.58
Sex, Age, Education	.133	1.77
SES, Age, Education	.115	1.32
Sex, SES, Age, Education	.170	2.89
Sex, SES, Age, Education, Life Satisfaction	.226	5.10

All correlations, $p < .001$ (F-test)

In an effort to examine the joint effects and the possible interactions among variables, we introduced the stepwise multiple correlation analysis. We learned from Table 6 that in addition to the variance explained by SES, age and education, sex roles could account for 1.57 (2.89-1.32) per cent of the variance in psychiatric symptoms, and that SES could explain 1.12 (2.89-1.77) per cent of the variance over and above that explained by sex, age and education. The zero-order correlations indicate that originally sex roles and SES accounted for 1.61 and 1.15 per cent of the variance, respectively, which were approximately equal to the additional variance contributed by them in the above stepwise correlation analyses. We have hence observed that both sex roles and SES could make independent contributions to the explained variance in psychiatric symptoms, and that the contribution by sex roles was relatively greater than that by SES.

INTERPRETATION

Why is the prevalence of psychiatric symptoms associated with sex and with family socioeconomic status? Under the influence of Merton's work on the concept of anomie, a number of researchers have argued, and have verified in one way or another, that the relationships between certain social factors and mental disorder may be a product of the stress resulting from the discrepancies between aspiration and achievement (Merton, 1959; Dunham, 1964). For instance, both the investigations by Hollingshead, Ellis and Kirby (1954) and by Rinehart (1968) have empirically demonstrated that educational and occupational discrepancies were more prevalent, and also greater in

magnitude, among patients than non-patients. After a comprehensive review of the research literature, Kleiner and Parker (1963) concluded that this mobility orientation is a significant factor in the genesis of mental illness, and that larger discrepancies between achievement and aspiration may be more prevalent among individuals in lower socioeconomic groups. In other words, individuals with lower socioeconomic status are less able to achieve their aspirations and are consequently more likely to be mentally impaired. The theoretical postulate of achievement-aspiration discrepancies has been employed to explain not only the relationship between mental disorder and socioeconomic status, but also the sex-differences in mental disturbance. In an elaborate discussion of the relationship between sex roles and mental illness, Gove and Tudor (1973) have strongly argued that in modern industrial societies more women than men become mentally ill, because women find their position in society to be more frustrating and less rewarding. The types of evidence they used, however, were mainly about the persistence of sex-differences across studies using different case-finding procedures. They did not provide data for testing the empirical validity of their interpretation.

Can the "achievement-aspiration discrepancies" explanation stand up to an empirical test in the present study? We did not find any information in the Biosocial survey, which can be used as direct measures of the discrepancies between achievement and aspiration. We, however, found one item in the questionnaire which, in a way, reflects the level of discrepancies. The item asks: Generally speaking,

are you satisfied with your daily life (your status, the things you do, and the situation around, etc.)? This item is, in effect, a general measure of life satisfaction. It was assumed in the present study that a lower level of life satisfaction was indicative of larger discrepancies between achievement and aspiration. It should be recognized that this is a rather indirect indicator and hence the findings to be reported may be more suggestive than affirmative.

The variable of life satisfaction was trichomtomized into low (strongly or fairly dissatisfied), medium (So-so), and high (strongly or fairly satisfied), which were then scored from 0 to 2, respectively. From Table 1, life satisfaction was inversely and significantly related to the prevalence of psychiatric symptoms. About one-half of the respondents with low satisfaction reported four or more symptoms, as compared with one-third of those with medium satisfaction and one-fourth of those with high satisfaction. The gamma coefficient suggests that knowing the ranking of respondents on life satisfaction, 28 per cent of the prediction errors can be reduced. The strength of association between satisfaction and mental disorder was as strong as that between sex roles and mental disorder, and was stronger than that between socioeconomic status and mental disorder.

The stepwise multiple correlations in Table 6 show that in addition to the variance explained by sex roles, SES, age and education, life satisfaction could account for 2.21 (5.10-2.89) per cent of the variance in psychiatric symptoms. The additional variance was almost equal to the proportion of variance (2.47 per cent) that was originally

explained by life satisfaction alone. This demonstrates the usefulness of life satisfaction as an explanatory variable. Its added contribution to the explanation of psychiatric disorder was not only substantial, but was also independent of other variables under study.

TABLE 7. LIFE SATISFACTION BY SEX ROLES AND SES

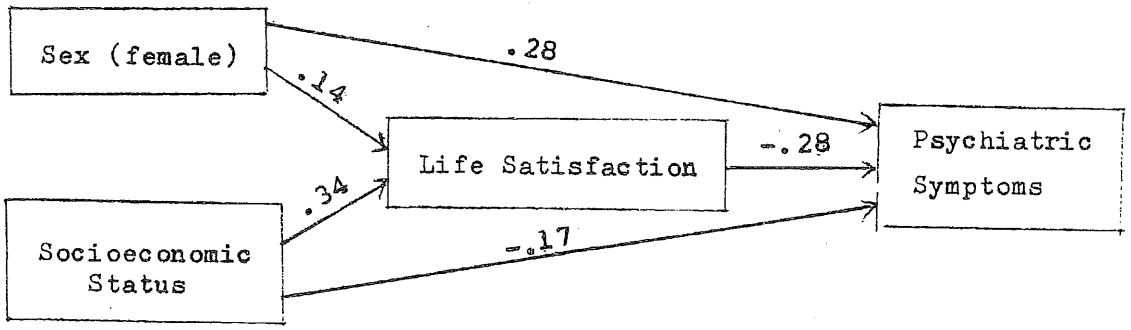
	Life Satisfaction			
	Low	Medium	High	N
Sex Roles[a]				
Male	15.7%	23.8	60.5	1626
Female	9.0%	25.0	66.0	2164
SES[b]				
0 (Low)	20.5%	34.7	44.8	594
1	13.1%	32.6	54.3	961
2	10.7%	22.3	67.0	1134
3 (High)	7.3%	14.2	78.6	1101

(a) Chisquare = 40.35, $p < .001$; Gamma = .14
(b) Chisquare = 247.77, $p < .001$; Gamma = .34

Table 7 indicates that life satisfaction was also significantly related to sex roles and SES. As expected, there was a positive relationship between life satisfaction and SES. It was, however, unexpected to find that more women than men were generally satisfied with their daily life.

The zero-order relationships among variables were summarized in the "causal" diagram shown in Figure 1. It was assumed that sex roles and SES affected life satisfaction and that all these in turn affected mental disorder. The arrow between sex roles and SES was missing, because the relationship was slight and was statistically insignificant. The gamma coefficients reported in the diagram indicate that the interrelationships among SES, life satisfaction and symptoms were consistent with one another. Two of the gammas were negative, while one was positive. It is thus possible that life satisfaction could interpret the relationship between SES and mental disorder. The interrelationships among sex roles, life satisfaction and symptoms, however, were not consistent among themselves. One correlation fell in the negative direction, while two in the positive direction. It suggests that life satisfaction may have obscured, rather than interpreted, the sex differences in mental disorder.

FIGURE 1. ZERO-ORDER GAMMA COEFFICIENTS AMONG SEX ROLES, SOCIOECONOMIC STATUS, LIFE SATISFACTION, AND PSYCHIATRIC SYMPTOMS



The introduction of life satisfaction greatly affected the relationship between SES and psychiatric symptoms. The partial gamma was -.12, which was smaller than the original zero-order value of -17. Hence, life satisfaction could partially, but not entirely, explain the SES-symptoms relationship. Table 8 provides more detailed information about the partial relationships. It was noted that the inverse relationship became statistically insignificant and very weak among the respondents with low (gamma = -.01) and with medium (gamma = -.06) satisfaction. Dissatisfaction with life, therefore, had played an important role in the genesis of mental disorder among individuals of various socioeconomic groups. It was also observed, however, that the inverse relationship between SES and symptoms was still strong and statistically significant among those with high satisfaction (gamma = -.19). This indicates that further studies have to be conducted to find out what else in the low class environment could induce mental disorder. The mere attempt to make people feel happy would not protect the lower class individuals from a higher probability of committing mental illness.

Table 8 indicates that the control on life satisfaction did not affect the original relationship between sex roles and psychiatric symptoms. In each level of satisfaction, more women than men expressed psychiatric symptoms. The gamma coefficients among respondents with low, medium and high satisfaction were .37, .30 and .33, respectively. All these were somewhat greater than the original zero-order gamma of .28. Furthermore, the partial gamma was .33 which also exceeded the

TABLE 8. PERCENT WITH 4 OR MORE SYMPTOMS BY SEX ROLES AND SES AMONG VARIOUS LEVELS OF LIFE SATISFACTION

	Life-Satisfaction		
	L	M	H
Sex Roles			
Male	43.5(a)	25.3(b)	19.6(c)
Female	62.4	38.6	32.7
SES			
0 (Low)	53.3(d)	34.5(e)	37.6(f)
1	51.6	33.9	30.8
2	48.8	34.4	28.0
3 (High)	53.7	27.6	21.5

(a) Chisquare = 14.92, $p < .001$; Gamma = .37
(b) Chisquare = 17.46, $p < .001$; Gamma = .30
(c) Chisquare = 49.41, $p < .001$; Gamma = .33
(d) Chisquare = 0.68, N. S. ; Gamma = -.01
(e) Chisquare = 2.61, N. S. ; Gamma = -.06
(f) Chisquare = 32.31, $p < .001$; Gamma = -.19

original gamma. Life satisfaction was therefore unable to explain the relationship between sex roles and mental disorder. On the contrary, it may behave as a "suppressor" variable (Rosenberg, 1968). In other words, the sex-differences in mental illness would have been greater, were it not that women had a higher level of life satisfaction than men. The factor of life satisfaction has, in effect, obscured the sex-symptoms relationship.

The concept of achievement-aspiration discrepancies has often been used for the interpretation of the associations of mental disorder with sex roles and socioeconomic status. In the present study, we have used the general satisfaction with daily life as a rough indicator of discrepancies. It was found that it could partially account for the relationship between SES and psychiatric symptoms, but could not explain the relationship between sex and symptoms. Its failure to account for the sex-differences in mental illness may, of course, be due to the kind of indicator being used. It is possible that the use of more refined and relevant indicators, such as those used by Rinehart (1968), may produce different results. Nevertheless, the validity of life satisfaction as an indicator of achievement-aspiration discrepancies has appeared to be acceptable, as we have found in this study that it was significantly associated with SES and with psychiatric symptoms in the expected directions. We therefore tend to believe that sex-differences in mental illness are due to factors other than the achievement-aspiration discrepancies.

One of the most often discussed factors in relation to sex-differences in mental disorder is the response bias in field studies. Both Dohrenwend (1966) and Phillips and Clancy (1970) have empirically demonstrated that there are group differences in modes of responding to mental health items such as those developed by Langner (1962). In particular, Phillips and Segal (1969) have shown that sex differences in psychiatric symptomatology, as measured by Langner's 22 items, are not real but are only a reflection of the differences between women and men in admitting certain unpleasant feelings. They argued that

in modern Western cultures, it is more appropriate and acceptable for women than men to be expressive about their personal difficulties. However, in a recent survey which also used Langner's items, Clancy and Gove (1974) discovered that the higher rate of mental illness among women than men is not an artifact of response bias, and instead it may reflect real differences in mental disturbance.

The data reported in this paper do not lend support to the "real differences" explanation which has been elaborated by Gove and Tudor (1973) and suggested by Clancy and Gove (1974). Controlling for life satisfaction, the relationship between sex roles and Langner's scale did not vanish but instead slightly increased. It was due to the fact that in Hong Kong more women than men were satisfied with their daily life. These findings are, in a way, consistent with a recent study of Chinese families in Hong Kong by Wong (1972a, 1972b). It was found that the husband is no longer an absolute patriarch, but has to exercise his power in an indirect way through consultation and persuasion. On the other hand, the mother has participated more in the decision-making over family matters and in the performing of masculine tasks. The trend towards equalitarianism is particularly obvious among the middle and lower class families. A great majority (69.3 per cent) of these families can be characterized as "equalitarianism", while the proportion of families with "husband-dominance" (16.2 per cent) is only slightly greater than that with "wife-dominance" (14.5 per cent). These findings about the task-power differentiation among Chinese families in Hong Kong suggest that the social roles of adult women may not be more

frustrating or less gratifying than those of adult men. The applicability of some of the arguments by Gove and Tudor (1973) to the current situation in Hong Kong is doubtful.

As mentioned, the findings in this paper are by no means conclusive. At this stage, it is not possible to deny that other social-psychological factors might be able to disclose the "real" differences between women and men. Our findings, however, are at least suggestive in the sense that the "women are more expressive" postulate as an alternative explanation can not be easily discarded, especially in the context of Chinese society. It has been a tradition in Chinese culture that men should be strong and tough and are not supposed to make complaints to others. This orientation is reflected in a number of folk sayings (Chen, 1973) which have deeply penetrated into the social life of Chinese people for centuries. It has been said, for instance, that as a man one should rather die than bend and should rather bleed than weep; that he who endure the greatest hardship will be the greatest among men; that no man of worth leads to a soft life, for a soft life cannot make a man of worth. On the contrary, it has been widely believed that women are "weak". There is also a Chinese saying that nice women are likely to have unpleasant experiences. In view of these constrasting social expectations about men and women, it can be hypothesized that in Chinese society women are more expressive than men about their personal difficulties. Unfortunately, data are not available in the Biosocial Survey for testing this hypothesis in the context of Hong Kong. Further studies need to be done in the future.

We have suggested that differential modes of expressing distress may account for the sex differences in self-reported psychiatric symptoms. Would they also affect the inverse relationship between socioeconomic status and self-reported symptoms? The investigations by Dohrenwend (1966) and Phillips and Clancy (1970) tended to suggest that differential expressiveness may produce certain effects on the class-symptoms relationship. Their findings, however, were not clear-cut. As Phillips and Clancy (1970) have found, the relationship between socioeconomic position and mental health is affected by people's evaluations as to the desirability of mental health inventory items, but the existence of the relationship is not <u>just</u> an artifact of the distortions arising from a response bias. In the present study, we have found that the control on life satisfaction affected the class-symptoms relationship. More specifically, the inverse relationship almost disappeared among respondents with low or medium satisfaction, but remained strong and significant among those with high satisfaction. These findings are not consistent with the "differential expressiveness" explanation, which predicts that the inverse relationship between SES and symptoms will hold across the three categories of life satisfaction. We have not found any reasons to believe that the expressiveness explanation works for respondents with high satisfaction but not for the other two groups of respondents. It should here be reported that in the present study, the distributions of men and women among the four socioeconomic groups were approximately the same. Therefore, even if expressiveness might affect the sex differences in mental disturbance, it would not affect the class-symptoms relationship. In sum, our

findings tend to support the position that the inverse relationship between socioeconomic status and mental illness is real and is not a result of differential modes of expressing distress. Mental health inventory items, like those devised by Langner, may be useful for the study of class-symptoms relationship, but may not be a valid instrument for the study of sex differences in mental illness.

CONCLUSION

Data reported in this paper were collected from a probability sample of 3,983 Chinese adults in the urban areas of Hong Kong. It was found that both sex roles and family socioeconomic status were significantly related to the "true" prevalence of psychiatric disorder as measured by Langner's scale. There were higher rates of mental disorder among women than men, and among members of lower socioeconomic groups. Sex roles had a relatively stronger association with mental disorder than had socioeconomic status. The effects of sex roles and socioeconomic status on mental disorder were independent not only of each other but also of age and education.

The concept of achievement-aspiration discrepancies was introduced to interpret the findings. Using the general satisfaction with daily life as an indicator of discrepancies, we found that it partially accounted for the relationship between socioeconomic status and psychiatric disorder. This indicates that the "discrepancies" explanation is valid. Individuals in lower socioeconomic position were more likely to be mentally impaired, partly because of their lower level of life satisfaction.

The control on life satisfaction, however, led to an increase rather than a reduction of the relationship between sex roles and mental disorder. It resulted from a higher level of life satisfaction among women than men. It was proposed that explanations other than the achievement-aspiration discrepancies should be considered. Attempts were made to suggest that in Chinese society, the relationship between sex roles and disorder might be an artifact of the response bias in field studies using mental health inventory items.

As a final note, it should be pointed out that the theoretical position of this paper is in line with the "social causation" approach, which assumes that mental disorder is a consequence of socially-induced stress on the individual. We have cast doubts on the hypothesis, at least in the context of Hong Kong, that the social roles of women are more stressful than the social roles of men. We have argued, however, that our findings tend to support the hypothesis that lower socioeconomic position may produce more stress on the psychic state of the occupant. Nevertheless, these findings about the social class differences in rates of mental disorder can not rule out the possibility of "social selection", i.e., psychiatric symptoms may interfere with the life adjustment of the individual.[3] It could be that in the present sample, life dissatisfaction resulted from psychiatric impairment and then led to downward movement in the status hierarchy. Further studies are needed for testing the relative effectiveness of these two alternative propositions, i.e., social causation versus social selection. As suggested by Dohrenwend (1975), this issue could be resolved through the development of quasi-experimental strategies,

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[3] For discussions on the issue of social causation versus social selection, see Dohrenwend (1966), Dunham (1970), Turner (1972), and Dohrenwend (1975).

adoption of unusual sampling procedures, and use of prospective rather than cross-sectional study designs. The present study meets none of these requirements.

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