Evaluating a Case Management Model for People with Severe Mental Illness in Hong Kong: a Preliminary Study

嚴重精神病患者個案管理模式的初步評估研究

DFK Wong, MPM Yeung, CK Ching

黃富強、楊冰梅、程志剛

Abstract

Objective: To examine the efficacy of a case management model for people with severe mental illness in halfway houses in Hong Kong.
Participants and Methods: This study adopted a time-series quasi-experimental design. At time 1, newly formally admitted residents, in their first 3 months at 2 of the halfway houses in which the new case management model had been implemented, were assigned to the experimental group, while newly formally admitted residents of 3 other halfway houses were assigned to the comparison group. Time 2, Time 3 and Time 4 measurements were taken at 6-month intervals after the first interview. We hypothesised that participants who received case management services would have better outcomes in symptomatology, life skills, quality of life, re-hospitalisation rates, and length of re-hospitalisation than those who received standard halfway house services.
Results: There were significant time and group effects on symptomatology ($F = 7.08$, $p = 0.02$) and life skills ($F = 13.22$, $p < 0.001$). No such effects were observed on the quality of life of participants ($F = 0.52$, $p = 0.67$).
Conclusions: The findings reveal that those who received case management services had fewer re-hospitalisations and shorter durations of inpatient treatment. Explanations of the findings and the potential implications are discussed.

Key words: *Case management; Community mental health services; Half-way houses; Mentally ill persons; Social work, psychiatric*

摘要

目的：探討為入住中途宿舍的香港嚴重精神病患者而設的個案管理模式的成效。
參與者與方法：本研究採用時間序列准實驗設計。新入住兩間施行個案管理模式的中途宿舍的病人作為實驗組，而新入住另外三間中途宿舍的病人作為對照組。入住宿舍的首3個月為病人進行問卷測試（時間1），其後每6個月再為病人進行評估（時間2、3及4）。我們假設，與接受一般中途宿舍服務的參與者比較，接受個案管理服務的精神病患者會在以下幾方面有較佳的結果：症狀、生活技巧、生活質素、重住院比率、重住院的日數。
結果：在症狀（$F = 7.08$, $p = 0.02$）和生活技巧（$F = 13.22$, $p < 0.001$）方面有顯著的時間和組別成效。但生活質素方面則沒有類似的成效。
結論：本研究結果顯示接受個案管理服務的參與者有較少的重住院次數，重住院日子亦較短。本文闡明不同研究結果的原因及討論此項服務潛在的意義。

關鍵詞：*個案管理、社區精神科服務、中途宿舍、精神病患者、精神科社會工作者*

Dr DFK Wong, BSW, MSW, PhD, School of Nursing and Social Work, The University of Melbourne, Faculty of Medicine, Dentistry and Health Sciences, Melbourne, Victoria, Australia.
Miss MPM Yeung, MSS (Mental Health) graduate, Department of Social Work and Social Administration, The University of Hong Kong, Hong Kong.
Mr CK Ching, Mental Health Association of Hong Kong, Hong Kong.

Address for correspondence: *Dr Daniel FK Wong, School of Nursing and Social Work, The University of Melbourne, Faculty of Medicine, Dentistry and Health Sciences, Level 5, 234 Queensberry Street, Carlton, Melbourne, Victoria 3053, Australia.*
Tel: (613) 8344 9408
E-mail: fwong@unimelb.edu.au

Submitted: *3 July 2008;* **Accepted:** *5 September 2008*

Introduction

Deinstitutionalisation and the establishment of community-based psychiatric services have been the major directions of service development for people with mental illness in

Hong Kong over the past few decades. A variety of services, including residential, vocational, community networking, and supportive services, are now available. Nevertheless, these services are rather fragmented and lack coordination.[1] Different professionals from different agencies provide services for the same individual. It is not uncommon to find an overlapping of services and a lack of a key worker who plans and oversees the treatment of an individual.[2] Consequently, people with mental illness may not receive adequate or timely services.

Although case management has been accepted and used as a major component of mental health services in many countries, it has not been practised in Hong Kong to address the issues of system rigidity, fragmentation, inaccessibility, and lack of accountability of mental health services found in Hong Kong.[2] In 2003, a local non-governmental organisation that provides services for people with mental illness began to experiment with a case management model to address the above-mentioned pitfalls but case management has not been recognised or financially supported by the government of Hong Kong. This article reports on a comparison between the outcome variables of hospitalisation rate, symptomatology, life skills, and quality of life between people who received case management services in 2 halfway houses and those who received standard halfway house services.

Case management is defined as a series of activities that aim to link the service system to a consumer and coordinate system components to achieve a successful outcome.[3] It essentially serves a problem-solving function and is designed to ensure continuity of services and overcome system rigidity, fragmentation, inaccessibility, and the lack of accountability of mental health services. It is commonly described as a flexible, planned, and individualised approach to service delivery that provides consumer choice and maximises the efficient use of formal and informal resources in service provision.[4-7]

Numerous overseas studies have examined different models of case management for people with severe and persistent mental illness.[8,9] In a meta-analysis of 75 studies on the efficacy of case management, Mueser et al[10] found a consistent reduction in length of hospital stay for those in the case management groups. Holloway et al[11] reviewed a number of studies and found that people who received case management services had a statistically significant decrease in symptomatology when compared with those who did not. Two studies have found that people who received case management services showed an improvement in overall functioning and social adjustment, and an increase in global functioning as measured by the Global Assessment Schedule (GAS).[12,13] Stein and Test[14] found that case management improved the quality of life of clients. Wright et al[15] also reported increased satisfaction in life for patients. Other studies reported that case management had positive effects on patients' social networks and relationships.[14,16,17]

According to Aviram,[18] social workers in a case management team occupy a special role involving coordinating different disciplines, mobilising resources at the systems' levels, organising consumers and the families into self-help and / or advocacy groups, and serving as authorisation and utilisation reviewers for case management companies under the managed care system. Moreover, as case managers, social workers also render supportive and psychotherapeutic counselling to people with severe mental illness in the community.[2] In short, social workers are always considered members of a case management team, and work closely and collaboratively with other professionals to provide services for people with severe mental illness.

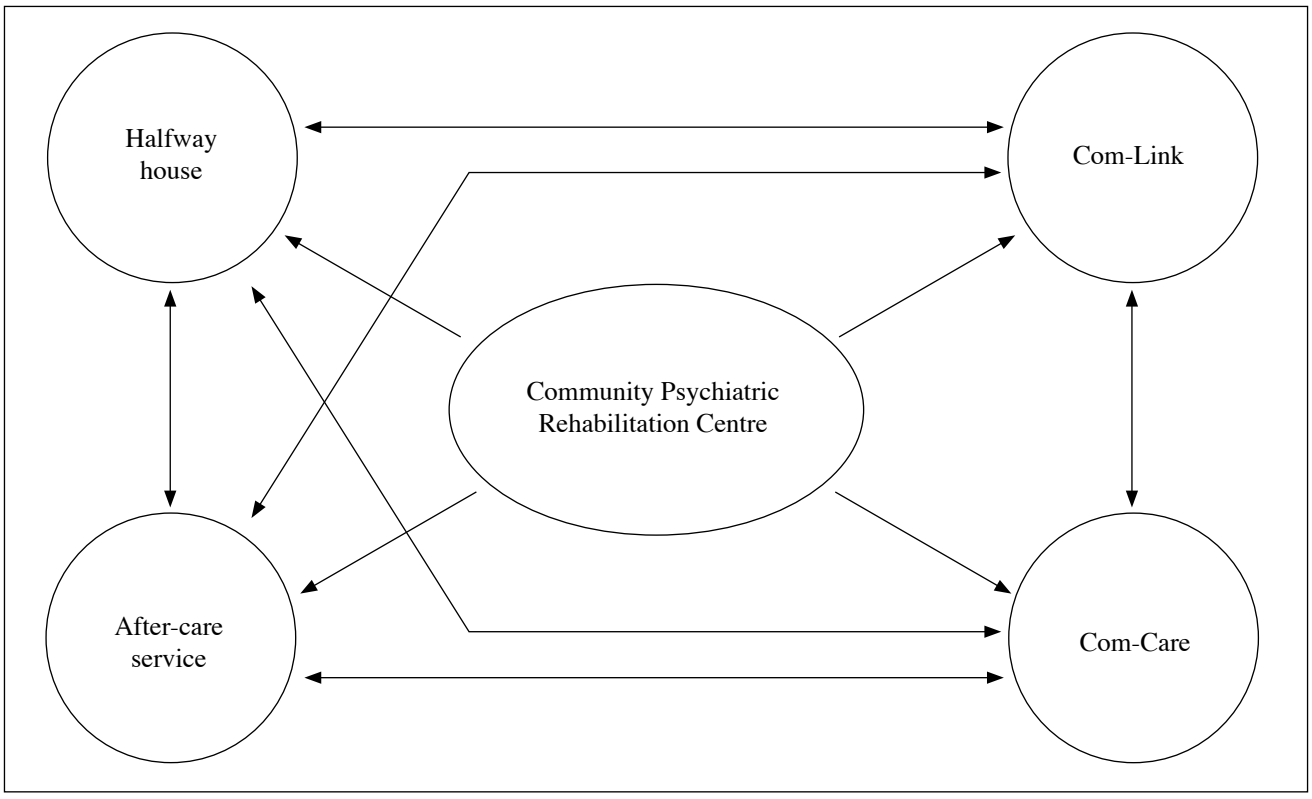
Characteristics of Our Case Management Model

In 2003, a mental health agency in Hong Kong started to implement a case management model in its halfway houses. All halfway houses in Hong Kong are fully funded by the government, and managed by non-government organisations. Each halfway house accommodates 40 residents and has a standard provision of 11 staff including social workers, nurses, welfare workers, a cook, and a cleaner. In recent years, there has been a growing trend for welfare workers in halfway houses to receive social work professional training and become qualified social workers.

In the past 5 years, the Hong Kong SAR Government has given additional funding for the development of 2 types of community-based psychiatric services: (1) Community Link (Com-Link)—supportive social and prevocational services for people with severe mental illness and their relatives, and (2) Community Care (Com-Care)—active outreach and support, including crisis intervention, for people with severe mental illness who are more prone to relapse. These services are located in the halfway houses of some service organisations. In effect, a halfway house has become a community-based psychiatric rehabilitation unit for people with mental illness and their caregivers who live within the service boundary of the halfway houses (Figure).

In this project, all the case managers are professional social workers who have undergone a certificate course in case management. All case managers have to record and report their case management activities to the social work supervisors in the organisation. Social work supervisors regularly supervise activities to ensure that case managers perform their prescribed roles and functions. As with other case management models, this model adheres to a rehabilitation model[3] and the case managers provide the following functions: (1) to help the clients to develop insight into their illness and to acquire practical skills for handling their symptoms and preventing possible relapse; (2) to enhance the clients' independent living, interpersonal, and prevocational skills; (3) to render crisis assessment and support to persons with mental illness and their family members; and (4) to provide individual and group counselling and support to family members with relatives suffering from mental illness. Since different case managers may assume a different combination of case management activities, there is no standard caseload for a case manager

Figure. An integrated community service delivery model for people with severe mental illness in Hong Kong.



in this model. This 'house-based' community psychiatric service unit operates around the clock and provide support for clients and their families, especially in times of crisis. It also serves as a point of contact for people with mental illness and their families.

Team Responsibility

The professional team is comprised of a social work supervisor, who serves as overall team / project manager and undertakes professional supervisory functions, and 4 professional social workers who act as case managers. In this model, the nurse does not perform case management functions, but advises individual clients on drug compliance and self-care issues and renders support to the case managers on mental health assessment and crisis follow-up. Due to the limitation of resources, this model does not include an in-house psychiatrist or a clinical psychologist on the team but does work closely and collaboratively with the community psychiatric team (CPT) in the region. The CPT, comprising a psychiatrist, nurses and social workers, can be contacted regularly for psychiatric consultation and visits the halfway houses every 1 to 2 months. During these meetings, individual clients' conditions are discussed and their situations jointly planned and monitored. When psychiatric crises occur, case managers can call the CPT and / or make special arrangements with the outpatient clinics in advance for client follow-up.

How successful is this case management model as a means of enhancing the mental health and social functioning and quality of life of people with severe mental illness in Hong Kong? There are presently no data available to answer this question. This study serves to fill this research gap by comparing people who received case management services with those who received standard services in a halfway house setting.

Five hypotheses were set. Compared to those who receive standard halfway house services, individuals who receive case management services should have: (1) a lower rate of re-hospitalisation; (2) a reduced length of stay in the event of re-hospitalisation; (3) fewer psychiatric symptoms; (4) more life skills; and (5) a higher level of quality of life.

Methods

Research Design

This study adopted a time-series quasi-experimental design. Time 1 was the 3 months that followed the formal admission of the participants to the halfway houses. Formal admission took place after the participants had passed a trial stay of 2 to 6 weeks. There were 29 and 36 individuals in the experimental and comparison groups, respectively, who did not pass the trial stay and were not included in the study. These individuals were either not accepted because of unstable mental states and were sent back to the hospital or they decided to go back home or lived independently before or at the end of the trial stay. Time 2, Time 3 and Time 4

measurements were taken at 6-month intervals after the first interview. A total of 53 participants participated in the initial study, with 28 in the experimental group and 25 in the comparison group. Fourteen participants in the experimental group and 13 in the comparison group did not complete all assessments. Eleven members of the experimental and 7 in the comparison group were successfully discharged, for reasons such as family reunion or independent living; 3 in the experimental and 6 in the comparison group experienced relapse and had to be sent back to the hospital by Time 3. Finally, 14 participants in the experimental and 12 in the comparison group completed all Time 1 to Time 4 assessments, with an average duration of stay of 19 months in the halfway house.

Data Collection and Procedure

Newly formally admitted residents, in their first 3 months at 2 of the halfway houses in which the new case management model had been implemented, were assigned to the experimental group, while newly formally admitted residents of 3 other halfway houses were assigned to the comparison group. Because it was not ethical to randomly assign service recipients within the same service unit as participants in the experimental and comparison groups, randomisation was not performed.

Psychiatrists had diagnosed all participants as suffering from severe mental illness. This part of the study started in December 2004 and ended in January 2007. Participants were administered the same questionnaire 4 times. The questionnaire contained the following: the Brief Psychiatric Rating Scale (BPRS), a life skills scale (LSS), and a quality of life scale (QOL). The re-hospitalisation rate and the length of hospitalisation were also recorded.

Psychiatric nurses served as independent raters in this study. To ensure a degree of inter-rater reliability, a psychiatrist gave a training session on the use of the BPRS. A few training and sharing sessions, overseen by house supervisors, were organised to enable the nurses to discuss and streamline any issues that arose from the interview process.

Instruments

This study included demographic characteristics such as age, diagnosis, and duration of illness. The re-hospitalisation rate and length of hospitalisation were also recorded. Three instruments were used to measure participants' symptomatology, life skills, and quality of life.

The BPRS was developed to provide a highly efficient, rapid evaluation procedure for assessing treatment change in psychiatric patients that yields a fairly comprehensive description of the characteristics of major symptoms of mental illness.[19] The version that was used in this study is an 18-item checklist.[20] In this study, the BPRS total score was calculated. A higher score indicates greater severity of symptoms. The BPRS had a Cronbach's alpha of 0.68, which indicates an acceptable level of internal consistency.

The LSS was originally developed by the Mental Health Association of Hong Kong to measure the life skill levels of individual residents living in halfway houses.[21] The scale has 56 items that cover 8 domains of life skills, including money management, self-care ability, insight into illness, problem-solving skills, utilisation of community resources, social skills, drug compliance, and work skills. Each domain has 7 items that are worded in behavioural terms. A score of 2 is given to a participant who can perform the skill independently. A total score for the LSS is calculated by adding the scores for each item. The total score is 112. A higher score indicates better life skills. The Cronbach's alpha score of the LSS was 0.96, which indicates a high degree of internal consistency.

The QOL constructed by Heinrichs et al[22] was used. This scale aims to measure an individual's subjective satisfaction with his / her life circumstances. It is presented in a semi-structured format with 4 subscales, which include interpersonal relations, instrumental role, intrapsychic foundations, and common objects and activities. The scale consists of 21 items. Each item is rated on a 7-point scale, from 0 to 6—0 signifies the lowest quality of life and 6 signifies the highest quality of life. The rater decides on the score, based on the person's response. The QOL had a satisfactory Cronbach's alpha (0.86).

Data Analysis

The data gathered at the 4-time intervals were analysed using the Statistical Package for Social Sciences (SPSS) software. Chi-square *t* test, and independent sample *t* tests were used to examine any group differences in the demographic characteristics and the symptomatology, life skills, and quality of life of participants at Time 1. A 2 x 4 mixed-design analysis of variances (ANOVA) were employed to examine the group effect (experimental and control groups) and time effect (Time 1, 2, 3, 4) of the case management model on the symptomatology, life skills, and quality of life of the participants.

Results

There were 26 participants who participated from Time 1 to Time 4; 14 in the experimental group and 12 in the comparison group. The experimental group had 12 males and 2 females. The mean (standard deviation [SD]) age was 32.6 (10.3) years and the mean (SD) duration of mental illness was 10.2 (6.1) years; 57% of the participants had schizophrenia and the remaining participants had bipolar affective disorder, depression, obsessive-compulsive disorder, and other mental illnesses. In the comparison group, there were 7 males and 5 females. The mean (SD) age was 36.6 (8.9) years and the mean (SD) duration of illness was 16.6 (8.3) years; 67% of the participants had schizophrenia and the remaining participants had other disorders (Table 1). Chi-square and *t* tests revealed no significant group differences in the demographic variables, symptomatology, life skills, or quality of life at Time 1. There were no significant group differences in demographic and outcome variables between

Table 1. Demographic characteristics of the participants at Time 1 to Time 4 (n = 26).

	Experimental group (n = 14)	Comparison group (n = 12)	p Value
Sex			
Male	12 (86%)	7 (58%)	Chi = 2.46, p = 0.12
Female	2 (14%)	5 (42%)	
Mean (SD) age (years)	32.6 (10.3)	36.6 (8.9)	*t* = 1.08, p = 0.29
Primary diagnosis			
Schizophrenia and psychosis	8 (57%)	8 (67%)	
Bipolar affective disorder	1 (7%)	1 (8%)	
Depression	3 (21%)	2 (17%)	
Obsessive-compulsive disorder	1 (7%)	1 (8%)	
Other	1 (7%)	0 (0%)	
Mean (SD) duration of illness (years)	10.2 (6.1)	16.6 (8.3)	*t* = 1.33, p = 0.21

Abbreviation: *SD = standard deviation.*

Table 2. Means (standard deviations) of the Brief Psychiatric Rating Scale (BPRS), Life Skills Scale (LSS), and Quality of Life scale (QOL) of the experimental group and comparison group at Times 1 to 4 (n = 26).

	Time 1	Time 2	Time 3	Time 4	F	p Value
BPRS						
Experimental	3.50 (2.93)	4.43 (3.08)	3.50 (2.53)	2.78 (1.93)	7.08	0.02
Comparison	3.31 (1.47)	3.42 (3.00)	3.50 (3.26)	4.58 (4.76)		
LSS						
Experimental	58.71 (17.46)	58.07 (15.80)	68.00 (19.44)	96.07 (22.01)	13.22	< 0.001
Comparison	75.08 (15.48)	71.50 (9.23)	82.17 (15.01)	84.25 (21.02)		
QOL						
Experimental	77.93 (18.28)	75.21 (20.70)	79.36 (19.72)	82.71 (20.85)	0.52	0.67
Comparison	69.25 (13.76)	72.50 (12.53)	72.33 (10.53)	76.42 (7.53)		

those who participated in the study and those who had left the halfway houses after the trial stay.

During the period between Time 1 and Time 4, 1 participant (7%) in the experimental group was hospitalised, while 2 participants (17%) in the comparison group were hospitalised. The length of hospital stays differed: the participant in the experimental group spent 51 days in the hospital, whereas participants in the comparison group spent 169 days (mean = 84.5 days). Indeed, if Time 4 was excluded, the differences in hospitalisation and length of stay in the hospital became even more marked. Between Time 1 and Time 3, 3 (11%) participants in the experimental group were hospitalised, while 6 (24%) participants from the comparison group were hospitalised. Thus the hospitalisation rate in the comparison group was 2 times greater than that of the experimental group. The reasons for hospitalisation were related to unstable mental states, acute psychotic relapses, or uncontrollable drinking. The participants' lengths of hospital stay were also different: participants in the experimental group spent 104 days (mean = 34.7 days), whereas participants in the comparison group spent 287 days (mean = 47.8 days). Therefore, hypotheses one and two were supported.

Mixed-designed ANOVA were used to compare the time and group effect of the case management model, and the results showed significant time and group effects on symptomatology ($F = 7.08$, $p = 0.02$), and life skills ($F = 13.22$, $p < 0.001$). No such effect was found on quality of life ($F = 0.52$, $p = 0.67$) [Table 2]. In addition, there was a significant main effect for time on life skills ($F = 39.63$, $p < 0.001$). No main effect was found for symptomatology ($F = 1.62$, $p = 0.19$) and quality of life ($F = 2.49$, $p = 0.06$). Indeed, it is observed that while the experimental group showed a decrease in symptomatology, the comparison group manifested a relative increase in symptomatology. Moreover, both groups achieved improvement in life skills, with the experimental group experiencing marked improvement in life skills at Time 4. Lastly, both groups showed some improvement in quality of life, although there was no time and group effect.

Discussion

This study appears to lend initial support to the claim that our case management model can reduce the re-hospitalisation rate and the length of hospital stays for people with severe

mental illness in Hong Kong. Indeed, both Time 1 to Time 3, and Time 1 to Time 4 analyses reveal that participants in the experimental group had fewer relapses and fewer days of hospitalisation. Two characteristics of our social work case management model may explain these positive outcomes. The case managers are expected to provide intensive, individualised and continuous support to persons with mental illness, detect early signs of relapse, and mobilise resources to help with psychiatric crises that may otherwise lead to a full-blown relapse. In this project, all social workers in the 2 half-way houses were given 10 weeks of training to become case managers and were then closely supervised by experienced social work supervisors, rendering continuous support and crisis intervention to participants in the experimental group. On the other hand, social workers in the comparison group were not given such training and only provided routine care (i.e. treatment as usual) to the participants in the comparison group. Thus, the differences in re-hospitalisation rates between the experimental and comparison groups could have resulted from the case management activities performed by the case managers in the experimental group.

The results of this study also indicate that there were significant time and group effects on symptomatology in participants in the experimental and comparison groups. As participants in the experimental group gradually experienced a decrease in psychiatric symptoms, the participants in the comparison group developed an increase in psychiatric symptoms. Generally speaking, these findings echo other studies which found that individuals who received case management services had significantly fewer psychiatric symptoms than those who did not.[11] Specifically, the gradual reduction in symptoms seen in the experimental group may be interpreted in the following way: where case management is used, it takes a period of time before a significant improvement can be seen in a person with chronic mental illness (the average duration of illness in our participants was over 10 years). In the project, social work case managers were required to help participants deal with the daily stressors they face in the community, help them acquire coping skills needed to manage their residual symptoms and to enhance medication compliance.[10] With time, people with chronic mental illness are able to use these coping skills to effectively manage psychiatric symptoms.[23]

In this study, there was also a significant time and group effect on the life skills of the participants in the experimental and comparison groups. Indeed, both groups experienced improvement in their life skills throughout most periods of the assessment. This is not difficult to understand because skills training for people with mental illness has always been an essential component of the rehabilitation services rendered to halfway house residents in Hong Kong.[24] This is consistent with overseas trends which consider social skills training a major psychiatric rehabilitation strategy.[25]

It is also worth noting that the participants in the experimental group exhibited a marked increase in life skills at Time 4. Such a change could be attributed to the implementation of our case management model. Unlike the participants receiving standard care in other halfway houses, the participants in the case management group received individualised and intensive follow-up by our social work case managers. These case managers provided supportive counselling and individual skills training to participants in the experimental group. With encouragement and personal guidance, the participants gradually acquired the specific life skills essential for independent living. Indeed, as Vourlekis and Ell[26] have argued, 'individualised services' is an essential component of best practice in case management.

This study found no significant time and group effect on the quality of life for participants in both groups. Previous studies have also failed to consistently demonstrate that case management can lead to better quality of life for people with severe mental illness.[10] Two things may account for this. First, different groups of people may have different criteria as to what constitutes 'good' quality of life. A report from a large-scale study conducted in the United Kingdom found that the degree to which basic needs were met among people with severe mental illness was an important predictor of the overall quality of life of the concerned individuals.[27] In our study, the lack of a time and group effect on the quality of life of both the experimental and comparison groups could be related to the fact that the participants, who were people with severe and chronic mental illness, had had their basic needs adequately met: supportive accommodation, adequate care, and supervision in the halfway houses. They simply did not aspire to anything more than the satisfaction of their basic needs. Another reason for the lack of significance is: quality of life has been consistently found to be related to housing stability.[10] The fact that both groups of our participants lived in the halfway houses implies that they enjoyed housing stability. Therefore, it is not surprising that there was a lack of a significant interactive effect on quality of life observed in the 2 groups.

In the past few years, there has been an increase in the community rehabilitation services introduced by the government of Hong Kong. There is a need to provide better integration of these services for people with severe mental illness. Our study indicates that the adoption of a case management model, which essentially requires a re-organisation of existing resources, can have positive effects on people with mental illness in Hong Kong. Given the evidence found both overseas and in this study, there is a genuine need to consider introducing a case management model for people with severe mental illness.

In our case management model, social workers are the primary case managers. With support from professionals such as psychiatrists and nurses from other service units, this case management model appears to function effectively as a means of fostering positive changes in people with mental illness. While it is important to recognise that such an arrangement is shaped by the fact that these community psychiatric services are funded by the Social Welfare

Department of Hong Kong, this should not undermine the importance of a multi-disciplinary case management approach for people with severe mental illness in the community. In this case, the case managers have to work very closely with other professionals in the community to provide efficient and timely services for their clients. Indeed, this serves as a good example of the development of a case management model for people with mental illness that takes the unique historical and socio-cultural characteristics of the society concerned into account.

This study provides initial evidence of the efficacy of a case management model as a means of enhancing life skills and reducing the rate of re-hospitalisation, the length of hospital stays, and the psychiatric symptoms of people with severe mental illness. There are limitations to this study, however. First, there is more than one agency operating halfway houses in Hong Kong, but different agencies operate their services differently. Thus, the results of this study may not be generalised to other halfway houses in Hong Kong. Second, while outcome measures are pertinent indicators of the efficacy of a case management approach, it is also important to examine the processes that lead to successful and unsuccessful outcomes. Future studies should closely examine the roles and functions of case managers, the patterns of service utilisation, and client satisfaction.

References

1. Yip KS. A historical review of mental health services in Hong Kong (1841 to 1995). Int J Soc Psychiatry 1998;44:46-55.
2. Wong FK. Clinical case management for people with mental illness: a biopsychosocial vulnerability-stress model. New York, United States: The Haworth Press; 2006.
3. Levine I, Fleming M. Human resource development: issues in case management. Washington, DC, United States: National Institute of Mental Health; 1984.
4. Moxley D. Case management by design: reflections on principles and practices. Chicago, United States: Nelson-Hall; 1997.
5. Roessler RT, Rubin SE. Case management and rehabilitation counseling: procedures and techniques. Austin, Texas, United States: Pro-Ed; 1998.
6. Woodside M, McClam T. Generalist case management: a method of human service delivery. CA, United States: Thomson Brooks/Cole; 2006.
7. Rossi P. Case management in mental health. Philadelphia: Q.B. Saunders Co.; 1999.
8. Kanter J. Clinical case management: definition, principles, components. Hosp Community Psychiatry 1989;40:361-8.
9. Rife JC, First RJ, Greenlee RW, Miller LD, Feichter MA. Case management with homeless mentally ill people. Health Soc Work 1991;16:58-67.
10. Mueser KT, Bond GR, Drake RE, Resnick SG. Models of community care for severe mental illness: a review of research on case management. Schizophr Bull 1998;24:37-74.
11. Holloway F, Oliver N, Collins E, Carson J. Case management: a critical review of the outcome literature. Eur Psychiatry 1995;10:113-28.
12. Dincin J, Wasmer D, Witheridge TF, Sobeck L, Cook J, Razzano L. Impact of assertive community treatment on the use of state hospital inpatient bed-days. Hosp Community Psychiatry 1993;44:833-8.
13. Arana JD, Hastings B, Herron E. Continuous care teams in intensive outpatient treatment of chronic mentally ill patients. Hosp Community Psychiatry 1991;42:503-7.
14. Stein LI, Test MA. Alternative to mental hospital treatment. I. Conceptual model, treatment program, and clinical evaluation. Arch Gen Psychiatry 1980;37:392-7.
15. Wright RG, Heiman JR, Shupe J, Olvera G. Defining and measuring stabilization of patients during 4 years of intensive community support. Am J Psychiatry 1989;146:1293-8.
16. Bush CT, Langford MW, Rosen P, Gott W. Operation outreach: intensive case management for severely psychiatrically disabled adults. Hosp Community Psychiatry 1990;41:647-9.
17. Goering PN, Farkas MD, Wasylenki DA, Lancee WJ, Ballantyne R. Improved functioning for case management clients. Psychosoc Rehabil J 1988;12:3-17.
18. Aviram U. The changing role of the social worker in the mental health system. Soc Work Health Care 2002;35:615-32.
19. Overall JE, Gorham DR. The brief psychiatric rating scale (BPRS): recent developments in ascertainment and scaling. Psycholpharmacol Bull 1988;24:97-9.
20. Rhoades HM, Overall JE. The semistructured BPRS interview and rating guide. Psychopharmacol Bull 1988;24:101-4.
21. Mental Health Association of Hong Kong. Life skills scale for people with severe mental illness in a halfway house setting. Hong Kong: Mental Health Association of Hong Kong; 2004.
22. Heinrichs DW, Hanlon TE, Carpenter WT Jr. The Quality of Life Scale: an instrument for rating schizophrenic deficit syndrome. Schizophr Bull 1984;10:388-98.
23. Tarrier N, Sharpe L, Beckett R, Harwood S, Baker A, Yusupoff L. A trial of two cognitive behavioral methods of treating drug-resistant residual psychotic symptoms in schizophrenic patients. II. Treatment-specific changes in coping and problem-solving skills. Soc Psychiatry Psychiatr Epidemiol 1993;28:5-10.
24. Mak KY. Psychiatric halfway houses in Hong Kong. Hong Kong: Mental Health Association of Hong Kong; 1987.
25. Smith TE, Bellack AS, Liberman RP. Social skills training for schizophrenia: review and future directions. Clin Psychol Rev 1996;16:599-617.
26. Vourlekis B, Ell K. Best practice case management for improved medical adherence. Soc Work Health Care 2007;44:161-77.
27. Hassiotis A, Ukoumunne OC, Byford S, Tyrer P, Harvey K, Piachaud J, et al. Intellectual functioning and outcome of patients with severe psychotic illness randomised to intensive case management. Report from the UK700 trial. Br J Psychiatry 2001;178:166-71.