Clinical and Cost-Effectiveness of Acute and Subacute Residential Mental Health Services: A Systematic Review

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Objective: **In recognition of a service gap between hospital inpatient and community-based care, a range of mental health services have been developed to provide treatment and support for people with mental illness outside the inpatient setting. Acute and subacute residential services provide care for individuals experiencing episodes of acute mental illness and provide transitional services to assist people in their reintegration into the community. This article provides a systematic review of studies evaluating the effectiveness of these alternative services.** ***Methods:*** **A systematic review of the literature was conducted by searching MEDLINE, PsycINFO, CINAHL, and Cochrane with no years specified to identify studies that have evaluated the clinical effectiveness, user satisfaction, or cost-effectiveness of acute or subacute residential treatments. Outcome data were extracted from quantitative studies, and themes relevant to service satisfaction were extracted from qualitative studies.** ***Results:*** **A total of 26 studies were identified that evaluated the effectiveness of acute or subacute residential services. Most studies of acute residential units demonstrated clinical improvements equal to those of inpatient units and similar readmission rates, as well as cost benefits. User satisfaction was generally higher for clients of acute residential units. Only three studies examined subacute units, a number not sufficient to evaluate the effectiveness of these services.** ***Conclusions:*** **Acute residential mental health services offer treatment outcomes equivalent to those of inpatient units, with users reporting high satisfaction. Acute residential services offer a cost-effective alternative to inpatient services. Further research is needed to determine client groups that will benefit most from these alternative services. (*Psychiatric Services* 64:1140–1149, 2013; doi: 10.1176/appi.ps.201200427)**

In recent decades, many countries have worked toward deinstitutionalizing mental health care through reducing investment in the provision of hospital beds for people with mental illness and developing more responsive community-based services. This change has come about for many reasons, including service user preferences, a recovery orientation, and the emergence of stepped-care approaches. A diverse range of community-based alternatives to inpatient care has been implemented. Therefore, it is timely to consider the effectiveness of these community-based residential care treatment alternatives.

Residential care alternatives to inpatient services comprise both acute, or crisis, services, which are often provided in the community (although some are located within hospital services), and subacute, or short-term services. Acute residential services offer accommodation and support for patients experiencing acute episodes, with mental health staff on site 24 hours a day. Subacute residential services offer a short-term alternative to inpatient treatment and are appropriate for people who are not currently severely unwell or in a crisis situation but who are at high risk of experiencing a crisis. Subacute services have either 24-hour staffing or staff on call. Acute and subacute residential mental health services incorporate therapy or psychoeducational programs and in some cases provide step-up services (when someone in the community is becoming unwell and is at risk of hospitalization) and step-down services (when someone is discharged from an acute hospital setting into the community). These residential services have a limited number of beds, typically between four and 12.

Lengths of stay in most acute services range from a few days (for example, references 1–4) to a few weeks (for example, references 5–16), whereas the treatment period or length of stay in subacute services ranges up to six months (17–19). Community-based residential services provide therapeutic services and counseling, connect clients to the local community for ongoing support and treatment, and provide them with access to outpatient psychiatric treatment or community-based mental health care. Providing residential care outside inpatient settings is in accordance with the preferences of most

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people with mental illness, even those who are experiencing an acute episode; residential care applies the principle of providing care in the least restrictive environment (20,21). Often the preferred alternative to hospital care is clinical care provided in the person's home, but if this is not possible, then the next choice is residential care within the community (22,23).

There are similarities in services provided by inpatient units and residential units and in the client groups that attend; both services provide accommodation, therapy (or access to therapy), and access to clinical staff for patients experiencing an acute episode or an escalation in symptoms. However, acute and subacute residential services generally admit only voluntary patients who have been assessed as being able to function with some independence and who are not severely unwell and do not present a threat to their own or others' safety. Types of therapy offered to clients in acute and subacute residential units range from peer support and health and wellness courses to more structured individual therapy.

Acute and subacute residential services have developed as a result of a significant shift in the understanding of recovery from mental illness (24–27) and acknowledgment of consumer preferences for care and treatment (23,25). Recovery-focused mental health services incorporate the principles of social inclusion, individual solutions, and self-management (28). Acute and subacute residential services are well placed to incorporate these concepts in their service delivery because of their focus on community integration and the active involvement of clients in managing their illness and well-being.

The aim of this review was to examine the current state of knowledge of the effectiveness of acute and subacute residential mental health services in three key areas: clinical outcomes, user satisfaction, and cost-effectiveness. There have now been several studies of acute and subacute residential services that have evaluated the effectiveness of such services, but no systematic review has examined the evidence overall.

Methods

A systematic review was undertaken, adhering to PRISMA guidelines (29) as relevant. Studies were included if they were published in English and involved adult participants on acute, subacute, or short-term residential units that provided mental health services with a maximum length of stay of six months and if service effectiveness was measured as clinical improvements, user satisfaction, or cost benefits.

Search strategy

The initial search was conducted electronically in August 2012 by using the MEDLINE, PsycINFO, and CINAHL databases. The subject terms of these databases were searched for the keywords mental* AND residential, with no date range specified. These results were then refined by subject to the following terms: residential care institution, mental health, mental disorders, psychiatric patients, mental health services, community mental health services, program evaluation, treatment outcomes, and deinstitutionalization. The Cochrane Database was then searched by using the title/abstract/keyword search terms of mental* AND residential. An examination of the titles and abstracts of these results revealed that a large proportion of the studies were outside the scope of this review. Therefore, the following exclusion criteria were applied to the title, abstract, or keywords: dual diagnosis, therapeutic community, retard*, and intellectual*. The abstracts of the remaining studies were read, and the full text of all articles that evaluated acute or subacute residential mental health services was retrieved. Studies were selected for this review if they fit the inclusion criteria of evaluating the clinical effectiveness of, cost-effectiveness of, or user satisfaction with an acute or subacute residential service with a maximum length of stay of six months that provided mental health treatment for adults. The reference lists of all included studies were examined to identify other articles that fit the inclusion criteria.

The initial electronic search terms identified 4,099 articles; after limits and exclusion criteria were placed on the results, 347 abstracts of potentially suitable studies were identified, of which 308 were excluded for not being evaluative studies of acute or subacute residential mental health services. This resulted in 39 articles, for which the full text was retrieved. Eleven of these studies met the inclusion criteria. A search of the reference lists of suitable studies identified a further 14 evaluative studies that met the inclusion criteria. The keywords of these studies were examined to identify other relevant search terms, and searches of MEDLINE, PsycINFO, and CINAHL were performed with the keywords mental AND residential AND alternative* (four studies that had already been located for this review), mental AND residential AND crisis intervention (two studies that had already been identified and one that was not previously identified), and mental AND residential alternatives (three studies that had already been identified). A further Cochrane Database search was performed with the same exclusion criteria as the initial search and with the title/abstract/keyword terms mental* AND residential* AND crisis intervention (seven articles that had already been identified) and mental* AND alternative* (four articles that had already been identified). This search strategy yielded a total of 26 evaluation studies on acute and subacute residential mental health services.

Data extraction and synthesis

Data were extracted by using a standard tabulated form to document study design and type of outcome data, which allowed for comparisons between studies of similar design according to the PRISMA guidelines (29). Clinical effectiveness and cost-effectiveness were determined by examining the outcomes of quantitative studies; where applicable, comparisons were made with outcomes of patients treated on inpatient units. Effect sizes are reported, either as published or with Cohen's d calculated by using the means and pooled standard deviations when sufficient data were reported. Effect sizes of .2 are considered small, .5 are medium, and .8 are large (30). Service user satisfaction was examined through

reported data from quantitative and qualitative studies.

Results

Acute residential services

A summary of the 23 studies evaluating acute residential services is provided in Table 1.

Clinical effectiveness. Several studies used rigorous randomized controlled trial (RCT) designs, with patients randomly allocated to treatment at either the residential service or an inpatient unit. These studies consistently demonstrated clinical improvements at discharge from acute residential units that were similar to (1,5,6,8,31) or greater than (7) the clinical improvements of inpatients at discharge, with effect sizes for clients in acute residential units ranging from small (d=.41) (5,6) to large (d=.80) (1), compared with effect sizes for patients on inpatient units ranging from medium (d=.67) (5,6) to large (d=.78) (1). Studies with follow-up assessments up to one year after admission found that improvements in symptoms continued and were comparable to improvements in inpatient samples (1,5–7), with effect sizes for acute residential units ranging from small (d=.43) (5,6,13) to large (d=.82) (1) and for inpatient units ranging from medium (d=.65) (5,6,13) to large (d=.94) (1).

The evidence at discharge provided by RCTs of the effectiveness of acute residential services in improving functioning suggests that acute residential services are as effective (7,8) or more effective than (1) inpatient units, although the effect sizes were small (d=.29 for acute residential service; d=–.2 for inpatient units) (1). At two-month follow-up, no significant difference in improvements in functioning since admission was found for clients of acute residential (d=.95) or inpatient services (d=.44) (1). No significant difference has been found in RCTs in quality of life as an outcome measure (5–8), with small effect sizes for acute residential services (d=.17) and inpatient units (d=.31) (6).

Most studies that used less rigorous repeated-measures designs found that clients of acute residential services experienced significant improvements in their level of symptoms (10,11,16,32), with a large effect size at discharge (d=1.04) (10) and at six months (d=1.07) (32); a medium effect size (d=.74) was also found at six months for patients treated on inpatient units (32). Significant improvements have also been shown in level of functioning after treatment in acute residential units (16,32), with one study indicating that clients of an acute residential unit had greater gains (d=1.54) than inpatients (d=1.08) in level of functioning (32). However, a large multisite study found that at discharge, inpatients had greater improvements than acute residential clients in clinical symptoms and functioning (9). Studies have also demonstrated significant improvements in quality of life for clients of acute and inpatient services (32,33), with no between groups differences (32).

Subsequent mental health service use has also been examined as a measure of long-term service effectiveness, with two studies finding similar readmission rates for inpatients and clients of acute residential services (1,12). Bittle (34) found no difference in readmission rates for clients after their first admission into either an acute residential unit or an inpatient unit; however, after the second admission, clients of residential units had fewer subsequent readmissions than inpatients.

Satisfaction. Studies that have examined service satisfaction have generally found that clients using acute residential units are more satisfied than inpatients with the service they receive. In RCTs, participants who were assigned to treatment in acute residential units generally reported greater satisfaction with the service than participants assigned to hospital units (1,4,7,8,32). In a pilot study that allowed participants to choose their treatment setting or to be randomly assigned (8), women who selected treatment at the acute residential unit and women who were randomly assigned to their preferred treatment option (either a residential unit or a hospital) expressed greater satisfaction with the service than women who selected inpatient treatment or who were assigned to their nonpreferred treatment. In a repeated-measures study that compared service satisfaction, clients of acute residential services and inpatients reported equivalent satisfaction; however, participants with depression reported higher levels of satisfaction with acute residential units (11). In two multisite cross-sectional studies comparing client satisfaction between four alternative crisis services and four psychiatric inpatient units, participants in alternative services indicated greater satisfaction with the service and reported less negative experiences than the patients in the hospital units (3,35).

Two studies have explored client service preferences and service satisfaction by using in-depth interviews (36,37); participants expressed a preference for mental health treatment in acute residential units. Features of the services that participants reported as important were freedom, safety, less coercion, lower levels of disturbance, mutual support and friendship from other service users, the homelike environment, and access to staff. In a female-only service, women valued the female-only environment but also reported concerns about a lack of staff continuity and problems with medication control and questioned the usefulness of some support groups (37).

Cost-effectiveness. Studies comparing the cost-effectiveness of acute residential units and inpatient units generally indicate cost savings for acute residential units (9,11–15). In an RCT, Fenton and colleagues (13) examined cost per degree of improvement in clinical symptoms and found that acute residential care was less expensive for both the period of admission and the six-month period of community service use after discharge from residential care, with average costs of an acute residential admission 45% less than those of an inpatient admission (d=.78).

In a comparison of six acute residential units and six inpatient units, Byford and colleagues (12) found that costs per service user for users of both types of unit were similar in the 12 months before admission; however, in the 12 months after admission, the costs, including those for community service use, were significantly less for clients treated in the acute residential

Table 1

Evaluative studies of the effectiveness of acute residential mental health services

Study and country	Study design, sample N, and assessment times[a]	Residential service	Comparison service	Outcomes and measure used[b]	Results
Hawthorne et al., 2005 (1); U.S.	RCT; N=99; admission, discharge, and 2-month follow-up	Short-term acute residential unit (START)	Psychiatric inpatient unit	Symptoms, PANSS; functioning, SF36; service satisfaction, PCS	Improvements in symptoms at discharge and follow-up for both groups; similar lengths of stay; higher service satisfaction for residential unit
Sheridan et al., 1989 (2); U.S.	RCT; N=75; admission and discharge	Emergency housing program with outpatient psychiatric services	Psychiatric inpatient unit	Planned discharge	Most residential clients discharged to the community rather than to an inpatient unit
Lloyd-Evans et al., 2010 (3); U.K.	Mixed methods: C-S and qualitative; N=320; discharge	3 community-based residential crisis services and 1 alternative inpatient ward (tidal model)	4 psychiatric inpatient units	Satisfaction with service; level of care	Higher levels of service satisfaction among clients of residential units
Hawthorne et al., 2009 (4); U.S.	RCT; N=93; discharge	START	Psychiatric inpatient unit	Treatment environment	Greater satisfaction on several dimensions with residential treatment environment
Fenton et al., 2000 (5); U.S.	RCT; N=119; admission, discharge, and 6-month follow-up	McAuliffe House, a residential crisis program	Psychiatric inpatient unit	Psychiatric symptoms, PANSS; quality of life, QoLS; successful discharge; costs of service	Improvement in symptoms for both groups; user satisfaction higher for residential unit; residential unit less costly
Fenton et al., 1998 (6); U.S.	RCT; N=119; admission, discharge, and 6-month follow-up	McAuliffe House, a residential crisis program	Psychiatric inpatient unit	Psychiatric symptoms, PANSS; quality of life, QoLS; successful discharge	Improvements in symptoms and quality of life for both groups; 87% of residential unit clients discharged to the community
Greenfield et al., 2008 (7); U.S.	RCT; N=393; admission and 1-, 6-, and 12-month follow-ups	Crisis residential program	Psychiatric inpatient unit	Psychiatric symptoms, BPRS and HSC-40; level of functioning, UCDI; self-esteem, RSES; quality of life, QoLI; service satisfaction, SSS-RF; costs of service	Greater symptom improvement for residential clients; functioning and life enrichment similar for both groups; no difference in symptoms at 12 months; higher service satisfaction for residential unit clients
Howard et al., 2010 (8); U.K.	PP-RCT; N=102; admission and 12-week follow-up	2 crisis houses, Drayton Park and Croydon House	2 psychiatric inpatient units	Psychiatric symptoms, BPRS Level of functioning, GAF; quality of life, EQ–5D; unmet needs, CAN; service satisfaction, VSSS; costs of services	Clinical improvements for clients in both treatment groups; satisfaction with services higher for women in the residential services; no difference in costs between the services

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Study and country	Study design, sample N, and assessment times[a]	Residential service	Comparison service	Outcomes and measure used[b]	Results
Slade et al., 2010 (9); U.K.	R-M; N=433; admission and discharge	6 residential units, including a clinical crisis unit, a short-stay ward, and beds on a crisis team service	6 psychiatric inpatient units	Psychiatric symptoms, HoNOS and TAG; functioning, GAF; costs of service	Improvements in symptoms and functioning for both groups; improvements and length of stay greater for inpatients; residential unit less costly
Adams and El-Mallakh, 2009 (10); U.S.	R-M; N=261; admission and discharge	Crisis stabilization unit	None	Psychiatric symptoms, BPRS and BDI	Symptoms improved at discharge
Hawthorne et al., 1999 (11); U.S.	R-M; N=554; admission, discharge, and 4-month follow-up	5 short-term residential facilities	2 psychiatric inpatient units	Symptoms, BASIS32; functioning, SF36; length of stay; satisfaction with service, CSQ; costs of service	Improvements in symptoms and functioning at discharge for both groups; length of stay similar for both services, except longer for depressed clients in residential units; residential service less costly
Byford et al., 2010 (12); U.K.	Prospective; N=398; 12 months after discharge	5 alternative acute residential units	6 psychiatric inpatient units	Mental health service use for 12 months after discharge; costs of service	Readmission data similar for both groups; residential units less costly because of shorter stays
Fenton et al., 2002 (13); U.S.	RCT; N=119; admission, discharge, and 6-month follow-up	McAuliffe House, a residential crisis program	Psychiatric inpatient unit	Psychiatric symptoms, PANSS; costs of service	Symptom improvements for both groups; no difference in readmissions; residential unit less costly
Sledge et al., 1996 (14); U.S.	RCT; N=197; admission and 2-, 5-, and 10-month follow-ups	Day hospital and crisis respite program	Psychiatric inpatient unit	Costs of service	Residential unit less costly
Haycox et al., 1999 (15); U.S.	R-M; N=177; admission and 6- and 12-month follow-ups	2 residential units attached to community mental health centers	2 psychiatric inpatient units	Costs of service; readmissions; use of community services	Fewer readmissions and greater use of community mental health services for clients of acute residential units; overall cost of acute services may be less when long-term client outcomes are included
Ryan et al., 2011 (16); U.K.	R-M; N=43; admission and discharge	Amethyst House, crisis house	None	Symptoms, GAF, HoNOS, and TAG; functioning, GAF and HoNOS	Improvements in symptoms and functioning at discharge
Sledge et al., 1996 (31); U.S.	RCT; N=197; admission and 2-, 5-, and 10-month follow-ups	Day hospital and crisis respite program	Psychiatric inpatient unit	Psychotic symptoms, BPRS and SCID; functioning, GAS; social adjustment, SAS; quality of life, QoLI; satisfaction with service	Improvement in symptoms and functioning for both groups; no significant difference in satisfaction with service

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Table 1

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Study and country	Study design, sample N, and assessment times[a]	Residential service	Comparison service	Outcomes and measure used[b]	Results
Boardman et al., 1999 (32); U.K.	R-M; N=177; admission and 6- and 12-month follow-ups	2 community mental health residential units	2 psychiatric inpatient units	Functioning, GAF; symptoms, HoNOS and HRSD; quality of life, LQLP; service satisfaction, VSSS	Greater improvements in symptoms and functioning for residential clients; service satisfaction higher for residential clients
Dott et al., 1996 (33); U.S.	R-M; N=78; admission and discharge	Residential short-term crisis unit	Psychiatric inpatient unit	Quality of life, Q-LES-Q	Improvements in quality of life for both groups
Bittle, 1986 (34); U.S.	Prospective; N=760; readmission data over 3.75 years	Acute care treatment services program, 2 residential cottages attached to a hospital	Psychiatric inpatient units	Readmissions	No difference in clients readmitted once; more inpatients readmitted ≥3 times
Osborn et al., 2010 (35); U.K.	C-S; N=314; discharge	3 community-based residential services and an alternative inpatient ward—tidal model	4 psychiatric inpatient units	Satisfaction with service, SSS-RF, CSQ, and WAS	Higher levels of service satisfaction among clients of residential units
Gilburt et al., 2010 (36); U.K.	Qualitative; N=40; during treatment	6 alternative acute residential units	None	Preferences for mental health treatment	Clients reported positive impressions of the residential unit service
Johnson et al., 2004 (37); U.K.	Qualitative; N=50; during treatment	Drayton Park, crisis residential unit for women	Psychiatric inpatient unit	Experience of service; satisfaction with service	Clients spoke highly of the service and preferred it over the inpatient ward

[a] C-S, cross-sectional study; PP-RCT, patient preference–randomized controlled trial; RCT, randomized controlled trial; R-M, repeated-measures study;
[b] BASIS32, Behavior and Symptoms Identification Scale; BDI, Beck Depression Inventory; BPRS, Brief Psychiatric Rating Scale; CAN, Camberwell Assessment of Need; CSQ, Client Satisfaction Questionnaire 8; EQ–5D, EuroQol (health related quality of life); GAF, Global Assessment of Functioning; GAS, Global Assessment Scale; HoNOS, Health of the Nations Outcome Scale; HRSD, Hamilton Rating Scale for Depression; HSC-40, Hopkins Symptom Checklist; LQLP, Lancashire Quality of Life Profile; PANSS, Positive and Negative Syndrome Scale; PCS, Perceptions of Care Scale; Q-LES-Q, Quality of Life Enjoyment and Satisfaction Questionnaire; QoLI, Quality of Life Interview; QoLS, Quality of Life Scale; RSES, Rosenberg Self-Esteem Scale; SAS, Social Adjustment Scale; SCID, Structured Clinical Interview for DSM-III-R; SF36, Medical Outcomes Short-Form 36; SSS-RF, Service Satisfaction Scale–Residential Form; TAG, Threshold Assessment Grid; UCDI, Uniform Client Data Inventory; VSSS, Verona Service Satisfaction Scale; WAS, Ward Atmosphere Scale.

units (d=.24). However, wide variation was found in the costs for care provided in acute alternative units; nonclinical and crisis bed services had the lowest cost per participant, and the clinical crisis house had the highest costs because of longer stays. In a study using the same residential and inpatient units, Slade and colleagues (9) found that admissions to the acute residential services were less expensive than admissions to the inpatient units (d=.42); however, if cost-effectiveness was measured in terms of cost per degree of improvement, then inpatient units showed greater cost-effectiveness. Shorter stays in some acute residential units, compared with stays on inpatient units, may account for some of the cost savings for acute residential units (9,12,14).

Most studies of the clinical effectiveness, user satisfaction, and cost-effectiveness of acute residential services have indicated that for some client groups, these services are as effective as those provided on inpatient units. Acute residential units deliver similar clinical improvements as inpatient units, with clients reporting satisfaction equal to or greater than that of patients treated on inpatient units. Most acute residential units provide cost savings within the mental health system, in some cases because of fewer days in care and lower readmission rates.

Subacute residential services

Only three studies were identified that address the effectiveness of subacute residential services, and these are summarized in Table 2. In an RCT of two ten-week residential treatment programs for social phobia, Borge and colleagues (17) found that a residential setting was conducive to positive outcomes for clients treated with either cognitive or interpersonal therapy. At the completion of the program both treatment groups showed a reduction in symptoms (cognitive therapy, d=.76; interpersonal therapy, d=.77) and further improvements at 12-month follow-up (cognitive therapy, d=.97; interpersonal therapy, d=1.04). Improvements in client well-being were also demonstrated in a women-only residential treatment unit that provided daily therapeutic groups (18), with women showing improvements in global functioning and reductions in depression and psychotic symptoms.

Table 2

Evaluative studies of the effectiveness of subacute residential mental health services

Study and country	Study design, sample N, and assessment times[a]	Residential service	Comparison service	Outcomes and measure used[b]	Results
Borge et al., 2008 (17); Norway	RCT; N=73; admission, discharge, and 12-month follow-up	10-week residential treatment for social phobia, with cognitive or interpersonal therapy	None	Social phobia symptoms, ADIS-IV; anxiety, BAI	Significant improvements in symptoms for both treatment groups
Meiser-Stedman et al., 2006 (18); U.K.	R-M; N=261; admission, discharge, and 2-year follow-up	Residential unit for women	None	Psychiatric symptoms, BDI and BPRS; functioning, GAF; unmet need, CAN-SAS	Improvements in symptoms and functioning at discharge
Bedell and Ward, 1989 (19); U.S.	Longitudinal; N=144; records of admissions and discharges over 42 months	Intensive acute residential unit	Inpatient unit	Length of stay; subsequent readmissions; costs of service	Length of stay significantly shorter for residential unit clients; fewer hospital readmissions for residential unit clients; residential unit less costly

[a] RCT, randomized controlled trial; R-M, repeated-measures study

[b] ADIS-IV, Anxiety Disorders Interview Schedule for DSM-IV; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; BPRS, Brief Psychiatric Rating Scale; CAN-SAS, Camberwell Assessment of Need Short Appraisal Schedule; GAF, Global Assessment of Functioning

An intensive residential program that provided psychoeducational treatment demonstrated significant cost savings compared with the average cost of treatment in a hospital (19). Readmission data were collected for 3.5 years after discharge, and clients who had been treated in the residential unit had significantly fewer days in the hospital in the first 12 months and in the final six months of the follow-up period. For the other two years of the follow-up period, no significant difference in readmissions was observed between the two treatment groups.

Discussion

This review evaluated the clinical effectiveness, user satisfaction, and cost-effectiveness of a range of community- and hospital-based acute and subacute residential units. The review included studies of acute residential services, with a range of study designs, outcome measures, service types, and sample characteristics, and provided evidence of the effectiveness of these services. Unfortunately, there were only three outcome studies on subacute residential services, making it difficult to evaluate the effectiveness of these services.

Most studies, including RCTs, indicated that acute residential services were as effective as inpatient psychiatric units in alleviation of psychiatric symptoms and improvements in functioning and quality of life. Several prospective studies also demonstrated that readmission rates of clients discharged from acute residential services were either similar to or lower than those of clients discharged from inpatient units. In terms of cost-effectiveness, treatment on acute residential units was generally found to cost less than treatment on inpatient services, with some cost savings related to shorter lengths of stay. In the area of user satisfaction, a stronger difference was evident between acute residential services and inpatient units, with most studies reporting that clients of acute residential services had higher levels of satisfaction with the service compared with inpatients.

There are limitations in the research evidence for acute residential services. Rarely do studies report detailed demographic characteristics of clients who use the service, such as key variables of interest: diagnosis, length of time receiving mental health treatment, number of prior hospitalizations, and therapy offered. Very few studies have focused on specific demographic groups; although several U.S. studies of services for veterans with mental health problems have been conducted. Samples in many studies are small, limiting the generalizability of the findings and also the ability to explore differences between clients of differing backgrounds and diagnoses in the effectiveness of the service. For example, for clients with depression and clients with psychotic disorders, differences in length of stay and clinical effectiveness have been identified between acute residential and inpatient units (11). Factors influencing successful discharge from acute residential units have also been considered (2) and include good interpersonal relationships, effective use of leisure time, and a lower level of symptoms. Factors predictive of successful discharge outcomes need to be investigated in more detail to guide clinicians in selecting suitable referrals to acute residential units.

Data are limited on the maintenance of clinical improvements that clients demonstrate at discharge. Many acute residential units aim to support clients in finding stable housing and establishing community connections, because these are key issues related to recovery. However, these longer-term measures of the stabilization

of clients are rarely examined in outcome studies, with evidence of long-term effectiveness generally reported only through reductions in readmission rates.

Studies comparing acute residential and inpatient services provide evidence of the outcomes of the services; however, because of differences in service delivery and client characteristics, these samples are rarely matched, and firm conclusions about the comparative effectiveness of the services are difficult to make. Randomization of samples provides the opportunity to explore the effectiveness of services with less bias; however, there are logistical difficulties in randomly assigning individuals to treatment groups because of the differing intake procedures of services. Acute residential services have restrictions on who they admit to the service because of the open environment, fewer clinical staff on site, and limited beds. Furthermore, acute residential services usually do not take admissions during the night, which excludes some clients from being randomly assigned to these services for the purpose of service evaluation.

Studies evaluating the effectiveness of subacute residential mental health services indicate clinical improvements for clients at discharge, cost savings, and fewer readmissions, compared with persons treated on inpatient services. However, because only three studies were found that investigated the diverse range of subacute residential services, the evidence is insufficient to draw conclusions about the effectiveness of this type of services.

Limitations of this review

The purpose of this study was to review current knowledge of the effectiveness of acute and subacute residential units. Because of the paucity of studies of subacute residential mental health units, conclusions regarding the effectiveness of these services were not possible. Most research on acute and subacute residential units has been conducted on services operating in the United Kingdom and United States; only one study from another country fit the inclusion criteria for this review, which limits the generalizability of the findings, because health care systems vary substantially between countries.

Studies evaluating acute residential units had a range of designs, and they provided an overview of the effectiveness of these services in terms of clinical improvements, user satisfaction, and costs. However, these studies were typically hampered by significant attrition, the absence of matched samples in the services being compared, or narrow sample selection, which limits the generalizability of the results. For example, in a large RCT with a sample of 393 participants, the 30-day follow-up had high attrition; 30% of participants in the acute residential services and 43% in the comparison inpatient units could not be located at follow-up (7). Matching samples on severity of diagnosis at admission also needs greater consideration in order to effectively compare discharge outcomes of acute residential and inpatient services.

In regard to the search strategy for this review, inconsistent terminology was used in studies; terms such as "acute," "crisis," "short-term," "subacute," "temporary," and "alternative" were used to refer to acute and subacute services, and the definition of these terms varied between studies. Furthermore, many studies did not publish data of average length of stay or, when relevant, data on maximum allowable length of stay, making it difficult to compare some services. In addition, there is the potential for bias in the published literature on effectiveness of mental health services because of the tendency for studies with positive outcomes to be submitted for publication.

Recovery-based care

Assisting people in their personal pathway to recovery is one of the primary goals of mental health services. Recovery is not only the alleviation of symptoms, although this is a substantial component; recovery also incorporates development of new meaning and purpose in one's life (25), a positive sense of identity (38), effective integration into the community, and the ability to contribute to life in that community (39). According to Farkas and colleagues (40), values of mental health services that support the recovery process are client orientation and involvement, self-determination and choice, and growth potential. Several aspects of acute and subacute residential services, identified in this review, facilitate recovery. Shorter stays are a key feature of many of the acute residential units, with an emphasis on keeping clients connected with the community while they are in the service and assisting them in their reintegration into the community on discharge. Acute and subacute residential services provide treatment through either outpatient services or community-based services, establishing these connections for clients when they return to the community. Many of the residential services provide practical support in the development of life skills and community connections and in the areas of finding suitable housing and employment.

Qualitative studies of acute residential units indicate that clients appreciate the freedom, homelike environment, peer support, and community connections that they feel are integral to their recovery. Many acute residential services involve clients in the development of self-management plans, which have been identified as an important component of mental health treatment (28).

Personal safety is of concern for clients of residential mental health services (41) and staff working in these services (42). Many clients of acute residential units report feeling safer in these environments (36), particularly women in female-only services (37). However, there is a tension between providing choice of services and treatments for people in an acute phase of a mental illness and the need to ensure personal and public safety (22). To increase personal and public safety, researchers should continue to investigate which client groups will benefit most from these services and to identify client groups that may be at risk or pose a threat to others in the less restrictive environments that are key to service delivery in these mental health units.

Implications for current health care policy

Acute residential services offer a cost-effective alternative to inpatient psychiatric units that can alleviate pressure on inpatient beds for clients whose symptoms do not require the specialized services of inpatient units. The studies reviewed presented no evidence that acute and subacute residential services provide worse outcomes than inpatient units, and user satisfaction tends to be higher among clients of residential units. Some mental health staff involved in making decisions regarding the best treatment for clients value the service that acute residential units provide; however, limited availability significantly restricts their choice and use of such options (43,44).

Residential services also offer an opportunity to prepare clients for discharge from a psychiatric unit (step-down), providing individual support to find suitable housing, develop vocational and domestic skills, and build community connections. Locating stable, safe, and affordable housing can be difficult for people with a mental illness (45), and having stable accommodation in line with individual preferences is associated with improved quality of life (46). Acute and subacute residential services are able to provide short-term accommodation for people with a mental illness who are homeless, while they locate suitable longer-term accommodation. Acute and subacute residential services can also be used effectively to assist clients during an escalation of symptoms to avoid hospitalization (step-up), thereby saving mental health costs and avoiding the stigma and loss of freedom that are often associated with inpatient admissions.

Future research

There is a clear need for more research in the field of acute and subacute residential mental health services, so that these services can provide evidence-based accommodation and treatment for people with acute or subacute mental health needs. RCTs have provided some evidence of the effectiveness of acute residential services, although additional rigorous research is needed on these service types and the effectiveness of subacute residential services. However, significant logistical issues need to be addressed, such as how to randomly allocate patients to treatment when they are admitted for psychiatric care outside business hours.

Studies of the long-term effectiveness of acute and subacute services are also valuable, and several longitudinal studies have indicated that in the period after discharge, these services have readmission rates that are similar to or lower than rates for inpatient units. However, additional research is needed on the effectiveness of readmissions to acute and subacute residential services, examining differences in outcomes when readmission is to an acute or subacute residential unit rather than to an inpatient unit. The long-term clinical and cost comparison of acute and subacute residential units is hampered by the limited availability of beds in residential units, and there may not be a vacancy when readmission is necessary. Other outcome measures, such as stable housing and community integration, are also needed in order to demonstrate the long-term effectiveness of these services in meeting the goals of assisting clients toward recovery. Additional research is needed to determine the characteristics of clients who are most likely to have successful discharges from acute and subacute residential services.

Conclusions

The evidence presented in most studies reviewed here indicates that acute residential services are as effective as inpatient units in the treatment of mental illness. User satisfaction studies provide support for the homelike environment, freedom, greater autonomy, safety, and peer and staff ; support that these services provide. In a time of increasing medical costs and restricted budgets, the cost-effectiveness of acute residential units makes them an attractive option for health administrators. It appears that some client groups are more suited to acute residential treatment, and the likelihood of successful discharge should be considered when this treatment option is available for clients. Research into the effectiveness of subacute residential services provides an indication that these services are clinically effective and cost-effective. However, more research is needed to determine the client groups that will benefit most and the long-term effectiveness of this option.

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