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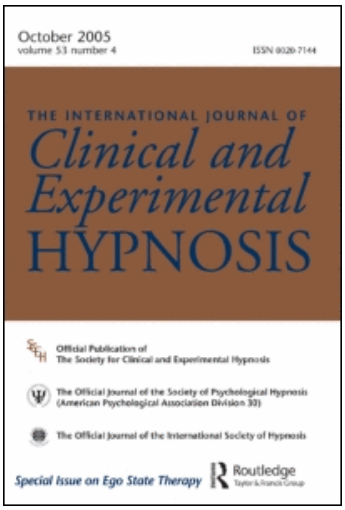


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# A Benchmarked Feasibility Study of a Self-Hypnosis Treatment for Depression in Primary Care

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# A BENCHMARKED FEASIBILITY STUDY OF A SELF-HYPNOSIS TREATMENT FOR DEPRESSION IN PRIMARY CARE[1,2,3]

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**Abstract:** This investigation assessed the effectiveness of a self-help, self-hypnosis treatment in a primary-care setting in Edinburgh, UK. A partially randomized preference (PRP) study design was used, with benchmarking results to trials of CBT and counseling. Patients seeing their general practitioner for depression were offered randomization to, or their treatment preference of, either self-help (self-hypnosis) or antidepressant medication. Evaluation measures were Becks Depression Inventory, Brief Symptom Inventory, and SF-36. Of the 58 patients recruited, 50 chose self-hypnosis, 4 chose antidepressants, and 4 were randomized. The preference groups demonstrated similar demography, baseline measurements, and outcome effects to benchmarked trials. This feasibility study of a self-help, self-hypnosis program for depression showed promise for its future use in primary care. Benchmarking improved validity and reliability. A PRP study design

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[1]This study was approved by the Lothian Research Ethics Committee and was supported by a grant from the Chief Scientists Office in Scotland CSO Grant No. CZG/2/121. The sponsor had no involvement in the conduct or interpretation or decision to publish. The North East Edinburgh Local Healthcare Committee (led by Mr. J. Forrest and Dr. I. MacKay) also generously provided premises and funding for the CPN.

[2]The idea for the study was from AD. The study was developed by AD, MM, & RE. The intervention was developed by AD with assistance from Lars Eric Uneståhl and Sheila Ross. MM and AD developed the research protocol. AD arranged the project and supervised the CPN Beth Hale who was responsible for recruitment and delivery of the intervention. MM collated study data and MM and RE conducted the analyses. AD compiled the literature review and wrote the article with help from MM and RE and Sheila Ross. MM is guarantor.

[3]The DVD and CDs used in this study were developed and produced by Positive Rewards Ltd. This program of Positive Mental Training can be ordered or downloaded from www.positiverewards.co.uk. AD is a director of Positive Rewards, which he developed to maintain standards of quality and consistency in the use of Positive Mental Training. Both other authors have no competing interest.

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appeared useful in a primary-care setting, where past studies have experienced problems of recruitment, concordance, and compliance.

The World Health Organization has recently recognized depression as the fourth leading contributor to the global burden of disease (World Health Organization [WHO], 2009). It is estimated that at any one time 5% to 10% of the population of the United Kingdom (UK) experience depressive symptoms and that 60% to 70% of adults at some point in their lives will experience symptoms of depression or anxiety sufficient to influence their daily activities (Singleton, Bumpstead, O'Brien, Lee, & Meltzer, 2001). Depression was the fifth commonest presenting problem recorded at general practitioner (GP) consultations in 2005/2006 (Information Services Division Scotland, 2007). It is also recognized that depression is costly; costs in England have been estimated at £77 billion each year, taking National Health Service (NHS) costs, lost productivity, cost of benefits, and reductions in quality of life (Sainsbury Centre for Mental Health, 2007).

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In primary care, therapy with antidepressants is standard for acute episodes of depression. Daily use of antidepressants in Scotland has grown from 1.9% of the population (aged 15+) in 1992/1993 to 8.8% by 2007/2008 (Information Services Division Scotland, 2008). Antidepressants are effective in the treatment of depression; although the placebo effect has increasingly been recognized as being powerful. A meta-analysis by the Cochrane society concluded that "differences between antidepressants and active placebo are small" (Moncrieff, Wessely, & Hardy, 2002, p. 1). In 2002 a group of researchers analyzed data they had obtained under freedom-of-information legislation from the U.S. Food and Drug Administration for all the trials of the four main Selective Serotonin Reuptake Inhibitors, which included unplished trials; this analysis revealed that the difference between medication and placebo was not clinically significant (Kirsch, Moore, Scoboria, & Nicholls, 2002), indeed "medications must be interfering with responsiveness in at least some others who would fare better on placebo" (Kirsch & Antonuccio, 2002, p. 2), a conclusion previously reached with tricyclic antidepressants (Thomson, 1982).

Current directions in the management of depression promote an approach that aims to increase capacity for, and promote use of, self-help psychological interventions, particularly for those experiencing mild to moderate depression (National Institute for Clinical Excellence: Guideline Development Group, 2007). At present, cognitive-behavioral therapy (CBT) is the most widely available psychological treatment for depression (Antonuccio & Danton, 1995; Geddes & Butler, 2002). However, it is often difficult to access, has lengthy waiting times, is relatively costly and may not be available at all as a direct referral from primary care.

There are recognized precursors to the development of depression, including previous attacks of depression, childhood anxiety (Reinherz, Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003), sleep disturbance

(Becker, 2006), and chronic physical illness (Katon, 2003). In individuals vulnerable to depression, thinking tends to be analytical, abstract, and evaluative, that is, "focusing on one's symptoms of distress . . . and on the meanings of those symptoms . . . without taking action to correct the problems . . ." (Nolen-Hoeksema, 1998, p. 216). If such thinking is induced experimentally (i.e., "take some time to think about how you feel inside") against a background of dysphoria, it magnifies the effect of the dysphoria in previously depressed individuals (Nolen- Hoeksema, 1991) compared to a distraction induction. This pattern of thinking, "depressive rumination," is measured with the Response Style Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991) and predicts depression in longitudinal (Just & Alloy, 1997) and cross-sectional studies (Nolen-Hoeksema, 2000; Roberts, Gilboa, & Gotlib, 1998).

In contrast to depressive rumination, a decentered-thinking style, induced by experimental manipulation (e.g., "focus your attention on your experience of the way you feel inside"), effectively inducing an external locus of observation, has been shown to be constructive in currently depressed and dysphoric individuals, decreasing negative generalized self-evaluation (Rimes & Watkins, 2005), reducing overgeneral autobiographical memory in previously depressed individuals (Watkins & Teasdale, 2004), improving problem solving in currently depressed individuals to levels of those who had never been depressed (Watkins & Baracaia, 2002), and reducing emotional vulnerability to subsequent failure (Moberly & Watkins, 2006). Decentered thinking is positively associated with reappraisal and negatively associated with depressive rumination, experiential avoidance, and emotional suppression and is defined as "the ability to view one's self as not synonymous with one's thoughts . . . the ability to not react habitually to one's negative experiences" (Fresco et al., 2007, p. 236).

The recognition of constructive-thinking styles led to a reexamination of depressive rumination and the discovery that the RSQ itself has a minor positive predictive subscale that is called reflective pondering (Joorman, Dkane, & Gotlib, 2006; Lo, Ho, & Hollon, 2008), suggesting that there are some constructive elements also to rumination. Watkins in his Elaborated Control Theory (2008) redefines rumination (because of its negative connotations) as *construal* (the way in which people perceive, comprehend and interpret the world), depressive rumination as *abstract construal* (generalized, superordinate, decontextualized, verbally based, and self-evaluative thinking), and decentered thinking as *concrete construal* (contextual, process focused, specific, and subordinate thinking). He suggests that, rather than rumination per se being maladaptive, depressed individuals are disabled by the inability to adaptively shift between ruminative and decentered thinking; "individuals tend by default to use more abstract construals [ruminative style], focused on the meanings, consequences, and implications of

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actions . . . yet when faced with difficult, novel, or complex situations, people often move toward more concrete levels of processing . . . there are exceptions, including the tendency toward depressive rumination in response to sad mood" (Watkins, 2008, p. 193): essentially Watkins is saying that in some people the shift just fails to occur. Deficits in this adaptive shift account for attributional style changes; you are more likely to attribute negative outcomes to personal failings with an abstract self-evaluative-thinking style.

Overgeneral memory (OGM) is a tendency to recall categories of events ("when my father got angry he always shouted at us") rather than specific episodes ("one time my father shouted at me and my aunt took me to the zoo and I fed the penguins"). It can be measured by the Autobiographical Memory test (AMT; Williams & Broadbent, 1986) and the Sentence Completion Test (SCEPT; Raes, Watkins, Williams, & Hermans, 2007), and a low score is identified with a vulnerability to depression in cross-sectional (Brittlebank, Scott, Williams, & Ferrier, 1993; Williams, 1992; Williams & Dritischel, 1988) and longitudinal studies (Gibbs & Rude, 2004; for a review see Williams et al., 2007). Hermans et al. (2008) found that OGM was associated with a higher probability of still being diagnosed with a major depressive disorder in the near future, outperforming other relevant indices, such as depression severity, rumination, level of self-esteem, and dysfunctional attitudes. OGM can be specifically reduced by decentered thinking (Watkins & Teasdale, 2004) even when it is induced implicitly (Watkins, Teasdale, & Williams, 2000). This has led to a new avenue of therapy where the rehearsal of specific memory leads to the reduction of depression (Raes et al., 2007); although in hypnosis such a rehearsal of specific memory recall is commonly practiced in regression (Heap, Aravind, Hartland, & Waxman, 2002, pp. 229–231) when reexperiencing of revivified memory (observing how events unfold not why they happen) allows a reinterpretation of past events in a nonjudgmental, nonself-evaluative manner.

Positive reappraisal is a "cognitive-linguistic strategy that alters the trajectory of emotional responses by reformulating the meaning of a situation" and involves "early selection and implementation of a cognitive strategy that diminishes emotion without the need for sustained effort over time" (Goldin, McRae, Ramel, & Gross, 2007, p. 577). It has been shown to be the most effective way of reducing the autonomic load in emotional distress (Gross, 2002). Reappraisal is endemic in our everyday interactions with others and often crops up in conversation (e.g., "a crisis is an opportunity," "a failure is a learning opportunity"). Over the long term, frequent use of reappraisal leads to enhanced control of emotion, interpersonal functioning, and psychological and physical well-being, while the opposite strategy of emotional control—suppression—results in diminished control of emotion, interpersonal functioning, memory, well-being, and greater depressive

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symptomatology (Goldin et al., 2007; Gross & John, 2003). Reappraisal is also about finding benefit:

> Finding benefit is defined as considering positive meanings of the traumatic event and positive benefits or value learnt as a result of the event, and it is increasingly hypothesized to be an important contributor to successful cognitive processing of upsetting events. (Watkins, 2008, p. 183)

For instance, finding meaning in the development of AIDS ("life is precious") led to better long-term adjustment (Bower, Kemeny, Taylor, & Fahey, 1998). Stereotyping is a form of reappraisal powerfully activated by implicit as opposed to explicit priming. Shih, Pittinsky, and Ambady (2002) implicitly activated different stereotypes before math tests and found Asian American women performed better when their ethnic identity was activated but worse when their gender identity was activated. Similarly, older people exposed to subliminal positive words (*wise*, *mature*, *experienced*) walked more steadily and were cognitively improved (Levy, 2003). Such subliminal delivery also increased the ability to cope in stressful situations (Levy, Ashman, & Dror, 2000), whereas explicit suggestions of mastery were unsuccessful in effecting such improvements, a repeated finding in old-age stereotyping research (see Horton, Baker, Pearce, & Deakin, 2008, for a review). Reappraisal is a core cognitive strategy in CBT; the subject is taught to consciously and effortfully scan their thoughts for negative self-evaluative constructs, e.g., failure, and explicitly to reject such constructs ("How do you know you are a failure?)—in a review of the subject, Longmore and Worrell (2007, p. 174) "found that evaluating, challenging and modifying thoughts was one of the hallmarks that distinguished CBT practice from that of other therapies"; although this practice was not based on empirical science. By not addressing the feeling of failure with a conscious rejection, reappraisal bypasses self-examination with implicit cognitive shifts ("you can never fail" . . . "you will learn from your mistakes") thus rejecting a negative mindset with a bottom-up implicit core strengthening.

Neurobiological research has identified dysfunction in key structures in depression.

1. The amygdala (central nucleus CeA) is a key structure for fear perception—stressful and noxious stimuli make associations with visual/auditory context here, and the amygdala connects intimately with the hypothalamus for the autonomic and neurochemical expression of emotion (Ledoux, Iwata, Cicchetti, & Reis, 1988). Dysfunction in depression consistently manifests as overactivity of the left amygdala as a response to masked (subliminally presented) fearful faces (Dannlowski et al., 2007; Whalen et al., 1998) such that it becomes reactive to all faces—fearful, neutral, or happy—a generalization of fear.
2. The hippocampus (part of the associative cortex in the medial temporal lobe) is "critically involved in episodic, declarative, contextual, and spatial

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learning and memory . . . and plays a key role in formation storage and consolidation of contextual fear conditioning" (Davidson, Pizzagalli, Nitschke, & Putnam, 2001, pp. 555–556).

3. The prefrontal maintains the representation of goals and the means to achieve them" and will "facilitate the expression of task-appropriate responses in the face of competition with potentially stronger alternatives" (Davidson et al., 2001, pp. 547–548). Particularly of interest are the closely linked dorso-lateral prefrontal cortex (DLPFC) and the ventro medial prefrontal cortex (vmPFC), which includes the cingulate. The DLPFC is closely associated with working memory, and is active during active generative visualization, executive activity, speech representations, and abstract thought (Ranganath & D'Esposito, 2005). The vmPFC is able to directly suppress the activity of the amygdala CeA by direct glutamatergic (excitatory) synapses with the intercalated neurons in the lateral amygdala, which are inhibitory of the CeA (Quirk, Likhtik, Pelletier, & Pare, 2003); such suppression is well documented in humans by fMRI (Gottfried & Dolan, 2004). The DLPFC has extensive links with the vmPFC (Ongur & Price, 2000) and so can suppress the amygdala indirectly (Delgado, Nearing, Ledoux, & Phelps, 2008).

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Simple "extinction" of fear conditioning—diminution of fear activity freezing and withdrawal by presentation of the conditioned stimulus (CS) without the unconditioned noxious stimulus (US)—is modulated by the vmPFC "wiring in" an override circuit to the amygdala (Gottfried & Dolan, 2004); if "extinction does not erase conditioning, it must form a new memory (a CS-no US association) that exists in parallel with conditioning memory and is able to inhibit expression of the conditioned response" (Milad, Rauch, Pitman, & Quirk, 2006, p. 62). In animals the vmPFC can be (a) stimulated by electrical stimulation or (b) suppressed by chemical manipulation, resulting in reciprocal (a) suppression or (b) activation respectively of the amygdala (Amat, Paul, Watkins, & Maier, 2008; Quirk et al., 2003) among other affected areas. Maier and Seligman (1976) found that early experience of behavioral control of an electrical shock prevented later apathy (learned helplessness—the classic animal model for depression) in similar situations by promoting successful seeking of control in later situations, a kind of "immunization" against such helplessness (Williams & Maier, 1977). Stimulating the vmPFC had the same immunizing effect (protecting from apathy); inhibiting vmPFC reversed the protection (Amat et al.). Evidence from different fields of research shows that the vmPFC, as well as being activated by simple extinction, is activated by various thinking styles and cognitive techniques, many of which involve the DLPFC, for instance, instruction to reduce sadness by adopting a "detached observer" stance (Lévesquea et al., 2003). Reappraisal simultaneously stimulates the vmPFC while reducing the physiological sequelae of stress (Goldin et al., 2007).

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Delgado et al. (2008) showed that reappraisal and other cognitive strategies share the same pathway as simple extinction of fear; both utilize the vmPFC/amygdala suppression circuit, and they postulate that the human cognitive strategy has made use of a preexisting pathway of extinction; the relative cortical thickness of the vmPFC across mammalian species predicts the speed of extinction.

Studies that have looked at genetic markers for depression have explored the vulnerability of dynamic biological processes in the brain. The 5-HTTLPR (5 Hydroxy-tryptamine transporter-linked polymorphic region) polymorphism is associated with depression in adults (Collier et al., 1996); although the connection is by no means clear (Mendlewicz et al., 2004). One study looked at carriers with no history of depression; in response to masked fearful faces, carriers of this gene showed reduced connectivity in the vmPFC/amygdala circuit compared to noncarriers, and the degree of reduction correlated with measures of depressive thinking (Pezwas et al., 2005). The DLPFC appears to suppress the amygdala even in established depression but in a different pattern from controls; depressed subjects paying attention to fearful faces suppressed amygdalar activity by activation of the DLPFC (controls did not suppress) but decreased such suppression when instructed to ignore fearful faces (these used as a distracter to a main task) when controls successfully suppressed (Fales et al., 2008). This study, along with Whalen et al. (1998), suggests that depressed individuals have an increased sensitivity to preconscious, subliminal signals; such signals are mediated through midbrain structures with the amygdala "surveying emotionally valenced stimuli without awareness" (Whalen et al., p. 411), probably through thalamo-amygdalar circuitry (LeDoux, Sakaguchi, Iwata, & Reis, 1986), which bypasses the cortex, such preattentional subliminal triggers promoting a negative cognitive bias outside of the conscious awareness. This emphasizes the need to inhibit preconscious subliminal triggers by recruitment of cognitive strategies at a level outside awareness: we cannot consciously inhibit the behavioral and neurochemical withdrawal response to a negative trigger, which never reaches conscious awareness. Implicit priming can also be effective in a positive way in depression; unscrambling a scrambled sentence with decentering concepts (e.g., "Mood long does any last how?" unscrambles to "How long does any mood last?"), reduces overgeneralization despite no instruction to do any more than unscramble (Watkins, Teasdale, & Williams, 2000).

The hippocampus is part of the associative cortex (medial temporal lobe) where concomitant information about time, place, autonomic and hormonal internal states, and unfolding sequences of events are associated, strengthened if deemed relevant, compared with previous memories, and written off to the cortex in the form of stable long-term memory. The dentate gyrus (DG) of the hippocampus is at its most

active on functional magnetic resonance imaging (fMRI) when subjects compare very similar objects but is completely inactive comparing identical objects (Bakker, Kirwan, Miller, & Stark, 2008); animals with damage to the DG are unable to discriminate correct and incorrect food wells when their locations are close together (Gilbert, Kesner, & Lee 2001); the pattern-separation function of the dentate gyrus appears to maintain access to distinct representations of temporally and spatially separated memories, particularly those from a closely similar context . Rats reaching a junction in a maze replay previous experiences from each subsequent pathway in their hippocampus (Redish & Johnson, 2007); any dysfunction at this point will compromise effective choices. There is an animal model of depression where removal (Knock Out) of a serotonin 1a receptor—Ht1a, a widely expressed marker for anxiety and depression in humans (Parsey et al., 2006)—creates transgenic mice ($Ht1a^{KO}$) that have excessive fear to ambiguous cues, that is, cues that are only partially predictive of noxious stimuli, as opposed to their "wild" littermates (normal mice) who show behavioral responses consistent with the threat contingencies (and can get the cheese in a partial threat situation) (Tsetsenis, Ma, Lo Iacono, Beck, & Gross, 2007). In this latter study they found that subsequent restoration of function to the amygdala in the knockout mouse does not change this inappropriate fear of the ambiguous cues, but restoration of DG function does, so the conclusion is that the DG of the hippocampus modulates the amygdala, a finding confirmed by Maren and Hobin (2007) who found "hippocampal processes influencing amygdala neuronal activity during the retrieval of extinction memories" (p. 322). These studies could explain why overgeneralization (as opposed to separate distinct memories that require effective DG function) outperforms other predictive indices in depression (Hermans et al., 2008). Neurogenesis continues throughout adult life in the dentate gyrus of the hippocampus, where new cells are added continuously (Imayoshi et al., 2008), but learned helplessness (via an inescapable stress) reduces neurogenesis (Gould, McEwen, Tanapat, Galea, & Fuchs, 1997), which may explain the direct correlation between reduction of size of the hippocampus in and time spent depressed (Sheline, Sanghavi, Mintun, & Gado, 1999). One month after the specific destruction of new cells in the dentate gyrus, mice showed significantly poorer performance on a maze-learning test (Imayoshi et al., 2008).

How do these neurobiological understandings and thinking styles relate to hypnosis, particularly in depression? There are many insights that these areas of research can bring to the fields of hypnosis and hypnotherapy.

Rainville, Hofbauer, Bushnell, Duncan, and Price, (2002), examining brain activity by positron emission tomography (PET), noted that hypnosis involves

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> changes in activity within brain structures essential for the basic regulation of states of consciousness, self-monitoring, and self-regulation . . . diminished tendency to judge, monitor, and censor . . . the suspension of usual orientation toward time, location, and/or sense of self; and the experience of one's own response as automatic or extra-volitional. (p. 898)

This is reinforced by thinking-style research, where it appears that the diminished tendency to judge, to monitor, and to censor and a reduced sense of self are both part of decentered thinking. The posterior parietal lobe of the brain is a key structure in our sense of agency. When we see movements in others, neurons in our premotor cortex makes us mirror the same actions—so called "mirror neurons" (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996). Rainville et al. particularly note decreases of right posterior parietal rCBF (regional cerebral blood flow). The parietal lobe distinguishes our own movements from other people's, "supporting . . . a visuospatial description of one's own body" (Chaminade, Meltzoff, & Decety, 2005, p. 115), defining our personal locus of control, that we are the agents of the movements we are seeing (Keysers & Perrett, 2004), which may explain the experience of anasognosia (neglect) in right-sided parietal stroke, the patient losing their recognition of the left side as part of "me," so denying there is any problem.

Rainville et al. (2002) speculated that "changes in subjective experience and brain activity may contribute to other hypnosis-related effects such as the altered feelings of agency experienced in hypnosis" (p. 898). In ideomotor movement, the subject views their movements as an external event, as if the movement is not under their control, and, in the style of Cheek and Lecron (1968), this can be taken even further with the therapist and client taking a powerfully decentered observer perspective (Heap et al., 2002, p. 218). Many techniques in hypnotherapy share this observer perspective where we "notice how" (dissociate, decenter) rather than "think about why" events unfold, such as the cinema technique, the rewind technique, and the split-screen technique. "Noticing" as an activity is implicit in many hypnotic inductions, for instance where focusing on the motor and sensory associations of breathing and in "progressive relaxation" (Jacobson, 1929). It may be that, among its other actions, the practice of hypnosis may promote decentered thinking and may facilitate movement between ruminative and decentered (abstract and concrete) thinking styles. An example of this would be the level alignment process exercise devised by Robert Dilts (Dilts & Delozier, 2000). Collapsing anchors (Cameron-Bandler, 1978) initiate a change of internal state as a marker for unconscious triggers then short circuits this by a cognitive tool (positive anchor) with a positive effect and mastery of the client's choosing. This latter is an excellent model for frontal-lobe-driven extinction (DLPFC inhibiting amygdala on activation of a preconscious trigger via the vmPFC).

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The use of positive affect—particularly the recollection of situations of mastery to help current or remembered traumatic situations—could be seen as a form of retrospective immunization as discussed previously (Williams & Maier, 1977).

Whatever the neurological or psychological operative correlates of the state of hypnosis, relaxation induction is associated with an uncoupling of the amygdala/hypothalamus linkage, which reduces sympathetic arousal (Gruzelier, 1998). This state can be used successfully as a platform for successful psychotherapy, such as desensitization; dissociation under hypnosis removes the inevitable autonomic retraumatization that would often otherwise occur (Eisenhardt & Menzel, 2006). The added understanding of the action of negative triggers outside of conscious awareness (Whalen et al., 1998), the inability of depressives to suppress the negative effect of such triggers (Fales et al., 2007), and the ability of negative subliminal priming to diminish performance (as demonstrated by Horton et al., 2008; Levy, 2003; Shih et al., 2002) suggest that hypnosis may be a powerful vehicle for the delivery of effective therapeutic change working through implicit and subliminal positive suggestion, Additionally, as decentering and reappraisal are positively correlated (Fresco et al., 2007), it may be that the decentered perspective of hypnosis may improve the delivery and uptake of reappraisal as a strategy. Given that the effective component of CBT has been recognized to be the decentered stance (Teasdale et al., 2002) and that the cognitive component of CBT utilizes reappraisal, then it may be that using self-hypnosis to deliver standardized mental tools may be a more cost-effective option in the treatment of depression. Dobbin, Faulkner, Heaney, Selvaraj, and Gruzelier (2004) showed that self-hypnosis directed at ego strengthening is popular and effective in primary-care mental health; such self-hypnosis has been shown to raise self-esteem and to improve the Becks Depression Index-II (BDI-II; Laventure, Kumar, & Pekala, 2002). Recorded hypnosis material can also employ the powerful effect of positive words and concepts. It has also been shown that a hypnotic visualization of white blood cells as dolphins significantly reduced recurrence of herpes simplex infections and improved the Hospital Anxiety and Depression Scale scale in clinical studies that used taped hypnosis (Gruzelier et al., 2002); self-hypnosis using taped material is as effective as hetero-hypnosis (presence of a hypnotist) (Unestahl, 1973). Along with the potential for increased engagement due to a reduction in stigma, access, and literacy problems, these factors constituted the central justification for our study.

We wanted to examine the acceptability and efficacy of a self-hypnosis/self-help treatment for depression in primary care by comparing it to antidepressant treatment. The "gold standard" randomized controlled trial (RCT) cannot allow patient treatment choice and so does not take into account a naturalistic "real-life" practice; patients offered

their choice of treatment will more readily engage in treatment for depression (Dwight-Johnston, Unutzer, Sherbourne, Tang, & Wells, 2001) and other treatments (Cooper, Grant, & Garratt, 1997). Failure to take account of this in depression-research design has resulted in major recruitment problems; it has proved impossible to conduct RCTs (Fairhurst & Dowrick, 1996; Simpson, Corney, Fitzgerald, & Beecham, 2000), and for years this has stalled progress in a vital field. We chose a partially randomized preference (PRP) design as previously advocated by Bradley and colleagues (Bradley, 1993, 1988; Brewin & Bradley, 1989) to do a feasibility study of a 12-week, self-help, self-hypnosis program (see Figure 1). Using a benchmarking strategy (Merrill, Tolbert, & Wade, 2003; Wade, Treat, & Stuart, 1998), we tested the robustness of our results against similar studies. The information about preferences and outcomes is examined in this article.

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## MATERIALS AND METHODS

### *Setting*

We took referrals from within one NHS Local Health Care Cooperative (LHCC) in the city of Edinburgh, with a population of approximately 85,000 patients and 80 general practitioners (GPs). GPs are an autonomous group of primary-care physicians; in the National Health Service in the United Kingdom they act as independent contractors and as gatekeepers to secondary services. Ninety percent of patients are solely treated by GPs in primary care; such patients do not see any specific mental health professionals (Goldberg & Huxley, 1992). This means that a very homogenous group of patients can be collected for research purposes.

### *Patients*

We asked GPs, during routine consultations, to identify eligible patients aged between 18 and 65 years who were having a recent episode of depression (first attack or recurrence) and for whom the GPs intended to prescribe antidepressants. Exclusions included those with bipolar depression, psychoses, current alcohol and drug use, a depressive episode in the previous 6 months, or active suicidal ideation.

### *Intervention*

We chose to use a PRP trial design as previously advocated by Bradley and colleagues (Bradley, 1993, 1998; Brewin & Bradley 1989) and as chosen by the two largest, most recent UK primary-care trials of psychological versus antidepressant treatments (Bedi et al., 2000; Ward et al., 2000). Patients were offered three choices: (a) to receive self-help, self-hypnosis therapy (as per Figure 2); (b) to take

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**Patients watched DVD (10 mins.) once and listened to CD track (18 mins.) everyday for a week.**

| Week | Program Title | Technique |
|---|---|---|
| 1 | DVD<br>*How Hypnosis Helps Depression* | Video Introduction to program, providing reassurance and education |
| 1 | CD1 Track 1<br>*Muscular Relaxation 1* | Experiential Jacobson relaxation, mindfulness techniques |
| 2 | CD1 Track 2<br>*Muscular Relaxation 2* | Experiential Jacobson relaxation, + setting of conditioned trigger |
| 3 | CD1 Track 3<br>*Mental Relaxation 1* | Visualization of mental room, a safe place, a self-hypnosis tool |
| 4 | CD1 Track 4<br>*Mental Relaxation 2* | Consolidation of mental room and practicing access |
| 5 | CD2 Track 1<br>*Self-Confidence* | Suggestion, reframing, associating with past positive experiences to increase self-confidence |
| 6 | CD2 Track 2<br>*Problem Solving* | Very deep relaxation with desensitization technique, lessening anxiety |
| 7 | CD2 Track 3<br>*Mind/Body Programming* | Demonstrating arm lifting through suggestion to increase self-determinism |
| 8 | CD2 Track 4<br>*Trigger the Future* | Association with past positive experiences and bringing those to the present |
| 9 | CD3 Track 1<br>*Sparkle in your Eye* | Distancing and reframing of past events from a safe place |
| 10 | CD3 Track 2<br>*Love Yourself* | Suggestion, visualization, reframing to increase self-esteem |
| 11 | CD3 Track 3<br>*Creative Thinking* | Suggestion increasing self-belief and problem solving |
| 12 | CD3 Track 4<br>*Vision for the Future* | Association with positive past performance with visualization of future |
| | | |

***Figure 1.*** **The components of positive mental training.**

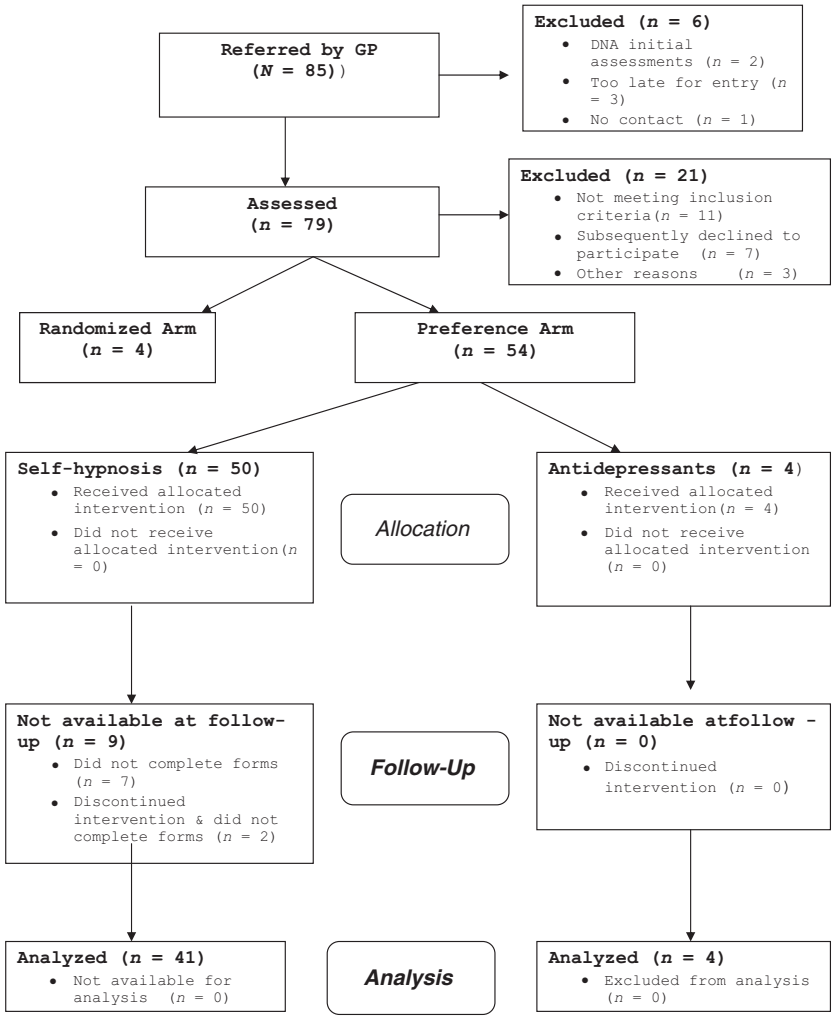


***Figure 2.*** **The consort flowchart for preference patients.**

antidepressants as prescribed by their GP; (c) to be randomized to either treatment group. The self-hypnosis intervention was based on Integrated Mental Training, an audio-based program developed in Sweden in the 1970s for sport and peak performance by Lars Eric Uneståhl (Dobbin, 2006), and the components of our 12-week intervention are outlined in Figure 1.

*Protocol.* Patients who agreed to have their details passed onto the study team were referred by fax from their GP to the research nurse and

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given an information pack. Patients were also issued a prescription for antidepressants by their GP but asked not to have this filled until they had spoken to the research nurse. The research nurse telephoned the patient the next day and, if the patient consented to participate, enrolled them in the trial. Each patient was given a unique identifier (number) and after initial assessment those who did not express a preference were then randomized using a sealed envelope allocation process. Envelopes were filled by an administrative assistant independent of the research team.

The self-hypnosis group then gave their prescriptions to be held by the nurse, watched a short film (10 minutes) of a doctor explaining self-hypnosis, listened to the first recording in the series (18 minutes) and were given the first CD (out of three) containing the first four tracks and an instruction sheet. The antidepressant group was told to fill their prescriptions and to start taking the medication. Both groups continued nurse-supervised treatment for 12 weeks, which involved regular phone calls checking for problems and monitoring for suicidal thoughts but were specifically under the care of their GP.

The trial protocol for self-hypnosis is illustrated in Figure 2.

*Time of Study*

Patients were recruited between June and December 2004, and data collection finished in March 2005.

*Instruments*

Outcome measures were the Beck Depression Inventory (BDI-II; Beck, Steer, Ball, & Ranieri, 1996; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Brief Symptom Inventory (BSI 18; Derogatis, 1993), and the Short-Form Quality of Life Questionnaire (SF-36; McHorney, Ware, & Raczek, 1993; Ware & Sherbourne, 1992) given at intake and at 12 weeks. A target sample size was not calculated as this study was designed as a feasibility study.

*Statistical Tests*

We compared depression scores at the end of the study period between groups by analysis of covariance, adjusting for age, sex, and the corresponding baseline measurement. Analysis of covariance was also used for the SF-36 scores, except in the case of the very short scales role emotional and role physical, which were analyzed using ordinal logistic rather than linear regression. Between-groups comparisons of outcome, using two-sample *t* tests, were carried out.

The outcome assessors and the data analyst had no contact with the patients; all data collection was done by post. The statistician, independent of the clinical research team, analyzed the data using SPSS.

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*Benchmarking*

We chose three studies to benchmark against (Bedi et al., 2000; Proudfoot et al., 2004; Ward et al., 2000). All benchmarked studies were also conducted in NHS primary care and recruited referrals from GPs of newly depressed patients seen in their everyday consulting sessions. Two of the studies were PRPTs randomizing or offering a choice between therapist-led psychological treatment or antidepressants/treatment as usual (Bedi et al.; Ward et al.), and we benchmarked against the randomized arms of these studies. The third study was an RCT between psychological treatment plus treatment as usual (which may or may not have included antidepressants) or treatment as usual alone (Proudfoot et al.). We modeled our benchmarking on that of Merrill et al. (2003).

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## RESULTS

Twelve out of the 14 practices within the LHCC agreed to take part resulting in the potential participation of 72 GPs (out of 80). Thirty-three GPs (46%) subsequently made 85 referrals to the trial. Of these, 6 patients had contact problems, and 79 patients agreed to take part in the trial. The total number of patients accepted into the trial was 58, and 21 were not included for the following reasons: didn't fulfill criteria ($n = 11$), subsequently declined ($n = 7$), other reasons ($n = 3$). Figure 2 is a flowchart showing the pathways of patients in the trial.

The patient preference pathway as detailed in Figure 2 shows that of the 50 patients who elected to receive self-hypnosis, 9 were not available at follow-up because 2 stopped all treatment completely and 7 completed treatment but did not complete forms. Of the 4 patients who elected to receive antidepressant drugs, all were available at follow-up.

Of those randomized, 2 patients were randomized to self-hypnosis and 2 patients to antidepressants. These groups were too small for statistical analysis; we have not included a flow chart on these patients.

Table 1 shows the comparison of demographic data between this study's preference arms and the benchmarking studies' randomized data. Tables 2 and 3 show the evaluation measures, BDI and BSI scores, at intake and 12-weeks follow-up, respectively, and compare these measures with the benchmarking studies. The results show a marked similarity between demographic data and pre- and posttreatment results. Figure 3 shows the BDI comparison scores with confidence intervals for this study's preference arms and the benchmarked studies randomized data.

Results from our study show that the proportion of patients choosing self-hypnosis was significantly greater than chance, $z = 6.26$, $p < .001$. The 95% confidence limits for mean difference in the 12-week

Table 1
*Table of Intake Demographic Characteristics (Dobbin et al., 2004; Bedi et al., 2000; Ward et al., 2000; Proudfoot et al., 2004)*

| Study | Age *M (SD)* | % Male | Number |
|---|---|---|---|
| Dobbin self-hypnosis preference | 38 (10) | 20 | 50 |
| Dobbin anti-D preference | 37 (18) | 25 | 4 |
| Bedi counselling randomized | 37.3 (11.2) | 31 | 52 |
| Bedi anti-D randomized | 38.4 (11.8) | 16 | 51 |
| Ward CBT randomized | 36 (12.6) | 21 | 63 |
| Ward Counselling randomized | 39 (11.6) | 22 | 67 |
| Ward TAU randomized | 37 (12.3) | 25 | 67 |
| Proudfoot CCBT + TAU | 43.6 (14.3) | 27 | 146 |
| Proudfoot TAU | 43.4 (13.7) | 25 | 128 |

*Note.* CCBT – computerized CBT; TAU – treatment as usual.

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Table 2
*Table of BDI & BSI scores Intake Data (Dobbin et al., 2004; Bedi et al., 2000; Ward et al., 2000; Proudfoot et al., 2004)*

| Study | BDI | *SD* | BSI |
|---|---|---|---|
| Dobbin-self hypnosis preference | 29.5 | 9.8 | 1.81 |
| Dobbin anti-D preference | 34.2 | 12 | 1.92 |
| Bedi counselling randomized | 27.1 | 7.95 | nc |
| Bedi anti-D randomized | 27 | 7.95 | nc |
| Ward CBT randomized | 27.6 | 8.4 | 1.73 |
| Ward Counselling randomized | 25.4 | 8.6 | 1.62 |
| Ward TAU randomized | 26.5 | 8.9 | 1.55 |
| Proudfoot CCBT + TAU | 24.9 | 10.8 | nc |
| Proudfoot TAU | 24.7 | 9.2 | nc |

*Note.* BDI - mean Becks Depression Inventory; BSI - Brief Symptom Inventory scored as median General Severity Index (GSI); nc indicates data not collected.

score between those preferring hypnosis and those preferring medication were (–21.2, –3.1) for BDI and (–23.8, –1.0) for BSI, and these were significant at $p = .01$ and $p = .03$, respectively. These differences were no longer significant in an intention-to-treat analysis assuming no change in those not assessed at the end of the study ($p = .20$ and .23, respectively).

Sufficient power was only available for the between-group comparison of the two preference arms (self-hypnosis/medication). BSI and BDI scores at 12-week follow-up between these groups differed significantly ($p = .012$ and $p = .004$, respectively) showing that hypnosis was

Table 3
*Table of BDI & BSI Scores Posttreatment Data (Dobbin et al., 2004; Bedi et al., 2000; Ward et al., 2000; Proudfoot et al., 2004)*

| Study | Week | Number | BDI | SD | BSI |
|---|---|---|---|---|---|
| Dobbin self hypnosis preference | 12 | 41 | 9.9 | 8.4 | 0.5 |
| Dobbin anti-D preference | 12 | 4 | 24 | 14.8 | 1.33 |
| Bedi counselling randomized | 8 | 39 | 15.2 | 11.6 | nc |
| Bedi anti-D randomized | 8 | 44 | 14.8 | 10.1 | nc |
| Ward CBT randomized | 16 | 51 | 12.7 | 9.5 | 0.59 |
| Ward Counselling randomized | 16 | 62 | 11.5 | 7.7 | 0.69 |
| Ward TAU randomised | 16 | 56 | 17.2 | 11.9 | 0.71 |
| Proudfoot CCBT + TAU | 12 | 93 | 12.1 | 10.3 | nc |
| Proudfoot TAU | 12 | 85 | 16.4 | 11 | nc |

*Note.* BDI - mean Becks Depression Inventory; BSI - Brief Symptom Inventory scored as GSI; nc indicates data not collected.

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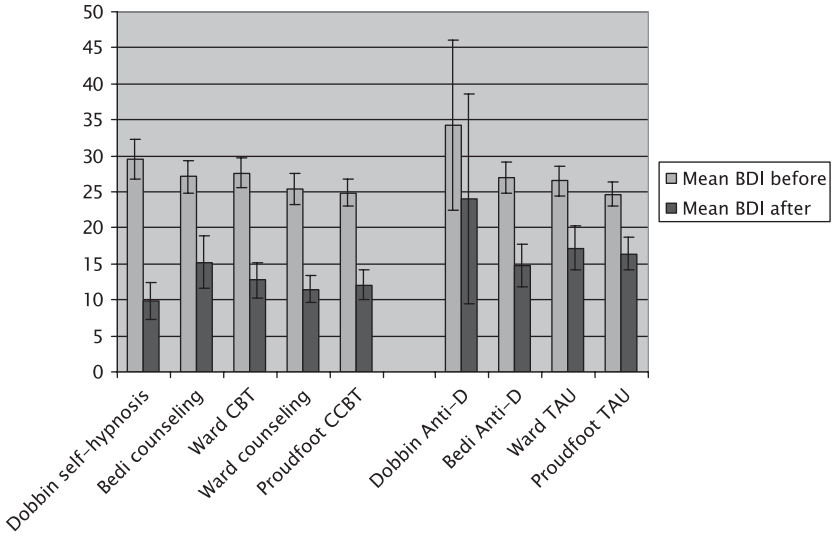


***Figure 3.*** **Comparison of BDI scores pre- and posttreatment with confidence intervals for Dobbin et al. (preference arms; 2004) and benchmarked studies (randomized data).**

Note. CBT = cognitive-behavioral therapy; CCBT = computerized CBT; TAU = treatment as usual.

**Benchmarked Studies: Ward = Ward et al. (2000).**
**Bedi = Bedi et al. (2000).**
**Proudfoot = Proudfoot et al. (2004).**

significantly more effective than antidepressant treatment in the preference arms. The fact that groups were not randomized but self-selected was addressed to some degree by adjusting for baseline factors in the analysis using multiple regression. The significance of the treatment effect remained, showing that the result from the *t* test was at least not explained by imbalance at baseline; although this does not rule out some other form of bias. The comparison of the two randomized groups could not be attempted, because there were only four cases across the groups.

The effects of hypnosis and medication were compared for each SF-36 scale adjusting for the baseline level, and significant differences were found for general health ($p = .012$, 95% CI for effect size 5.1 to 37.9) and vitality ($p = .003$, CI 10.3 to 46.6).

There were no adverse events with either treatment, and no admissions to hospital.

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## DISCUSSION

We found that significantly more patients, 93%, ($p < .001$) preferred self-help, self-hypnosis to medication for the treatment of depression. In a systematic review of preferences of depressed patients offered either psychotherapy/counseling or medication, there was always a preference for psychotherapy/counseling over pharmacotherapy; such preferences range from 51% to 66%, differences (percent preferring psychotherapy/counseling *minus* percent preferring antidepressants) ranged from 6% to 38% (van Schaik et al., 2003). In the current study, 93% preferred self-hypnosis and the difference was 87%. Bedi et al. (2000), with similar recruitment procedures (PRP design), showed a 64% preference for a face-to-face psychological intervention (counseling); our higher figure (93%) may reflect the immediate self-help nature of our intervention, which may be perceived by participants as more convenient, less threatening, and less stigmatizing. Previous studies have shown that most patients do not want referrals to a mental health specialist (McKeon & Carrick, 1991; Priest, Vize, Roberts, & Tylee, 1996). There was also good patient recruitment and compliance, which may have been because of the GP-care base of the treatment. These results support the increasingly recognized view that the PRP-study design is necessary to evaluate the first stages of complex intervention treatment in primary care where the RCT design makes patients unwilling to participate (Bedi et al., 2000; Dwight-Johnston et al., 2001; Ward et al., 2000). The results from PRP studies provide data on treatments in a naturalistic setting, where often, as this study shows, patients will exercise a choice. Benchmarking this study's results with similar studies (Table 1) showed a strong degree of concordance across demographic and pre- and posttreatment data,

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increasing our confidence in the validity and reliability of this study design. Although our randomized group was too small for comparison, previous PRP studies have demonstrated no significant difference in outcomes between those exercising preference and those agreeing randomization to a particular treatment (Bedi et al.; Dwight-Johnston et al.; Ward et al.). This increases the validity of the results from the preference arms of this feasibility study suggesting a greater improvement in those choosing self-hypnosis compared with those choosing medication. The self-hypnosis group, while self-selected, responded with similar treatment effects to the benchmarked randomized psychological-therapy groups. This cost-effective study design also provided useful recruitment, compliance, and safety information for future trials of hypnosis interventions. Treatment effects in our study were substantial, but the absence of a nontreatment control group (excluded on ethical grounds) meant that we cannot eliminate the contribution of natural remission in a primary-care setting; although regression to the mean should have produced a greater effect in the antidepressant group with the higher baseline, which would strengthen the suggestion of the greater effect of the self-hypnosis intervention. Interestingly, almost all studies in this field do not have a control group, for ethical reasons, and rely on a limited number of previous randomized studies that have included such a group, which is a form of benchmarking. Using this feasibility study with benchmarking established that the intervention was useful in clinical practice (i.e., it was a popular choice with benefit to those who chose it). This completes the exploratory stages of a complex intervention study as recommended by the Medical Research Council (MRC, 2000), informing the next stage of a strictly randomized trial, currently under development.

## CONCLUSION

With 93% of participants exercising a preference, this study indicates the benefit of adopting the PRP design in a naturalistic primary-care setting. Benchmarking these results with other similar studies of psychological treatment in depression adds validity and reliability to this study. Results indicate that a self-help, self-hypnosis program may be a useful addition to depression treatment available in primary care and the next stage of evaluation is being explored.

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## Eine Machbarkeitsstudie zum Einsatz von Selbsthypnose bei Depression im Rahmen der medizinischen Grundversorgung

**Alastair Dobbin, Margaret Maxwell und Robert Elton**

**Zusammenfassung: Diese Untersuchung überprüfte die Effektivität einer Selbsthypnose-Behandlung im Rahmen der medizinischen Grundversorgung in Edinburgh (UK). Dabei kam ein "partially randomized preference" (PRP) Design zum Einsatz und die Ergebnisse wurden in Bezug gesetzt zu Untersuchungen von kognitiver Verhaltenstherapie und Beratung. Patienten, die ihren Hausarzt wegen Depression aufsuchten bekamen eine zufällige Behandlung oder einepräferenzbasiert ausgewählte Behandlung von Selbsthypnose oder antidepressiver Medikation angeboten. Zur Evaluation wurden das Beck Depression Inventory, die Brief Symptom Inventory und der SF-36 eingesetzt. Von den 58 rekrutierten Patienten wählten 50 Selbsthypnose, 4 die Antidepressive, und 4 wurden zufällig zugeordnet. Die Präferenzgruppen wiesen vergleichbare demographische Charakteristika, Baseline-Messwerte und Ergebnisse auf. Diese Machbarkeitsstudie zeigt die Möglichkeiten zum Einsatz von Selbsthypnose in der medizinischen Grundversorgung auf. Das PRP-Design erscheint als geeigneter Ansatz für die medizinische Grundversorgung, wo oftmals Probleme bei Rekrutierung oder Kompleanz berichtet werden.**

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## Une étude de faisabilité comparée du traitement de la dépression par autohypnose en milieu de soins primaires

**Alastair Dobbin, Margaret Maxwell et Robert Elton**

**Résumé: Cette étude a évalué l'efficacité d'un traitement d'autohypnose en milieu de soins primaires, à Édimbourg (Royaume-Uni). Les résultats utilisés**

**sont ceux d'une méthodologie de préférence partiellement randomisée (PRP), comparés avec des essais de thérapie cognitivo-comportementale (TCC) assortie de counseling. Les patients qui consultaient leur médecin de famille pour dépression se sont vu offrir soit un traitement par aléation, soit un traitement par autohypnose ou par antidépresseurs, selon leur préférence. Les outils d'évaluation utilisés étaient l'Inventaire de dépression de Beck, le Bref inventaire de symptômes et le SF-36. Des 58 patients recrutés, 50 ont choisi l'autohypnose, 4 ont choisi les antidépresseurs et 4 ont choisi l'aléation. Les groupes montraient respectivement des données statistiques, des paramètres de référence et des résultats similaires à ceux obtenus lors des essais comparés. Cette étude de faisabilité d'un programme d'autohypnose pour traiter la dépression s'est révélée prometteuse en milieu de soins primaires, et l'étude comparative en a augmenté la validité et la fiabilité. La méthodologie de PRP a semblé utile en milieu de soins primaires, reconnu comme étant susceptible aux problèmes de recrutement, de concordance et d'adhésion au traitement.**

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## Un estudio comparativo de factibilidad en el uso de auto-hipnosis en el tratamiento para la depresión en el cuidado primario

**Alastair Dobbin, Margaret Maxwell, y Robert Elton**

**Resumen: Esta investigación evaluó la efectividad de un tratamiento de auto-hipnosis en una institución de cuidado primario en Edimburgo en el Reino Unido. Empleamos un diseño de estudio de preferencia parcialmente aleatorizado (PPA) comparado con resultados obtenidos con terapia cognitivo-conductual y conseling. Se ofreció a los pacientes que veían a su médico general para tratar su depresión una asignación aleatoria general o su tratamiento de preferencia, ya fuera ayuda propia con auto-hipnosis o medicamentos antidepresivos. Las medidas de evaluación fueron el Inventario de Depresión de Beck, el Inventario Breve de Síntomas, y el SF-36. De los 58 pacientes reclutados, 50 eligieron auto-hipnosis, 4 antidepresivos, y 4 fueron asignados aleatoriamente. Los grupos de preferencia mostraron aspectos demográficos, puntuaciones de base, y resultados similares a los tratamientos comparativos. Este estudio de factibilidad de un tratamiento de ayuda propia con auto-hipnosis para la depresión es prometedor en el cuidado primario. Las comparaciones mejoraron su validez y confiabilidad. El diseño de estudio PPA parece ser útil en una institución de cuidado primario, en donde han habido problemas de reclutamiento, concordancia y cumplimiento.**

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