Crisis resolution teams for people experiencing mental health crises: the CORE mixed-methods research programme including two RCTs

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Scientific summary

The CORE mixed-methods research programme

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Scientific summary

Background

Crisis resolution teams (CRTs) are established throughout England and have the aims of reducing acute psychiatric bed use and improving service user experiences. However, national reports have identified significant limitations in implementation, including problems achieving continuity of care and the intended reductions in bed use. Service users and carers have reported dissatisfaction with the range of help available to support recovery. The CRT model is still loosely specified, and there is a lack evidence on the critical ingredients of effective crisis care and on specific interventions that promote recovery in this context.

Objectives

The CORE (Crisis team Optimisation and RElapse prevention) programme seeks to establish evidence at both a team level and an individual patient level as to how CRT functioning may be optimised to reduce reliance on inpatient care and to enhance recovery.

The CORE programme objectives were to:

1. investigate best practice in CRTs
2. formulate a model for achieving best practice, and develop a measure to assess fidelity to this model
3. develop and evaluate a service improvement programme for achieving high-fidelity care
4. develop and assess the effectiveness of a peer-facilitated self-management intervention aiming to bridge the gap between acute and continuing care.

The programme consists of two workstreams. The aim of workstream 1 (modules 1–3) was to develop models of best practice in CRTs and address barriers to its implementation at a team level (objectives 1–3). Workstream 2 (modules 4–6) addresses limitations in CRT care at an individual service user level by investigating whether or not a peer-facilitated self-management intervention can reduce subsequent relapse and enhance service user experiences and outcomes.

Methods and results

Workstream 1

Module 1

A systematic review was conducted of quantitative and qualitative studies and of published guidelines to collect evidence regarding critical components and key organisational principles of CRT services. Multiple electronic databases were searched [i.e. MEDLINE, Embase, PsychINFO, Cumulative Index for Nursing and Allied Health Literature (CINAHL) and Web of Science were searched to November 2013, without limit or restrictions] for studies relevant to assessing what characteristics and components are associated with good outcomes in CRTs. A further web-based search was conducted for published government and expert guidelines. Randomised and non-randomised comparison studies, national surveys, qualitative interviews, focus groups and mixed-methods studies were included. A narrative synthesis was conducted. Sixty-nine studies and documents were included in the review. Studies that included descriptions of the components of CRTs indicated substantial variations in these. Relatively little quantitative evidence was found on associations between CRT organisation, components and delivery and service user experiences and outcomes. Qualitative studies and government and expert guidelines provided views from a variety of perspectives on

best practice in CRTs. Stakeholders, including service users, carers and clinicians, emphasise accessibility, integration with other services, practical help and continuity of care as important elements of good practice. CRT guidelines recommend the provision of a 24-hour, 7-day multidisciplinary service, relapse prevention planning and controlling inpatient admissions.

Crisis resolution team managers were invited to complete an electronic national survey on existing CRT organisation and service delivery, and on initiatives for improving CRT practice and service user experience. One hundred and ninety-two CRTs took part in the survey. There was considerable variability in CRT location, access and composition. The interventions provided were most often focused on medication. Adherence to the CRT model as proposed in the original government guidance (Department of Health and Social Care. *The Mental Health Policy Implementation Guide*. London: Department of Health and Social Care; 2001) on CRT implementation appeared low. Some elements of this model, including intensive engagement with families and the provision of a range of psychological and social interventions, were valued by CRT managers but not seen as very achievable in routine practice.

In a qualitative study, semistructured interviews and focus groups with CRT service users, carers, practitioners and key experts involved in the development of CRTs were conducted. Topic guides were developed in collaboration with project advisory groups representing CRT stakeholders, and service users and carers were generally interviewed by people with lived experience of using mental health services. Data were analysed using thematic analysis. The study identified 11 features of CRT work that were considered important by all stakeholder groups. These related to organisation of care (e.g. ease of access and speed of response, staff continuity, regularity, reliability and clarity), content of CRT work (family involvement, CRT interventions and emotional support) and the role of CRTs within the acute and continuing care systems (e.g. gatekeeping hospital admissions). There was good consensus between service users, carers, experts and clinicians on the desirable components of high-quality CRT care.

Module 2

Concept mapping was used to construct a CRT fidelity scale based on statements about good practice in CRTs derived from the module 1 evidence. A group of academic and clinician stakeholders initially rated these statements for their importance and identified groups of statements that belonged together. A specialist concept mapping software (Ariadne 1.0; Talcott, Amsterdam, the Netherlands) was used to group statements in cluster solutions ('concept maps'), and then a final concept map was chosen by participants as the basis for the fidelity scale. The resulting CRT fidelity scale was used in a 1-day fidelity review, involving interviews with different CRT stakeholder groups and a review of team records and policies. Pilot reviews were initially conducted in four CRTs. The scale and review process were further refined and then applied in 75 teams nationwide, with investigation of psychometric properties.

This process yielded a fidelity scale comprising 39 items, with items grouped into four clusters: referrals and access, content and delivery of care, staffing and team procedures, and timing and location of care. Feedback from teams participating in the 75 team reviews indicated that fidelity reviews were perceived as acceptable and helpful, but also time-consuming. An estimated correlation of 0.65 [95% confidence interval (CI) 0.54 to 0.76] between ratings was identified, indicating moderately high inter-rater reliability. The estimated intraclass correlation between ratings averaged over 16 raters was very high (0.97, 95% CI 0.95 to 0.98). Results indicate that the CORE CRT fidelity scale can reliably distinguish higher- and lower-fidelity CRTs. The 75-team fidelity survey showed that CRT teams did not typically provide all core elements of the CRT model. Overall, teams' fidelity scores ranged from low to moderate fidelity.

The CORE service improvement programme (SIP) was developed to support teams in increasing their fidelity to CRT good practice, measured via the CORE fidelity scale. The content of the programme was informed by module 1 and was developed and refined iteratively, with input and advice from the study team, consultants and senior CRT clinicians. The final version of the CORE CRT SIP included repeated fidelity reviews to allow teams to identify and focus on weaker areas and to chart progress, structures to

guide service improvement work, involvement of a CRT facilitator to help teams develop and implement their service improvement plans, and access to a web-based resource pack manual.

During the development and piloting of the CRT fidelity scale, plans were developed and refined for the CORE CRT SIP trial (module 3). A symposium was held at which CRT managers and clinicians, policy-makers, service planners and service users with experience of services in a large range of areas were consulted. Further input and consultation were obtained from implementation experts, a study service user, a carer working group and senior CRT clinicians.

Module 3

A cluster randomised trial evaluated the impact of the CORE CRT SIP. A total of 25 CRTs were recruited, of which 15 were randomly allocated to receive the CORE SIP over a 1-year period and 10 acted as control teams. The primary outcome was service users' satisfaction with CRT care. Other outcomes included acute service use, perceived continuity of care and CRT staff well-being. These were measured at baseline and follow-up interviews with service users and CRT staff, and anonymised service use data were retrieved from electronic patient records. The associations between CRT fidelity score, assessed at the 1-day fidelity review audit, and service outcomes were explored. Stakeholders' experiences of the SIP and barriers to, and facilitators of, its implementation were explored in qualitative interviews with CRT managers, staff and programme facilitators.

There were no significant differences in service user satisfaction between the intervention and control group teams (coefficient 0.97, 95% CI –1.02 to 2.97; $p = 0.34$). A ceiling effect was suspected, as scores for satisfaction were very high in both groups; selection bias may have contributed to this. Regarding secondary outcomes, there were no significant differences between groups in service users' experience of continuity of care (coefficient 0.06, 95% CI –2.78 to 2.66). No significant differences between groups were found on measures of staff burnout (coefficient –1.92, 95% CI –4.30 to 0.46) and job satisfaction (coefficient 1.07, 95% CI –0.81 to 2.96), but, at follow-up, staff in the intervention group CRTs scored better on a measure of psychological health (coefficient –1.29, 95% CI –2.38 to –0.20; $p = 0.020$) and a measure of psychological flexibility (coefficient 1.16, 95% CI 0.07 to 2.25; $p = 0.037$). Both of these results were statistically significant. There were statistically significantly fewer inpatient admissions, including both compulsory and voluntary admissions [incidence rate ratio (IRR) 0.88, 95% CI 0.83 to 0.94], and inpatient bed-days (IRR 0.96, 95% CI 0.95 to 0.97) in the intervention group than in the control group, with adjustment for baseline rates. However, there were no significant differences in rates of compulsory admissions (IRR 1.03, 95% CI 0.91 to 1.17) or rates of re-admission to acute care (IRR 0.87, 95% CI 0.72 to 1.06). The mean model fidelity score in the intervention group teams at follow-up, assessed by the CORE CRT fidelity scale, was 124, compared with 116 in the control group: this was significantly higher, adjusting for baseline fidelity score ($p = 0.006$). There were weak correlations between the extent to which team fidelity increased and (1) improved patient satisfaction (correlation coefficient 0.34; $p = 0.10$), and (2) the reduction in re-admissions (correlation coefficient 0.38; $p = 0.06$). No associations were found between change in fidelity score and change in other outcomes.

Qualitative feedback indicated generally positive experiences of the CRT SIP: the support of CRT facilitators was valued, the initial team scoping day promoted engagement and action planning, and fidelity review reports were considered to give valuable feedback, although the fidelity review day could be experienced as onerous and time-consuming. The online resources were underused. Team morale, dedicated time for service improvement activities and active support from organisational senior management were all cited as important process factors that facilitated engagement with the programme when present and were barriers when absent. Staff turnover and lack of resources within teams also impeded engagement with the programme. The CRT SIP was experienced positively by most respondents: it could help clarify team purpose, develop communication and motivation, and provide opportunities to compare practice with that of other teams.

Workstream 2

Module 4

Two systematic reviews were conducted. The question addressed in the first review was whether or not self-management programmes for people with psychosis and schizophrenia improve immediate, short-, medium- and long-term outcomes. Randomised controlled trials (RCTs) of any type were included, irrespective of publication status. Symptom-focused, service use, functioning and recovery-related outcomes were examined. Quantitative data were meta-analysed using appropriate random-effects models for dichotomous and continuous data. Twenty-five RCTs were included in the review. There was evidence that self-management programmes may reduce symptoms of psychosis and the risk of inpatient admission, and improve quality of life and aid recovery. However, most studies exhibited some risk of bias and were rated as being low to very low quality.

The second review examined published and unpublished RCTs of community-based, peer-provided support for people with severe mental illness (SMI). Objective and self-reported outcomes were examined. Participants in included studies were adults with SMI, specifically bipolar or schizophrenia spectrum disorder, or mixed populations of people using secondary mental health services. Studies were excluded if participants were diagnosed with unipolar depression or personality disorder. Studies of peer-support programmes focusing on outcomes other than mental health recovery were also excluded. A meta-analysis was conducted using random-effects models. Eighteen trials were included in this review. There was some evidence that peer support was associated with positive effects on empowerment, recovery and hope. There was very little or no evidence of positive effects on satisfaction with services, overall symptoms or hospitalisation.

A peer-delivered self-management programme for people discharged from CRT care was developed through multistage qualitative interviews and focus group consultations with expert reference groups of CRT staff, service users and carers. The intervention was further refined through a feedback session with peer-support workers (PSWs) and reviews by the study team. A pre-pilot of the intervention with four trained PSWs and 11 CRT service users post discharge was conducted. Qualitative feedback was obtained through a focus group with the PSWs and individual interviews with the service users. Qualitative data were analysed using thematic analysis. Data indicated support for the programme and for PSWs as providers of the intervention. The final version of the programme included sessions on relapse prevention, crisis planning, signposting and goal-setting.

Module 5

A pilot RCT tested out trial procedures, study outcome measures and analysis plans. Twenty-one service users were offered up to 10 sessions with a PSW who supported them in using a self-management workbook addressing areas such as developing recovery goals and formulating relapse prevention plans. Nineteen participants in the control group were sent the self-management workbook but received no additional support. Qualitative feedback from 18 service users and four PSWs in the treatment arm was obtained to identify any further modifications to the intervention. Participants generally provided positive feedback regarding the intervention, commenting on the usefulness of having additional support and PSWs' knowledge about illness and treatment. The most common suggestion for improvements to the programme was to have more sessions. Quantitative data were collected and analysed together with data collected for the main RCT (i.e. module 6).

Module 6

The clinical effectiveness of the peer-supported self-management intervention was evaluated in a rater-blind, multicentre RCT. Service users were recruited from CRTs in six NHS trusts. The service users were eligible if they were on the CRTs' caseload for at least 1 week because of a mental health crisis, and had the capacity and willingness to give informed consent within 1 month of CRT discharge. The primary outcome was re-admission to acute care within 1 year of study entry, and it was collected from electronic patient records. Secondary outcomes included service use measures over a 1-year period, and other outcomes were assessed

at baseline and at 4- and 18-month follow-up interviews, such as self-rated recovery, self-management skills, satisfaction with mental health services and symptom severity.

Data from 441 participants (including pilot participants) showed fewer re-admissions to acute care within 1 year for intervention group participants (29%) than for control group participants (38%), and this result was statistically significant (odds ratio 0.66, 95% CI 0.43 to 0.99). Time (days) to re-admission was longer (hazard ratio 0.71, 95% CI 0.51 to 0.98) and satisfaction with services at 4 months was higher (coefficient 1.96, 95% CI 1.03 to 2.89) in the intervention group than in the control group. There were no statistically significant differences in the other secondary outcomes measured at 4, 12 and 18 months after adjusting for predictors of missing data. A cost-effectiveness complete-case analysis of the incremental cost per quality-adjusted life-year (QALY) showed a 70% probability that the intervention is cost-effective compared with the control group at a £20,000 willingness to pay for 1 QALY gained.

Conclusions

Findings from workstream 2 show that the peer-provided self-management programme is an effective intervention for reducing relapse for people discharged from CRT care, and support its use in the NHS. Workstream 1 has generated a model of CRT care, a quality assessment measure and process, and service improvement resources, which CRT teams may use to inform future service improvement initiatives. Trials in both workstreams have produced results that are clinically meaningful as well as statistically significant: a reduction in hospital admissions of 12% (IRR 0.88, 95% CI 0.83 to 0.94) in the workstream 1 service improvement programme trial, and a reduction in re-admissions to acute care from 38% to 29% in the workstream 2 peer-support trial.

Priorities for future research include (1) exploring the mechanisms of effect and critical components of the peer-supported self-management intervention through a process evaluation of the workstream 2 trial and future research; (2) further development and evaluation of service improvement initiatives for CRTs, informed by the CORE study resources and trial results; and (3) further investigation of the psychometric properties of the CRT fidelity scale, including the relationship of components of fidelity to outcomes, in order to confirm critical ingredients of CRT services.

Study registration

The randomised controlled trials were registered as Current Controlled Trials ISRCTN47185233 and ISRCTN01027104. The systematic reviews were registered as PROSPERO CRD42013006415 and CRD42017043048.

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