ORIGINAL ARTICLE

Psychological distress in elderly patients with congestive heart failure

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ABSTRACT

Objectives. Congestive heart failure (CHF) is a pervasive cardiac syndrome with an elevated prevalence in the older population. High level of psychological distress has been reported in this patient group, resulting in more hospital readmissions, poorer quality of life, and increased mortality. Yet, little is known about its relating factors. This study identified the significant demographic, clinical, and psychosocial factors relating to psychological distress in CHF patients.

Methods. Cross-sectional data were obtained from a consecutive sample of CHF patients (n=227) in an acute hospital setting. Psychological distress was measured by the Hospital Anxiety and Depression Scale (HADS). Functional status, symptom status, social support, and health perception respectively were assessed using the New York Heart Association Classification, Chronic Heart Failure Questionnaire, Medical Outcome Study Social Support Survey, and a 100-mm horizontal visual analogue scale. Other clinical variables were obtained from the hospital record.

Results. The results indicated high level of psychological distress among CHF patients; the negative emotion of depression being the most dominant. In hierarchical regression analysis, poorer perceived emotional-informational support, higher levels of fatigue, poorer health perception, and not living with family were identified as the significant factors in association with psychological distress. In total, they explained for 49% of the variance for the HADS score. Among these factors, emotional-informational support and fatigue demonstrated the greatest explanatory power with the standardised coefficient (β) being -0.40 and -0.34 respectively.

Conclusion. These findings highlight the importance of addressing the social support needs of the CHF patients. Assisting this vulnerable patient group to control the symptom of fatigue and cultivate a positive health perception should also be high priority treatment goals.

Key words: Aged; Chinese; Depression; Heart failure, congestive; Stress, psychological

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INTRODUCTION

Congestive heart failure (CHF) is a terminal manifestation of various cardiac pathologies, mainly

affecting people in older age. In this disease, failure of myocardial pumping subjects elderly CHF patients to the distressing symptoms of fatigue, dyspnoea, and activity intolerance. Besides, management of elderly CHF patients requires that they follow a series of treatment-related lifestyle restrictions. The progressively deteriorating nature of CHF, however, renders the episodic adverse cardiac events and hospital readmission as inevitable outcomes.¹ Apart from impairing the physical integrity of elderly patients, these ramifications of CHF also tremendously disrupt their normal social and role functioning.

Previous studies have examined the ways elderly CHF patients conceived their life situation. Mahoney² indicated that patients regarded the disease as burdensome and causing a lot of disruptions to their physical, emotional, social, economic, and spiritual well-being. They described their own situations as drowning in both physical and emotional perspectives. The debilitating symptoms and the enforced lifestyle modification imposed a strong sense of restriction onto elderly, and the associated loss of role functioning, social activity, and leisure pursuits amplified feelings of loss of self and worthlessness. They viewed themselves as a burden on others in their surroundings.3 The loss of physical integrity, functional capacity, family and social role functioning also posed a great psychological threat to elderly CHF patients.4 They expressed a strong sense of insecurity and lack of harmony within themselves, described their own situation as "a big cutback everywhere",5 and even conceived their own existence as "passive waiting for death".3 According to these findings therefore, this vulnerable group suffers intense internal feelings of powerlessness and hopelessness.

Molassiotis⁶ stated that the psychological reaction to a chronic illness is constructed from the way the patient conceives their life experience. All of the negative life conceptions of elderly CHF patients reported in the literature, are in fact, core triggering factors for anxiety and depression.^{7,8} Previous studies have documented the high level of such deleterious emotions in elderly CHF patients,^{9,10} and the prevalence of major depression in these patients has been reported to be as high as 26% to more than 40%.¹¹⁻¹³

Numerous studies have documented that psychological distress is especially detrimental for elderly CHF patients. Clarke et al¹⁴ conducted a large-scale study (n=2992) in elderly CHF patients, and found that psychological distress was the most significant predictor of functional decline in intermediate and social activities of daily living (ADL). Tsay and Chao¹⁵ reported similar findings, indicating that elderly CHF patients with depression had poorer perceived functional status and demonstrated more deficits in ADL functioning. High-level psychological distress was also associated with more severe symptom manifestations¹⁶ and poorer quality of life,¹⁷ and in elderly CHF patients it predicted an almost two-fold increase in hospital readmissions and mortality.¹⁸ The literature suggests several mechanisms to explain the negative prognostic impact of psychological distress in elderly CHF patients. High-level psychological distress exaggerates the neuro-endocrine activities,¹⁹ resulting in impaired myocardial blood flow and arrhythmia in CHF patients. This emotional factor also reduces patients' motivation to comply with the treatment and interferes with their social interactions.^{20,21} All of these effects appear to compromise the cardiac condition of elderly CHF patients, hinder effective self-care management, and deprive them of social support to cope with their debility.

The tremendous negative impact of psychological distress on the health outcomes of elderly CHF patients indicate an urgent need to promote the psychological well-being in this vulnerable group. As psychological reactions to chronic illness are complex and determined by the patient's personal attributes, social context, and illness manifestation,⁶ identifying factors that are significantly associated with psychological distress appear crucial for planning effective care.

Previous work has examined the relationships between the psychological distress and various social, demographic, and clinical characteristics of elderly CHF patients. Among these, the relationship between social factors and psychological distress seems to be most conclusive. Higher levels of social support protected elderly CHF patients from developing depressive symptoms²² or clinical depression.²³ In addition, elderly CHF patients who perceived more emotional support reported higher life satisfaction, whilst those who received more tangible support had less psychological distress. Social network characteristics also affect psychological well-being; "living alone"²⁴ and "without spouse"²⁵ was most detrimental. In elderly CHF patients, perceived clinical status such as symptom severity and perceived functional impairment have also been identified as having a prominent relationship with psychological distress.^{26,27} On the other hand, objective indicators of clinical status including ventricular ejection fraction and other functional measures, as well as the number of comorbidities demonstrate a less significant association with psychological status.^{12,28} Previous studies also reported significant gender differences in the psychological status of elderly CHF patients; females being more disadvantaged.²⁹ However, the relationship with other demographic characteristics, including lower income, lower educational level, younger age and psychological distress, were less prominent.^{9,12,30}

Although previous studies have provided information about factors that are associated with psychological distress in elderly CHF patients, they have not adequately incorporated all possible related attributes in the social, clinical, or demographic dimensions that might account for the phenomenon. Moreover, little is known about the relative importance of the possible factors associated with psychological distress in such patients. The purpose of this study was therefore to identify the social, clinical, and demographic factors that were significantly associated with psychological distress in elderly CHF patients. Nineteen variables including age, gender, marital status, living arrangements, educational level, income, number of comorbidities, years with CHF, number of medications, use of beta-blockers, functional status, health perception, dyspnoea, fatigue, tangible support, affectionate support, social interactional support, emotionalinformational support, and size of social network were studied.

METHODS

Study design and subjects

This was a cross-sectional study conducted in the Medical Unit of a regional hospital in Hong Kong between January 2002 and March 2003. The sample was comprised of patients admitted with an index diagnosis of CHF. The validity of the diagnosis was ascertained by the use of the Framingham criteria.³¹ Confirmation of the diagnosis required the presence of two or more major criteria, or one major criterion plus two or more minor criteria. Major

criteria included: paroxysmal nocturnal dyspnoea, orthopnoea, rales, jugular venous distention, third sound and radiological signs of pulmonary congestion and/or cardiomegaly. The minor criteria include effort dyspnoea, oedema, hepatomegaly, and pleural effusion. To be eligible, patients were age ≥ 60 years, Chinese speaking, able to communicate, cognitively intact as indicated by the Abbreviated Mental Test score (AMT) [Hong Kong version] of $\geq 6/10$,³² with no psychiatric illness and had not been planned for any surgery or invasive cardiac procedure.

Measures

The Hospital Anxiety and Depression Scale (Chinese-Cantonese version)

The Hospital Anxiety and Depression Scale (HADS) [Chinese-Cantonese version] was used to measure psychological distress.³³ Its 14 items are evenly divided into two subscales for measuring anxiety and depression in patients with medical illness. The response set is 4-point'0-3' fixed statements; a higher score represents greater psychological distress. The total score ranges from 0 to 42, and the cut-off points for the overall scale and depression subscale of the Chinese version are suggested to be 15/16 and 8/9 respectively for the presence of psychiatric symptoms. The HADS (Chinese version) is psychometrically sound. Its concurrent and criterion-related validity were supported by its significant correlations with the Hamilton Rating Scale of Depression³⁴ and the psychiatrist's diagnosis respectively. The Cronbach's alphas were reported as 0.77-0.86,33 and its twofactor structure is affirmed by factor analysis. The current study also demonstrated its good internal consistency with a Cronbach's alpha of 0.82.

The Chronic Heart Failure Questionnaire (Chinese version)—Fatigue and Dyspnoea Subscales

The fatigue and dyspnoea subscales of the Chronic Heart Failure Questionnaire (Chinese version) [CHQ-C] were used to measure the symptoms of fatigue and dyspnoea in elderly CHF patients.³⁵ It was translated from the original version.³⁶ The dyspnoea and fatigue subscale contains five and four items respectively. They are scored on a 7-point Likert scale. The score of both subscales range from 1 to 7, with higher subscale scores indicating lesser severity of the respective symptom. Psychometric properties of CHQ-C have been established.³⁷

The content validity index of CHQ-C is 0.81. The construct and criterion-related validity are supported by its significant correlations with the HADS and New York Heart Association (NYHA) Classification respectively. High internal consistency and 2-week test-retest reliability are reported with Cronbach's alpha of 0.95 and intra-class correlation coefficient of 0.75 respectively.

The New York Heart Association Classification

The NYHA Classification was used to measure functional status. It is a 4-class system that grades the functional impairment of patients with heart failure.³⁸ The classification is based on symptoms of fatigue, dyspnoea, and palpitation resulting from performing ordinary and less-than-ordinary activity. The grading is in ascending order of increased functional impairment. The NYHA classification is a clinically sound functional measure when used in elderly CHF patients, and it demonstrates good correlation with other valid instruments that measure functional status in cardiac patients.

Visual analogue scale

The visual analogue scale (VAS) was used to measure health perception of the subjects. It is a 100-mm long horizontal line, with both ends labelled with "poorest health" and "best health" respectively. Subjects were invited to put a cross on the line to indicate how healthy they perceived they were. The score is indicated by the distance (in mm) between the end labelled with "poorest health" to the marked cross. Higher score therefore indicates better health perception. The VAS is a common method used to measure health perception in clinical research.³⁹⁻⁴¹

The Medical Outcomes Study Social Support Survey (Chinese version)

The Medical Outcomes Study Social Support Survey (Chinese version) [MOS-SSS-C] was used to measure perceived social support.⁴² It is a 20-item self-reported measure, one of its items assesses the size of the subject's social network, whereas the others constitute four subscales each measuring the perceived adequacy of tangible support, emotional and informational support, positive social interaction, and affectionate support. The response set is a 5-point Likert scale. The score for the overall scale and subscales are rescaled to the range of 0-100, with higher scores indicating better-perceived social support. The psychometric properties of the

overall scale and subscale of the MOS-SSS-C were established.⁴³ Its internal structure was also affirmed by factor analysis. Its criterion-related and construct validity are supported by its significant correlations with the Chinese version of Multidimensional Scale of Perceived Social Support Scale⁴⁴ and HADS respectively. Factor analysis confirms its four-factor structure. High internal consistency and 2-week testretest reliability are reported with Cronbach's alpha as 0.98 and intra-class correlation coefficient as 0.84 respectively. Its internal consistency as indicated by Cronbach's alpha in the current sample was 0.96.

Demographic and clinical data collection sheet

A demographic and clinical data collection sheet was developed to collate information collected on gender, age, marital status, living arrangement, educational level, occupation, monthly income, duration of CHF diagnosis, number and types of comorbidities, mediations and number of previous hospitalisations within the last 6 months. These data were collected by record review and structured interview.

Procedures

Approval was obtained from the Ethics Committee of the Chinese University of Hong Kong before conducting the study. The research nurse firstly screened the eligibility of all the patients admitted with an index diagnosis of CHF. She then invited those who met the selection criteria to participate, and obtained their written consent. This was followed by a face-to-face interview, during which the nurse administered all the study instruments. The nurse also graded the functional status of eligible subjects with NYHA, and obtained the other socio-demographic and clinical data by reviewing the hospital record.

Statistical analysis

Statistical analysis was performed using Statistical Package for the Social Sciences (Windows version 11.0; SPSS Inc, Chicago [IL], US). Hierarchical regression analysis was used to identify the significant correlates of psychological distress in elderly CHF patients. Predictive variables that showed significant bivariate correlation with the HADS score were identified and entered into the regression model sequentially. According to the level of measurement, the Pearson product-moment correlation and Spearman rank-order correlation

were used to examine the bivariate relationships between the continuous predictive variables and the HADS score. As for the nominal variables of gender, marital status, living condition and use of beta-blockers, the independent t-test was used to identify significant differences in the HADS scores between respective dichotomous groups. The order of entry of these variables for regression analysis was determined by their respective least linear regression coefficients, with the one independently accounting for greater variance of HADS score entered first. In order to avoid redundancy, potential correlates with high covariability (i.e. $r \ge 0.8$) were not collectively incorporated into the model. Instead, the one with higher percentage of variance would be selected. In successively formulating each regression model, variables that remained significant in the regression model were retained for analysis in the subsequent model. The level of significance was set at $p \le 0.05$.

RESULTS

Of 553 elderly CHF patients consecutively admitted to the study setting, 227 met the eligibility criteria and consented to participate. Comparison of these participants with the non-participants who refused to consent or were discharged early (n=102) revealed no significant difference in their age and sex. For the recruited subjects, TABLE 1 summarises their demographic, clinical, and psychosocial characteristics. The mean age was 77.1 (standard deviation [SD], 7.9; range, 60-95) years and 48% were male. About half of the sample (48%) had spouses, and most (75%) were living with families. The majority (89%) had low monthly incomes of <HK\$3000. The mean duration of being diagnosed with CHF was 3.0 years. Comorbidities were highly prevalent in the sample; 88% of them suffered from one to as many as six other chronic diseases. The mean number of medications used was 4.1 (SD, 1.7) and a beta-blocker was prescribed to 17% of the sample.

As indicated by the HADS overall and subscale scores, the sample was characterised by a high level of psychological distress, with depression being more severe than anxiety. The mean values of both the overall score and depression subscale score exceeded their respective cut-off points of 15/16 and 8/9, suggesting the presence of psychiatric symptoms.³² Almost 40% of the patients were categorised as

NYHA Class III or above, indicating that their cardiac functional status was greatly impaired. In addition, they reported higher levels of fatigue as compared to dyspnoea. The health perception score was generally low, indicating poor self-perceived health status. As for social support, the mean social network size was around three. This was considered as reduced when compared with the previous data reported for older Hong Kong Chinese people (M=20.80).⁴⁵ However, the subjects rated social support, particularly tangible and affectionate support as moderately adequate.

Among the 15 potential continuous independent variables, 12 showed a significant bivariate relationship with the HADS score. TABLE 2 presents the correlation matrix. Psychological distress demonstrated significant positive correlations with more severe symptom of fatigue, poorer health perception, more shrunken social network, and lower perceived social support. A higher level of psychological distress was also significantly positively correlated with a poorer functional status, older age, and more comorbidities. For the nominal independent variables of gender, marital status, living arrangement and use of betablocker, the HADS scores were significantly higher in those who had no spouse (*t* [225]=4.26, p≤0.001) or were not living with a family (t [225]=4.71, p<0.000). However, no significant difference in psychological distress was detected among patients of different gender (*t* [225] = –1.20, p=0.23), and among users and non-users of beta-blockers (t [225] = -0.17, p = 0.87).

TABLE 3 outlines the results of simple linear regression for the 14 variables that demonstrated a significant relationship with the HADS score. For the two nominal variables of marital status and living arrangement, dummy variables were created with"no spouse" and "not living with family" as their respective reference group. In accordance with the values of the regression coefficients for these variables, they were successively entered into the hierarchical regression model. However, as high covarability existed between positive social interaction and the other two correlates of emotional informational support and affectionate support (i.e. $r \ge 0.80$) [TABLE 2], which all gave rise to similar variances for HADS scores-only social interactional support was omitted to allow the other two correlates to be entered into the model.

TABLE 4 presents the results of hierarchicalregression analysis. Among the 12 variables entered

Demographic, clinical, and psychosocial characteristics*	Value [†]
Age (mean \pm SD) [years]	77.1 ± 7.9
Gender Male Female	108 (48%) 119 (52%)
Marital status Single Married Divorced Widow/ widower	6 (3%) 109 (48%) 5 (2%) 107 (47%)
Living condition Living alone With couple With family With friend Old-age home residents	27 (12%) 38 (17%) 132 (58%) 5 (2%) 25 (11%)
Educational level Illiterate Under primary Primary Secondary University Above university	84 (37%) 39 (17%) 71 (31%) 24 (11%) 8 (4%) 1 (0.4%)
Source of income From relatives From salary From public allowance	115 (51%) 11 (5%) 101 (44%)
Monthly income (HK Dollar) [‡] ≤\$3000 \$3001- \$5000 \$5001- \$8000 >\$8000	202 (89%) 15 (7%) 7 (3%) 3 (1%)
Years of having congestive heart failure (mean \pm SD)	3.0 ± 2.6
NYHA grading Class I Class II Class III Class IV	28 (12%) 113 (50%) 77 (34%) 9 (4%)
No. of medication (mean \pm SD)	4.1 ± 1.7
Type of medications Anti-coagulant Angiotensin-converting inhibitor Nitrates Digitalis Diuretics Beta-blocker	132 (58%) 83 (37%) 94 (41%) 40 (18%) 187 (82%) 38 (17%)
No. of comorbidities Zero One Two Three Four Five Six	28 (12%) 53 (23%) 67 (30%) 49 (22%) 13 (6%) 15 (7%) 2 (1%)
Type of comorbidities Ischaemic heart disease Myocardial infarction Diabetic mellitus Hypertension	58 (26%) 13 (6%) 82 (36%) 116 (51%)

 TABLE 1

 Demographic, clinical, and psychosocial characteristics of the sample (n=227)

into the model, only four demonstrated a significant contribution to the variance of the HADS score. They were fatigue, emotional-informational support, health perception, and living conditions. A higher level of fatigue, lower perceived emotional-information support, poorer health perception, and not living with

No, of hospitalisation within the previous 6 months Zero One Two Three Four Five	134 (59%) 68 (30%) 13 (6%) 4 (2%) 5 (2%) 3 (1%)
Subjective health perception (mean \pm SD)	3.41 ± 2.37
Psychological distress score (HADS) [mean ± SD] Overall Anxiety subscale Depression subscale	15.54 ± 6.83 5.15 ± 3.90 10.39 ± 4.49
Social support score (MOS-SSS-C) [mean ± SD] Overall Tangible subscale Affectionate subscale Emotional and informational subscale Positive social interaction subscale	$56.89 \pm 22.73 67.04 \pm 27.94 62.67 \pm 25.11 43.71 \pm 25.90 54.16 \pm 24.66$
Social network size (mean \pm SD)	3.5 ± 2.78
Symptom score (CHQ-C) [mean ± SD] Dyspnoea subscale Fatigue subscale	4.22 ± 0.94 3.74 ± 1.21

(Continued from previous page)

* NYHA denotes New York Heart Association Classification; HADS Hospital Anxiety and Depression Scale; MOS-SSS-C Medical Outcomes Study Social Support Survey (Chinese version); and CHQ-C Chronic Heart Failure Questionnaire (Chinese version)

[†] Values are shown as mean ± SD, or No. (%)

[‡] 1 U.S. Dollar = 7.8 H.K. Dollar

family were significantly associated with a higher HADS score. These four variables significantly accounted for 49% of the variance of the HADS score; *F* (5, 221)=44.12, $p \le 0.000$. With reference to the values of change in \mathbb{R}^2 of Model 1 and Model 2, the symptom of fatigue and emotional-informational support demonstrated better explanatory power for the variance of the HADS score. Their comparatively high-standardised regression coefficients in the final model (Model 4) also indicated that they were more significant correlates of psychological distress in elderly CHF patients. The addition of the other two variables of "health perception" (Model 3) and "living with family" (Model 4) into the model also resulted in significant increments in the R-square for explaining the variances of HADS scores. However, their contribution was comparatively minimal and explained only an additional 5% of the variance.

DISCUSSION

This study has identified factors that were significantly associated with psychological distress in elderly CHF patients. As with previous studies, the level of psychological distress, especially depression was high. Of the various demographic, clinical and social factors, better-perceived emotionalinformational support demonstrated the most prominent psychological protective effect on elderly CHF patients. The more severe symptom of fatigue was significantly associated with higher levels of psychological distress. In addition, psychological distress was more likely to be manifested in those who had poorer health perception or did not live with a family member. None of the objective clinical indicators were identified as significantly associated with psychological distress in elderly CHF patients. This concurred with previous work and provided further evidence to support the need to perform individualised psychological assessment for such patients.

Among the four factors that were significantly associated with psychological distress, both perceived emotional-informational support and living arrangement were social support attributes. The former concerns functions served by an individual's social network and the latter reflects his or her embeddedness to the network system.⁴⁶ These findings support the stress-buffering hypothesis of social support.47 Previous work also identified the positive influence of perceived social support and stronger social ties to the psychosocial adaptation of cardiac patients.^{22,23,25,48} In this study, the superior

TABLE 2
The bivariate relationship between the potential correlates and the Hospital Anxiety and Depression Scale (Chinese version)
score*

	1	2	3	4	5	6	
1. HADS	1.00						
2. Age	0.22†	1.00					
3. Education	0.20 [‡]	-0.37†	1.00				
4. Income	-0.13	-0.35 ⁺	-0.28†	1.00			
5. No. of comorbidities	0.24†	-0.11	0.17 [‡]	0.04	1.00		
6. Years with congestive heart failure	0.03	0.05	0.05	0.03	0.00	1.00	
7. No. of medications	-0.04	-0.14‡	0.05	-0.04	0.31 ⁺	0.10	
8. NYHA	0.21†	0.13	0.03	0.03	0.04	0.07	
9. Health perception	-0.45†	-0.12	0.17 [‡]	0.11	-0.06	-0.07	
10. CHQ-C dyspnoea	-0.17 [‡]	-0.04	-0.02	-0.03	-0.11	0.02	
11. CHQ-C fatigue	-0.50†	-0.23†	0.19 [‡]	0.06	-0.06	-0.07	
12. MOS-SSS-C tangible	-0.34†	-0.18 [‡]	0.24†	0.15 [‡]	0.06	-0.06	
13. MOS-SSS-C affectionate	-0.47†	-0.18 [‡]	0.23†	0.10	-0.07	-0.05	
14. MOS-SSS-C positive social interaction	-0.49†	-0.17 [‡]	0.17 [‡]	0.25	-0.10	-0.11	
15. MOS-SSS-C emotional-informational	-0.48†	-0.14‡	0.02	0.09	-0.22†	-0.10	
16. Size of social network	-0.43†	-0.12	0.03	0.06	-0.16‡	-0.06	

* HADS denotes Hospital Anxiety and Depression Scale; NYHA New York Heart Association Classification; CHQ-C Chronic Heart Failure Questionnaire (Chinese version); and MOS-SSS-C Medical Outcomes Study Social Support Survey (Chinese version)

† p<0.001

‡ p<0.05

TABLE 3				
Indices from simple linear regression for significant potential correlates of the				
Hospital Anxiety and Depression Scale*				

Potential correlates	R ²	В	SE
CHQ-C (fatigue)	0.251	-2.832§	0.327
MOS-SSS-C (emotional-informational)	0.225	-0.126§	0.015
MOS-SSS-C (positive social interaction)	0.242	-0.136§	0.016
MOS-SSS-C (affectionate support)	0.223	-0.128§	0.016
Health perception	0.199	-1.286§	0.172
MOS-SSS-C (social network size)	0.180	-1.044§	0.148
MOS-SSS-C (tangible support)	0.115	0.083§	0.015
Living arrangement ⁺	0.090	-4.860§	1.032
Presence of spouse [‡]	0.075	-3.725§	0.875
No. of comorbidities	0.058	1.195 [§]	0.320
Age	0.048	0.189§	0.056
Educational level	0.039	-1.126§	0.374
NYHA	0.036	1.771 [§]	0.610
CHQ-C (dyspnoea)	0.029	-1.232"	0.475

* B denotes unstandardised coefficient; SE standard error; CHQ-C Chronic Heart Failure Questionnaire (Chinese version); MOS-SSS-C Medical Outcomes Study Social Support Survey (Chinese version); NYHA New York Heart Association Classification

* "not living with family" as reference group

[‡] "no spouse" as reference group

§ p<0.01

" p<0.05

role of perceived emotional-informational support as compared to other types of functional social support might be related to its conceptualisation. Being measured by MOS-SSS-C, emotional-informational

7	8	9	10	11	12	13	14	15	16
1.00									
0.11	1.00								
0.10	-0.20†	1.00							
-0.16 [‡]	-0.46†	0.12	1.00						
-0.03	-0.29†	0.50 ⁺	0.15 [‡]	1.00					
0.00	-0.13	0.21 ⁺	0.05	0.22†	1.00				
0.00	-0.31†	0.28†	0.17 [‡]	0.31 ⁺	0.72 [†]	1.00			
-0.03	-0.30†	0.22 [†]	0.15 [‡]	0.25†	0.67†	0.86†	1.00		
-0.05	-0.27†	0.11	0.14 [‡]	0.09	0.48†	0.65 ⁺	0.81 ⁺	1.00	
0.05	-0.16‡	0.20†	0.05	0.24†	0.27†	0.38†	0.45 ⁺	0.53†	1.00

 TABLE 4

 Hierarchical regression analysis for the correlates of the psychological distress (HADS score) in patients with congestive heart failure (n=227)*

Model	R ²	Change in R ²	В	Standard error	Beta
Model 1 CHQ-C (fatigue)	0.25	0.25 [†]	-2.80†	0.33	-0.50
Model 2 CHQ-C (fatigue) MOS-SSS-C (emotional-informational)	0.44	0.19 ⁺	-2.60† -0.12†	0.29 0.01	-0.46 -0.44
Model 3 CHQ-C (fatigue) MOS-SSS-C (emotional-informational) Health perception	0.48	0.04 ⁺	-1.97 [†] -0.11 [†] -0.65 [†]	0.32 0.01 0.16	-0.35 -0.42 -0.23
Model 4 CHQ-C (fatigue) MOS-SSS-C (emotional-informational) Health perception Living with family	0.49	0.01 [‡]	-1.94 [†] -0.11 [†] -0.60 [†] -1.62 [‡]	0.32 0.01 0.16 0.82	-0.34 -0.40 -0.21 -0.10

* B denotes unstandardised coefficient; Beta standardised coefficient; HADS Hospital Anxiety and Depression Scale; CHQ-C Chronic Heart Failure Questionnaire (Chinese version); MOS-SSS-C Medical Outcomes Study Social Support Survey (Chinese version); NYHA New York Heart Association Classification

† p<0.01

‡ p<0.05

support is defined as the expression of positive affect, empathetic understanding, encouragement of expressions of feelings, provision of guidance, advice, and feedback.⁴⁹ These actions are relevant to resolving the negative emotions of self-blame, anger, and shame that were frequently reported by elderly CHF patients.³⁰ As hospitalised subjects were included in this study, informational support also reduced the uncertainty arising from disease exacerbation and the associated hospitalisation.⁵⁰ As for living arrangements, family interdependence is highly valued in Chinese culture.⁵¹ A previous study also found that coresidence with a family was a factor significantly associated with higher satisfaction in elderly Chinese patients with chronic illness.⁵² The current study therefore also served to emphasise the beneficial effect of living with the family in maintaining the psychological well-being of elderly CHF patients.

In addition to social support, the study also highlighted the negative psychological impact of the typical somatic symptom of fatigue in elderly CHF patients. The strong association between fatigue and psychological distress in such patients might be related to their reduced physical ability to continue with their daily activities, usual role and social functioning. Disturbance in these functions seems associated with a negative psychological outcome. Previous studies that examined the life experience of elderly CHF patients, consistently highlighted the psychological element in the somatic symptom of fatigue. Martensson et al³ found that fatigue was experienced by elderly CHF patients not only as a physical lack of energy to take part in daily life, but also a mental block to initiate the intended physical work. Elderly CHF patients also described this physical symptom of fatigue as overwhelming tiredness.53 They conceived fatigue as both physical exhaustion and psychological feelings of decreased self-worth, helplessness, annoyance, and lack of ambition. Thus, our findings further highlighted the psychological manifestations of fatigue as a symptom in elderly CHF patients.

As for the significant positive relationship between poorer health perception and psychological distress in elderly CHF patients, previous studies also reported conclusive findings. Thus, elderly CHF patients who reported lower rankings in perceived health had a significantly higher risk of sustaining poor health outcomes including poorer quality of life,54 more hospital readmission and mortality.55 Health perception, in fact, is an individual's judgement about one's own health, which is based on the information about one's biological, physiological, functional, and symptomatic status.^{56,57} The negative psychological impact associated with deterioration in any of these health perspectives is therefore well recognised. Thus, our findings in elderly CHF patients further highlight the need to recognise patients' self-appraisal of health status, especially as none of the clinical indicators appear to be associated with psychological distress.

Based on our findings, several recommendations are proposed to enhance the care for the elderly

CHF patients. First, emotional support and family cohesiveness should be highly prioritised goals of care. As most elderly CHF patients are advanced in age, family is an important source of emotional support and should be mobilised. Encouraging coresidence of elderly CHF patients with their families also requires health care professionals to address the problem of caregiver strain, which is one of the major causes of institutionalisation of this vulnerable group.⁵⁸ Second, it is important to equip elderly CHF patients with information on disease management, with particular reference to coping with the symptom of fatigue. The empirical value of relaxation therapy, activity pacing for this purpose has been widely established.^{59,60} Recent studies have focused on the possible therapeutic effect of exercise therapy in CHF⁶¹ and preliminary findings are encouraging in terms of controlling symptoms. Further empirical validation of this intervention in Chinese elderly CHF patients is therefore warranted. Finally, effort should also be placed at helping them to cultivate a positive attitude towards their own health status. The value of educational programmes that enhance selfcare management of elderly CHF patients to pursue this objective has been confirmed, 62,63 and should be incorporated into the discharge planning for all such patients in Hong Kong.

This study has several limitations. First, the cross-sectional study design has limited potential for making causal inferences on the relationship between psychological distress and possible associated factors. Psychological distress might affect an individual's interpretation of his or her support system, resulting in an unrealistically low perception of their social support.⁶⁴ Fatigue can also be manifested as a somatic symptom of emotional distress.65 Future studies should adopt a longitudinal design to clarify the directionality of such relationships in elderly CHF patients. Second, this study was conducted in a group of hospitalised subjects. Therefore caution is advised before generalising its findings to community-dwelling elderly CHF patients. Finally, the literature suggests a negative impact on the psychological well-being of cardiac patients with certain personality traits such as neuroticism²² and hostility.⁴⁸The lack of such information as independent variables in this study, could possibly confound interpretation of some of the relevant factors associated with psychological distress we assessed.

CONCLUSION

This study has identified factors that are significantly associated with psychological distress in patients with CHF. The findings highlight the importance of promoting the social support, relieving the fatigue symptom, and promoting positive health perception, in order to facilitate psychological well-being in elderly CHF patients. The high prevalence of psychological distress in such patients reinforces the need to incorporate all of these interventions in the planning of care for the expanding CHF population in Hong Kong.

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