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Feasibility of ward-based psychological intervention to improve staff and patient relationships in psychiatric rehabilitation settings

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Abstract

Objectives. Recent inquiries highlight the anti-therapeutic nature of inpatient psychiatric care. We aim to assess the feasibility and potential efficacy of a ward-based psychological intervention to improve staff-patient relationships in psychiatric rehabilitation settings.

Methods. A single blind cluster randomised design compared the intervention with treatment as usual on measures of relationships, staff well-being and patient functioning. Measures were assessed at baseline and at 6-months.

Results. Fifty-one patients and 85 staff were recruited across 10 wards. Fifteen patients and 11 staff were lost to follow-up, with primary reason being ward discharge. Uptake to the intervention was variable but on average lower than anticipated (mean number of sessions 3.5, range 0-11). Despite this lower than anticipated uptake, compared with treatment as usual, patients in the intervention arm felt significantly less criticised by their key workers and reported improvements in ward atmosphere. Staff in the intervention arm also reported significantly lower levels of depersonalisation post-intervention. Although trend level data favoured the intervention group, in this relatively small feasibility study, we were not able to demonstrate statistically significant differences between the groups in terms of staff perceptions of relationships, staff stress and longer-term patient outcomes.

Conclusions. This psychologically informed ward-based intervention shows potential in improving relationships, although findings and feasibility may be enhanced if further measures are put into place to ensure that all members of the team attend intervention sessions on a more frequent basis. Loss at follow-up due to discharge also needs to be factored into future power calculations.

Key words: psychological intervention; schizophrenia; psychosis; psychiatric rehabilitation; formulation; feasibility

Practitioner points

- It is feasible to implement and trial a ward-based psychological intervention (team-based formulation) in long-stay psychiatric settings using a cluster randomised design.
- Developing psychological formulations with frontline ward staff around patients' needs has the potential to improve staff-patient relationships.
- The small sample size and loss of data at follow-up may have limited the power of the study to detect the full range of treatment effects.
- Larger trials are needed to assess the reliability and generalizability of our findings across different wards.

Introduction

The UK's Schizophrenia Commission (2012) highlighted the anti-therapeutic nature of inpatient care and the expense of detaining people in secure rehabilitation services over long periods. The report also corroborated previous inquiries which highlight the lack of psychological interventions in inpatient services and the pressing need across healths service for more compassionate and person-centred care (Department of Health, 2013). This paper describes a study implementing a ward-based psychological intervention designed to improve relationships and ultimately outcomes in long-stay psychiatric rehabilitation services.

Psychiatric staff play key roles in the lives of patients with severe mental health problems (Berry, Wearden, & Barrowclough, 2007). This is particularly true in long-stay rehabilitation settings, as patients have limited access to people outside of the mental health system. Quality of staff and patient relationships is a key determinant of outcomes, including symptoms, social functioning and violence and aggression (McCabe & Priebe, 2004; (Berry, Barrowclough, & Haddock, 2011). The move towards community-based care post-deinstitutionalisation has raised the threshold for admission, with more patients detained under sections. Frontline psychiatric staff have regular, direct exposure to challenging behaviours and can experience associated high levels of burn out (Totman, Lewando Hundt, Wear, Paul & Johnson, 2011; Wood et al., 2011). With high stress, low support and poor understanding, staff may respond to patients with criticism, increasing restraints or reducing helping behaviour, thus potentially fuelling vicious cycles of negative interactions (Daffern, Howells, & Ogloff, 2007).

Across a range of psychiatric conditions, the way in which significant others, including relatives and psychiatric staff, construe patient problems is a key factor in determining more critical and hostile responses (Barrowclough & Hooley, 2003; Wearden, Tarrier, Barrowclough, Zastowny, & Rahill, 2000). Research in people with schizophrenia has also shown associations between poor staff-patient relationships and staff perceptions of problem behaviours as being enduring and under the patient's control (Barrowclough et al., 2001; Berry, Gregg, Vasconcelos e Sa, Haddock, & Barrowclough, 2012). Therefore difficulties in staff-patient relationships may not solely be a direct consequence of the patient's behaviour, but rather a staff member's appraisal, conceptualisation and response to that behaviour. This hypothesis has important clinical implications, as it raises the possibility of devising interventions to improve staff-patient relationships by changing staff appraisals and understanding of problems.

Family interventions for schizophrenia foster more positive relationships between relatives and patients by targeting relatives' appraisals of problems and ways of coping. It is well-established that family interventions improve patient outcomes. Recent reviews of family interventions, also concluded that there is evidence of benefits in terms of both family burden and the quality of relationships, including reductions in criticism and hostility (Lobban et al., 2013; Pharoah, Mari, Rathbone, & Wong, 2010). There is also evidence of associations between improvements in carer positive appraisals about service users and willingness to continue to a caregiving role (e.g. Berglund,Vahlne & Edman,2003). In the context of long stay psychiatric in-patients wards staff may assume the role of 'family'. However, while there has been research into the benefits of family interventions, there is limited evidence base for

psychological interventions which promote more positive relationships between psychiatric staff and patients.

This is the first study to evaluate the feasibility and potential efficacy of a ward-based psychological intervention to improve staff-patient relationships and ultimately patient outcomes in psychiatric rehabilitation wards. As a feasibility study, the main aims were to determine: rates of recruitment, uptake and retention; and to estimate the effect size on a range of patient and staff outcomes. Our aim was not to provide a definitive test of the intervention on a priori specified primary outcome measure.

Method

Design

A single blind cluster randomised design. Following baseline assessments, rehabilitation wards participating in the study were randomly assigned in a 1:1 ratio to the intervention plus treatment as usual (TAU) or TAU alone. Assessments were repeated at 6-months, which coincided with the end of the intervention for those in the treatment arm.

Setting and participants

All wards were based in the North West of England and had remits of providing psychiatric rehabilitation to people with complex mental health needs. There were a mixture of NHS units and private sector units. Inclusion criteria for both staff and patients were being on the ward for at least 3 months. Staff were excluded if they only worked night shifts. Patients were excluded if they were non-English speaking. All

participants gave written informed consent and the study received ethical approval from the North West Research Ethics Committee (10/H1016/2).

Procedures

Assessments were carried out with both staff and patients at baseline and 6-month follow-up by trained researchers who were masked to allocation. All assessments were carried out in a private room on the ward.

Intervention

The intervention consisted of 24 one-hour sessions per ward over 6 months, facilitated by a clinical psychologist and accredited therapist with the British Association for Behavioural and Cognitive Psychotherapies (KB). KB has over 10 years experience of therapy with people with psychosis and psychological consultation to teams. All sessions were of one-hour duration and followed the same structured protocol. KB received monthly clinical supervision from SK who is an experienced clinical psychologist and trainer in psychological therapies. Formulations derived from the meetings were regularly discussed at supervision, as were the content of the written reports.

All available staff working on the ward at the time the meeting was held attended the session, regardless of whether they consented to completing the outcome measures for the purpose of the study. Due to shift patterns, the composition of the group varied between sessions. However, intervention sessions were always arranged so that the service user's key worker, who presumably had the most detailed knowledge about the patient, was in attendance. The intervention was developed on the basis of a

review of the literature of factors associated with positive therapeutic relationships in people with schizophrenia (Berry et al., 2011), pilot work (Berry, Barrowclough, & Wearden, 2009) and the authors' extensive experience in developing psychological interventions. Its core aim was to improve staff-patient relationships by developing shared formulations or conceptualisations of individual patients' needs. Formulations provide a framework for bringing together biological, societal, cultural and psychological factors that might be responsible for the development and maintenance of problems and thus facilitate planning and implementing the most appropriate intervention (Kinderman, 2005; Tarrier & Calam, 2002). Benefits of developing formulations with teams in long-stay low secure services have been described previously (Davenport, 2002; Summers, 2006). Developing a shared formulation of psychosocial needs is identified by the Royal College of Psychiatrists Faculty of Rehabilitation and Social Psychiatry as a key factor in enabling recovery in rehabilitation services (Wolfson, Holloway, & Killaspy, 2009). Team formulations are also recommended by British Psychological Society as an effective way of achieving culture change and promoting a psychosocial perspective (British Psychological Society, 2011).

Each team formulation session focused on a specific patient and began by identifying both patients' strengths and the 'problem behaviours' that the staff team were struggling with or wanted to understand. Staff typically identified behaviours that included aggression, suspiciousness, poor motivation, social withdrawal, poor self-care and 'attention seeking'; with more than one problem being identified for each service user. After constructing a problem list, the next step was to help staff to label significant events in the patient's life both prior to and following diagnosis. Staff were

then asked to think about the possible impact of these experiences on the patient's belief systems. Beck's (1976) cognitive model was used to structure this discussion and develop a preliminary formulation. The formulation was used to generate hypotheses about possible triggers of psychological distress for the patient and preferred ways of coping, which were often maladaptive and related to the problem behaviours initially identified. The identification of coping strategies was followed by discussion of their possible effects on problem maintenance and staff and patient interactions. The sessions concluded by ensuring that 'problem behaviours' could be understood in the context of the formulation and a discussion of the implications for support plans. Support plans that were derived from the meetings included specific interventions that could be implemented by staff with relatively limited training in psychology, such as enhancing patients' self-esteem via a positive data log or helping patients to develop optimism for the future by sharing stories about former patients who had achieved valued goals. Post-formulation, a written report was fed back to the patient's key nurse and at the multidisciplinary review meeting. Decisions about the level of feedback patients were given about the content of the meeting and report were made on a case-by-case basis, but all patients were informed of any changes in support plans resulting from the meetings. A manual detailing the intervention is available from the first author.

Treatment as usual

Treatment as usual in long-stay psychiatric services typically involves medication which is reviewed every 2-4 weeks. With support from nurses or occupational therapists, patients typically have an individualised weekly activity plan focused on developing skills to function in the community (e.g. self-care, budgeting, cooking)

and increasing engagement in social activities. Progress is usually reviewed in depth by the multidisciplinary team every 6 months. All wards in the study operated a key worker system, whereby in principle the patient meets at least weekly with his key worker to review his mental state and plan activities for the coming week. The key worker is also responsible for writing and reviewing the patient's support plans. Due to resource limitations, patients have poor access to psychological interventions.

Measures

Staff and patient relationships were assessed from both staff and patient perspectives using Working Alliance Inventory (WAI; (Tracey & Kokotovic, 1989), the Perceived Criticism Scales (PCS; (Hooley & Teasdale, 1989) and the Ward Atmosphere Scale (WAS; (Moos, 1974). The 12-item WAI assesses agreement on therapeutic goals, agreement on therapeutic tasks and emotional bond. A global rating of alliance is derived by summing scores for individual items, with high scores indicating a better therapeutic alliance. The measure has good psychometric properties (Tracey & Kokotovic, 1989) and has been used successfully in previous studies with patients and psychiatric nurses (Berry, Barrowclough, & Wearden, 2008). The PCS comprises 2 items which ask participants to rate the extent to which they feel criticised by and criticise a significant other. Respondents are asked to rate degree of criticism on a 10-point Likert scale, ranging from 'not at all critical' to 'very critical indeed'. The measure correlates well with more extensive measures of Expressed Emotion and predicts relapse (Hooley & Teasdale, 1989). The WAS is a well-established and validated measure of both staff and patient perceptions of the ward environment (Moos, 1974). It comprises three higher order dimensions: relationships; personal growth; and system maintenance.

Staff well-being was assessed using two well validated measures, the General Health Questionnaire (GHQ-28; (Goldberg & Hillier, 1979) and Maslach Burnout Inventory (MBI; (Maslach & Jackson, 1981). We used the Likert method of scoring the GHQ with higher scores indicating higher levels of distress. The MBI has three subscales: emotional exhaustion; depersonalisation; and personal accomplishment. Higher emotional exhaustion and depersonalisation indicate higher burnout, whereas lower personal accomplishment indicates higher burnout.

Patient functioning was assessed using the Positive and Negative Syndrome Scale (PANSS; (Kay, Flszbein, & Opler, 1987), Global Assessment of Functioning Scale (GAF; (Hall, 1995) and the Severe Behaviour Schedule (SBS; (Wykes & Sturt, 1986). The PANSS is a well-validated measure which assesses positive symptoms, negative symptoms, general psychopathology and overall severity of symptoms (Kay et al., 1987). The GAF is a well-validated and reliable observer-rated measure when used by suitably trained researchers (Jones, Thornicroft, Coffey, & Dunn, 1995). Its two subscales assess severity of symptoms and deficits in functioning. Both subscales range from 0 (severe symptoms and severe lack of functioning) to 100 (no symptoms and extremely high level of functioning). The lower of the two gives the overall score. The PANSS and GAF assessments were conducted by trained and well-supervised research assistants. Inter-rater reliability was established prior to starting assessments with gold standard ratings and ratings were checked throughout the trial by using a random sample of recorded interviews with trial participants (all Intraclass correlations >.70). The SBS, informant measure, rates severity, intensity and frequency of problem behaviours on four-point scales. It has good reliability and

validity (Wykes & Sturt, 1986). It was scored for both overall problem behaviours and severe problem behaviours, with higher scores indicating more severe problems.

Each patient was asked to complete the WAI and PCS in relation to their key worker. The key worker was then asked to complete the WAI and PCS in relation to that particular patient. If none of the patients that a staff member key worked participated in the study, they were randomly allocated to another participating patient. It was assumed that due to the nature of ward environments all staff were knowledgeable about all patients. Members of staff also completed the SBS in relation to the same allocated patient.

In addition to the above, trained assessors reviewed case notes to record any changes in medication during the study period. We also used an established case note review measure to record any changes in risk management (Haddock et al., 2009). We recorded changes in amount of freedom within the ward environment, including changes in access to sharp objects, access to hospital grounds and leave status. Retrospectively each person was categorised as no change, increase or decrease in risk management. We further used case note data to collate information about relapses during the six-month intervention period and the six months before baseline. Relapse was defined as an increase in psychotic symptoms lasting two weeks or more and requiring a change in patient management (Barrowclough et al., 2010). Finally, for those patients who were discharged before the end of the study, we recorded length of stay on the unit.

Data analysis

Analyses were conducted on an intention-to-treat basis using summary measure analysis to control for the clustering effect. A two-stage procedure described by Hayes and Moulton that allows for baseline adjustment was used (Hayes & Moulton, 2009). First the dependent variables were regressed against the baseline variables, but without treatment allocation, from which patient level residuals were determined. Residuals were then aggregated to the cluster level and the treatment effect was estimated using the cluster level summaries and tested using t-tests. The alpha was set at .05 and we used uncorrected p values due to the exploratory nature of this study. Data were analysed using SPSS for Windows version 20 (IBM corporation, 2011).

Results

Recruitment and retention

Ninety-eight patients across 10 wards were eligible for inclusion and over half of these agreed to participate (52.04%, n = 51). A total of 36 patients (70.59%) completed 6-month follow-ups (1 withdrew and 14 were discharged); 7 of these 15 drop outs were in the intervention arm of the trial and 8 were in the TAU only arm of the trial. We compared patients who completed 6-month follow-up measures versus those who did not in terms of baseline measures and found that patients who were lost to follow-up had significantly lower PANSS total [Drop out mean = 56.60 (SD = 14.45); Retained mean = 65.06 (SD = 11.04); $t = -2.272$, $df = 49$, $p = .028$] and PANSS general psychopathology [Drop out mean = 28.80 (SD = 6.36); Retained mean = 33.31 (SD = 6.84); $t = -2.186$, $df = 49$, $p = .034$] scores at baseline.

A total of 110 staff across all 10 wards were eligible for inclusion in the study and more than three quarters agreed to participate (77.27%, n = 85). The main reason given for non-participation was time pressures (n = 20), 4 staff gave no reason and one cited job dissatisfaction. A total of 74 (87.06%) of staff completed 6-month follow-ups; 6 of these drop outs were in the intervention arm of the trial and 5 were in the TAU only arm of the trial. Rates of recruitment and retention for both patients and staff were similar across all wards. See Figure 1 for Consort diagram.

Sample characteristics

Forty-one patients were male (80.4%), the sample mean age was 39 years (SD = 12.79), with the majority being White British (n = 40; 78.4%). The mean age of onset of psychosis was 24 years (SD = 9.85) and the mean number of previous inpatient admission was 4.57 (SD = 3.93). The most frequent diagnosis was schizophrenia (n = 44, 86.3%), followed by schizoaffective disorder (n = 3, 5.9%) and bipolar disorder (n = 3, 5.9%). One person was diagnosed with psychosis non-specified (2%).The majority were prescribed antipsychotics (n = 46; 90.20%), 15 were prescribed mood stabilisers (29.4%) and 13 were prescribed antidepressants (25.5%).

Fifty-five staff members were female (64.7%), the mean age of the sample was 42 years (SD = 11.04) and the majority were White British (n = 75, 88.2%). Staff had worked on their current ward for a mean number of 60 months (SD = 56.21) and had a mean number of 13 years (SD = 9.55) experience in mental health. Forty-six were registered mental health nurses (42.4%), 43 were support workers (50.6%), 4 were occupational therapists (4.7%) and 2 were ward managers (2.4%).

Baseline scores

Baseline scores for staff and patient outcome measures are presented in Tables 1-3. Patients had similar levels of symptoms and functioning to previous samples of patients with complex mental health needs (Barrowclough et al., 2010; Garety et al., 2008). Both patient and staff ratings of alliance were also similar to previous studies of people with psychosis and psychiatric staff (Berry et al., 2008; Picken, Berry, Tarrier, & Barrowclough, 2010). In general on the MBI, staff scored in the low range for depersonalisation, in the moderate range for personal accomplishment and in the low to moderate range for emotional exhaustion (Maslach & Jackson, 1981). A total of 32.94% (n = 28) of staff met clinical 'caseness' on the GHQ as defined as scoring 6+ using the standard scoring (0, 0, 1, 1) (Goldberg & Hillier, 1979).

Intervention

All but two staff members on wards allocated to the intervention arm of the trial received at least one session of the intervention. Staff attended a mean number of 3.5 sessions (SD = 2.49, range 0-11). Formulations were developed for all patients participating in the study and the patient's key nurse was always present at the formulation meeting. In the majority of instances, formulations for individual patients were re-reviewed throughout the study period.

Impact on main outcomes

Adjusting for clustering effects and baseline scores, there were no significant differences between participants in the intervention and control arms on any of the measures of relationships from staff perspectives. In fact, there was a trend for staff to report slightly worse alliances and they reported that they criticised patients slightly

more in the intervention group post-intervention compared to pre-intervention. Conversely, adjusting for clustering effects and baseline scores, patients reported staff as significantly less critical in the intervention arm compared to the TAU only arm. Patients in the intervention group also had significantly higher scores on the system maintenance and relationship subscales of the WAS post-intervention compared to the TAU only group. There were no significant group differences for patients' scores on the personal growth subscale of the WAS or for patients' scores on the WAI (see Table 1).

Adjusting for clustering effects and baseline scores, there were no significant differences post-intervention between staff in the intervention and control group on the GHQ or the emotional exhaustion and personal accomplishment subscales of the MBI. Staff in the intervention group did, however, score significantly lower on the depersonalisation subscale of the MBI post-intervention compared to the TAU only group (see Table 2).

Adjusting for clustering effects and baseline scores, there were no significant differences between patients in the intervention and control group on any of the patient outcome measures (see Table 3). Adjusting for clustering effects and rates of relapse during a baseline period, there were no significant differences between the proportion of patients that relapsed during the intervention or TAU only groups. There were also no significant differences between the proportion of patients in the intervention and TAU only groups whose medication was reduced, or who were given more freedom on and off the unit. Finally, patients in the intervention and control

groups did not differ in terms of length of stay on the unit (excluding those people who were not discharged at the end of the study period) (see Table 4).

Discussion

This study investigated the feasibility of implementing and evaluating a ward-based psychological intervention. We achieved reasonable uptake to the study and loss of patients at follow-up was primarily due to ward discharge rather than study drop out. We also examined the potential effects of the intervention on relationships and a range of other important staff and patient outcomes for people with schizophrenia and related diagnoses resident in long-stay psychiatric rehabilitation services. Compared with TAU only, patients in the intervention arm of the trial felt less criticised by their key workers and reported improvements in relationships and ward organisation more generally post-intervention. Compared with TAU, staff in the intervention arm reported lower levels of depersonalisation post-intervention suggesting that staff feel more involved with and connected to their job roles and therefore more potentially emotionally available for patients.

There is relatively limited previous research evaluating interventions to improve staff-patient relationships in ward environments. The positive impact of the intervention on patients' perceptions of criticism and staff burnout are, however, in line with studies demonstrating the benefits of family interventions on criticism and burden in relatives of patients with schizophrenia (Lobban, Barrowclough, & Jones, 2003; Pharoah et al., 2010).

We found no significant differences between the groups in terms of staff perceptions of relationships, staff stress and other aspects of staff burnout, patient outcomes, length of stay, change in treatment or relapse. However, non-significant differences in patient outcomes, length of stay, reductions in medication, risk management and relapse were in the direction suggesting a more positive change for those receiving the intervention. Interestingly, we found a trend for staff to report worse relationships with patients post-intervention in the intervention group. One possible explanation for this finding is reporting biases in the baseline data. During the formulation sessions, the clinical psychologist normalised negative responses to patients and difficulties in therapeutic relationships, so arguably staff might have felt more comfortable reporting difficulties following the intervention. Furthermore, it is possible that as staff felt less depersonalised in their job role post-intervention they were more aware of difficulties in relationships. However, as the PCS and WAI have been less frequently used to assess psychiatric staff perceptions of relationships compared to patient perceptions, it is also possible that the unexpected findings in relation to staff perceptions of relationships in the intervention group are associated with the poor reliability of the measures over time.

Patient recruitment rates to the study were comparable to those reported for psychological treatment trials with similar populations (Haddock et al., 2009). Staff recruitment rates were higher than those reported for other interventions studies involving similar staff groups (Berry et al., 2012) and may have been associated with strong managerial support for the project. Staff retention in the study was reasonable particularly given the typical high turnover of staff in inpatient wards (Nolan & Smojkis, 2003). Loss of patients to follow-up was higher than is found in some

psychological treatment studies for schizophrenia (Haddock et al., 2009). All but one of the patients was lost to follow up because they were discharged from the ward. We did not follow patients up when they were discharged from the wards as the many of the outcome measures related to patients' perceptions of relationships with ward staff. Loss of patients at follow-up due to discharge is problematic for research assessing the effects of ward-based interventions and highlights the need to keep follow-up periods relatively brief, or alternatively assess outcomes on different cohorts of patients at time one and time two. It may also have been possible to assess outcomes at the point of discharge for those who were discharged before the 6-month follow-up, although it is unclear whether these patients' responses would be comparable to those who had completed baseline assessments 6 months prior. Loosing patients due to discharge is particularly problematic as those who are discharged are likely to differ from those who are not on outcomes measures. For example, in our sample we found that those patients who were discharged at follow up had lower PANSS scores at baseline, suggesting that more symptomatic patients remained on the ward, and thus any potential benefits of an intervention might be diluted.

We did not specify a priori how many sessions of the intervention each staff member would need to attend in order to benefit. NICE (2009) guidelines for schizophrenia recommend that at least 10 sessions of family interventions are needed to improve outcomes (NICE, 2009). Increasing staff exposure to formulation activities may therefore result in more significant impacts on patient and staff outcomes; although it is noteworthy that the number of sessions attended was unrelated to changes in staff burn out. The finding that a mean of only 3.5 sessions of the intervention is sufficient enough to impact on patients' perceptions of relationships and some aspects of staff

burnout is encouraging and suggests that a relatively brief psychologically informed organisational intervention has the capacity to improve the quality of psychiatric care and perceptions of the ward environment. It may be that embedding the psychological intervention into the ward routine helped to shift the overall culture of the ward towards more psychological thinking and thus resulted in changes in practice outside of the sessions. In support of this hypothesis, qualitative feedback from staff suggested that the intervention was also important in changing the culture of the ward, whereby in discussions about patients outside of the sessions, staff started to think more creatively about the reasons driving patients' behaviour and were more proactive in challenging current ways of working.

Across all wards, managers were proactive in encouraging all available staff to attend and the intervention was carried out during 'handover' periods when two different shifts of staff overlapped. However, in some instances one or two members of staff were not available to attend the sessions, due to the fact that they had to accompany patients to other scheduled activities or appointments outside of the ward. The intervention sessions also took place at the same time each week and due to the nature of shift working which often includes weeks of night shifts, staff were not always scheduled to work on the day the session took place. Increasing the frequency of intervention sessions per week or working more closely with ward managers to schedule staff shifts may help to overcome these problems in future studies and further enhance outcomes. The importance of improving inpatient care and the absence of existing evidence based strategies for doing so justifies the investment of psychologists' time to achieve this end.

Formulations were developed for all patients recruited to the study and on smaller units with fewer patients it was possible to review formulations and progress in relation to specific support plans derived from the interventions. NICE (2009) guidelines for schizophrenia recommend that whenever possible, patients should be included in family interventions (NICE, 2009). Although we discussed the nature of the intervention and any associated changes to support planning with patients, we did not directly involve them in the formulation sessions. Our goal was to develop a low intensity psychologically informed organisational intervention to improve therapeutic relationships and the quality of care for all patients, including those who could not or were unwilling to engage in more intensive psychological therapies.

Findings suggest that compared to TAU, a ward-based formulation intervention can be effective in improving patients' perceptions of therapeutic relationships and ward atmosphere and from the staff perspective some aspects of burnout. However, this is small scale feasibility study; larger trials are needed to assess the reliability and generalizability of our findings across different wards and therapists. The small sample size and loss of data at follow-up may also have limited the power of the study to detect other treatment differences. Our concern was to detect a potential benefit of the intervention rather than confirmation of effectiveness. Larger fully-powered trials are therefore needed to provide a more objective assessment of the impact of the intervention on patient outcomes in inpatient settings. The effect sizes and intra-cluster correlation coefficients observed in this pilot will help to inform power calculations for a larger study. These studies should also incorporate measures of treatment fidelity to determine whether the team-based sessions can be implemented successfully to protocol by other therapists. Relatedly, it is important to ascertain the

active ingredients of the intervention or whether the positive findings were simply attributable to demand characteristics or non-specific factors. We hypothesised that the intervention reduced patient perceptions of criticism by developing empathy and understanding among staff members regarding challenging behaviour, but these mechanisms need to be explored via process research. It is possible that other factors may explain the impact of the intervention, such as the effects of the support plans developed following formulations or the effects of staff feeling that their own needs for support were better acknowledged. Finally, the intervention is designed to ensure efficient use of psychology resources within inpatient services, but future studies should include more formal assessments of cost effectiveness.

There is a pressing need to improve psychiatric care for people with schizophrenia and those in inpatient and long-stay services in particular (Schizophrenia Commission, 2012). We know that the quality of therapeutic relationships is a key factor in determining outcomes and positive therapeutic relationships are a fundamental prerequisite for good quality health care across mental health services (Mind, 2011) and in the NHS more generally (Francis, 2013). The findings of this study suggest that a relatively low intensity organisational intervention has the potential to improve therapeutic relationships and patients' experiences of long-stay inpatient wards. This is an important outcome for patients given the drive to improve quality of care across the NHS (Department of Health, 2013).

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Figure 1: Consort diagram

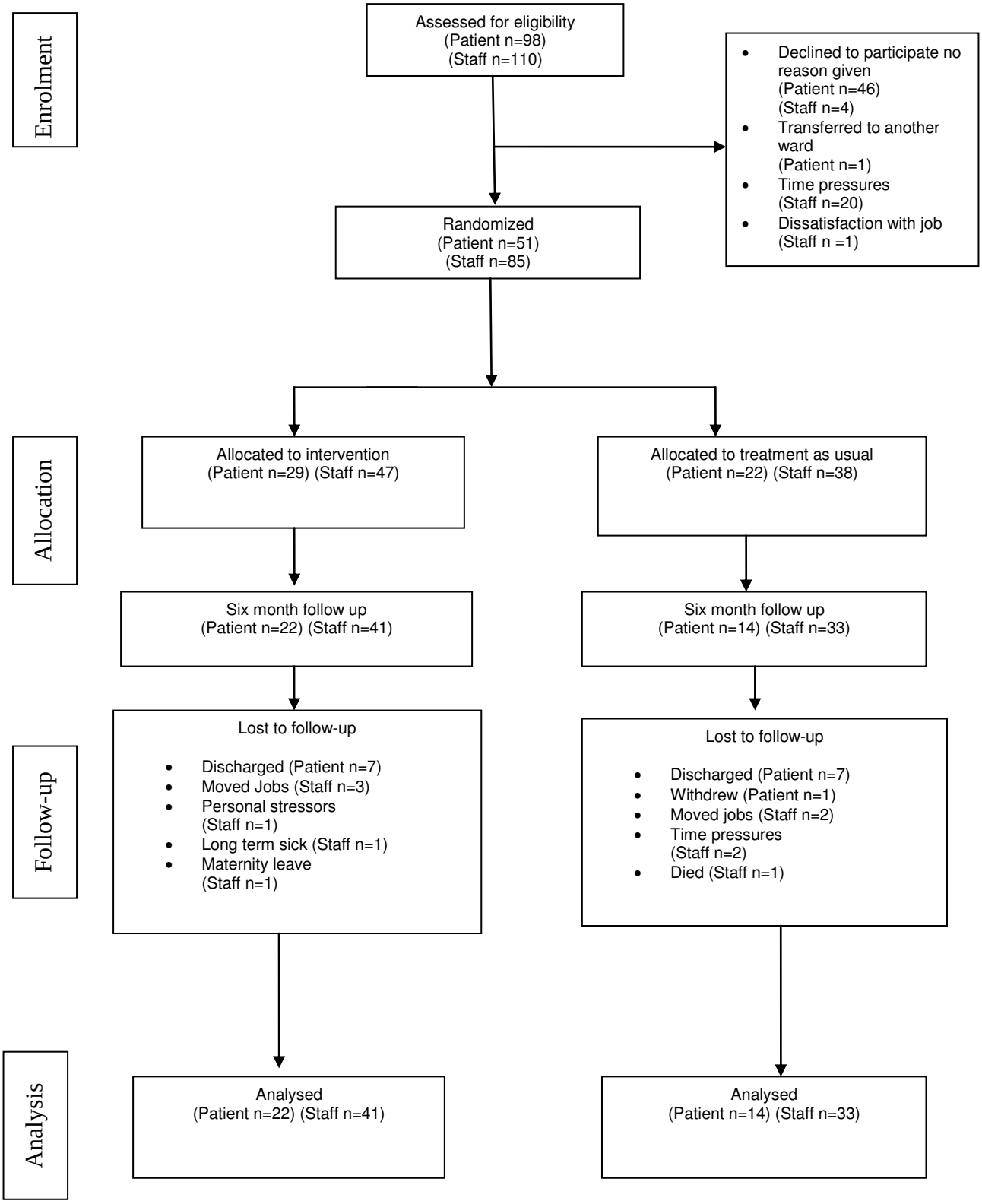

Table 1 - Therapeutic relationships: baseline scores and 6-month follow-up scores for the Working Alliance Inventory, Perceived Criticism Scales and Ward Atmosphere Scales

	Control	Intervention	Group comparison		
	Mean (SD)	Mean (SD)	Adjusted mean difference	95% confidence interval	P
Working alliance inventory staff report			-.29	-1.19 to .62	.485
Baseline	61.96 (4.85)	62.76 (4.40)			
6 months	63.70 (11.03)	59.96 (3.82)			
Working alliance inventory patient report			.32	-.38 to 1.02	.321
Baseline	59.19 (5.98)	58.01 (6.57)			
6 months	57.20 (7.59)	62.48 (2.99)			
How much staff feel patients criticise them			.40	-.32 to 1.12	.236
Baseline	3.53 (.74)	3.99 (1.22)			
6 months	2.66 (.57)	3.70 (1.40)			
How much staff feel they criticise patients			.47	1.63 to .44	.342
Baseline	3.10 (.67)	3.02 (.86)			
6 months	2.82 (.73)	3.71 (1.79)			
How much patients feel they criticise staff			-.68	.14 to .36	.092
Baseline	4.18 (.38)	4.79 (1.29)			
6 months	5.87 (1.18)	4.02 (1.93)			

How much patients feel staff criticise them			-1.13	-2.15 to -.11	.034
Baseline	3.91 (1.50)	3.89 (1.41)			
6 months	6.27 (2.19)	3.38 (1.20)			
Ward atmosphere system maintenance staff report			-.05	-.75 to .66	.883
Baseline	6.79 (.68)	7.28 (1.72)			
6 month	7.15 (1.09)	7.41 (1.38)			
Ward atmosphere relationships staff report			.05	-.71 to .80	.891
Baseline	7.63 (1.55)	7.61 (1.04)			
6 month	8.04 (2.13)	7.92 (1.11)			
Ward atmosphere personal growth staff report			.12	-.63 to .87	.721
Baseline	8.42 (1.48)	8.55 (1.61)			
6 month	8.72 (1.23)	8.87 (1.65)			
Ward atmosphere system maintenance patient report					
Baseline	8.23 (1.61)	7.64 (1.02)	.91	.16 to 1.67	.024
6 month	6.62 (1.32)	8.95 (1.20)			
Ward atmosphere			.85	.04 to	.042

relationships patient report				1.66	
Baseline	5.99 (.51)	4.73 (.58)			
6 months	6.27 (2.04)	8.02 (1.32)			
Ward atmosphere personal growth patient report			.06	-.89 to 1.01	.892
Baseline	7.21 (.30)	6.45 (.54)			
6 months	7.75 (1.96)	7.45 (1.54)			

Table 2- Staff well-being: baseline scores and 6-month follow-up scores for the General Health Questionnaire and Maslach Burnout Inventory

	Control	Intervention	Group comparison		
	Mean (SD)	Mean (SD)	Adjusted mean difference	95% confidence interval	p
GHQ			.13	-.69 to	.718
Baseline	20.11 (3.29)	22.76 (3.74)		.96	
6 months	19.99 (6.70)	22.71 (4.90)			
MBI Emotional exhaustion			.21	-.72 to	.615
Baseline	16.46 (3.96)	20.07 (3.83)		1.14	
6 months	16.52 (5.93)	22.29 (2.99)			
MBI depersonalisation					
Baseline	2.61 (.92)	3.49 (1.65)	-.67	-1.28 to -.06	.035
6 months	3.43 (1.23)	1.99 (2.02)			
MBI personal accomplishment			.06	-.69 to .81	.857
Baseline	35.59 (3.35)	34.53 (2.05)			
6 months	34.60 (2.50)	33.91 (1.88)			

Table 3 - Patient functioning: baseline scores and 6-month follow-up scores for the PANSS, GAF and SBS

	Control	Intervention	Group comparison		
	Mean (SD)	**Mean (SD)**	**Adjusted mean difference**	**95% confidence interval**	**P**
PANSS total			-.14	-1.01 to	.772
Baseline	62.20	64.39		.73	
	(5.37)	(7.24)			
6 months	62.46	61.73			
	(7.22)	(6.76)			
PANSS positive			.13	-1.11 to	.816
Baseline	14.13	13.73		1.37	
	(2.83)	(2.57)			
6 months	14.02	14.02			
	(5.09)	(2.48)			
PANSS negative			-.17	-1.39 to	.752
Baseline	18.12	16.84		1.05	
	(2.65)	(2.68)			
6 months	17.82	15.68			
	(3.84)	(4.29)			
PANSS general psychopathology			-.06	-.76 to .65	.860
Baseline	29.95	33.82			
	(3.11)	(4.68)			
6 months	30.97	32.02			
	(3.29)	(4.05)			
GAF total			.09	-1.19 to	.869
Baseline	40.74	39.60		1.40	
	(5.64)	(7.02)			
6 months	35.83	37.05			
	(5.86)	(12.02)			
GAF symptoms			.09	-1.20 to	.880
Baseline	48.03	46.64		1.40	
	(8.93)	(9.87)			

6 months	41.35	43.11			
	(10.82)	(14.46)			
GAF disability			.04	-1.22 to	.949
Baseline	42.40	42.19		1.29	
	(7.58)	(5.88)			
6 month	39.10	39.71			
	(3.48)	(11.15)			
SBS total problem behaviours			-.47	1.38 to	.268
Baseline	17.33	14.22		.44	
	(3.61)	(.99)			
6 month	21.41	14.60			
	(7.87)	(2.95)			
SBS total severe problem			-.62	-1.36 to	.091
behaviours				.12	
Baseline	2.82 (1.07)	1.86			
		(.62)			
6 month	3.67 (2.00)	1.68			
		(.56)			

Table 4 – Patient outcomes case note review data: descriptive and inferential statistics for length of stay, reductions in medication, reductions in risk management and relapse rates.

	Control	Intervention	Group comparison		
	Mean (SD)	**Mean (SD)**	**Adjusted mean difference**	**95% confidence interval**	**p**
Length of stay	60.09 (49.72)	32.74 (20.81)	-27.35	-88.51 to 33.82	.311
	%	**%**			
Proportion of patients with reduced medication	5	13.44	.08	-.09 to .26	.291
Proportion of patients with reduced risk management	6.67	12.31	.06	-.27 to .38	.697
Proportion of patients relapsing			.02	-.00 to .04	.060
Baseline period	3.64	23.67			
Intervention period	3.64	12.38			