ARTICLE

Three year outcomes of participants in the REACT (Randomised Evaluation of Assertive Community Treatment in North London) study.

Helen Killaspy, Senior lecturer[1,4]
Stella Kingett, Specialist registrar[4],
Paul Bebbington, Professor and Head of Department[2,4],
Robert Blizard, Statistician[1],
Sonia Johnson, [2,4],
Fiona Nolan, Nursing research fellow[3],
Stephen Pilling, Director of CORE[3],
Michael King, Professor[1,4]

[1]Department of Mental Health Sciences, UCL Medical School, Hampstead Campus, London NW3 2PF

[2]Department of Mental Health Sciences, UCL Medical School, Bloomsbury Campus, London W1W 7EY

[3]Centre for Outcomes Research and Effectiveness, UCL, Torrington Place, London WC1E 6BT

[4]Camden and Islington NHS Foundation Trust

Correspondence to Dr Helen Killaspy
email: h.killaspy@medsch.ucl.ac.uk
Phone 0207 794 0500 x 33719
Fax 0207 830 2808

Abstract

The only randomised controlled trial to test high fidelity assertive community treatment in the UK (the REACT Study) found no advantage over usual care from community mental health teams in reducing the need for inpatient care and other clinical outcomes, but participants found assertive community treatment more acceptable and engaged better with it. One possible reason for the lack of efficacy of assertive community treatment might be the short period of follow up (18 months in the REACT study). This paper reports on participants' service contact, inpatient service use and adverse events 36 months after randomisation.

Background

Assertive Community Treatment (ACT) teams have been implemented across England since 1999 as part of the National Service Framework for Mental Health[1].

These teams target people with severe and enduring mental health problems who are high users of inpatient care and have problems engaging with standard mental health services[2]. There is good evidence for their clinical efficacy in the US and Australia[3,4] in terms of reducing the need for inpatient care and associated costs. However, these advantages have not been replicated in the UK[5,6]. A meta-analysis of trials of intensive case management concluded that the advantages of ACT were most evident where there was high local use of inpatient care and where the comparison intervention did not replicate key aspects of ACT[7]. The Randomised Evaluation of Assertive Community Treatment in North London (REACT) study assessed outcomes 18 months after randomisation and found no clinical advantage over usual care from community mental health teams (CMHTs) but recipients of ACT were better engaged with services[8]. Selection criteria for participants in the REACT study included high use of inpatient care and the comparison CMHTs had high fidelity for only one of the key ACT components (offering a time unlimited service)[9].

Another possible explanation for the REACT findings is that outcomes were assessed relatively soon after teams were set up. We therefore assessed outcomes 36 months after randomisation to investigate whether reductions in inpatient service use might be evident following initial engagement with the service.

Method

The REACT study was carried out with full adherence to CONSORT guidelines for the management of randomised controlled trials. The methods and results 18 months after randomisation have been reported elsewhere[8]. In brief, the 251 participants were recruited from all CMHTs in the London boroughs of Camden and Islington between July 1999 and July 2002. They were high users of inpatient care (at least 100 consecutive inpatient days or at least five admissions within the past two years; or at least 50 consecutive inpatient days or at least three admissions within the past year) who were living independently and whom the CMHTs had found problematic to engage over at least the previous 12 months. There were no statistically significant differences between the two groups in clinical or social functioning at baseline. Since including only consenting participants would render the results irrelevant to the service users most likely to be referred for ACT, the local research ethics committee approved randomisation and collection of case note and key informant data on all participants, whether or not they agreed to participate in the research interviews. Participants were randomly allocated on an equal basis to the care of one of the two local ACT teams or to continue with their CMHT. The fidelity of the ACT teams was independently assessed using the Dartmouth Assertive Community Treatment Scale[10] during the REACT study and found to be high for one team and "ACT like" for the other[11] and low for the CMHTs[9].

Approval for collection of 36 month outcome data from the case notes of all REACT study participants was gained from the local research ethics committee. SK collected data on participants' current accommodation, contact with services, inpatient service use, use of the Mental Health Act and adverse events (deaths, incidents of self-harm, violence, imprisonment, homelessness and loss to follow-up). Data were collected from case notes except for three participants who had moved away. Their data were gathered from their new care co-ordinators by email or telephone. Five ACT and seven CMHT files covering the relevant period were missing, and inpatient service use data were thus collected from the electronic records for these individuals. Other data for these participants were collected directly from care co-ordinators except the number of face to face contacts which was recorded as missing.

Data analysis

The REACT study required 250 participants to detect a difference in mean inpatient bed days (the primary outcome) of one third between the two interventions with 80% power. Of 251 study participants recruited, 127 were allocated to ACT and 124 to CMHT care. Eighteen months after randomisation, three ACT and four CMHT participants had died and one CMHT participant had emigrated, so primary outcome data were available for 124 ACT and 119 CMHT participants. Thirty-six months after randomisation, a further three ACT and two CMHT participants had died and one ACT participant had emigrated. Hence 36 month outcome data were available for 120 ACT and 117 CMHT participants. At 36 month follow-up, 20 of the original ACT clients had been transferred back to the care of a CMHT and 20 of the CMHT clients had been transferred to an ACT team. Data reported were analysed on an "intention to treat" basis, but repeat analyses excluding these clients and comparing all those who received any ACT with those who received none did not substantially alter the results.

Since data were not normally distributed, the median inpatient service use was compared using the Mann-Whitney test. Confidence intervals for the median difference were calculated using Hodges-Lehmann estimates. Categorical data were compared using the Chi squared test, while Student's t-test was used to compare normally distributed continuous variables.

Results

There were no statistically significant differences between the ACT and CMHT participants in total inpatient days over the 36 months (median difference = 0 [95% CI -50 to 56], Mann-Whitney test p=0.866). Three ACT and three CMHT participants remained in hospital throughout the 36 months. Fewer CMHT than ACT participants were admitted to a medium secure facility, but there were no other differences between the groups in any indicators of inpatient service use (Table 1). Similar proportions were referred to supported accommodation. There were no statistically significant differences in adverse events between ACT and CMHT participants. When analysis was restricted to participants whose care had not transferred at the end of the REACT study, there was a statistically significant difference in the proportion of clients lost to follow-up (3/95 ACT vs 11/89 CMHT, $\chi^2 = 5.53$, $p = 0.019$). The mean face to face contacts made between staff and clients over the preceding three months at 36 month follow-up was statistically significantly greater for ACT than CMHT participants (ACTT 12.20 [SD 12.05], CMHT 7.22 [SD 9.52], difference in means = 4.98 [95% CI 2.11 to 7.85], p=0.001).

Discussion

The main findings from this pragmatic follow-up study were that even over a longer period of intervention, the clinical gains for ACT clients and reductions in the need for inpatient service use demonstrated in the international literature were not replicated in the UK setting. We used an "intention to treat" analysis of outcomes recorded in case notes and were able to report on 94% of the original REACT study participants. Our findings therefore appear robust. The lack of effectiveness of ACT was not explained by CMHTs finding sources of extra support for their clients through referral to supported accommodation.

The ACT teams made more face to face contacts with their clients in the previous three months than the CMHTs, and fewer ACT clients were lost to follow-up, although this difference failed to show statistical significance in the intention to treat analysis. It therefore appears that of the original aims identified for ACT[2], only improved client engagement was achieved.

These findings concur with the 18 month outcomes reported in the REACT study[8] and national data on the impact of ACT teams on inpatient service use[6].

We conclude that in the UK, a longer period of ACT does not reduce the need for inpatient care and CMHTs are able to prevent admissions as successfully as ACT teams using fewer contacts. Although ACT model fidelity was low for CMHTs, both types of service shared four of seven features identified as important for the success of intensive case management (primary clinical responsibility; based in the community; team leader doing clinical work; time-unlimited service)[7]. This may partly explain our results. It may also be that reducing the need for inpatient care is particularly difficult in areas with a high threshold for admission such as inner London. Further evaluation of ACT in the European context is needed to assist our understanding of the findings from the REACT studies. In the meantime we question the continuing investment in ACT in the UK unless its greater acceptability to clients is very highly valued by policy makers and service commissioners.

Table 1. Outcomes at 36 months for REACT study participants

Inpatient service use	**ACTT N=120**			**CMHT N=117**		
	Mean (SD)	**Median**	**IQR**	**Mean (SD)**	**Median**	**IQR**
Total inpatient days	290.9 (280.8)	209.0	88.5 to 422.8	267.5 (239.8)	229.0	65.0 to 443.0
Number of admissions	2.0 (1.8)	2.0	0 to 3.0	2.1 (2.1)	2.0	0 to 3.0
Days per admission	107.8 (151.7)	55.5	0 to 166.5	117.8 (136.8)	87.0	0 to 173.5
Involuntary admissions	1.4 (1.3)	1.0	0 to 2.0	1.5 (1.4)	1.0	0 to 2.5
	ACTT N=120	**CMHT N=117**		χ^2	**P**	
No admissions	31 (26%)	34 (29%)		1.659	0.646	
1 admission	25 (22%)	17 (15%)				
2 admissions	22 (18%)	23 (20%)				
>2 admissions	42 (35%)	43 (37%)				
Involuntary admission/s	79 (88%)	79 (92%)		0.076	0.783	
PICU admission/s	32 (36%)	34 (40%)		0.169	0.681	
MSU/special hospital admission/s	10 (11%)	2 (2%)		5.407	0.020	
Adverse incidents						
Lost to follow up* ACTT n=114 CMHT n=109	5 (4)	12 (11)		3.465	0.062	
Homelessness	17 (19)	20 (22)		0.385	0.385	
Physical assault	34 (28) [1 homicide]	25 (21)		1.537	0.215	
Arson	10 (8)	6 (5)		0.832	0.362	
Self-harm ACTT n = 127 CMHT = 124	15 (12) [of which 1 was a suicide]	19 (15) [of which 3 were suicides]		0.661	0.416	
Prison	10 (8)	9 (8)		0.033	0.856	

Accommodation				
Independent tenancy	88 (83)	88 (81)	1.491	0.828
Floating support	6 (5)	9 (8)		
Supported tenancy	4 (3)	3 (2)		
Residential care	9 (8)	8 (7)		
In hospital or prison	13 (11)	9 (8)		

*defined as no face to face contacts between staff and client in previous three months
MSU= medium secure unit
PICU = psychiatric intensive care unit

References

1. Department of Health, National Service Framework for Mental Health, DH, 1999.
2. Department of Health. Mental Health Policy Implementation Guide. Assertive Community Treatment Teams. DH, 2001.
3. Marshall M & Lockwood A. Assertive community treatment for people with severe mental disorders (Cochrane Review). In the Cochrane Library, Issue 4, Oxford:Update Software, 1998.
4. Issakidis, C., Sanderson, K., Teeson, M.*, et al*. Intensive case management in Australia: a randomized controlled trial. *Acta Psychiatrica Scandinavica*, 1999, **99**: 360-367.
5. Fiander, M., Burns, T., McHugo, G.J., Drake, R.E. Assertive community treatment across the Atlantic: comparison of model fidelity in the UK and USA. *British Journal of Psychiatry,* 2003, **182**: 248-254.
6. Glover, G., Arts, G., Kanna, S., Babu, S. Crisis resolution/home treatment teams and psychiatric admission rates in England *British Journal of Psychiatry*, 2006, **189**: 441 – 445
7. Burns, T., Catty, J., Dash, M., Roberts, C., Lockwood, A., Marshall, M. Use of intensive case management to reduce time in hospital in people with severe mental illness: systematic review and meta-regression. *BMJ,* 2007, **335**: 336
8. Killaspy, H., Bebbington, P., Blizard, R., Johnson, S., Nolan, F., Pilling, S, King, M. REACT: A Randomised Evaluation of Assertive Community Treatment in North London. *BMJ*, 2006, **332:** 815-819.
9. Killaspy, H., Johnson, S., Pierce, B., Bebbington, P., Pilling, S., Nolan, F., King, M. A mixed methods analysis of interventions delivered by assertive community treatment and community mental health teams in the REACT trial. *Social Psychiatry and Psychiatric Epidemiology*. In Press.
10. Teague GB, Bond GR & Drake RE. Program fidelity in assertive community treatment: Development and use of a measure. *American Journal of Orthopsychiatry,* 1998, **68**: 216-232.
11. Wright C, Burns T, James P, Billings J, Johnson S, Muijen M, Priebe S, Ryrie I, Watts J, White I. Assertive community treatment teams in London: Models of Operation. Pan London Assertive Community treatment Study Part I. *British Journal of Psychiatry*, 2003, **183:** 132-138.