

# PREVALENCE OF DEPRESSION IN CHINESE RESIDENTS OF NURSING HOMES IN HONG KONG AND IMPLICATIONS FOR SERVICES AND INTERVENTION POLICIES

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# **SUMMARY**

Due to paucity of research on prevalence of depression in Chinese elderly people residing in nursing homes, the present study investigated a set of predictors at personal, physical, social and psychosocial levels among 187 elderly residents in Hong Kong. The results show that 17.6% of the participants reported a manifest level of depression (GDS≥ 8). Financial strain and physical functioning impairment significantly augmented the likelihood of depression; however, strong support networks at residential settings as well as high self-esteem reduce the likelihood of this mental morbidity. Implications for services and intervention policies as well as further research are briefly discussed.

### Key words:

Chinese elderly people, nursing homes, depression, residential social support, selfesteem.

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### INTRODUCTION

In the last few decades, due to longer life expectancy and lower fertility rates (Elizabeth & Hodges, 2003.; Schulz-Aellen, 1997.) the growing aging population has become a serious societal challenge for policy makers, public health providers, and human services professionals in many industrialized societies (Coleman & O'Hanlon, 2004.). Hong Kong is not an exception to this global population transformation. In 2001., there were 739,739 people aged 65 or above in Hong Kong which is about 11.0% of its total population. In 2006., 828.000 people, i.e. 12% of the total population was aged 65 or above. In 2031 the total number of elderly people is expected to reach 25% of the total population in Hong Kong (Census and Statistics Department, 2007.). Elderly people are more susceptible to a number of physical and mental morbidities. Depression is one of the most common mental health problems occurring among the elderly. However, current research related to this mental morbidity in the elderly population is limited, and this meagerness of literature is especially pronounced in Asian and Chinese societies (Chou & Chi, 2004.; Ip, Leung i Mak, 2000.).

Chronic and recurrent depressive symptoms may bring about profound detrimental effects to one's functional and cognitive abilities, quality of life, and moods (Blazer, 2002.; Cole & Bellavance, 1997.; Penninx et al., 2001.; Wallhagen et al., 2001.). Prior research reported a significant correlation between physical health and emotional distress, including depressive symptoms (Blazzer, 1989.; Husauni et al., 1991.; Mui, 1993.; Revicki & Mitchell, 1990.). In addition, depression is the etiology of a range of behavioral disorders, among which the most prominent are suicidal ideation and attempts (Conwell et al., 1996.). In fact, there is a high suicide rate among elderly people in Hong Kong; more than 30% of the suicide deaths in 2002. were by people aged 60 or above (Chou & Chi, 2002.). The results of a study conducted by Liu and his colleagues (1993.) revealed that people aged 65 or above diagnosed with depression made up approximately 11% of males and 15% of females in Hong Kong.

According to previous studies on Chinese elderly populations, correlates and the prevalence of depression can be generally classified into four levels, including personal/demographic, physical, social, and psychosocial factors (Chou & Chi, 2004.; Chou & Chi, 2002.; Ip et al., 2000.). On a personal level, socio-demographic variables such as gender, age, marital status, and educational attainment, as well as the degree of financial adequacy, which are correlated with old age depression, are applicable to both Chinese and Western societies (Beekman et al., 1995.; Palsson & Skoog, 1997.; Chou & Chi, 2004.). In comparison to their male counterparts, older females who are single or widowed, with lower educational levels and limited

financial resources appear to be more depressed (Blazer, 2005., Chou & Chi, 2004.; Cole & Bellavance, 1997.).

On a physical level, poor self-rated or objectively diagnosed health statuses and physical functional capacities are also essential factors that contribute to the occurrence of depression in elderly people (Haynie et al., 2001.). Being healthy is a precondition for higher life satisfaction, and depressed people may feel less contented with their lives (Aquino et al., 1996.; Stolar, MacEntee & Hill, 1992.). Literature has proposed that physical impairment could prevent elderly people from engaging in various social activities and maintaining social relations, which are important for depression prevention (LaForge, Spector & Sternberg, 1992.; Heinemann et al., 1988.; Wallhagen et al., 2001.).

At the social and psychosocial level, recent research has verified that elderly people with strong support from their family members and their social network, as well as those with a sense of self-efficacy and higher levels of self-control, are less depressed (Haynie et al., 2001.; Krause & Liang, 1992.; Fiske et al., 1998.). It is anticipated that positive and helpful social support networks and a higher sense of self-efficacy and competence could become coping and buffering mechanisms, thus making difficulties and hardships less stress-inducing. These mechanisms could remit the adverse impacts of stressors and risk factors from the personal and physical levels of depression (Krause & Liang, 1993.; Fiske et al., 1998.; Chou & Chi, 2001.). In this sense, the availability of resources from social and psychosocial levels could become crucial in reducing the detrimental effects of personal and physical level depression risks present among elderly people.

Although elderly people make up a significant portion of the general population of most industrialized societies, studies that investigate those elderly people who are institutionalized in nursing homes or other residential care facilities have been highly limited. In comparison to the elderly population of other communities, elderly people in nursing homes in Hong Kong are physically and mentally more fragile. Their mobility is also poorer and their physical surroundings are more limited (Kwan, 2007.). Using the academic database of Scopus¹ and employing the search syntax, "ALL("depress\*") AND TITLE-ABS-KEY("elder\*") AND TITLE-ABS-KEY("nursing home\*") AND SUBJAREA("SOCI" OR "HEAL") AND ALL("Chin\*" OR "Asia\*")", only three studies on elderly people dwelling in nursing homes in Asian societies and Hong Kong are found (Chen, Lin & Jane, 2009.; Cheng, 2009.; Chung, 2008.). However, no studies among these have investigated the prevalence of depressive symptoms in residents living in nursing homes. Therefore, the present study attempts to answer

Scopus is currently thought to be the most expandable academic search database that includes journal articles incorporated in Social Science Citation Index (Web of Science) and PsycInfo as well as Medline and other materials that are excluded from the named three databases.

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the following: What is the prevalence of depression among elderly people residing in nursing homes? What are the correlates of depression in these nursing home residents in Hong Kong?

# **METHOD**

### **SAMPLE**

Between January and March 2009., two nursing homes in the Kwun Tong district in Hong Kong were selected by the third author, who worked as a social work manager in the locality and had direct connections with these nursing homes. Open recruitment and voluntary participation were used to invite prospective elderly participants from nursing homes. A total of 203 elderly residents living in nursing homes agreed to participate in the study. However, because 16 participants showed severely biased data according to the Kolmogorov-Smirnov and Homoscedasticity tests, these cases were deemed as outliers and excluded from further analysis; the final sample included 187 participants.

# **PROCEDURE**

Management staff members in the nursing homes were first requested to partake in the current study, and a short briefing regarding the aims of the study was given to them. Elderly residents in the nursing homes were then requested to take part in the study and a verbal consent was requested before questionnaires were answered. A team of voluntary staff members helped as interviewers for face-to-face interviews. Most of the elderly participants in this study were able to complete the questionnaires within 25 minutes.

### **MEASURES**

**Depressive symptoms**. In this study, the Geriatric Depression Scale (GDS) was used to measure depressive symptoms. The GDS is a 15-item scale that has been used extensively in previous research (Bryant, Jackson, & Ames, 2009.; Wilson, Mottram, & Sixsmith, 2007.). The fifteen depressive symptoms were presented to the participants, who were then asked whether or not they had experienced any in the two weeks preceding the interview. The 15 items were rated on a dichotomous scale for the presence and absence of these symptoms (0=no, 1=yes). The scores of the measures could range from 0 to 15 symptoms. A Chinese version of

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the GDS had been previously validated by local scholars (Lee, Chiu & Kwong, 1994; Beoy, 2000.). A dummy variable was formed by the cut-off point of 8 to indicate the presence and absence of a manifest level of depression ( $0=GDS \le 7$  and  $1=GDS \ge 8$ ).

**Fall Risk.** The residents were assessed by physiotherapists during their first entry into the nursing homes and were asked whether he/she had a risk of falling; this risk is reviewed at least once a year. A dummy variable was formed to indicate that the participant had a risk of falling (0=presence of a fall risk, 1=absence of a fall risk).

**Physical Functioning Impairment**. This measure was assessed by the Katz Index (1970.). It is a six-item scale which assesses the ability of care recipients to perform activities that include bathing, dressing, toileting, transfer, continence, and feeding. Responses to the measure were dichotomized into 0 for having no difficulty in performing these tasks and 1 for having difficulty in performing the tasks independently. The scores of the measure ranged from 0 to 6, and higher scores indicated poorer physical functioning.

**Family Support.** Family support was assessed using a 4-item 4-point scale. The items included the following questions: "How many family members would pay you a visit monthly? (1=none, 2=one, 3=two, 4=3 or more)", "What is the frequency with which you converse or talk with your closest family member? (1=less than once a month, 2=once a month, 3=several times a month, 4=several times a week and more)", "How many family members do you think you could confide your personal matters and feelings to directly? (1=none, 2=one, 3=two, 4=3 or more)", and "When you need to seek help, how many family members do you think you could directly ask for help from? (1=none, 2=one, 3=two, 4=3 or more)". The internal consistency was 0.82.

**Residential Social Support.** Residential social support was assessed using a 4-item 4-point scale. The items included the following questions: "How many friends are there in your residential setting that you think you could confide your personal matters and feelings to directly? (1=none, 2=one, 3=two, 4=3 or more)", "When you need to seek help, how many friends in your residential setting do you think you could directly ask help from? (1=none, 2=one, 3=two, 4=3 or more)", "When you need to make an important decision, would people in your residential setting be willing to discuss it with you? (1=never, 2=sometimes, 3=often, 4= always)", and "When you need to make an important decision, would the people in your residential setting be willing to offer help by their own initiative? (1=never, 2=sometimes, 4=often, 5=always)". The Cronbach alpha was 0.87.

**Residential Social Participation.** Two items were used to measure the degree of an elder's involvement in collective programs and festival gatherings in his/ her residential setting. The items include the following questions: "When there is a

collective program or festival gathering held at your nursing home, do you partake in it? (1=never, 2=sometimes, 3=often, 4=always)", and "How many times will you participate in regular and irregular group-work games or other collective tasks held by your nursing home? (1=never, 2=once, 3=twice, 4=three or more times)". Because only two items were used for this measure, the internal consistency was 0.40.

**Self-Esteem**. Self-esteem was assessed using the 10-item Rosenberg Self-Esteem Scale (1965), which is a 4-point scale (4=strongly agree, 3=agree, 2=disagree, 1=strongly disagree). For the original scale, higher numbers indicate higher self-esteem. Due to the severe skewness of the distribution of scores in the present study, a dichotomized variable was formed by re-coding the levels of "strongly agree" and "agree" into 1 and "disagree" and "strongly disagree" into 0, which are indicative of high and low self-esteem, respectively. The Cronbach alpha was 0.76.

**Demographics**. Gender, education, age, and marital and financial statuses were added to this study as covariates. For gender, 0 represents males while 1 represents females. Due to the high illiteracy prevalence rate in Chinese elderly people, education was only indicated by three levels (1=illiterate, 2=primary education, 3=secondary education or above). For age, those who were between 65 and 75 years old were coded as 1, those between 76 to 85 years old were coded as 2, and those aged 85 and above were coded as 3. Marital and financial statuses were dummy variables (1=currently married and 0=otherwise, and 1=financially adequate and 0=financially inadequate).

### **RESULTS**

In this study, there were more female participants than male participants (71% vs. 29%) (Table 1), which is consistent with the demographic characteristics of elderly people in most industrialized societies (Chou & Chi, 2004.). 116 participants (62%) were currently married, and 71 participants were divorced, single, or widowed. For age, 77% of the sample population (n=144) were aged 75 or above, which shows that many participants were old-olds or oldest-olds. Moreover, the illiteracy rate of the sample was notable: 45.5% of the participants had not received any formal education. About a quarter of the elderly in this sample had financial strains and low self-esteem. For depressive symptoms, about 33 participants (17.6%) were diagnosed with a manifest level of depression; their scores on the Geriatric Depression Scale were 8 or higher.

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To test whether or not differences in the study variables existed between female and male participants, we conducted a series of Parson Chi-Square and independent samples t-test analyses. Except for male participants having higher educational attainment, no significant differences between female and male participants were observed in the variables that could be subsequently taken in the logistic regression analyses. In fact, because logistic regression is still prone to bias by multicollinearity, it was crucial to perform diagnostic analyses to determine the reliability of the results. The tolerance statistics of the predictors in the present study ranged from 0.74 to 0.94, and the VIF values were all within 1.08 to 1.19. These are acceptable tolerance levels and do not violate collinearity diagnostics (Myers, 1990.).

In logistic regression analyses, the demographic and personal variables were first entered as covariates. Among these demographics, gender, age, education, and marital status were not significant predictors, but financial strain was significantly predictive of depression. An elderly participant with inadequate financial resources was 2.77 times more likely to have morbid depression than a counterpart who did not have financial problems (Table 2). In the second block, physical functions variables were entered as predictors. Results showed that participants with poorer physical functions were more likely to develop depression than those with good functions. A unit increase in impairment of physical functioning resulted in 1.96 times increased likelihood of developing depression among elderly participants. In this block, financial strain remained as a robust predictor of depression that significantly influenced the likelihood of developing the disease.

**Table 1.** Descriptives of Study Variable

Variables	Males (n=54) Percent (n)/ Mean (SD)	Females (n=133) Percent (n)/ Mean (SD)	All (N=187) Percent (n)/ Mean (SD)
Gender			
Females			71 (133)
Males			29 (54)
Age <sup>a</sup>			
65-75	14.8 (8)	26.3 (35)	23.0 (43)
76-85	50.0 (27)	36.1 (48)	40.1 (75)
85 or above	35.2 (19)	37.6 (50)	36.9 (69)
Education Attainment <sup>b</sup>			
Illiteracy	29.6 (16)	51.9 (69)	45.5 (85)
Primary	61.1 (33)	40.6 (54)	46.5 (87)
Secondary or Above	9.3 (5)	7.5 (10)	8.0 (15)
Marital Status <sup>a</sup>			
Currently Married	64.8 (35)	60.9 (81)	62.0 (116)
Otherwise (Divorced, Single, and Widowed)	35.2 (19)	39.1 (52)	38.0 (71)
Economic Status <sup>a</sup>			
Adequacy	70.4 (38)	69.9 (93)	73.3 (137)
Inadequacy	29.6 (16)	30.1 (40)	26.7 (56)
Self-Esteem <sup>a</sup>			
High	68.5 (37)	75.2 (100)	73.3 (137)
Low	31.5 (17)	24.8 (33)	26.7 (50)
Fall <sup>a</sup>			
With Risk	64.8 (35)	56.4 (75)	58.8 (110)
Without Risk	35.2 (19)	43.6 (58)	41.2 (77)
Physical Functioning Impairment <sup>c</sup>	4.88 (1.41)	4.81 (1.16)	4.83 (1.24)
Family Support <sup>c</sup>	11.11 (2.51)	10.81 (2.37)	10.88 (2.41)
Residential Social Support <sup>c</sup>	7.11 (1.58)	7.06 (1.55)	7.10 (1.56)
Residential Social Participation <sup>c</sup>	3.31 (1.08)	3.57 (.97)	3.49 (1.01)
Depression <sup>a</sup>			
High	25.9 (14)	14.3 (19)	17.6 (33)
Low	74.1 (40)	85.7 (114)	82.4 (154)

<sup>&</sup>lt;sup>a</sup> No significant difference between the variable and gender by Parson Chi-Square test.

<sup>&</sup>lt;sup>b</sup> Male participants were with higher educational attainments than their female counterparts,  $X^2(2) = 7.80$ , p < .05.

<sup>&</sup>lt;sup>c</sup> No significant difference between the variable and gender by independent samples t-test.

 Table 2. Logistic Regression Analyses of Predictors in Prevalence of Depression

	Block One	Je	BlockTwo	NO	Block Three	hree	Block Four	<u> </u>
Predictors	9	OR (95% CI)	9	OR (95% CI)	9	OR (95% CI)	9	OR (95% CI)
Gender	69.	1.99 (.89-4.48)	.57	1.77 (.76-4.13)	.78	2.19 (.67-7.18)	.65	1.92 (.54-6.84)
Age	08	.92 (.54-1.59)	-1.40	.87 (.50-1.52)	.13	1.14 (.57-2.31)	.26	1.29 (.63-2.66)
Education	.42	1.52 (.81-2.86)	.27	1.31 (.69-2.47)	.32	1.37 (.64-2.95)	.51	1.67 (.73-3.82)
Marital Status	11	.90 (.39-2.05)	80	.92 (.39-2.21)	18	.83 (.26-2.66)	.04	.96 (.29-3.20)
Financial Strain	1.02*	*2.77 (1.25-6.11) .94*	.94*	2.55 (1.11-5.84)	.74	2.09 (.70-6.20)	.41	1.51 (.47-4.87)
Fall Risk			.51	.60 (.25-1.47)	.45	1.57 (.48-5.20)	88	2.43 (.66-8.86)
Physical Functioning Impairment			*/9	1.96 (1.10-3.51) 84*	.84*	2.32 (1.14-4.73)	.85*	2.33 (1.14-4.78)
Family Support					.003	1.00 (.80-1.26)	800°	1.01 (.79-1.29)
Residential Social Support					*86:-	.38 (.2654)	-1.03*	.36 (.2453)
Residential Social Participation					54	.58 (.30-1.12)	50	.61 (.31-1.20)
Self-Esteem							-1.61**	.20 (.1067)
-2 Log Likelihood	162.68		152.84		101.44		94.39	
Model X²(df)	11.59(5)*	4	21.45(7)**	*	72.85(10)**	**(0	79.89(11)**	*
Cox & Snell R <sup>2</sup>	90:		.11		.32		.35	
* p<.05, **p<.01								

After social support resources were added to subsequent logistic regression analysis, financial strain was no longer a significant predictor of depression. In this block, residential social support appeared to be a significant predictor of depression, in which a unit increase in an elder's social support in the residential setting contributed to 64% less likelihood of developing depressive symptoms at a manifest level (GDS≥8). In other words, an elderly person who has a strong residential support network is 2.77 times less likely to have geriatric depression than someone without the support network.

In the final logistic model, the psychosocial variable of self-esteem was added for analysis. In this model, physical functioning impairment and residential social support remained significant predictors of depression. Self-esteem also appeared to be a robust predictor of depression. Elderly people with high self-esteem were 80% less likely to develop depression compared to their low self-esteem counterparts. Our final model successfully classified 90.9% of the study participants. Hosmer and Lemeshow tests show that the model can fit the dataset rather well, and demonstrate its generalizability,  $X^2$ =8.10, df=8, p=0.42. Only 35% of the total variance, however, is explained by the present model. Other factors at different levels could help enhance the predictive power of the current study.

# **DISCUSSION**

Although several studies have investigated the elderly population residing in nursing homes in Hong Kong or other Asian societies (Chen, Lin & Jane, 2009.; Cheng, 2009.; Chung, 2008.), these studies do not directly discuss depressive morbidity in this population. The morbidity of this mental distress influences the quality of life and well-being of the elderly. Determination of the personal, physical, social, and psychosocial levels of correlates that contribute to a manifest level of depressive symptoms in the elderly residing in nursing homes has both practical and policy implications.

In the current study, we found that financial strain at the personal level was significantly predictive of depression. Elderly residents in nursing homes with financial difficulties were more likely to have a manifest level of depressive symptoms than those who did not have such problems. In Hong Kong, a lack of a government-driven pension system for the elderly who were not working in the public sector when they were young exists (Chui, 2008.; Leung, 2003.). Recent reforms in the Mandatory Provident Fund Scheme (MPF) are restricted to younger working generations. Thus, this scheme is not directly beneficial to the

elderly, especially those residing in nursing homes. Nursing homes operate on the assumption that these older residents are not physically capable of tending for themselves. Thus, the government should consider a special support scheme for older people with financial problems, especially those who are physically fragile. As well, social service organizations caring for the elderly should have favorable plans to reduce the fees for service recipients with financial difficulties.

Physical functioning impairment was also found to be a detrimental factor related to depression among nursing home residents. It is crucial for social service organizations and the government to promote healthy aging programs in order to enhance the physical strength of the elderly population. These programs could become important resources for this specific social group and the society as a whole, thus reducing the side effects of geriatric depression.

Compared to family support, residential social support appeared to be more valuable in remitting the occurrence of depressive symptoms among the study participants. Results showed that elderly participants with high residential support were less likely to develop depression than their low residential support counterparts. In other words, a unit increase in residential support results in a 2.77-fold lower likelihood of developing depressive symptoms at a manifest level. Nursing home professionals, including social workers, healthcare workers, and program workers, should note the importance of strengthening social relationships among elderly residents, as mutual support and peer counseling groups can enhance social networks and ties among their elderly dwellers. In the current study, family support did not appear to influence the development of geriatric depression. It is thought that occasional visits from family members at irregular intervals may function less as a buffering social factor in reducing depression among the elderly compared to constant residential support.

The self-esteem of the elderly residents proved to be as a robust psychosocial factor that can reduce the likelihood of depression; a unit increase in self-esteem brought about 80% less likelihood of developing manifest-level depressive symptoms. Past research has consistently pointed out that positive psychosocial resources, such as high self-esteem and self-efficacy, are critical buffering or mediating factors that prevent the occurrence of mental disorders (Aquino et al., 1996.; Luszczynska & Gutierrez-Dona, 2005.). Mental health professionals, such as clinical psychologists, should aim to develop individual resilience by enhancing psychosocial resources among elderly residents in nursing homes.

The current study only employed a convenient sample from two nursing homes in Hong Kong with a cross-sectional design. Future studies should recruit more nursing homes based on a stratified approach across the territory. This could increase the generalizability of the findings. The use of a longitudinal design

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could also trace the transitional trajectory of development of depression among the elderly residents in nursing homes. The current study also incorporates only limited predictors at the personal, physical, psychosocial, and social levels. Given these predictors, the full model (Block Four) only accounts for 35% of the total variance. As a result, much is still unknown about the development of manifest-level depression among the nursing home elderly. Therefore, augmentation of correlates at different levels for further research would be helpful in enhancing our knowledge of geriatric depression among this specific group of elderly people in nursing homes.

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# KORELATI I PREVALENCIJA DEPRESIJE KOD OSOBA SMJEŠTENIH U KINESKIM DOMOVIMA ZA STARIJE OSOBE: IMPLIKACIJE ZA USLUGE I INTERVENCIJE

### SAŽETAK

Zbog nedostatka istraživanja o raširenosti depresije kod starijih osoba smještenih u kineskim domovima za starije osobe, ova studija istražuje niz prediktora depresije na osobnoj, fizičkoj. socijalnoj i psihosocijalnoj razini među 187 starijih korisnika u Hong Kongu. Rezultati pokazuju da je 17,6% sudionika iskazalo manifestnu razinu depresije (GDS≥ 8). Financijski pritisci i smanjena fizička pokretljivost značajno povećavaju mogućnost depresije. Snažna mreža podrške u rezidencijalnom smještaju kao i visoko samopoštovanje umanjuju mogućnost ovog mentalnog poremećaja. Implikacije za usluge i intervencije kao i za daljnja istraživanja su ukratko prikazani.

**Ključne riječi**: Kina, starije osobe, domovi za starije osobe, depresija, socijalna podrška u instituciji, samopoštovanje.