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Predicting return to work from health related welfare following low intensity cognitive behaviour therapy

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ABSTRACT

The aim of this study was to identify predictors of return to work in the short and long term following condition management cognitive-behavioural therapy (CM-CBT). All participants (N = 3794) were disability welfare claimants, unemployed due to the presence of a physical or mental health condition. CM-CBT consisted of a seven session group cognitive-behavioural psychoeducational programme, with participants followed-up at 3 and 12-30 months. The primary employment outcome measure was a categorical measure of either returned to work, made progress towards work or remained on welfare. Results index an incremental progress and return to work rate, increasing from 34.41 % at short-term follow-up to 53.07 % at long-term follow-up. Clinically, 17.40 % were classed as recovered following CM-CBT. Reliable psychological change during CM-CBT predicted successful return to work and remaining on welfare was associated with psychological regression over time. The results are discussed in terms of identified methodological weaknesses and the potential of CBT in enabling return to work for the health related unemployed.

Introduction

High and increasing rates of health-related unemployment have made health and work a policy and service priority in high income societies (Harvey, Henderson, Lelliot & Hotopf, 2009), particularly where the total cost of worklessness outstrips the total healthcare budget (Black, 2008). The majority of people who are unemployed due to poor mental health have depression and anxiety (Schaufeli & VanYperen, 1993) and people unemployed due to physical health conditions often have unrecognised co-morbid mental health issues (Harvey et al., 2009). Long-term unemployment adversely affects physical and mental well-being (McKee-Ryan, Song, Wanberg & Kiniki, 2005) and when poor health is the trigger for loss of work, a complex clinical picture emerges (Clay, Newstead, Watson & McClure, 2010). Health related unemployment is conceptualised as a biopsychosocial phenomenon, whereby work readiness is restricted by the interplay of health condition, health related beliefs/attitudes and the social/cultural context (Kertay & Pendergass, 2008).

Despite a strong desire to return to work amongst the health related unemployed (McQuilken, Zahniser, Novak, Starks, Olmos & Bond, 2003), this group struggles to both attain and maintain employment and as a result has lower employment rates and earnings (Rigg, 2005). The likelihood of a return to work is only one-in-five after twelve months of incapacity welfare (DWP, 2002). The health related unemployed appear especially vulnerable to the negative effects of unemployment due to additional loss of life/social structure, personal purpose and work identity (Bennett, 1970; Grove, 2006). Length of time unemployed is associated with deteriorating psychological health (Freidl, Fazekas, Rami, Pretis & Feistritzer, 2007), physical de-conditioning (Waisak, Verma, Pransky & Webster, 2004) and on-going financial strain (Price, Choi & Vinokur, 2002).

Conversely, the therapeutic nature of work can reverse the adverse health effects of unemployment (Sainsbury et al., 2008; Waddell & Burton, 2006; Winefield & Tiggemann, 1990). Work reverses physical de-conditioning (Waisak et al., 2004) and habituation to unemployment (Black, 2008) and provides fiscal and physical security, daily structure, improved control and skill use, interpersonal contact and social standing/sense of purpose (Creed & MacIntyre, 2001; Fryer, 1995; Jackson, 1999; Jahoda, 1982; Warr 1987). Return to work from health related unemployment is complex however, as it entails enhanced symptom management, increased motivation and behavior change often via sustained interaction across a number of agencies (Frank, Brooker, DeMaio, Kerr, Maetzel, Shannon & Sullivan, 1996; Krause, Frank, Dasinger, Sullivan, & Sinclair, 2001). Rick, Carroll, Jagger, and Hillage (2008) noted that there were few firm conclusions to be drawn from the evidence-base comparing interventions to enable a return to work for recipients of health related unemployment welfare. This is due to the extant studies lacking credible methodologies and, in particular, failing to access long term employment outcomes.

The current study is unique as it focuses on identifying factors that predict return to work in both the short and the long term from a 'low intensity' cognitive-behavioural intervention for the health related unemployed, i.e. the provision of a group psychoeducational intervention by trained health professionals acting in a generic practitioner role within a 'high volume, low contact' service ethos and design (Brown, Cochrane & Cardone, 1999). Low intensity psychological interventions are defined by less intensive treatments (such as brief therapies, group treatments, assisted self-help, biblio-therapy and computerized treatments) for mild to moderate clinical problems, that enable rapid access to evidenced-based psychological treatments

delivered by para-professionals, peer supporters or psychological well-being practitioners (Bennett-Levy *et al.,* 2010; Rodgers *et al.,* 2012). The clinical aim of the current study was to investigate the effectiveness and durability of CM-CBT and study the relationship with return to work rates in short and long term. We hypothesized that (1) reliable improvements in psychological functioning following CM-CBT would be associated with return to work in both the short and long term, (2) remaining on welfare following CM-CBT would predict deteriorations in psychological health over time and (3) effective return to work would produce longitudinal psychological benefits.

Method

Organisational context

Condition Management Programmes (CMP) were established in the UK as an aspect of the Pathways to Work (DWP, 2002) policy context. CMP provides disability management to recipients of health related unemployment welfare, with the explicit aim of facilitating a return to work, via more effective self-management of presenting health condition (Dorsett, 2008). The typical health conditions referred to CMP comprise mental health, cardiovascular, musculoskeletal and miscellaneous physical conditions, with mental health conditions predominating (Barnes & Hudson, 2006). All the present sample (n=3794) were unemployed and claiming health related welfare (Incapacity Benefit or Employment and Support Allowance welfare) and were attending the publically-funded South Yorkshire CMP in the UK. Eligibility for health related welfare in the UK is initially determined by a General Practitioner in Primary Care providing a medical certificate of incapacity for work. Further independent medical examinations follow that assess the on-going eligibility for

health related welfare. Eligibility is defined as the 'ability to perform work-related activities being substantially reduced' (DWP, 2009). Referrals for CMP originate from Department of Work and Pensions Job Centre Plus Incapacity Benefit Personal Advisors, who recognise the role of poor condition management impacting on ineffective job search strategies and the psychological well-being of health related welfare recipients. Participation in CMP is entirely voluntary.

Condition Management Programme

The South Yorkshire CMP offered a group-based, cognitive-educational approach to increasing employability and psychological well-being (Grove, 2006). The programme drew heavily on Williams (2006a,b) 5 areas approach with the emphasis on psychoeducation. The therapeutic aim of the CMP is the development of broader and more effective condition management strategies across mental and physical health conditions to enable an effective return to work (Grove, 2006). The group-based delivery approach was developed in response to evidence that a group approach can combat the isolating effects of worklessness (Sainsbury et al., 2008) and a non-condition specific approach was adopted to facilitate versatility of delivery (Waddell & Burton, 2006).

The '5 areas' self-help approach focuses on key areas in condition management; (1) life/situation and practical problems, (2) condition-related unhelpful cognitions, (3) condition-related altered emotions, (4) condition-related altered physical feelings/symptoms and (5) unhelpful behavioural patterns (Williams, 2006a,b). The groups provided education and strategies for to apply in each of the identified five areas. Example topics covered in the group sessions are; assertiveness and practical

problem solving, noticing and changing unhelpful or extreme thoughts, techniques to improve sleep and relaxation, goal setting, behavioural activation/pacing/balancing and overcoming cognitive and behavioural avoidance, via exposure. The programme is delivered via 7 consecutive four-hour weekly sessions, facilitated by two CMP practitioners to an average of 6 participants. Between-session tasks ('homework') are introduced each week, to aid the generalisation of the change techniques and strategies discussed in the groups. All of the mixed-condition group-based psychoeducational sessions were delivered in local community settings (e.g. leisure centres and voluntary organisations), with the aim of reducing any disabling effects of stigma and for ease of local access (Kellett, Clarke, & Matthews, 2007). The South Yorkshire region was covered by four CMP teams; Sheffield, Barnsely, Rotherham and Doncaster. This area of the UK has a higher proportion of health welfare claimants, due to previously been an area of high industrialisation and associated heavy industry (Beatty, Fothergill & Powell, 2006). Each CMP team had a multi-disciplinary constitution of qualified health professionals from a variety of health backgrounds including mental health nurses, general nurses, occupational therapists, physiotherapists and assistant psychologists. Practitioners delivering the programme were trained on the 'five areas' model (Williams, 2006a,b) and received regular supervision.

Design

In a prospective cohort design, employment and psychological data were collected via self-report at four time points (1) prior to CM-CBT (assessment), (2) immediately following CM-CBT (termination), (3) at short term follow-up (3 months following CM-CBT) and (4) at long term follow-up (12-30 months following CM-

CBT). The psychological measures and employment data were collected at the beginning of the first CM-CBT group session, termination measures at the end of the final group session and follow-up data was collected via a mixture of telephone interview and postal return.

Sample

The present sample consisted of participants in the South Yorkshire CMP, who had participated in the intervention between 2006 and 2010. Health conditions were grouped into four categories by clinical opinion and claimant self-report at screening for CMP (DWP, 2002) and defined as the most dominant issue preventing return to work. The four CMP categories are defined as mental health conditions (61.7%; n = 2352, 1083 males with a mean age of 39.95, and 1269 females with a mean age of 39.99), musculoskeletal conditions (22.4%; n = 855, 437 males with a mean age of 44.55, and 418 females with a mean age of 45.39), cardiovascular conditions (3.0%; n = 113, 73 males with a mean age of 49.08, and 40 females with a mean age of 46.18) and miscellaneous physical conditions (13.0%; n = 495, 248 males with a mean age of 42.40, and 247 females with a mean age of 44.10).

Measures

Participants completed a battery of valid and reliable self-report measures of psychological functioning at the four time points, which are described below:

1. Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM; Evans, Connell, Barkham, Margison, McGrath, Mellor-Clark & Audin, 2002).

   This is a measure of psychological distress, including subjective wellbeing, commonly experienced problems or symptoms and life/social functioning, which

can be used to define 'caseness.' The CORE-OM has been demonstrated to have good concurrent (Evans et al., 2002) and discriminant validity (Connell et al., 2007), sound internal and test-retest reliability (Evans et al., 2002) and is able to measure change (Connell et al., 2007). The risk scale of the CORE-OM was not used in the current study, due to the inappropriateness of the suicide and self-harm items within an occupational sample. Current sample full CORE-OM $\alpha = 0.79$

2. General Self-Efficacy Scale (GSES; Schwarzer & Jerusalem, 1995).
   This is a measure of the perception of the control that people feel they have over the content and direction of their lives. The scale has good concurrent and cross-cultural internal reliability (Schwarzer, Born, Iwawaki & Lee, 1997; Schwarzer & Jerusalem, 1995). Current sample SES $\alpha = 0.69$
3. Work and Social Adjustment Scale (WSAS; Mundt, Marks Shear & Griest, 2002).
   This is a measure of functional impairment attributable to an identified problem or condition. The WSAS has good internal and temporal reliability and is sensitive to differences in disorder severity and is able to measure change (Mundt et al., 2002). Current sample WSAS $\alpha = 0.69$.

Categorising employment and psychological outcomes

The primary occupational outcome measure was a categorical measure of return to work. Employment outcomes were categorised as (1) a return to full or part-time paid work, (2) progress towards work, such as starting voluntary work, education or training or having moved off health related welfare either to no welfare or to non-health related welfare and (3) remaining on health related welfare. These categories have used previously to identify employment outcomes for the health related

unemployment (Kellett, Bickerstaffe, Purdie, Dyke, Filer, Lomax & Tomlinson, 2011).

The primary psychological outcome measure was the CORE-OM (Evans *et al.,* 2002). 'Caseness' is a straightforward psychological outcome definition that distinguishes whether any participant is above or below a cut-off score that defines a clinical population before and following an intervention. A score above 11 defined 'caseness' on the CORE-OM (Kellett et al., 2011). The degree of psychological change achieved on the CORE-OM was then categorised using Jacobson and Truax (1991) reliable change criteria. Reliable change occurs when an individual has changed sufficiently psychometrically during an intervention that such change is unlikely to be due to unreliability in the outcome measure. The formula used to establish the SE of measurement of a difference was: $SE_{diff} = SD_1\sqrt{2}\sqrt{1-r}$. The CORE-OM (less risk) SE_{diff} was 2.45 and the subsequent reliable change cut off 4.80. In accordance with recommendations by Evans, Margison & Barkham (1998), reliable improvement was recorded when an individual participant score on a scale improved by equal to or more than 1.96 times the SE_{diff} on that measure between assessment and termination of CM-CBT. Reliable and clinically significant improvement occurred when there has been a reliable improvement, plus the termination score on the placed the individual in the non-clinical range on the CORE-OM (i.e. a 'non-case'). This is increasingly taken as a credible index of recovery in practice-based evidence (Barkham, Stiles, Connell & Mellor-Clark, 2012). Stasis was defined as all pre-post outcome scores that failed to meet criteria for either reliable improvement or deterioration. A reliable deterioration was recorded when an individual participant score deteriorated by equal to or more than 1.96 times the SE_{diff} (i.e. 4.8) on the CORE-OM between assessment and termination of CMP. Reliable and clinically

significant deterioration was defined as when there had been a reliable deterioration, plus the termination score placed the individual in the clinical range on the CORE-OM (i.e. participant now a 'case'). This was recorded as a harm outcome. The five categorical CORE-OM psychological outcomes were therefore recovered, improved, stasis, deteriorated and harmed. The adjusted reliable change score and 'caseness' criteria for the CORE-OM were calculated from analysis of the CORE-OM national database (Barkham, personal communication in Kellett et al., 2011) containing an N in excess of 60,000.

Analysis strategy

The analysis proceeded in five stages to contextualise the longitudinal sample and address the study hypotheses. Firstly, return to work rates were calculated over time. Secondly, a practice-based intention to treat analysis (ITT) was completed according to the Barkham *et al.,* (2012) guidelines. Figure 1 details the flow of participants through the stages of the project over time in order to contextualize the sample clinically (see measures section) and to display the attrition rate over time. Follow-up information was attained for N=1108 participants at short-term and N=456 at long-term follow-up. In addition, the mean pre–post change scores for each measure and associated effect size associated with that change were calculated for each sub-sample. Cohen's (1990) power primer defined $d_+ = .20$ as a "small" effect, $d_+ = .50$ as a "medium" effect, $d_+ = .80$ as a "large" effect. Calculations for the full sample and assessed clinical sample is a practice-based ITT analyses, whilst completer, short and long term follow up samples may be considered as end-point analyses.

Please insert Figure 1 here

Thirdly, the representativeness of the short and long term follow-up samples was assessed prior to reporting results (Ahern & Le Brocque, 2005). No significant differences were found at assessment when comparing short term follow-up participants versus dropouts in terms of psychological distress ($t(3834)=-.27$, p = ns) or self-efficacy ($t(3713)=-.75$, p =ns). However, there were significant differences in disability at assessment ($t(3713)= -2.34$, $p <0.05$) between dropouts (M= 25.00, SD=8.64) and short term follow-up participants (M=25.72, SD=8.56). Long term follow-up participants were no different from dropouts in terms of psychological distress ($t(3061)=-1.10$, p = ns), disability ($t(3285)=-.83$, p = ns) or self-efficacy ($t(3283)=-.97$, p = ns) at assessment. No significant differences were apparent between those drop outs and follow-up participants in terms of occupational status at assessment for either the short ($\chi^2(2)=10.54$, p = ns) and long term ($\chi^2(2)=.651$, p = ns) follow-up participants. Fourthly, following calculation of reliable change rates on the CORE-OM, chi-square analyses were used to test whether reliable changes in psychological functioning during CM-CBT predicted return to work in the short and long term. Finally, repeated measures ANOVAs were used to test the relationship between return to work and psychological functioning over time.

Results

Return to work rates

At three months post CM-CBT, 12.52% (*N* = 138) of claimants had returned to work, 21.89% (*N*=242) had made progress towards work and 65.59% (*N*=728) remained on welfare. There was an increase in return to work rates over time and a reciprocal

reduction in claimants remaining on welfare. By long term follow-up (i.e. claimants who had completed CM-CBT more than one year previously) 30.27% (*N*=138) had returned to work, 22.80% (*N*=103) had made progress towards work and 46.93% (*N*=213) remained on welfare.

The clinical effectiveness of CM-CBT

Table 1 documents the frequencies and associated rates of improvement and recovery for the whole and clinical sample over time. Table 2 then shows means, SDs and pre–post change scores on the psychological outcome measures with the associated effect sizes (Cohen's d) for both the whole and clinical samples.

Please insert tables 1 and 2 here

In the full CM-CMP sample (N = 3794), 33.20 % reliably improved and the recovery rate was 11.60%. Since many of these participants did not complete any further outcomes, mean pre–post change scores were not calculated for this sample. In the clinical sample the improvement rate was 35.10%, with 12.50% classed as recovered. In the clinical sample for those who completed assessment measures only, the pre-treatment score was carried forward and considered as the last observation (Montori & Guyutt, 2001). Using this estimate, claimants in the clinical sample improved by a mean of 4.00, with a pre–post effect medium size of 0.57 (Cohen, 1992). Completers, by definition, did not require scores carried forward. Dropping a further N=1286 participants, who did not return a post-treatment CORE-OM, increased the improvement rate to 55.10% and the recovery rate to 18.8%. The dropped patients included those who stopped attending CM-CBT and those who failed to return an

outcome at the last session. The completer sample improved by a mean of 6.31, with a large pre–post effect size of 0.94 (Cohen, 1992). Dropping a further N=1207 for whom short term follow-up outcomes were missing and another N=609 who did not complete the long term follow-up outcome made minimal difference to the improvement and recovery rates.

The effectiveness of CM-CBT and employment outcomes

Table 3 summarises the CORE-OM outcome rates for claimants who returned to work, made progress towards work or remained on welfare in the short and long term. Achieving a reliable reduction in psychological distress $\chi^2(8, N = 1108) = 148.93$, $p < .001$ during CM-CBT was significantly associated with employment outcome in the short term. Previously unemployed claimants who returned to work in the short term were more likely (32.40%) than those who remained on welfare (14.60%) to have recovered during CM-CBT. In total, 32.80 % reliably improved during CM-CBT, with 17.40% of claimants classed as recovered. Reliable deterioration and harm rates were low across all three employment outcome categories.

Please insert table 3 here

Longitudinal analysis of employment outcome and psychological functioning

Repeated measures ANOVAs revealed that long term employment outcome categories significantly differed accordingly to disability $F (6, 906) = 14.75$, $p<.001$, $\eta^2_p = .09$, psychological distress $F (6, 864) =3.21$, $p<.005$, $\eta^2_p = .02$ and self-efficacy $F (6, 903) = 3.14$, $p=.005$, $\eta^2_p = .02$ over time. The results indicate that eventual

employment status had a significant and reciprocal influence on psychological distress, self-efficacy and disability. The effect size was largest for disability, suggesting that an effective return to work reduced perceptions of disability in the previously health related unemployed. Figure 2 illustrates the scores for psychological distress (Figure 2a), disability (Figure 2b) and self-efficacy (Figure 2c) by employment outcome category groups at assessment, termination, short and long-term follow-up from CM-CBT.

Please insert figure 2 here

The figures illustrate a marked 'fork pattern' of psychological progression or regression across all measures according to membership of eventual employment outcome category group. Whilst psychological gains were equal in the pre-post CM-CBT data for the three employment outcome categories, by short-term follow-up the employment category outcome groups start to become psychologically differentiated, a pattern that is pronounced by long term follow-up. Three distinct patterns are evident in the longitudinal data (1) those who effectively returned to work by long-term follow-up experienced a progressive increase in psychological functioning over time, (2) those who made progress towards work then maintained the psychological gains made during CM-CBT and (3) the psychological benefits of CM-CBT were initially dissipated and then reversed for those who remained on benefits.

Discussion

There was a dual focus to the current investigation. Firstly, to identify predictors of a successful return to work following low intensity CBT for the health

related unemployed and secondly, to assess the longitudinal impact of employment outcome upon psychological functioning. Approximately one-in-ten of the previously long-term health related unemployed returned-to-work in the short-term following CM-CBT and this ratio had increased to almost one-in-three by long-term follow-up. This incremental rate suggests that additional time is required by some to negotiate an effective return to work, when poor health is the original catalyst for unemployment. The health related unemployed first need to experience a shift in their health status before being 'work ready,' whilst the non-health related unemployed can (in theory) return to work as the opportunity presents itself. Mistimed or premature return to work for the health related unemployed can supply the environment for health condition relapse and return to welfare (Franche, Frank, & Krause, 2009).

Consistent with previous research, psychological change during CM-CBT did influence return to work (Ash & Goldstein, 1995; Fitzgerald et al., 1989; Lusczynska *et al.,* 2009; Shirom, Vinokur, & Price, 2008; Tsaousides *et. al.,* 2009). Our research adds to the extant literature by illustrating that a 'reliable change' in psychological functioning at the individual participant level facilitates return to work. These findings support 'human capital development' as opposed to 'work first' approaches to employability (Lindsay *et al.,* 2007). For those claimants completing the programme, effect sizes were large. Evidence suggests that a relatively small but nontrivial minority can deteriorate following psychological intervention, with estimates ranging from 3 to 10% (Mohr, 1995; Strupp, Hadley, & Gomez-Schwartz, 1977) - the deterioration and harm rates in the current research were in line with these estimates. This research indicates that programme design can usefully be based on cognitive-behavioural principles (such as avoidance, coping and behavioural activation) and that such elements can be sensitively adapted to formulate and

intervene with the health related unemployed (Lysaker, Bell, Davis, Bryson & Lancaster, 2005; Proudfoot, Guest, Carson, Dunn, & Gray, 1997; Winspear, 2008).

Findings were consistent in two ways with extant evidence that (1) the therapeutic nature of work assists in 'reversing' the adverse health effects of prior unemployment (Waddell & Burton, 2006; Sainsbury et al., 2008) and (2) remaining on welfare adversely affects health in the long-term (McKee-Ryan, Song, Wanberg and Kiniki, 2005; Waddell & Burton, 2006). Analysis of the longitudinal employment outcomes evidenced a clear 'fork pattern' whereby a return to work was associated with psychological progression and remaining on welfare psychological deterioration. This fork pattern was evident despite the differing employment outcome category groups having matched pre-post CM-CBT psychological outcomes. The intermediate employment outcome category group (i.e. commencing voluntary work, education or training) managed to maintain the psychological progression accrued over the course of CM-CBT. Whilst taking steps towards employment is both psychologically and occupationally advantageous (Wilson & Musick, 1999), such progress fails to match the personal and fiscal advantages that a return to paid employment often achieves (Black, 2008). Remaining on health related unemployment welfare appears a somewhat psychologically toxic experience and one likely to create loss of hope and habituation to unemployment (Dew, Bromet & Penkower, 1992).

The main study weakness was the lack of a control group and random allocation to active intervention that the return to work outcomes could have been benchmarked against (Lilienfeld, 2007). As with any longitudinal design there was also the loss of data over time, which limits confidence in the results (Ahern & Le Brocque, 2005). The duration of time in receipt of welfare was not recorded and

being unable to analyse identified predictors according to length of time on welfare is a significant study weakness, as extended health related unemployment has a particularly poor return to work prognosis (DWP, 2002; 2009; Grove, 2006). The CMP participants were categorised into separate health condition categories by self-report and clinical opinion on attendance at CMP. The study could have been improved by conducting an inter-rater check on the reliability of this form of categorisation. All outcome data was self-report and subject to the established range of validity issues as a result (Tourangeau & Yan, 2007). In addition, the design prohibited understanding whether it was the intervention itself or participation in a group of similarly unemployed people that facilitated the recorded psychological and employment outcomes (Vinokur & Schul, 1997). Return to work is a complex behavioural and psychological activity (Rick et al., 2008) and many other factors may have influenced outcome that may not have been measured in the current study.

In summary, reliable changes to psychological functioning during low intensity group CBT appear to influence the likelihood of a return to work for the health related unemployed. Remaining on welfare is a risk factor for poor mental health, in comparison to return to work. Appropriate psychosocial interventions may provide the impetus for effective employment outcomes and cognitive behavioural principles appear valuable in the design and content of return to work programmes. However the mechanisms for change for such interventions, issues of durability and why some claimants drop out and/or do not benefit are yet to be fully elucidated. More controlled and longitudinal research is necessary and indicated with the health-related unemployed.

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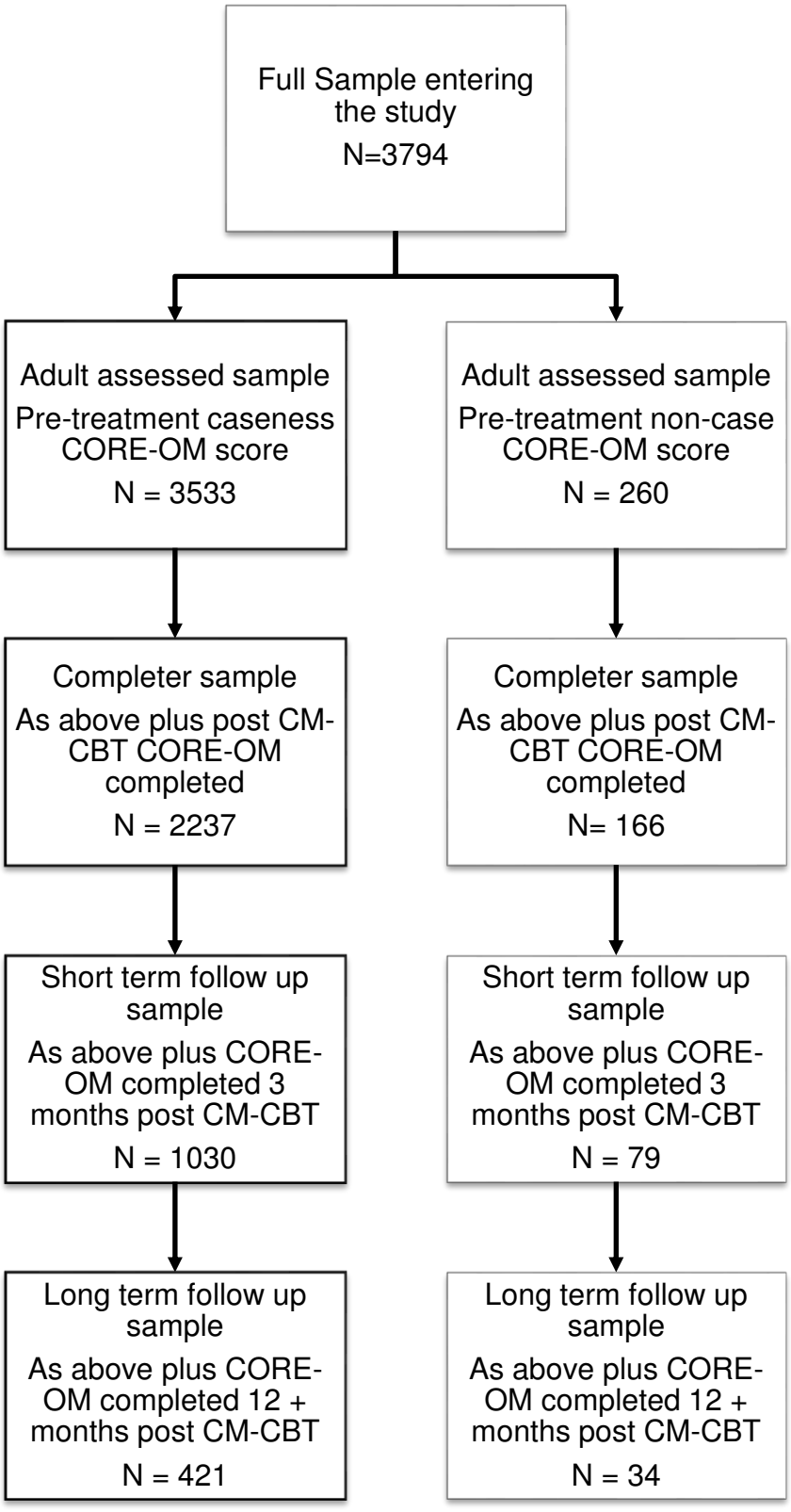

Figure 1. *CONSORT diagram showing patient samples and selection criteria over the stages of the study.*

Table 1; *Sample specific longitudinal recovery and improvement rates*

Sample	Sample N	Recovery rate		Improvement Rate	
		N	%	N	%
Full sample	3794	441	11.6	1261	33.2
Assessed clinical sample	3533	441	12.5	1239	35.1
Completer (clinical)	2237	416	18.6	1176	55.1
Short term follow-up	1030	193	18.7	549	53.3
Long term follow-up	421	80	19.0	224	53.2

Table 2 *Change scores and effect sizes in subsamples of CMP participants*

Measure	Sample Type	Sample	Sample N					Pre-post diff. Mean	Pre-post effect size (d)
				Mean	SD	Mean	SD		
CORE-OM	Clinical	Assessed clinical sample	3533	23.73	6.04	19.79	7.65	4.00	0.57
		Completer sample	2237	23.63	6.01	17.30	7.38	6.31	0.94
		Short term follow-up	1030	23.37	6.00	17.35	7.49	6.06	0.87
		Long term follow-up	421	23.47	6.04	17.64	7.63	5.77	0.85
	Full sample	Assessed sample	3794	22.63	7.10	18.89	8.04	3.72	0.62
		Completer sample	2403	22.51	7.09	16.70	7.62	5.85	0.79
		Short term follow-up	1108	22.28	7.01	17.67	7.70	5.62	0.63
		Long term follow-up	456	22.24	7.22	16.95	7.86	5.29	0.70
WSAS	Clinical	Assessed clinical sample	3533	25.89	8.27	23.39	8.91	2.50	0.29
		Completer sample	2237	25.89	8.27	22.09	8.89	3.93	0.44
		Short term follow-up	1030	25.89	8.25	22.06	8.91	3.96	0.45
		Long term follow-up	421	25.81	8.48	22.50	8.70	3.49	0.39
	Full sample	Assessed sample	3794	25.26	8.59	22.97	9.08	2.27	0.26
		Completer sample	2403	25.26	8.59	21.83	9.02	3.62	0.39
		Short term follow-up	1108	25.34	8.44	21.87	9.01	3.62	0.40
		Long term follow-up	456	25.10	8.80	22.14	8.87	3.26	0.34
General Self Efficacy Scale	Clinical	Assessed clinical sample	3533	23.72	6.08	26.44	6.08	-2.71	-0.45
		Completer sample	2237	23.72	6.08	29.86	5.49	-4.27	-1.06
		Short term follow-up	1030	23.82	5.91	27.92	5.36	-4.15	-0.73
		Long term follow-up	421	23.85	5.86	27.43	5.83	-3.52	-0.61
	Full sample	Assessed sample	3794	24.16	6.30	26.44	6.08	-2.71	-0.37
		Completer sample	2403	24.16	6.30	28.07	5.61	-4.03	-0.66
		Short term follow-up	1108	24.37	6.14	28.27	5.43	-3.98	-0.67
		Long term follow-up	456	24.58	6.24	27.84	6.02	-3.31	-0.53

Table 3; *pre-post CM-CBT psychological outcomes and associated employment outcomes in the short and long-term*

	Short term follow-up				Long term follow-up			
	All	Employed	Progress to work	Remain on benefits	All	Employed	Progress to work	Remain on benefits
Recovered	193 17.4%	44 32.4%	42 17.6%	107 14.6%	80 17.5%	29 21.3%	21 20.4%	30 13.8%
Improved	363 32.8%	41 30.1%	73 30.7%	249 33.9%	147 32.2%	45 33.1%	28 27.2%	74 34.1%
Stasis	501 45.2%	46 33.8%	110 46.2%	345 47.0%	212 46.5%	59 43.4%	54 52.4%	99 45.6%
Deteriorated	42 3.8%	4 2.9%	11 4.6%	27 3.7%	15 3.3%	3 2.2%	0 0.0%	12 5.5%
Harmed	9 0.8%	1 0.7%	2 0.8%	6 0.8%	2 0.4%	0 0.0%	0 0.0%	2 0.9%
Total	1108	136	238	734	456	136	103	217