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Author(s)	Wong, WCW; Lee, A; Tsang, KK
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Correlates of Sexual Behaviors with Health Status and Health Perception in Chinese Adolescents: A Cross-Sectional Survey in Schools

WILLIAM C.W. WONG, M.B.Ch.B., M.R.C.G.P.,¹ ALBERT LEE, M.B., B.S., M.P.H.,²
and KWONG KA TSANG, M.D.²

ABSTRACT

Sexual intercourse remains taboo among adolescents in a Chinese society such as Hong Kong. It is not openly discussed and little research has been done on its impact on health, although it carries serious risks of contracting sexually transmitted diseases (STDs)/HIV. In 1999, a cross-sectional, self-report survey on youth risk behaviors was carried out on 8382 students 15–18 years of age from 48 schools in Hong Kong. Three hundred seventy-seven (4.69%) reported that they had had sexual intercourse. Among them, forced sex (16.94%) was common, most often happening to boys (52.38%). They were more likely to have consulted doctors in the last month (odds ratio [OR] 1.41 in boys 95% confidence interval [CI] 1.03, 1.94; OR 2.46 in girls 95% CI 1.81, 3.30) and 6 months (OR 1.33 in boys 95% CI 0.98, 1.78; OR 2.66 in girls 95% CI 1.80, 3.91). They also perceived poorer and deteriorating health. The sexually active female students were 6.70 times (95% CI 4.65, 9.66) more likely to attempt suicide than the other group and were more likely to take sick leaves (OR 3.56 in girls 95% CI 2.35, 5.41). Parental education and occupation, place of birth, and type of housing did not correlate in the initiation of sexual intercourse. The sexually experienced group reported worse physical and psychological health as well as health perception. Some of the characteristics and patterns identified in our study were quite different from the findings in the West but further studies are required to determine the reason for this.

INTRODUCTION

THERE IS LITTLE DOUBT that first sexual intercourse remains an event of immense social and personal significance. Set against this, for

adolescents in Hong Kong, are the cultural and social acceptance of premarital sexual behavior, social and individual expression of love and health in young people, and the influence of factors such as peer pressure and gender ideology.

¹Department of Community and Family Medicine, ²Centre for Health Education and Health Promotion, School of Public Health, Kwong Ka Tsang MD, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong.

There is strong evidence that culture influences the frequency of risk behaviors^{1,2} and understanding variations and reasons behind them across different societies can provide insight into universal models of human behavior.

Lam et al.³ found that smoking and sexual intercourse was correlated with poorer psychological adjustments in the 13–18-year old age group but the extent and effects on both psychological and physical health is not known. From a practical point of view, the event possesses real health implications because it carries a risk of adverse outcomes such as unplanned pregnancy, sexually transmitted diseases (STDs), and infertility.^{4,5} This is particularly relevant with the rapid increase of sexually transmitted diseases (STDs)/HIV epidemics in the region.^{6,7} Moreover, many Western nations are becoming increasingly multicultural; thus, knowledge about the patterns of sexual and health-seeking behaviors in adolescent Chinese, if characteristics of those at greater risks are to be identified, would benefit health care providers so that more effective health promotion programs and service provisions can be arranged.⁸

In 1999, the Centre for Health Education and Health Promotion at the Chinese University of Hong Kong conducted a territory-wide health survey of more than 26,000 students 10–18 years of age. Using this data set, we looked at the sexual behaviors of the 15–18-year olds in Hong Kong. We wanted to see if there are differences in their perceptions of health, physical and mental health status, and medical consultation patterns in the sexually experienced and the inexperienced groups. The relationship of these variables to the gender of the students or number of partners was also examined.

METHODS

In the survey, 48 government-subsidized schools of different academic levels including prevocational training schools in different geographical areas throughout the territory were selected through a long-established school organization in Hong Kong.

The self-administered Hong Kong Youth Risk Behavior Survey (YRBS) was modified

from similar survey devised by the Center for Disease Control and Prevention.⁹ The YRBS covers six health behavior categories: unintentional and intentional injuries; tobacco use; alcohol and other drug use; sexual behavior; unhealthy dietary behavior and physical activities. It also includes demographic data of the students, morbidity data and use of health care service. The questionnaire content was validated by face validity and pilot-tested in students from different schools of different age groups. Comments were also received from the teachers and the students in which special attention was drawn to the wording of the questionnaire, areas of difficulties experienced by students, and how to maintain the students' enthusiasm and perceived relevance of the exercise. Further details of the questionnaire and methodology have been described elsewhere.¹⁰

The research team visited all participating schools to explain to the teachers the objectives and details of the study, and discuss the questionnaire. Consent was sought from the parents of the students who would participate in the study. The research team members had briefed the students before and after the questionnaire, and the questionnaire was administered anonymously. Data were entered, cleaned, and analyzed using SPSS package (SPSS, Inc., Chicago, IL). Univariate analysis with health data as dependent variables and sexual intercourse as independent variables by χ^2 statistics were conducted with *p* values and odds ratios calculated. The local Clinical Research Ethics Committee approved this study.

RESULTS

A total of 8382 students between 15 and 18 years of age completed the questionnaire, of which 8039 were valid (95.29%). Three hundred seventy-seven students (4.69%) claimed to have had sexual intercourse (198 males and 179 females). Their age differentials are shown in Figure 1. Fifty-nine students said they had only ever had sex with one person (single partner) of whom 56 were boys, whereas 88 said they had had sex with more than one person (multiple partners), of whom 60 were boys.

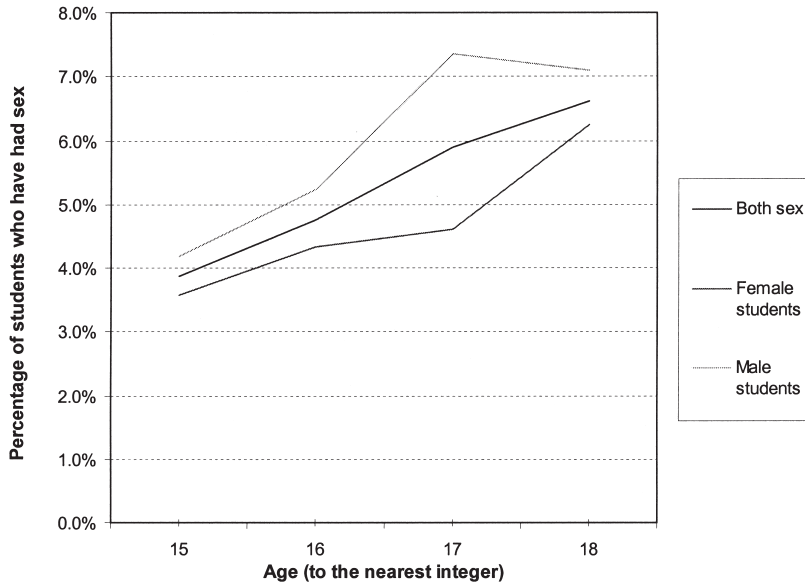


FIG. 1. Percentage of students in different age groups who have experienced sex.

Sixty-three students (16.94%) claimed to have experienced forced sex without consent; more than half were boys. Violent behavior was more common among the sexually experienced group in both genders: 15.17% of sexually experienced girls had been involved in physical fights in the last 12 months as opposed to 2.65% of the virgins ($p < 0.0001$). In boys, the figures were 42.56% and 13.15% respectively ($p < 0.0001$) (Table 1). However, there were no statistical differences between the two groups in terms of parental education levels, occupations, or the types of housing in which they lived. In addition, whether one was born in Hong Kong or immigrated from elsewhere did not contribute to this behavior (Table 1).

Students who had had sexual intercourse were more likely to have consulted a doctor in the last month (odds ratio [OR] 1.41 95% (confidence interval [CI] 1.03, 1.94 in males and 2.46 95% CI 1.81, 3.30 in females) and the 5 months prior to that (OR 1.33 95% CI 0.98, 1.78 and 2.66 95% CI 1.80, 3.91 in male and female students, respectively) compared to those with no sexual experience (Table 2). The consultations were more likely of general and unspecific nature (2.50 95% CI 1.61, 3.89) or related to the digestive (OR 4.29 95% CI 2.82, 6.52), neurologic (OR 2.49 95% CI 1.48, 4.21), or respiratory systems (OR 1.77 95% CI 1.26, 2.47) in female students but only significant (OR 2.38 95% CI 1.17, 4.83)

in neurologic system in male students. Few students from either group sought advice related to sexual issues such as urology, pregnancy, family planning, male/female genital systems or psychological/social problems. There was no statistical significant association between sexual intercourse and uptake of preventive services such as vaccinations in the two groups. No statistical difference in the number of consultations or self-medications between the groups with single or multiple partners was observed (Table 3).

In terms of perception of health, those who have had sex were more likely to perceive poorer health, particularly in the female students (Table 4). More students in the sexually experienced group as opposed to the female virgins (1.70 95% CI 1.26, 2.31) stated that their health was fair/poor. This was reconfirmed by an opposite statement: "I am very healthy at the moment" (OR 1.83 95% CI 1.25, 2.66 in female students). The female sexually experienced students disagreed that their health was similar to their peers (OR 2.15 95% CI 1.39, 3.31) and they also felt that they became sick easily (OR 1.46 95% CI 1.02, 2.09).

Those who had had sex were more likely and more often to have physical or mental health problems, had affected their social life for the previous 4 weeks (OR 1.56 95% CI 1.02, 2.38 and 1.69 95% CI 1.15, 2.49 in male and female

TABLE 1. COMPARISON OF DEMOGRAPHIC AND SEXUAL CHARACTERISTICS IN SEXUALLY EXPERIENCED AND VIRGIN GROUPS

Characteristics of the students	Male			Female		
	No.	No. (%) who had intercourse	p value	No.	No. (%) who had intercourse	p value
Forced sex without consent						
Yes	194	33 (17.01)		178	30 (16.85)	
Engaged in physical violence						
Yes	195	83 (42.56)		178	27 (15.17)	
No	3582	471 (13.15)	< 0.001	4036	107 (2.65)	< 0.001
Father's education level (secondary or above)						
Yes	142	77 (54.23)		153	83 (54.25)	
No	2838	1633 (57.54)	0.436	3431	2038 (59.40)	0.205
Mother's education level (secondary or above)						
Yes	151	72 (47.68)		157	78 (49.68)	
No	2893	1477 (51.05)	0.419	3540	1841 (52.01)	0.568
Father's occupation (class II or above)						
Yes	148	39 (26.35)		148	38 (25.68)	
No	2942	677 (23.01)	0.347	3358	816 (24.30)	0.703
Mother's occupation (class II or above)						
Yes	83	11 (13.25)		73	13 (17.81)	
No	1457	235 (16.13)	0.487	1597	295 (18.47)	0.886
Housing: public estate						
Yes	193	97 (50.26)		177	81 (45.76)	
No	3566	1626 (45.60)	0.490	4012	1721 (42.90)	0.602
Home-ownership scheme						
Yes	193	20 (10.36)		177	19 (10.73)	
No	3566	380 (10.66)	0.490	4012	355 (8.85)	0.602
Private housing						
Yes	193	62 (32.12)		177	58 (32.77)	
No	3566	1203 (33.74)	0.490	4012	1505 (37.51)	0.602
Rented private housing						
Yes	193	14 (7.25)		177	17 (9.60)	
No	3566	326 (9.14)	0.490	4012	406 (10.12)	0.602
Others						
Yes	193	0 (0.00)		177	2 (1.13)	
No	3566	31 (0.87)	0.490	4012	25 (0.62)	0.602
Born outside Hong Kong						
Yes	195	47 (24.10)		179	29 (16.20)	
No	3576	725 (20.27)	0.197	4027	841 (20.88)	0.130
New Immigrants						
Yes	195	13 (6.67)		179	16 (8.94)	
No	3576	252 (7.05)	0.840	4027	304 (7.55)	0.493

students, respectively). The sexually experienced female students were more likely to take 3 or more days of sick leave (OR 3.56 95% CI 2.35, 5.41), and report feeling sad and hopeless almost everyday for 2 weeks or more in a row, which had severely affected their usual activities during the previous 12 months (OR 2.64 95% CI 1.91, 3.64). Sexually experience students had higher odds of considering suicide (OR 2.47 95% CI 1.97, 3.10), planning for suicide (OR 3.00 95% CI 2.25, 3.99), and attempting suicide (OR 5.29 95% CI 3.93, 7.13), particularly female students (OR 3.19, OR 3.1, OR 6.7, respectively).

No statistical significance was observed in terms of medical consultation, emotional problems, and perceived health status between those with one partner and those with multiple partners.

DISCUSSION

In our sample, the number of 15- to 18-year old students who admitted having had sexual intercourse was much lower than that in Western countries but was consistent with previous

TABLE 2. PHYSICAL HEALTH IN SEXUALLY EXPERIENCED AND VIRGIN GROUPS

Questions asked on physical health	Male				Female			
	No.	No. (%) who had intercourse	Odds ratio	95% CI	No.	No. (%) who had intercourse	Odds ratio	95% CI
Did you see a doctor (including follow-ups) due to illness or feeling unwell in the last month?								
Yes	197	58 (29.44)	1.41		179	90 (50.28)	2.46	
No	3595	819 (22.78)	1	1.03, 1.94	4036	1181 (29.26)	1	1.81, 3.30
Did you see a doctor (excluding last month) due to illness or feeling unwell in the last 6 months?								
Yes	190	113 (59.47)	1.33		178	146 (82.02)	2.66	
No	3535	1858 (52.56)	1	0.98, 1.78	3991	2523 (63.22)	1	1.80, 3.91
Reason for consultations: general & unspecific conditions								
Yes	197	15 (7.61)	1.66		179	25 (13.97)	2.50	
No	3595	170 (4.73)	1	0.96, 2.87	4036	246 (6.10)	1	1.61, 3.89
Reasons for consultations: digestive system								
Yes	197	7 (3.55)	1.78		179	30 (16.76)	4.29	
No	3595	73 (2.03)	1	0.81, 3.91	4036	181 (4.48)	1	2.82, 6.52
Reasons for consultations: neurologic system								
Yes	197	9 (4.57)	2.38		179	17 (9.50)	2.49	
No	3595	71 (1.97)	1	1.17, 4.83	4036	163 (4.04)	1	1.48, 4.21
Reasons for consultations: respiratory system								
Yes	197	31 (15.74)	1.25		179	51 (28.49)	1.77	
No	3595	469 (13.05)	1	0.84, 1.85	4036	743 (18.41)	1	1.26, 2.47

TABLE 3. HEALTH OF THE SEXUALLY EXPERIENCED WITH ONE PARTNER AND MULTIPLE PARTNERS

Questions asked in the sexually experienced:	Single partner		Multiple partners			
	No.	No. (%) who had single partner	No.	No. (%) who had multiple partners	Odds ratio	95% CI
Male	92	31 (33.70)	92	61 (66.30)		
Female	62	30 (48.39)	62	31 (48.39)		
Did you see a doctor (including follow-ups) due to illness or feeling unwell in the last month? YES	58	24 (41.38)	88	36 (40.91)	0.98	0.50, 1.92
Did you see a doctor (excluding last month) due to illness or feeling unwell in the last 6 months?: YES	58	40 (68.97)	84	63 (75)	1.35	0.64, 2.84
In the last 6 months, did you take any medicine without doctor's instruction?: YES	58	33 (56.90)	82	38 (46.34)	0.65	0.33, 1.29
	Mean:		Mean:			
If yes to the above, how many times?	3.36		5.82			
Overall, how do you grade your health statues? Fair to Poor	57	21 (36.84)	86	25 (29.07)	0.70	0.35, 1.43
I get sick easier than others. Agree to strongly agree	45	7 (15.56)	66	17 (25.76)	1.88	0.71, 5.00
I am as healthy as others: disagree to strongly disagree	47	6 (12.77)	67	9 (13.43)	1.06	0.35, 3.21
I expect my health is getting worse: agree to strongly agree	55	17 (30.91)	36	7 (19.44)	1.85	0.68, 5.06
I am very healthy at the moment: disagree to strongly disagree	43	11 (25.58)	68	15 (22.06)	0.82	0.34, 2.01
In the past 4 weeks, your health or emotional problems that affected your usual social activities with your family, friends or other people?: considerable to severely	52	12 (23.08)	83	19 (22.89)	0.99	0.43, 2.26
In the past 4 weeks, how often did your health or emotional problems affect your usual social activities?: sometimes to always	52	15 (28.85)	81	21 (25.93)	0.86	0.40, 1.88
In the past 6 months, have you ever taken 3 days or more sick leave from school: YES	54	9 (16.67)	83	11 (13.25)	0.76	0.29, 1.99
In the past 12 months, did you feel sad and hopeless almost everyday for 2 weeks or more that stopped you from usual social activities: YES	59	13 (22.03)	87	30 (34.48)	1.86	0.87, 3.97
In the past 12 months, did you ever consider suicide?: YES	59	22 (37.29)	85	34 (40)	1.12	0.57, 2.22
In the past 12 months, have you planned a suicide?: YES	59	9 (15.25)	86	21 (24.42)	1.80	0.76, 4.26
In the past 12 months, did you actually attempt suicide?: YES	57	10 (17.54)	85	20 (23.53)	1.45	0.62, 3.37

CI, confidence interval.

findings in Hong Kong.¹¹⁻¹⁶ This pattern can be explained by Arnett's model of socialization:² Adolescents from cultures in which individualism and self-expression are more valued tend to engage in higher risk behavior compared to a Chinese society where obedience, conformity, and respect for social order is emphasized. What is unexplained is that our data

show social class and housing have no correlation in the onset of this behavior in Hong Kong, which defies Lowry's conclusion that health risk behaviors among adolescents are inversely proportional to their socioeconomic status.¹⁷⁻¹⁹ One of the authors (A.L.) suggests that school environment rather than parental background has a more significant influence on

TABLE 4. HEALTH PERCEPTION IN THE SEXUALLY EXPERIENCED AND VIRGIN GROUPS

Questions asked on health perception	Male				Female			
	No.	No. (%) who had intercourse	Odds ratio	95% CI	No.	No. (%) who had intercourse	Odds ratio	95% CI
Overall, how do you grade your health status?: Fair to Poor								
Yes	193	39 (20.21)	1.12		178	79 (44.38)	1.70	
No	3587	661 (18.43)	1	0.78, 1.61	4032	1286 (31.89)	1	1.26, 2.31
I get sick easier than others: Agree to strongly agree								
Yes	153	26 (16.99)	1.07		141	41 (29.01)	1.46	
No	2881	463 (16.07)	1	0.69, 1.65	3159	806 (25.51)	1	1.02, 2.09
I am as healthy as others: Disagree to strongly disagree								
Yes	154	13 (8.44)	1.05		134	28 (20.90)	2.15	
No	2804	227 (8.10)	1	0.58, 1.88	2949	323 (10.95)	1	1.39, 3.31
I expect my health is getting worse: Agree to strongly agree								
Yes	128	27 (21.09)	1.78		105	25 (23.81)	1.39	
No	2300	301 (13.09)	1	1.14, 2.76	2423	445 (18.37)	1	0.88, 2.20
I am very healthy at the moment: Disagree to strongly disagree								
Yes	150	21 (14)	1.45		138	41 (29.71)	1.83	
No	2922	295 (10.10)	1	0.90, 2.34	3127	588 (18.80)	1	1.25, 2.66

CI, confidence interval.

lifestyle and behavior of students in Hong Kong.²⁰

A significant number of students in the sexually experienced group claimed to have been forced to undergo sex involuntarily. Similar associations between sexual abuse and suicide attempts were observed in adolescents in the United States but to a much lesser extent. The loss of self-esteem, and feelings of guilt and helplessness seen in this group may contribute to the overall poor psychological health and health perceptions. Because these issues are not usually discussed openly in the Asian culture,²¹ the lack of proper channels allowing them to reprimand extreme ways such as thoughts of suicide thought and suicide attempts. An equally high proportion of non-consensual sex is noted in our male students and this demands further exploration.

Those who had sex reported worse physical and psychological health, and had poorer perception of their own health. However, in a cross-sectional survey, the reasons for having sexual intercourse in this age group must remain speculative because ill health may influence the decision to have sex while the burden

of social and cultural pressure may influence those who have had sex. One thing was clear in the sexually experienced group of our sample: they were desperately unhappy. Many had taken time off from school or had their social life negatively affected. Some had even resorted to ending their own lives. It was reasonable to think that many sought comfort and care from intimate relationships, which would put them at higher risks of STDs and HIV. Whether sexual behavior can have such serious psychological and physical consequences in this age group or whether this group is a self-selected one with more underlying psychological and social problems, thus engaging in sexual relationships as a means of escape demands further investigation.

In the questionnaire, the students were asked to record the reasons for and diagnosis at each consultation in the previous 1 and 5 months. We found that consultation rates in the sexually experienced group were high and the nature of their consultations was related to anything but sexual issues. No STD was ever mentioned by our sample and only one person (1/376) in the sexually experienced group ever

TABLE 5. PSYCHOLOGICAL HEALTH OF THE SEXUALLY EXPERIENCED AND VIRGIN GROUPS

Questions asked on psychological health	Male				Female			
	No.	No. (%) who had intercourse	Odds ratio	95% CI	No.	No. (%) who had intercourse	Odds ratio	95% CI
In the past 4 weeks, your health or emotional problems that affected your usual social activities with your family, friends or other people?: Considerable to Severely								
Yes	179	27 (15.08)	1.56		164	35 (21.34)	1.69	
No	3440	352 (10.23)	1	1.02, 2.38	3918	541 (13.81)	1	1.15, 2.49
In the past 4 weeks, how often did your health or emotional problems affect your usual social activities?: Sometimes to Always								
Yes	176	41 (23.30)	1.74		164	38 (23.17)	1.43	
No	3441	512 (14.88)	1	1.21, 2.50	3919	683 (17.43)	1	0.99, 2.07
In the past 6 months, have you ever taken 3 days or more sick leaves from school?:								
Yes	192	17 (8.85)	1.48		169	30 (17.75)	3.56	
No	3511	216 (6.15)	1	0.88, 2.48	3975	227 (5.71)	1	2.35, 5.41
In the past 12 months, did you feel sad and hopeless almost everyday for 2 weeks or more that stopped you from usual social activities:								
Yes	197	51 (25.89)	2.19		178	59 (33.15)	2.64	
No	3594	495 (13.77)	1	1.57, 3.05	3399	639 (18.80)	1	1.91, 3.64
In the past 12 months, did you ever consider suicide?								
Yes	195	41 (20.87)	2.10		174	81 (46.55)	3.19	
No	3534	397 (11.23)	1	1.47, 3.02	3986	855 (21.45)	1	2.35, 4.34
In the past 12 months, have you planned a suicide?:								
Yes	194	26 (13.40)	3.14		175	37 (21.14)	3.10	
No	3531	166 (4.70)	1	2.02, 4.88	3982	317 (7.96)	1	2.12, 4.54
In the past 12 months, did you actually attempt suicide?:								
Yes	193	16 (8.30)	4.17		173	46 (26.59)	6.70	
No	3533	75 (2.12)	1	2.38, 7.30	3980	204 (5.13)	1	4.65, 9.66

CI, confidence interval.

consulted a doctor for a psychological issue over the previous month and 6 months. This might reflect the unacceptability and stigma associated with such behavior²² or simply be because of poor awareness in this group. Many STDs can remain subclinical for many years and increase their spread in the current epidemic.²³⁻²⁵

Undoubtedly, the STDs/HIV crisis brings new challenges for all people in Hong Kong, especially the young. To prevent these diseases

effectively, sex education should be targeted at high-risk groups and our findings showed that the sexually experienced group might perceive themselves to have and present with poorer psychological and physical health. Schools should be alerted when their students report sick frequently or have had suicidal attempts. On the medical side, doctors do not seem to be the first point of contact for this age group. Perceived difficulty in getting an appointment, fear of embarrassment, feeling able to confide

in a primary care doctor, and perception of adequate time being given in the consultation was associated with lower consultation rates with family doctors for gynecological problems and contraception by the adolescents in the United Kingdom.²⁶ Whether these are the major reasons for the low consultation rates in Hong Kong and how we can change this perception needs further exploration. Nevertheless, physicians should have more training on recognition of symptoms and signs of mental health problems, and be given clear guidelines as to where and when to refer these patients when dealing with these situations. Enquiries into close relationships in a skillful way can be revealing. For example, a doctor should be more alert when an adolescent comes to consult about contraception; screening for depression and assessment for suicidal risk may be included to detect an undisclosed and unrecognized psychological disturbance.

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Address reprint requests to:

*Dr. William Wong, M.B., Ch.B., M.R.C.G.P.
Department of Community and Family Medicine
The Chinese University of Hong Kong
Prince of Wales Hospital
Shatin, Hong Kong*

E-mail: cwwong@cuhk.edu.hk