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Scott, A.J., Webb, T.L. and Rowse, G. (2015) Self-help interventions for psychosis: A meta-analysis. Clinical Psychology Review, 39. 96 - 112. ISSN 0272-7358

https://doi.org/10.1016/j.cpr.2015.05.002

Self-help interventions for psychosis: A meta-analysis

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For submission to Clinical Psychology Review

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Abstract

Self-help has been shown to be an effective intervention for a wide range of mental health problems. However, there is less evidence on the efficacy of self-help for psychosis and, to date, there has been no systematic review. A search of bibliographic databases identified 24 relevant studies with a total sample size of N = 1816. Ten studies adopted a repeated measures design and 14 an independent group design (including RCTs and quasi-experimental studies). Self-help interventions had, on average, a small-to-medium-sized effect on overall symptoms (d_+ = 0.33, 95% CI: 0.17 to 0.48). Sub-analyses revealed that self-help interventions had a small-to-medium-sized effect on positive symptoms (d_+ = 0.42, 95% CI: 0.13 to 0.72), a small-to-medium-sized effect on negative symptoms (d_+ = 0.37, 95% CI: 0.07 to 0.66), and a small-sized effect on outcomes associated with the symptoms of psychosis such as quality of life (d_+ = 0.13, 95% CI: 0.02 to 0.24). Moderation analysis identified a number of factors that influenced treatment effects including the complexity of the intervention and amount of contact time. Self-help interventions for psychosis have a lot of potential and recommendations for further research are discussed.

Word count: 190

Key words: Self-help, psychosis, meta-analysis

Self-help interventions for psychosis: A meta-analysis

"A massive, systematic, and yet largely silent revolution is occurring in mental health today and is gathering steam for tomorrow" (Norcross, 2000, p. 370)

In the quote above, Norcross (2000) refers to the proliferation of self-help approaches for mental health conditions, an approach that has gathered momentum with practitioners, researchers, and policy makers placing an increasing emphasis on self-help for treating mental health problems (Lewis et al., 2003). Self-help interventions are defined as those that are "designed to be conducted predominantly independently of professional contact" (Bower, Richards, & Lovell, 2001, p. 839). Self-help interventions can be administered through a variety of mediums such as face-to-face or group meetings, through computers, mobile, and online platforms. Self-help typically involves working independently through a guide that describes the steps to be taken in order to apply a psychological treatment. A slight variation is guided self-help, which is distinguished "by the support that is given by a professional therapist or coach to the patient when working through the standardized treatment" (Cuijpers, Donker, van Straten, & Andersson, 2010, p. 1934). The support offered can range from assisting the person to work through the self-help program to emotional support and can be provided in a range of ways (e.g., face-to-face, telephone, or email). Most self-help interventions are based on standardized psychological treatments, with the most common interventions being those based on cognitive behavioral therapy (CBT: Cuijpers & Schuurmans, 2007). Self-help interventions have largely been used for common mental health issues such as depression and anxiety; however, their application to severe mental illnesses such as psychosis has been growing in recent years.

Psychosis is a highly variable experience. Typically it involves a loss of contact with reality through hallucinations (a sensory perception experienced in the absence of an external stimulus, Silbersweig et al., 1995) and/or delusions (strongly held beliefs, maintained despite a lack of evidence, Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001) and is often concomitant with negative symptoms (e.g., withdrawal or lack of thoughts, feelings, and behaviors that are usually present, Sommers, 1985). These experiences are among the clinical hallmarks of many psychiatric diagnoses including schizophrenia, schizoaffective disorder, and bipolar disorder. Psychotic experiences are relatively common, with recent estimates suggesting that between 3 and 5 per cent of the population have psychotic experiences at some point in their life (Peraala et al., 2007; van Os, Hanssen, Bijl, & Vollebergh, 2001). Despite the apparent efficacy of self-help interventions for depression and anxiety (for reviews, see Cuijpers et al., 2010; Gellatly, Bower, Hennessy, Richards, Gilbody, & Lovell, 2007; Haug, Nordgreen, Göran Öst, Havik, 2012; Van't Hof, Cuijpers, & Stein, 2009), empirical research into the application of self-help to psychosis lags behind (Lewis et al., 2003). Consequently the extent to which self-help interventions influence symptoms and outcomes associated with psychosis is unclear.

It has; however, become evident that people experiencing psychosis can influence their symptoms and become agents of their own recovery (Kingdon, Murray, & Doyle, 2004). Rather than viewing psychosis as having inescapably poor clinical and functional outcomes, contemporary views consider the course of these disorders to be more fluid in nature and amenable to change (McGorry, Killackey, & Jung, 2008). This shift in attitude is reflected in a growing evidence base for the use of CBT for psychosis (e.g., Burns, Erikson, & Brenner, 2014; Gould, Mueser, Bolton, Mays, & Goff, 2001; Hutton & Taylor, 2014; National Institute for Health and Care Excellence, 2014; Pilling et al., 2002; Rector & Beck, 2001; van der Gaag, Valmaggia, & Smit, 2014; Wykes, Steel, Everitt, & Tarrier, 2008; Zimmermann,

Favrod, Trieu, & Pomini, 2005). CBT emphasizes homework – designed to facilitate the application of what has been learnt in therapeutic sessions to the real world (Haarhoff & Kazantis, 2007; Kazantis, Pachana & Secker, 2003). This feature led Lewis et al. (2003) to argue that "such therapies are therefore essentially self-help in nature" (p. 9). Consequently, it may not be unreasonable to assert that self-help approaches may be useful for psychosis.

Further support for the use of self-help interventions for psychosis is provided by evidence which suggests that informal, self-initiated strategies are already naturally used by those experiencing psychosis. For example, Farhall, Greenwood, and Jackson (2007) reviewed nine studies investigating the use of 'natural coping' strategies directed at psychotic experiences (natural coping strategies were defined as "actions taken to ameliorate the symptom or to regulate emotion that are assumed to have been chosen and implemented without assistance from professionals", Farhall et al., p. 477). Farhall et al. reported that at least 70% of the people with psychosis that they studied could identify a coping behavior that they used to ameliorate psychotic symptoms. It seems that self-initiated strategies are already used by those experiencing psychosis, thereby providing a rationale for more formalized self-help packages.

Current Self-Help Interventions for Psychosis

As with other mental health difficulties, self-help approaches may reduce the experiences and symptoms of psychosis. For example, self-help interventions could be used to address the frequency of symptoms, the extent to which they can be controlled, and/or the distress associated with symptoms such as hallucinations and delusions. Alternatively, or in addition, self-help interventions can target difficulties associated with the experience of psychosis, such as anxiety, self-esteem, low mood, and poor social functioning. Self-help interventions for psychosis can take a number of forms including those based on psychoeducation, behavioral approaches, and peer support. Psychoeducation is one of the

more common approaches. For example, Smith, Grittiths, and Poole (2011) developed an Internet-based intervention for those with bipolar disorder. The intervention involved participants being given information about the causes of bipolar disorder, medication, lifestyle changes, the role of early intervention, and information regarding the various psychological approaches to bipolar disorder. The authors reported no significant differences in primary outcome measures (quality of life) or secondary outcomes (symptom reduction).

Other interventions augment psychoeducation with approaches such as peer support and CBT. For example, Alvarez-Jimenez, Bendall, and Lederman (2013) supplemented Internet based psychoeducation with online peer-to-peer social networking and elements of computerized CBT. Peer-to-peer social networking typically involved those with shared experiences interacting via an online platform, providing each other with mutual support whereas computerized CBT delivered online cognitive strategies to help identify unhelpful thinking patterns (e.g., ruminative thoughts). The authors reported significant reductions in depression, as well as increases in perceived social connectedness and empowerment.

Cognitive behavioral therapy seems to be less frequently used as a basis for developing self-help for psychosis when compared to its use in self-help for depression and anxiety (e.g., van't Hof et al., 2009). As noted above; however, CBT is still used as the basis of self-help interventions for psychosis, both in combination with other techniques (e.g., psychoeducation) and as a standalone basis. In the latter regard, Gottleib, Romeo, Penn, Mueser, and Chiko (2013) investigated the efficacy of an online, computerized CBT program for auditory hallucinations in those with a psychotic disorder receiving outpatient mental health services. Gottleib et al. (2013) reported statistically significant reductions from baseline to post-treatment in several measures of auditory hallucinations as well as high levels of engagement with the intervention. Granholm, Ben-Zeev, Link, Bradshaw, and Holden (2011) used personalized SMS text messaging to deliver elements of CBT aimed at

medication adherence, socialization, and auditory hallucinations, and reported increases in medication adherence and reductions in hallucinations. There are also behavioral interventions that are not necessarily based on the principles of CBT. For example, Bloch, Reshef, and Vadas (2010) invited participants to use audio relaxation techniques and assessed their impact on symptoms and quality of life, reporting reductions in total symptom scores and levels of depression.

Peer-support groups involve those with shared experiences of a particular set of symptoms and/or diagnoses interacting with one another in order to provide mutual support. For example, Castelein, Bruggeman, and van Busschbach (2008) investigated the efficacy of guided peer support groups in a multi-center trial for those with a diagnosis of schizophrenia or a related psychotic disorder. The intervention involved groups of up to 10 participants meeting biweekly for 8 months with the topics for discussion left to the participants to decide upon (discussions were minimally facilitated by a nurse). Castelein et al. reported significant improvements in the social networks of participants; however did not find any improvements in other domains such as quality of life. Peer-support groups are not only delivered face-to-face – online peer-support for psychosis has also been developed. For example, Kaplan, Salzer, Solomon, Brusilovskiy, and Cousounis (2011) developed a randomized controlled trial of Internet delivered peer support for those with schizophrenia spectrum diagnoses and affective disorders. However, Kaplan et al. (2011) reported no significant differences between those receiving online peer support and those allocated to a wait-list control condition on outcomes such as quality of life, depression and anxiety.

Despite studies testing the efficacy of a range of different self-help approaches to the treatment of psychosis, the provision of self-help for psychosis is in its infancy and, to date, there has been no systematic review of the evidence or attempt to quantify effect sizes. As a consequence, it is difficult to know whether to continue to develop self-help approaches for

psychosis or whether resources might be more profitably directed elsewhere. The present review aims to systematically evaluate the effect of self-help interventions for psychosis. Specifically, meta-analysis is used to quantitatively synthesize studies that investigate the effect of self-help interventions on psychotic experiences, as well as other associated outcomes (such as wellbeing, quality of life and distress).

What Factors Might Influence the Impact of Self-Help on Psychosis?

The impact of self-help on the symptoms and associated outcomes of psychosis may be affected by the nature of the intervention, the design of the study, and features of the focal sample. Below, we outline factors that could influence the impact of self-help on psychosis, within each of these broad categories.

Nature of the intervention. Contact with a therapist, researcher, or peers may influence the effect of self-help interventions. Self-help in its purest form requires no assistance. However, self-help can be supported and there is evidence that guided self-help programs are more effective than unguided (or 'pure') self-help. For example, Gellatly et al. (2007) reviewed studies investigating the effects of self-help and guided self-help on depression, and found that the effect size almost doubled from $d_+ = 0.43$ to $d_+ = 0.80$ when only studies investigating the effects of guided self-help were included. The extent of contact and experimenter imposed structure in self-help interventions varies greatly (Newman, Erickson, Przeworski, & Dzus, 2003) and, as such, it will be important to investigate the impact of contact on the efficacy of self-help interventions for psychosis. We predict that, in line with previous research, interventions including contact will be associated with larger effect sizes than interventions with no contact.

Self-help techniques range from the relatively simple to the more complex. Some interventions comprise multiple self-help techniques designed to be used together in order to form a 'tool-kit' that can be implemented when needed. For example, Buccheri et al. (2004,

2007) reported the effects of a 10-week program incorporating psychoeducation, self-monitoring, relaxation, distraction, and thought-stopping (see also Kanungpairn, Sitthimongkol, & Wattanapailin, 2007). Other interventions employ only one self-help technique (such as the intervention developed by Bloch et al., 2010, which used only audio relaxation). The present review will compare the effects of interventions using a single self-help technique with those that include multiple self-help techniques. On the basis of an exploratory study investigating self-help techniques used by those experiencing psychosis, Carter, Mackinnon, and Copolov (1996) advocate "an approach that introduces patients to a range of strategies" (p. 164). Our prediction, therefore, is that interventions with multiple components will be more effective than simpler interventions.

The theoretical basis of self-help interventions for psychosis tends to vary. However, three distinct approaches in the form of psychoeducation, behavioral interventions (including those based on the principles of CBT) and peer support self-help groups are evident. The present review will investigate whether the theoretical basis of the intervention influences effect sizes. Previous reviews have found that the use of behavioral self-help interventions are more effective than interventions based on psychoeducation (Gellatly et al., 2007). Therefore, it is predicted that behavioral interventions will have larger effects on the symptoms of psychosis and associated outcomes than will psychoeducation and peer support self-help groups.

The mode of delivery is another factor that could potentially influence effect sizes. Typically, interventions are delivered either face-to-face or remotely via, for example, an online platform. The use of assistive technology in psychological interventions (such as the use of smartphones, tablets, laptops, and online resources) has brought about a technological revolution in psychotherapy delivery, leading Newman, Szkodny, Llere, and Przeworkski (2011) to ask whether face-to-face contact is even necessary for therapeutic efficacy. The

current review will attempt to provide an answer to this question in relation to self-help interventions for psychosis by comparing the effect of self-help interventions delivered face-to-face versus remotely.

Study design. A number of features related to the design of the focal studies could influence effect sizes. In an effort to provide a comprehensive review, we included studies with both repeated and independent measures designs. In other words, studies that allocated participants to receive or not to receive a self-help intervention, as well as studies that compare symptoms and outcomes before and after exposure to an intervention. Repeated measures designs can potentially inflate effect sizes due to factors other than the intervention (e.g., natural improvements over time) influencing the apparent effects. Consequently, it is possible that effect sizes may differ between study designs.

For self-help to be a viable option for psychosis, treatment effects must be maintained. van't Hof et al. (2009) reviewed 13 meta-analyses investigating the effects of self-help for different mental health problems (although, unfortunately, not psychosis). Only three reviews investigated whether the effect of self-help interventions on outcomes changed over time. These reviews typically reported a small-to-moderate erosion of effect sizes as time progressed (den Boer, Wiersma, & van den Bosch, 2004; Hirai & Clum, 2006; Marrs, 1995). Consequently, the current review will assess whether the length of the follow-up period (i.e., the time interval between the end of the intervention and the measure of outcomes) influences the efficacy of the interventions. In line with previous reviews in other domains, we expected that longer-follow-up points would be associated with smaller effect sizes.

Given that research into the effects of self-help interventions is in its infancy, it is possible that interventions are improving over time. Therefore, publication date may influence effect sizes to the extent that larger effects are observed in more recent

interventions. Alternatively, effect sizes may reduce with the accumulation of more data. For example, Trikalinos, Churchill and Ferri (2004) found that the magnitude of effect sizes in meta-analyses investigating therapeutic and preventative interventions in mental health reduce over time as methods were refined and sources of biases were identified and controlled for. Either way, it seems important to investigate the possibility that publication date will influence the effect of self-help interventions on psychosis.

Finally, the scientific rigor and quality of studies can vary (Conn & Rantz, 2003). This can present the researcher with a problem; which studies are of sufficient quality to provide a meaningful contribution to a meta-analysis? The first step is to judge the methodological quality of the primary studies (for reviews, see Deeks et al., 2003; Moher et al., 1995; West et al., 2002). Having assessed the quality of the primary studies, there are two ways to solve the study quality issue; one is to include only the highest quality studies, the second is to include all of the studies and to investigate the impact of study quality on effect sizes using moderation analysis (Cooper et al., 1998). Given that the evidence base for self-help interventions for psychosis is in its infancy, we wanted to adopt an inclusive approach and so adopted the latter procedure and assessed the effect of study quality on outcomes.

Sample characteristics. Studies examining the effects of self-help on experiences and outcomes associated with psychosis recruit participants with a range of diagnoses, including psychosis spectrum diagnoses and affective diagnoses such as bipolar disorder. Because self-help interventions may have different effects on these two populations, it is important to investigate the effect of the diagnosis of participants included in the primary studies.

The Present Review

The present review sought to investigate the effect of self-help interventions on symptoms and associated outcomes among people experiencing psychosis. Although self-

help has proved effective for other mental health problems (e.g., Cuijpers et al., 2010; Gellatly et al., 2007; Haug et al., 2012; Van't Hof, et al, 2009) and studies have started to investigate the efficacy of self-help for psychosis (e.g., Alvarez-Jimenez et al, 2013; Casstevens, Cohen, Newman, & Dumaine, 2006; Gottlieb, Romeo, Penn, Meuser, & Chiko, 2013; Smith et al, 2011), to date, there has been no systematic review of such studies and thus little information as to whether a self-help approach to psychosis is beneficial and what factors influence the efficacy of such interventions. We therefore sought to identify relevant studies and compute the sample-weighted average effect of self-help interventions on various outcomes. We aimed to assess the impact of interventions on both symptoms and associated outcomes because contemporary approaches include well-being and functional indicators alongside symptomatic recovery (e.g., Remington, Foussias, & Agid, 2010). The experience of psychosis is more than symptoms alone (Birchwood & Trower, 2006) and outcomes associated with psychosis such as emotional distress play an important part in the pathway to psychosis (Hanssen et al., 2003) and relapse (Owens et al., 2005) and should, therefore, be included when assessing the efficacy of interventions. We also coded the nature of the intervention, along with features of the study design, and sample that could influence effect sizes.

Method

Literature Search Strategies

The sample of studies was generated via a computerized search of social scientific databases (Web of Science, Medline, BIOSIS Previews, BIOSIS Citation Index, Current Contents Connect, and Journal Citation Reports) in February 2014. The terms used to identify self-help interventions were self-help, self-monitoring, self-instruction, self-administered, telehealth, brief intervention, web-based, internet, online, low-intensity, computer based, bibliotherapy, psychoeducation, distraction, relaxation, support group and minimal contact.

These terms were combined with terms related to psychosis experience; psychosis, psychoses, psychotic, schiz*, paranoia, hallucinations, delusions, negative symptoms, positive symptoms, bipolar, manic depress* and mania. Key terms were searched for in the title, abstract and keywords of potential papers. In addition to the search for published papers, a comprehensive attempt to search for unpublished literature was made by searching online databases including White Rose Online, The National Research Register, The Cochrane Library, the Mimas Institutional Repository Search and ProQuest. The authors of each study that was deemed eligible for inclusion were also contacted and asked for any unpublished research evaluating the effects of self-help interventions for psychosis. This process identified 9,970 potential papers, with a further 742 papers identified by searching the reference lists of included studies (ancestry approach; Johnson, 1993).

Inclusion and Exclusion Criteria

There were five criteria that needed to be met in order for a study to be eligible for inclusion. First, the study needed to evaluate the effect of a self-help intervention, defined in terms of Bower and Richard's (2001) definition. Namely, that the intervention was "designed to be conducted predominantly independently of professional contact" (p. 839). We included a variety of self-help interventions including both pure and guided interventions, along with peer-support self-help groups. Second, studies needed to recruit a sample of participants who were experiencing symptoms associated with psychosis. Third, studies needed to measure symptoms associated with psychosis and/or outcomes associated with the experience of psychosis. For example, we included studies that included a general measure of symptomology such as that provided by the Young Mania Rating Scale (YMRS: Young, Biggs, Ziegler & Meyer, 1978) or the Positive and Negative Syndrome Scale (PANSS: Kay, 1987). We also included studies that reported the effect of interventions on specific symptom domains such as the Scale for the Assessment of Negative Symptoms (Andreasen, 1984a) and

the Scale for the Assessment of Positive Symptoms (Andreasen, 1984b). Studies were also eligible for inclusion if they reported the effect of a self-help intervention on outcomes associated with psychosis experience such as quality of life, distress, and mood (e.g., the brief WHO Quality of Life scale, World Health Organization, 1998, or the Beck Depression Inventory, Beck, Steer, & Brown, 1996). The fourth inclusion criterion was that studies needed to report sufficient data for us to be able compute the effect of the intervention. Where sufficient data was not reported, we contacted the authors in order to request the necessary data. Finally, we required that studies be written in English, or a language that could be translated using available translation resources.

Study Selection and Data Extraction

We followed PRISMA guidelines for the selection of studies for meta-analysis (Moher, Liberati, Tetzlaff, & Altman, 2009). Titles and abstracts were first judged for eligibility, with clearly ineligible studies excluded. Following this, full text articles were screened for inclusion and either included, or excluded with reasons. Figure 1 shows the flow of articles through the review. After duplicates were removed, 5,612 articles remained which were then screened by looking at the title and abstract of each article. This initial screening resulted in the exclusion of 5,416 articles, leaving 196 potential articles that were screened in detail by looking at the full text. Of these 196 articles, 82 (42%) were excluded because the intervention did not meet Bower and Richards' (2001) definition of a self-help intervention. For example, while Hauser et al. (2009) used a psychoeducation intervention for those at risk of being diagnosed with schizophrenia, there was no indication that the intervention was primarily delivered independently of professional contact. An additional 61 articles (31%) were excluded on the basis that the author(s) did not report a measure of symptom severity or associated outcomes. For example, Steinwachs et al. (2011) reported the use of a web-based program to empower those with a diagnosis of schizophrenia to discuss the quality of their

care with mental health providers. However, Steinwachs et al. were interested in the effects of the intervention on measures such as communication with care providers rather than on the symptoms of psychosis or outcomes associated with psychosis experience such as quality of life and distress. An additional 21 articles (11%) were excluded as the focus of these papers was not on the experience of psychosis symptoms. For example, Lobban et al. (2011) investigated the use of an education and coping toolkit for the relatives of those experiencing psychosis. Therefore, as the focus of this intervention was on the relatives of those experiencing psychotic symptoms, this paper was excluded. A further 8 articles (4%) were excluded because they did not report sufficient data for us to be able compute an effect size and contact with the authors did not produce this information (e.g., Stevens et al., 2005). In total 24 studies (12%) investigating the effect of self-help interventions for psychosis were included in the present review. Table 1 provides a list of these studies, along with their associated characteristics, and an asterisk precedes each of these reports in the reference list

Coding the nature of the intervention. The features and characteristics of the self-help interventions were independently coded by the first and third authors to investigate whether they moderated the effect of interventions on symptoms and outcomes. We used a Pearson correlation coefficient to assess agreement levels of continuous variables (e.g. study quality) and Cohens Kappa coefficient (k) to assess the level of agreement of categorical variables (e.g. contact was either pure or guided self-help). Any disagreements were resolved jointly by discussion. Agreement was uniformly high across all extracted variables (91% agreement rate). More specifically, inter-rater agreement for study quality was very high ($r = 0.79$, $p < 0.001$) along with Kappa coefficients for diagnosis ($k = 0.82$, $p < 0.001$), study design ($k = 1.00$, $p < 0.001$), contact ($k = 0.76$, $p < 0.001$), mode of delivery ($k = 0.92$, $p < 0.001$), intervention complexity ($k = 0.64$, $p < 0.001$) and the theoretical basis of the intervention ($k = 0.87$, $p < 0.001$).

Interventions were classed as guided self-help wherever a therapist, researcher, or peer was in contact with participants. Contact was defined as that "aimed at providing support and, if necessary, added explanation for working through the standardized psychological treatment." (Cuijpers et al., 2007, p 284). Contact could be provided through personal contact, by telephone, e-mail or any other available means of communication. Interventions where there was no contact were classed as pure self-help.

The theoretical basis of each intervention was classed as either psychoeducational, behavioral, or peer-support. Behavioral interventions were classed as those which attempted to change or adapt behavior (e.g., interventions based on the principles of CBT) while interventions that only provided information (e.g., regarding diagnosis, medication etc.) were classed as psychoeducation. Interventions providing assistance and support from peers who also had a shared experience of psychosis were classed as involving peer-support. Interventions were divided into those that used a single self-help technique versus those that used multiple techniques. Finally, mode of delivery was coded as either face-to-face (e.g., support groups) or remote (e.g., online CBT).

Coding study design. The design of each study was categorized as either repeated measures (i.e., measures of symptoms or outcomes were taken from the same participants before and after an intervention) or independent groups (i.e., randomized controlled trials, quasi-experimental designs etc.). The length of follow-up was coded in weeks (e.g., a 12 month follow up was coded as 52 weeks). Finally, the quality of primary studies was assessed using Downs and Black's (1998) Quality Index (QI), which is a 27-item checklist assessing study quality in multiple domains such as reporting quality, external and internal validity, sources of bias and confounding. Downs and Black's QI was chosen in part due to its popularity (it has been cited over 2,000 times), meaning that the ratings of study quality generated here can be compared to other studies using the QI. It was also rated by Deeks et

al. (2003) as one of the 14 best tools for evaluating bias in non-randomized intervention studies.

Coding Sample Characteristics. The diagnosis of participants recruited in each of the primary studies was coded into three levels; psychosis, bipolar disorder, and mixed diagnoses. Decisions on which category of diagnosis participants belonged too were taken based on information reported by the study authors (typically based on DSM or ICD-10 criteria).

Meta-Analytic Strategy

Effect sizes (Cohen's d) were calculated for each study. Where possible, d was calculated using the means and standard deviations reported in each primary study. However, where this data was not reported and contact with the author(s) failed to result in the relevant means and standard deviations, test statistics (e.g., F ratios, exact p values or t-values) were converted to an effect size r using Schwarzer's META program (Schwarzer, 1989). Effect size r was then converted to effect size d. Effect sizes were calculated separately for the overall effects of self-help interventions on psychotic symptomology, as well as for the effects on positive symptoms, negative symptoms and outcomes associated with the experience of psychosis. Where studies reported multiple relevant measures (e.g., Hustig et al., 1990, included measures of various aspects of hallucinations) effect sizes were computed separately for each measure and averaged prior to inclusion in the main analyses. Effect sizes were calculated using data from the furthest follow-up point available.

Because repeated measures designs can have a power advantage over independent group designs (Dunlap & Cortina, 1996), effect sizes computed from independent groups designs and repeated measures designs were converted into a common metric before analysis following the procedures suggested by Morris and DeShon (2002). Where studies compared two intervention groups to a control group (e.g., Proudfoot et al., 2012, compared two types

of peer support self-help groups with usual care), both comparisons were included separately. However, so as not to violate the assumption of independence, the sample size of the control condition (against which both intervention groups were compared) was halved to ensure that participants were not counted twice.

Sample-weighted average effect sizes (d_+) were based on a random effects model as studies were likely to be "different from one another in ways too complex to capture by a few simple study characteristics" (Cooper, 1986, p. 526). Following Cohen's (1992) recommendations, d = 0.20 was taken to represent a 'small' effect size, d = 0.50 a 'medium' effect size, and d = 0.80 a 'large' effect size. We use these qualitative indexes to interpret the findings. Variability in effect sizes was determined using the homogeneity statistic Q and Orwin's (1983) formula was used to determine the fail-safe N (the number of studies producing a trivial effect that would be needed in order to reduce the overall effect of self-help interventions to a trivial effect).[1]

Results

Table 2 shows the sample weighted average effect of self-help interventions on overall symptoms, positive symptoms, negative symptoms, and outcomes associated with the experience of psychosis. Below, we report the effect of interventions on each outcome, followed by the effects of moderation analyses examining the factors that influence effect sizes.

[1] What constitutes a trivial effect size is open to debate and should be based on what effect size would be considered trivial in a given scenario. For example, an intervention such as self-help, which can be offered to large populations with few, if any, side effects and low costs may have a particularly small trivial effect size; in other words, even a small effect may be beneficial when weighed against any disadvantages. Conversely, an intervention with relatively high risks and costs may incur a large trivial effect size as the cost-benefit ratio maybe skewed towards cost (e.g. invasive surgery, medications etc.). We set a trivial effect size of d = 0.10, meaning that the fail-safe N reported here represented the number of studies needed in order to reduce the effect to d = 0.10.

The Effects of Self-Help Interventions on Overall Symptoms

Figure 2 shows the distribution of effect sizes associated with self-help interventions on the overall symptoms of psychosis. The sample weighted average effect of self-help interventions on symptoms was $d_+ = 0.33$, with a 95% confidence interval from 0.17 to 0.48, derived from 19 studies and a total sample size of N = 727. This means that self-help interventions had, on average, a statistically significant, small-to-medium-sized effect across the symptoms of psychosis and associated outcomes according to Cohen's (1992) criteria. The homogeneity statistic was not significant, $Q(18) = 21.32$, $p > 0.05$, indicating that the effect sizes derived from the primary studies were homogenous. Orwin's (1983) formula was used to determine the fail-safe N. Results suggested that an additional 43 studies with trivial effect sizes (d = 0.10) would be needed to overturn the conclusion that self-help interventions have a beneficial effect on overall symptoms.

The Effects of Self-Help Interventions on Positive Symptoms

We also investigated the effects of self-help interventions on positive symptoms separately. Figure 3 shows the distribution of effect sizes across the primary studies. The sample-weighted average effect of self-help interventions on positive symptoms was $d_+ = 0.42$ with a 95% confidence interval from 0.13 to 0.72 derived from 12 studies with a total sample size of N = 395. Again, the homogeneity statistic was not significant, $Q(11) = 18.43$, $p > 0.05$, indicating that the effect sizes were homogenous. The fail safe N was 38, indicating that the effect of self-help interventions on positive symptoms was robust.

The Effects of Self-Help Interventions on Negative Symptoms

Figure 4 shows the effects of self-help interventions on negative symptoms. The sample-weighted average effect was $d_+ = 0.37$ with a 95% confidence interval from 0.07 to 0.66 derived from 5 studies with a total sample size of N = 188. The homogeneity statistic was not significant, $Q(4) = 3.66$, $p > 0.05$, indicating that the effect sizes were homogenous.

However, due to the relatively small number of studies investigating the effects of self-help interventions on negative symptoms, Orwin's fail-safe N indicated that only 13 studies reporting an effect size of 0.10 or less would be needed to overturn the conclusion that self-help interventions have a non-trivial effect on negative symptoms.

The Effects of Self-Help Interventions on Associated Outcomes

Finally, we examined the effects of self-help interventions on outcomes associated with psychosis. Figure 5 shows the distribution of effect sizes across the primary studies. The sample-weighted average effect was $d_+ = 0.13$ with a 95% confidence interval from 0.02 to 0.24 derived from 18 studies with a total sample size of N = 1,327. There was no significant variation in effect sizes, $Q(17) = 9.83$, $p > 0.05$, indicating that the effect sizes were homogenous. However, Orwin's fail-safe N was just 5, indicating that the positive effect of self-help interventions on associated outcomes is relatively fragile.

Moderators of the Effects of Self-Help Interventions for Psychosis

In order to investigate whether factors pertaining to the nature of the intervention, study design, and sample influenced effect sizes we conducted moderation analyses. For categorical variables (e.g., study design was either repeated measures or independent group), the sample-weighted average effect size (d_+) and associated statistics were calculated separately for each level of the moderator and homogeneity Q was used to identify which effect sizes differed significantly (providing that there were at least 3 studies representing each level of the moderator). The effect of continuous variables (e.g., study quality) on effect sizes was analyzed using metaregression.

Moderators of the Effect of Self-Help Interventions on the Overall Symptoms of Psychosis

Nature of the intervention. Guided self-help interventions did not have significantly different effects on the overall symptoms of psychosis than pure self-help interventions ($d_+ =$

0.43 vs. d_+ = 0.27), Q(1) = 1.18, p > 0.05 (see Table 3). In terms of the theoretical basis of self-help interventions it was only possible to compare psychoeducation versus behavioral interventions as only two studies investigated the effect of support groups. Self-help interventions using psychoeducation (d_+ = 0.24) and those using behavioral approaches (d_+ = 0.48), did not have significantly different impacts on effect sizes, Q(1) = 1.79, p > 0.05. Interventions that incorporated multiple self-help techniques were associated with significantly larger effect sizes (d_+ = 0.80) than interventions using a single technique (d_+ = 0.16), Q(1) = 11.64, p < 0.001. Finally, interventions delivered face-to-face did not have significantly larger effects than interventions delivered remotely (d_+ = 0.48 vs. 0.25 respectively), Q(1) = 2.18, p > 0.05.

Study design. Effect sizes did not differ between studies using repeated measures designs (d_+ = 0.42) and independent group designs (d_+ = 0.35), Q(1) = 0.22, p > 0.05. The methodological quality of the primary studies did not influence the effect of the interventions on overall symptoms, β = -0.33, t = -1.46, p > 0.05, neither did the length of follow-up, β = 0.44, t = 2.03, p > 0.05, or publication date, β = -0.19, t = -0.80, p > 0.05 (see Table 4).

Sample characteristics. There were no significant differences in symptoms between studies recruiting participants with a diagnosis of psychosis (only) (d_+ = 0.39) and studies recruiting participants with mixed diagnoses (d_+ = 0.08), Q(1) = 2.43, p > 0.05. An insufficient number of studies recruited participants who were diagnosed with bipolar disorder (k = 2) for us to be able to compare the effect of interventions among such samples with those targeting other samples.

Moderators of the Effects of Self-Help on Positive Symptoms

Nature of the intervention. Contact with a professional, researcher or peer moderated the effects of self-help interventions on positive symptoms, with guided self-help interventions being significantly more effective (d_+ = 0.78) than pure self-help interventions

($d_+ = 0.19$), $Q(1) = 8.10$, $p < 0.01$ (see Table 3). The impact of the theoretical basis of self-help interventions on positive symptoms was not investigated due to an insufficient number of studies to allow comparison (psychoeducation: k = 2, behavioral: k = 9, support group: k = 1). However, intervention complexity was also found to moderate treatment effects, with more complex interventions ($d_+ = 0.96$) being associated with significantly larger effect sizes than simple interventions ($d_+ = 0.21$), $Q(1) = 11.53$, $p < 0.001$. Mode of delivery also moderated the effects of self-help interventions on positive symptoms. Remote delivery was associated with significantly smaller effects than interventions delivered face-to-face ($d_+ = 0.19$ vs. $d_+ = 0.78$ respectively), $Q(1) = 8.13$, $p < 0.01$.

Study design. There was no significant difference between studies which employed a repeated measures design ($d_+ = 0.56$) and those using an independent group design ($d_+ = 0.36$) in terms of their effects on positive symptoms, $Q(1) = 0.94$, $p > 0.05$. Follow-up point did not have a significant impact on effect sizes, $\beta = 0.39$, $t = 1.35$, $p > 0.05$, nor did study quality, $\beta = 0.37$, $t = 1.26$, $p > 0.05$ or publication date, $\beta = -0.36$, $t = -1.21$, $p > 0.05$ (see Table 4).

Sample characteristics. Effect sizes did not differ significantly between studies recruiting participants with a psychosis diagnosis ($d_+ = 0.47$) and those recruiting participants with mixed diagnosis ($d_+ = 0.27$), $Q(1) = 0.59$, $p > 0.05$. No studies assessed the effect of a self-help intervention on positive symptoms on participants with bipolar disorder.

Moderators of the Effects of Self-Help Interventions on Negative Symptoms

The number of studies reporting the effects of self-help interventions on negative symptoms was relatively low (k = 5). Consequently it was not possible to investigate whether any of the categorical variables moderated the impact of self-help interventions on the negative symptoms of psychosis (see Table 3). We did; however, run meta-regression to examine the effect of continuous moderators on effect sizes and found that neither follow-up

point, $\beta = 0.83$, t = 2.60, p > 0.05, study quality, $\beta = 0.32$, t = 0.57, p > 0.05, or publication date, $\beta = 0.16$, t = 0.27, p > 0.05, significantly influenced the impact of interventions on negative symptoms (see Table 4).

Moderators of the Effects of Self-Help Interventions on Associated Outcomes

Nature of the intervention. The effect of the interventions on outcomes associated with psychosis did not differ between guided self-help interventions ($d_+ = 0.11$) and pure interventions involving no contact ($d_+ = 0.15$), Q(1) = 0.14, p > 0.05 (see Table 3). Furthermore, intervention complexity, Q(1) = 0.00, p > 0.05, and mode of delivery, Q(1) = 0.03, p > 0.05, did not moderate the effect of self-help on associated outcomes. Finally, there were no significant differences between the effects of interventions based on behavioral ($d_+ = 0.35$), psychoeducation ($d_+ = 0.10$), or peer support self-help groups ($d_+ = 0.09$) on associated outcomes, Q(1) = 0.01 to 2.29, p > 0.05.

Study design. Study design (repeated measures vs. independent group designs) did not moderate the effect of self-help interventions on associated outcomes, Q(1) = 2.65, p > 0.05, nor did publication date, $\beta = -0.33$, t = -1.40, p > 0.05. There was also no significant association between the length of follow-up and effect sizes, $\beta = -0.12$, t = -0.46, p > 0.05 (see Table 4). However, study quality did moderate the effect of self-help interventions on associated outcomes, with higher quality studies being associated with smaller effect sizes, $\beta = -0.55$, t = -2.67, p < 0.05.

Sample characteristics. The effect of self-help interventions on outcomes reported by studies recruiting participants with a diagnosis of psychosis ($d_+ = 0.15$) did not differ significantly from those reported by studies recruiting participants with a diagnosis of bipolar disorder ($d_+ = 0.08$), Q(1) = 0.23, p > 0.05, or studies recruiting both participants with diagnoses of psychosis and bipolar disorder (i.e., mixed diagnoses) ($d_+ = 0.13$), Q(1) = 0.04, p > 0.05. Effect sizes among studies recruiting participants diagnosed with bipolar disorder

($d_+ = 0.07$) did not differ significantly compared with studies recruiting participants with mixed diagnoses ($d_+ = 0.13$), $Q(1) = 0.12$, $p > 0.05$.

Discussion

The efficacy of self-help interventions for mental health conditions other than psychosis has received significant attention. For example, medium-sized effects of self-help interventions have been reported on both depression and anxiety symptoms (for reviews, see Bower et al., 2001; Gellatly et al., 2007; Haug et al., 2012; Hirai & Clum, 2006; Marrs, 1995; Spek, Cuijpers, Nyklicek, Riper, Keyzer, & Pop, 2007). However, there is a need for a starting point on which to base future research into self-help for psychosis (Lewis et al., 2003). In an effort to provide this starting point, we conducted a systematic review with meta-analysis to investigate the impact of self-help interventions in this area. Following a search of the literature, 24 studies investigating the efficacy of self-help interventions for psychosis were identified for inclusion. Four separate meta-analyses were conducted; on overall symptoms, positive symptoms, negative symptoms, and associated outcomes such as wellbeing, levels of distress, and depression, respectively.

The findings suggest that self-help interventions have a small-to-medium-sized beneficial effect on overall symptoms and a medium-sized effect on positive symptoms. We also found a less robust, but still small-to-medium-sized effect of self-help interventions on negative symptoms and a small-sized effect on associated outcomes. However, it should be noted that relatively few studies investigated the effect of self-help interventions on negative symptoms and so this effect should be interpreted with caution. The evidence reported in the present meta-analysis, therefore, suggests that self-help interventions can have comparable effects on psychosis as have been described for depression and anxiety in other reviews (e.g., Bower et al., 2001; Gellatly et al., 2007; Haug et al., 2012; Hirai & Clum, 2006; Marrs, 1995; Spek et al., 2007).

Along with similar effect sizes, self-help interventions for psychosis are generally similar in nature to those used for depression and anxiety. For example, both offer interventions that are designed to be conducted predominantly independently of support in either guided or unguided formats. In the current review, around half of the studies included used guided interventions, a figure which is comparable to meta-analyses of self-help for depression and anxiety (Gellatly et al., 2007; Haug et al., 2012; Hirai & Clum, 2006; Spek et al., 2007). Furthermore, self-help interventions for psychosis, much like those offered for depression and anxiety, utilize both face-to-face and remotely delivered interventions using traditional pen and paper methods as well as computerised and e-health interventions. There is however one key difference between extant self-help interventions for psychosis and those that have been used for depression and anxiety. Self-help interventions for depression and anxiety are predominantly based on the principles of CBT (Cuijpers & Schuurmans, 2007; van't Hof, Cuijpers & Stein, 2009), whereas to date only two studies (8%) of self-help for psychosis have based the intervention on the principles of CBT (Gottleib et al., 2013; Granholm et al., 2011). Instead, behavioral approaches to self-help for psychosis tend to focus more on the implementation of coping strategies (e.g. thought stopping and audio relaxation) rather the cognitive restructuring seen in CBT. In summary, self-help interventions for psychosis are broadly comparable to those used for anxiety and/or depression, although less likely to draw on the principles of CBT. These differences may, however, simply reflect a field in its infancy and should not necessarily constrain the nature of interventions in the future.

The effect of self-help interventions for psychosis reported here are also broadly comparable to the often-cited effect of CBT for psychosis ($d_+ = 0.40$; Burns, Erikson, & Brenner, 2014; van der Gaag, Valmaggia, & Smit, 2014). The development and evaluation of self-help interventions for psychosis is still in its infancy, especially when compared to

similar interventions for common mental health problems. However, for the most part, the effect sizes reported in the present review proved statistically significant, robust, and were homogenous. We therefore contend that the further development and testing of self-help interventions for psychosis is warranted. This would seem to be especially important with respect to negative symptoms where the current evidence base is relatively limited.

On the basis of these findings, we suggest that the development of self-help for psychosis could follow a similar approach to that suggested by Jorm and Griffiths (2006) in relation to the use of self-help for depression. Jorm and Griffiths suggest that individuals presenting with sub-clinical or threshold levels of depression are at risk of developing more serious, clinical forms of depression. Consequently, these people should be a target for early preventative action. A similar ethos has been applied to psychosis (Marshall & Rathbone, 2011; McGorry et al, 2008) and it is clear that psychotic symptoms are experienced by a substantial proportion of the general population (Krabbendam et al., 2004; van Os et al., 2009). We therefore suggest that self-help interventions might be investigated further as a viable treatment approach for those presenting with mild to moderate symptoms of psychosis as part of an early intervention strategy.

What Factors Influence the Effectiveness of Self-help Interventions for Psychosis?

The present review found that guided self-help interventions tended to be associated with larger effect sizes than pure self-help interventions. Furthermore, levels of contact significantly moderated the effect of self-help interventions on positive symptoms, while the effect on overall symptoms followed a similar trend, albeit not reaching statistical significance. These findings are consistent with previous research focusing on other mental health problems, which tends to find that self-help interventions that incorporate contact are more beneficial than interventions with less contact (Gellatly et al., 2007; Marrs, 1995). Guided interventions do appear, therefore, to offer superior efficacy, both in previous reviews

of self-help and in the current meta-analysis. However, the benefits of guided interventions need to be balanced against higher costs and limited availability (Berger et al., 2011). Given that pure, unguided self-help interventions can offer a small improvement in symptoms research might further explore the efficacy of pure, unguided self-help interventions for psychosis.

The difference between guided and pure forms of self-help raises several pertinent questions, one of which being what is the minimum amount of contact that should accompany self-help in order to get the maximum benefit? Unfortunately, there are several reasons why the answer to this question is beyond the analysis presented here. Firstly, many of the studies in the current review do not report how much contact was involved. Consequently, our analysis of the impact of contact on effect sizes was restricted to simply comparing pure versus guided self-help interventions, rather than a continuous measure of the amount of contact. Second, the nature of contact differed across the primary studies. For example, many of the studies using contact did so in a self-help peer-support group setting, which may be different to studies that use contact to support independent learning. There have been calls for more research into the effects of contact on the impact of self-help interventions for anxiety disorders (Newman, 2003), depression (Newman, 2011), and obsessive compulsive disorder (Mataix-Cols, 2006). We would echo this call in relation to self-help interventions for psychosis and suggest that future studies investigating the efficacy of such interventions follow the recommendations of Newman (2003), who proposed that researchers should assess the efficacy of guided interventions using varying degrees of contact.

The complexity of the intervention also influenced effect sizes. Specifically, interventions using a variety of self-help techniques in conjunction (such as interventions that combined elements of CBT, psychoeducation, and relaxation) were associated with larger

effect sizes than interventions using a single self-help technique (e.g., relaxation only). This is perhaps not surprising given that previous research has advocated the use of multiple techniques (Buccheri et al., 2004, 2007; Carter, Mackinnon, & Copolov, 1996; Trygstad et al., 2002). However, more complex and multi-faceted interventions bring with them the potential for reduced adherence, something that is a serious concern for self-help interventions (Christensen, Griffiths, & Farrer, 2009; Titov et al, 2014). For example, a systematic review of Internet-based self-help interventions for depression and anxiety conducted by Christensen et al. (2009) reported that, among other factors, treatment length, perceived burden of the intervention, and time constraints were all associated with higher rates of attrition.

The impact of the theoretical basis of self-help interventions on their efficacy was difficult to examine due to the relatively small number of studies representing each theoretical basis. For example, we were unable to compare the effects of interventions with different theoretical bases on positive or negative symptoms separately. Having said this, there were no significant differences between the effects of self-help interventions based on psychoeducation, support groups and behavioral principles on overall symptoms and associated outcomes. Self-help interventions based on CBT (included under the category of behavioural interventions in the current review) are widely used for common mental health problems. However they are underrepresented as a theoretical basis for developing self-help interventions for psychosis with only two interventions based on the principles of CBT identified for inclusion in the current review. It is hoped that more research testing the effects of self-help interventions based on peer support self-help groups, CBT, and psychoeducation may allow for a greater understanding of which theoretical bases are most effective.

The mode of delivery did not moderate the effect of self-help interventions on overall symptoms or associated outcomes, meaning that remotely delivered, technology assisted

online interventions for those experiencing psychosis can be an effective treatment option. Technology assisted therapies have many benefits including increasing access to services by reducing logistic barriers, increased portability (such as technologies using hand-held devices), and improved self-monitoring (Newman, Consoli, & Taylor, 1997; Palmer, Bor, & Josse, 2000). In addition, many people who would benefit from engagement with mental health services simply decide not to, or fail to continue or to fully participate due to the stigma associated with mental health treatments (Corrigan, 2004; Finzen, 1996; Franz et al., 2010). Self-help interventions for psychosis (particularly remotely delivered interventions) have the potential to promote engagement with mental health services at an early point in the onset of the experience of psychosis as the stigma associated with these interventions can be lower (Mittal, Sullivan, Lakshminarayana, Alee, & Corrigan, 2012; Watson, Corrigan, Larson, & Sells, 2007).

It was difficult to compare the effect of diagnosis on intervention efficacy due to an insufficient number of studies focusing only on participants with bipolar disorder. However, where we were able to investigate the impact of diagnosis on intervention efficacy we found no significant differences. This is perhaps not surprising given the well-documented difficulties associated with making clear and distinct diagnoses based on symptoms associated with psychosis (Bentall, Jackson, & Pilgrim, 1988; Craddock & Owen, 2005; van Os, 2010); and many services combine psychosis and bipolar disorder when providing treatment provision (Citrome & Yeomans, 2005; Jolley et al., 2015; National Institute for Health and Clinical Excellence, 2009). As a result, we cautiously conclude that the self-help interventions reviewed here are likely to be equally appropriate for the experiences associated with both psychosis and bipolar disorder diagnoses, but accompany this conclusion with a call for more research focusing specifically on the value of self-help interventions for people with bipolar disorder.

Consistent with previous reviews of self-help for mental health problems (Bower et al., 2001; Scogin et al., 1990), study quality did not moderate the effect of self-help interventions on overall symptoms or positive symptoms alone in the present review. However, study quality did moderate the effect of interventions on associated outcomes (lower quality studies were associated with larger effect sizes). With this in mind, future evaluations of self-help for psychosis should prioritize well-constructed, high quality research designs. These designs should take the form of randomized controlled trials, comparing the efficacy of self-help interventions against different control groups (such as treatment as usual, wait-list controls). In addition, future research should consider blinding participants and researchers to group assignment. Knowledge of group assignment in clinical trials can affect participant responses and induce researcher bias, potentially giving a skewed representation of treatment efficacy (Schulz, Chalmers, & Altman, 2002). For example, a recent meta-analysis by Jauhar et al. (2014) reported that the effect of cognitive behavioral therapy on the symptoms of psychosis was lower when assessments were made by interviewers blind to treatment allocation. By ensuring high quality investigation of the efficacy of self-help for psychosis, inflated effect sizes may be avoided, thereby providing a clearer view of the effect of self-help interventions on outcomes.

Finally, the present review found that self-help interventions had more substantive effects on the symptoms of psychosis than on outcomes associated with the experience of psychosis such as quality of life and depression. Therefore, it appears that reductions in symptoms do not necessarily translate into comparable reductions in associated outcomes. Similar findings have been reported by Fervaha, Agid, and Takeuchi (2015), who examined the characteristics of individuals with a diagnosis of schizophrenia who report being satisfied with their life in general. The authors found that those with schizophrenia experienced a high level of life satisfaction despite concurrent severe mental health difficulties and functional

deficits. One possible explanation for the finding that symptoms do not necessarily translate into comparable reductions in associated outcomes could be the relative neglect of negative symptoms. Indeed, only five studies in the present review examined the effect of self-help interventions on negative symptoms. Negative symptoms are; however, closely related to the associated outcomes studied in the current review. For example, Wegener et al. (2005) reported that 43% of the variance in quality of life measures among those with psychosis can be explained by levels of depression, general psychopathology and negative symptoms, while several longitudinal studies support the notion that negative symptoms are important determinants of quality of life in those with psychosis (Ho, Nopoulos, Flaum, Arndt, & Andreasen, 1998; Priebe, Roeder-Wanner, & Kaiser, 2000). We therefore reiterate our call for further research to develop and test the efficacy of self-help interventions targeting the negative symptoms of psychosis, as such interventions may be most likely to influence outcomes.

Directions for Future Research

The present review suggests that self-help interventions can offer significant reductions in symptoms and outcomes associated with psychosis experience; however there are several questions that warrant further attention. One important issue concerns uptake and engagement. Interventions can only be effective if people engage with the materials (Donkin et al., 2011). However, evidence suggests that engagement with self-help interventions is relatively poor (Donkin et al., 2011). Future studies investigating the efficacy of self-help interventions for psychosis might, therefore, usefully consider rates of uptake and engagement, along with strategies that might promote uptake. Self-help interventions overcome many of the practical barriers that are associated with face-to-face therapies including the costs of therapy, transportation difficulties and issues with childcare or caring for sick or disabled loved ones (Mohr, Hart, & Howard, 2006; Mohr et al, 2010). However,

one potential barrier to the uptake of interventions (likely including self-help interventions for psychosis) is the stigma associated with mental health (Barney, Griffiths, Jorm, & Christensen, 2006; Corrigan, Larson, & Rusch, 2009; Schomerus & Angermeyer, 2008; Tanskanen et al., 2011; Vogel, Wade, & Hackler, 2007). There is; however, evidence to suggest that interventions that are explicitly designed to tackle such concerns can increase uptake (e.g., Sheeran, Aubrey, & Kellett, 2007) and such ideas might usefully be incorporated into self-help interventions (for an illustrative example, see Varley, Webb, & Sheeran, 2010).

Mental health (il)literacy (or a lack of knowledge about symptoms and diagnoses, Jorm, 2000) may be another potential barrier to successful engagement with self-help interventions. For example, not knowing that a given set of symptoms warrants medical attention, or the misattribution of symptoms to other factors such as stress or substance misuse can make seeking out the correct support difficult (Gillard et al., 2010; Tanskanen et al., 2011). One potential solution is to provide feedback on symptoms in an effort to promote knowledge and such ideas have recently been incorporated into a self-directed eHealth intervention for those with depression and anxiety (Lillevoll, Vangberg, Griffths, Waterloo, & Eisemann, 2014). A final factor to consider in relation to uptake and engagement is how acceptable people perceive self-help and minimal interventions to be. As Bower and Gilbody (2005) assert, people offered self-help interventions might feel that they are inappropriate (Scogin, Hansen, & Welsh, 2003), especially for more severe mental health problems (Landreville, Landry, Baillargeon, Guerette, & Matteau, 2001). Evidence on the perception of self-help interventions is limited. However, Hanson, Webb, Turpin, and Sheeran (in press) found that guided self-help for depression was deemed to be as acceptable as face-to-face treatments such as psychotherapy, although pure forms of self-help were less preferred. Future research might apply a similar approach to investigate peoples' attitudes toward self-

help for psychosis. Practitioners may also have concerns regarding recommending self-help, e.g., that self-help interventions cannot address the complex and wide-ranging presentations seen in mental health (Pratt et al., 2009). It may be prudent, therefore, for future research developing self-help interventions for psychosis to find ways to tackle such concerns.

One area highlighted by the current review for possible future research is the development and evaluation of self-help interventions based on CBT. Only two studies in the present review tested the effects of a CBT based intervention for psychosis (Gottleib et al., 2013; Granholm et al., 2011). CBT has been shown to be effective for those with psychosis (for reviews, see Burns et al., 2014; van der Gaag et al., 2014; Wykes et al., 2014). However, due to a lack of current research, it is not known whether this efficacy translates into a self-help format. Further research investigating the use of self-help interventions for psychosis based on the principles of CBT would go some way to addressing this knowledge gap. In much the same way, the current review found that relatively few studies examined the effects of peer-support self-help groups. Peer-support self-help groups are often thought to be synonymous with self-help approaches for mental health problems and have grown dramatically during the past several decades (Mohr, 2004; Wuthnow, 1994). However, due to a lack of studies, we were unable to compare their efficacy to other theoretical bases. Further studies of this nature would seem to be a priority for future research.

Conclusion

The current review demonstrates that self-help interventions for psychosis have potential, especially guided interventions. However, further research is needed before self-help can be recommended as part of routine treatment for psychosis. Self-help interventions have been proposed as a key part of the stepped care models of depression and anxiety in both the USA and the UK (National Collaborating Centre for Mental Health, 2005; Scogin et al., 2003) on the basis of strong empirical research. Therefore, further high quality studies

that investigate the efficacy of self-help for psychosis will help to develop a substantive evidence base from which the use of self-help for psychosis may be recommended with similar confidence. We hope that the significant, consistent, and generalizable effect of self-help for psychosis reported here will stimulate further research in this area.

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Figure 1

Flow of Studies Through the Review

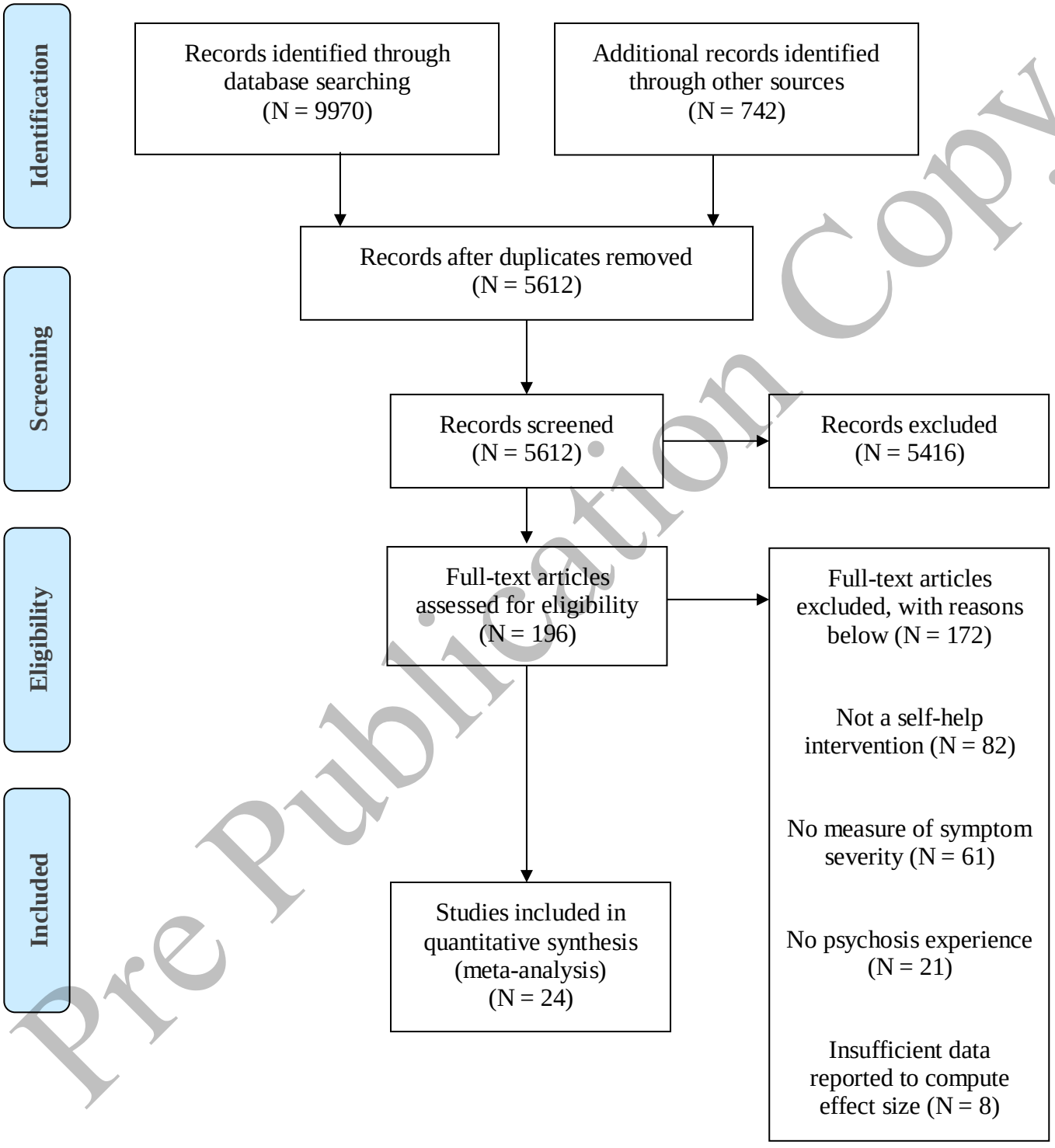

Figure 2

The Effects of Self-Help Interventions on Overall Symptoms

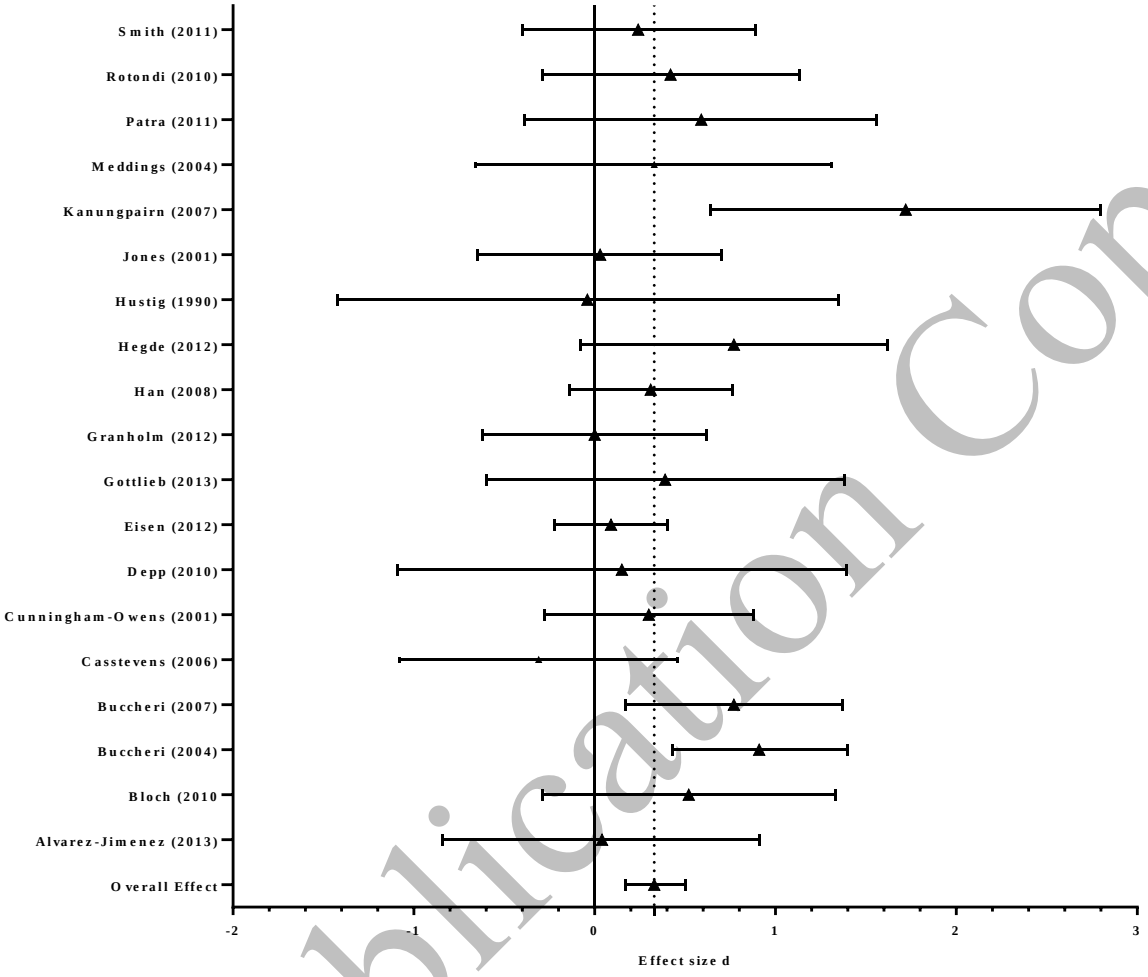

Figure 3

The Effects of Self-Help Interventions on Positive Symptoms

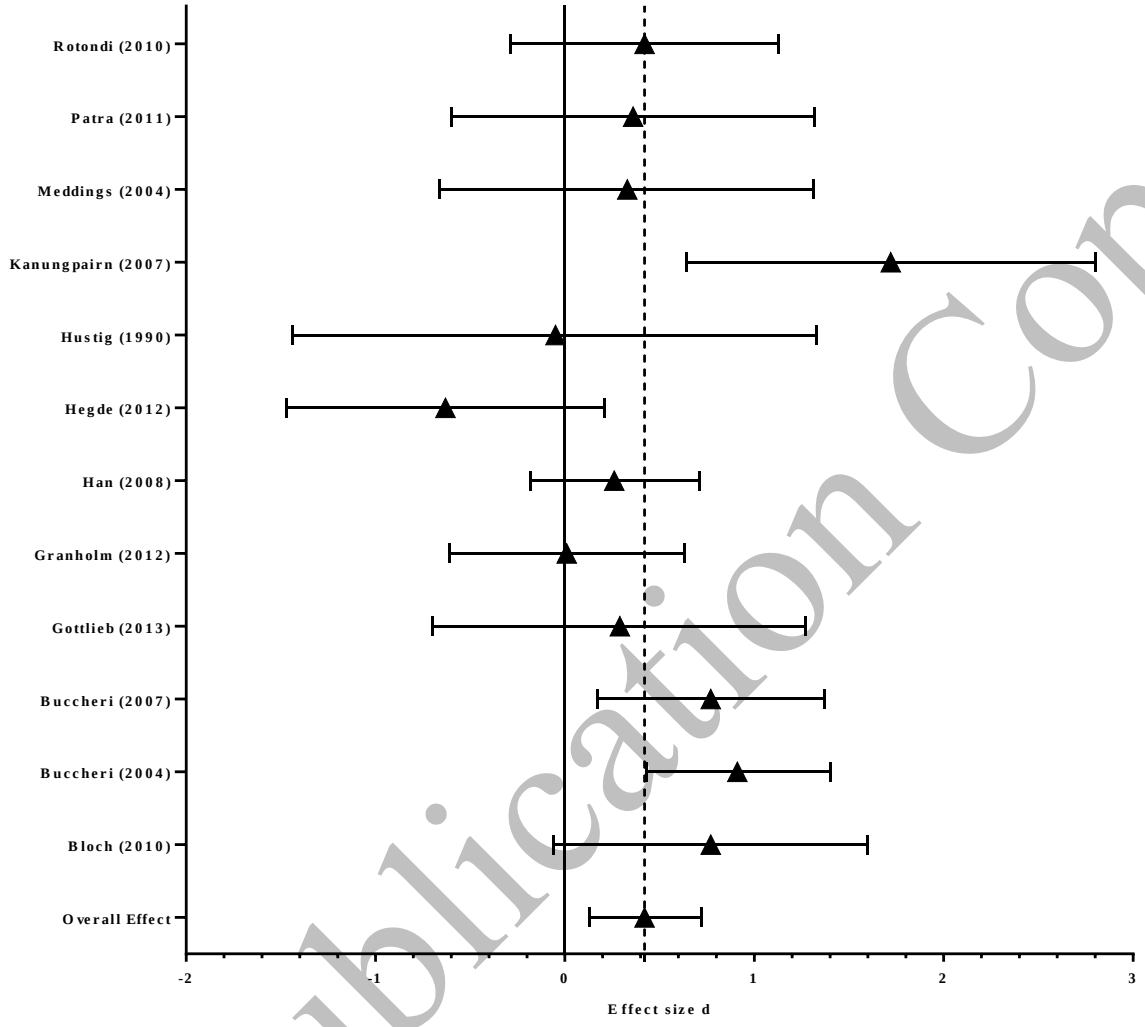

Figure 4

The Effects of Self-Help Interventions on Negative Symptoms

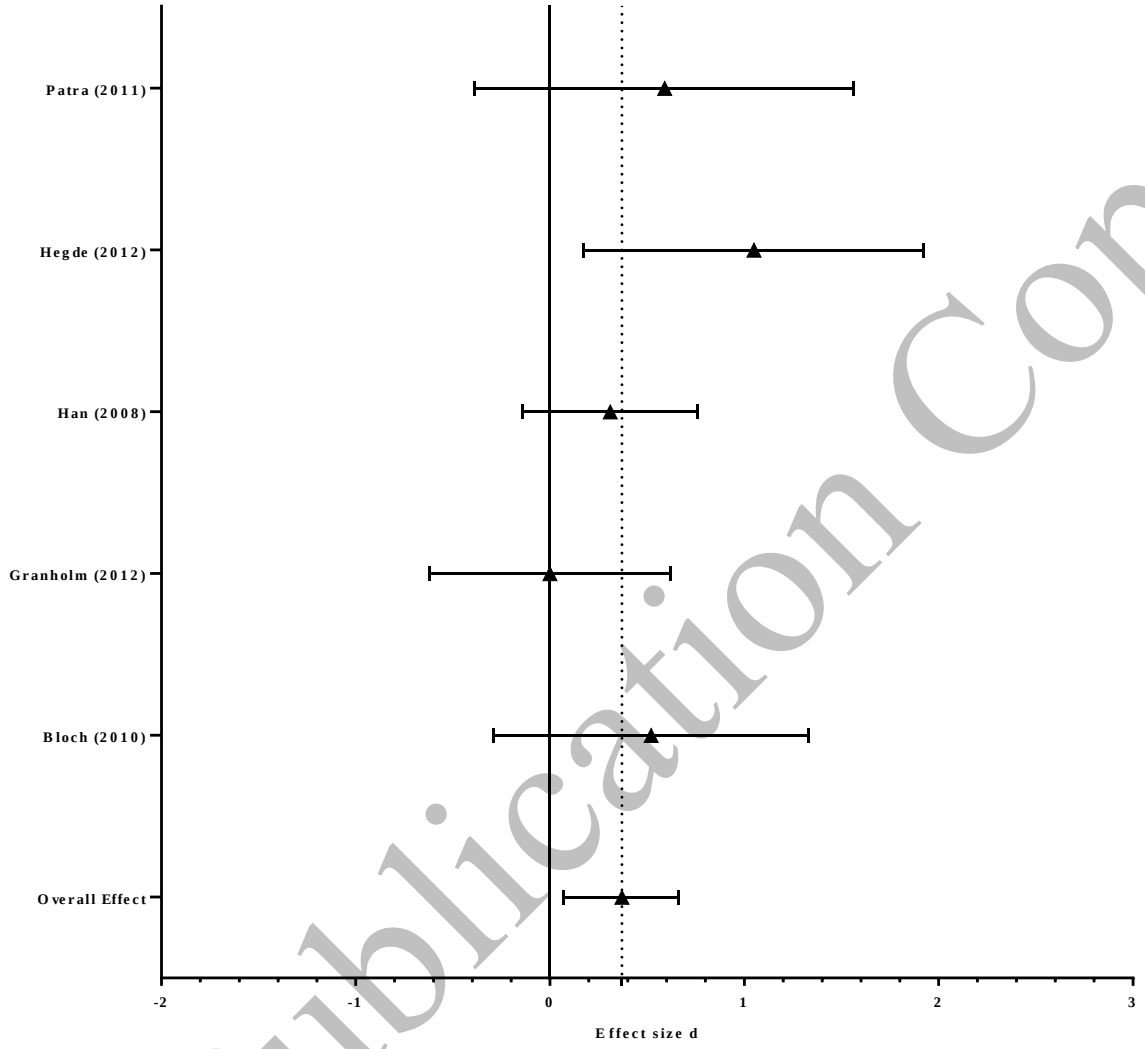

Figure 5

The Effects of Self-Help Interventions on Associated Outcomes

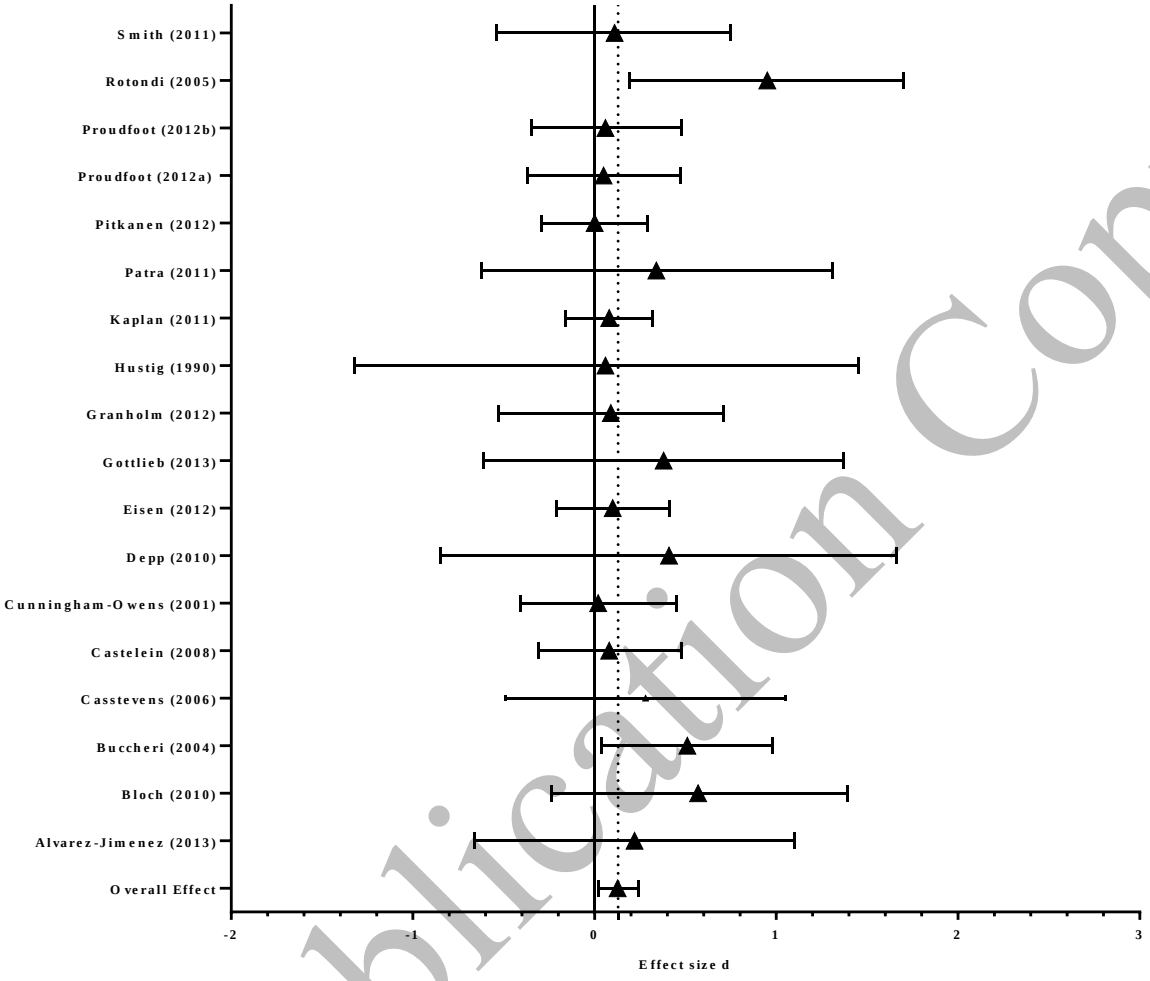

Table 1

Characteristics of the Primary Studies

Study	Theoretical basis	Follow-up	Outcome	N_e	N_c	Effect size (d)
Alvarez-Jimenez et al. (2013)	Psychoeducation	4 weeks	BPRS total	20	-	0.04
			CDRS	20	-	0.22
Bloch et al. (2010)	Behavioral	Post-intervention	BPRS total	24	-	0.50*
			PANSS pos	24	-	0.77**
			PANSS neg	24	-	0.32
			PANSS total	24	-	0.48*
			SQLS	24	-	0.61
			Q-LES-Q	24	-	0.53
Buccheri et al. (2004)	Behavioral	52 weeks	CAHQ frequency	72	-	0.81*
			CAHQ self-control	72	-	0.88**
			CAHQ clarity	72	-	1.20**
			CAHQ distractibility	72	-	0.76*
		36 weeks	POMS	72	-	0.51*
Buccheri et al. (2007)	Behavioral	52 weeks	AH to harm self	46	-	1.25**
			AH to harm others	46	-	0.30*
Casstevens et al. (2006)	Behavioral	Post-intervention	BPRS total	16	11	-0.31
			BPRS anx/dep	16	11	0.28
Castelein et al. (2008)	Peer support	32 weeks	WHO QoL	52	45	0.08

Cunningham-Owens et al. (2001)	Psychoeducation	52 weeks	PANSS total	23	23	0.30
			MADRS	43	39	0.02
Depp et al. (2010)	Psychoeducation	Post-intervention	YMRS	10	-	0.15
			MADRS	10	-	0.41**
Eisen et al. (2012)	Peer support	12 weeks	BASIS-24 psychosis	74	84	0.09
			BASIS-24 depression	74	84	0.10
Gottlieb et al. (2013)	Behavioral	Post-intervention	PSYRATS AH	17	-	0.29
			BPRS total	17	-	0.49
			BDI-II	17	-	0.34
Granholm et al. (2011)	Behavioral	Post-intervention	PANSS total	41	-	-0.04
			PANSS pos	41	-	0.01
			PANSS neg	41	-	0.03
			BDI-II	41	-	0.09
Han et al. (2008)	Behavioral	Post-intervention	SAPS	32	49	0.26
			SANS	32	49	0.35
Hegde et al. (2012)	Behavioral	16 weeks	PANSS gen	12	11	0.36
			PANSS pos	12	11	-0.63
			PANSS neg	12	11	1.05*
Hustig et al. (1990)	Behavioral	Post-intervention	AH frequency	9	-	0.13
			AH loudness	9	-	-0.20
			AH clarity	9	-	0.22

			AH distress	9	-	0.08
			AH intrusiveness	9	-	-0.17
			AH thought clarity	9	-	-0.33
			AH anxiety	9	-	0.00
			AH mood	9	-	0.13
			AH hostility	9	-	-0.20
Jones et al. (2001)	Psychoeducation	12 weeks	BPRS total	34	-	0.03
Kanungpairn et al. (2007)	Behavioral	Post-intervention	CSAH	9	9	1.72**
Kaplan et al. (2011)	Peer support	Post-intervention	QoL	200	100	0.08
			HSCL-25	200	100	0.15
Meddings et al. (2004)	Peer support	Post-intervention	HHTVRS	17	-	0.33
Patra et al. (2011)	Psychoeducation	12 weeks	PANSS gen	6	14	0.58
			PANSS pos	6	14	0.36
			PANSS neg	6	14	0.82**
			PANSS total	6	14	0.48
			QoL brief	6	14	0.34
Pitkanen et al. (2012)	Psychoeducation	52 weeks	Q-LES-Q	86	98	0.00
Proudfoot et al. (2012[a])	Psychoeducation & support	24 weeks	Life satisfaction	134	67	0.01
			Depression	134	67	0.13
			Anxiety	134	67	0.04
Proudfoot et al. (2012[a])	Psychoeducation	24 weeks	Life satisfaction	139	67	0.09

			Depression	139	67	0.03
			Anxiety	139	67	0.03
Rotondi et al. (2005)	Psychoeducation	12 weeks	Perceived stress	16	14	0.95*
Rotondi et al. (2010)	Psychoeducation	52 weeks	SAPS	16	15	0.42
Smith et al. (2011)	Psychoeducation	Post-intervention	QoL	17	20	0.04
			YMRS	17	20	0.24
			MADRS	17	20	0.17

Note: [a] The two interventions evaluated by Proudfoot et al. (2012) were treated separately in the analysis so the sample size for the control group was halved accordingly.

N_c = number of participants in control group, N_e = number of participants in experimental group, AH = auditory hallucinations, BASIS-24 = Behavior and Symptom Identification Scale (Eisen, Normand, Belanger, Spiro, & Esch, 2004), BDI-II = Beck Depression Inventory (Beck, Steer, & Brown, 1996), BPRS = Brief Psychiatric Ratings Scale (Overall & Gorham, 1962), CAHQ = Characteristics of Auditory Hallucinations Questionnaire (Trygstad et al., 2002), CBT = cognitive behavior therapy, CDRS = Calgary Depression Scale for Schizophrenia (Addington, Addington, & Maticka-Tyndale, 1993), CSAH = Characteristics and Severity of Auditory Hallucination Scale (Buccheri et al., 2002), HHTVRS = Hustig & Hafner Topography of Voices Rating Scale (Hustig & Hafner, 1990), HSCL-25 = Hopkins Symptom Check List (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), MADRS = Montgomery-Asberg Depression Rating Scale (Montgomery & Asberg, 1979), PANSS = Positive and Negative Syndrome Scale (Kay, Fiszbein, & Opler, 1987), POMS = Profile of Mood States (McNair, Lorr, & Droppleman, 1992), PSYRATS = Psychotic Symptom Rating Scales (Haddock, McCarron, Tarrier, & Faragher, 1999), Q-LES-Q = Quality of Life Enjoyment and

Satisfaction Questionnaire (Endicott, Nee, Harrison, & Blumenthal, 1993), QoL = quality of life, SANS = Scale for the Assessment of Negative Symptoms (Andreasen, 1984a), SAPS = Scale for the Assessment of Positive Symptoms (Andreasen, 1984b), SQLS = Schizophrenia Quality of Life Questionnaire (Wilkinson et al., 2000), YMRS = Young Mania Rating Scale (Young, Biggs, Ziegler, & Meyer, 1978)

*p < .05, **p < 0.01, *** p < .001.

Table 2

Sample-Weighted Average Effect of Self-Help Interventions on Symptoms of Psychosis and Associated Outcomes

Condition	k	N	Q	95% CI	Fail-safe N	d_+
Overall	19	727	21.32	0.17 – 0.50	43	0.33
Positive symptoms	12	195	18.50	0.13 – 0.72	38	0.42
Negative symptoms	5	188	3.66	0.07 – 0.66	13	0.37
Associated outcomes	18	1327	9.83	0.02 – 0.24	5	0.13

Table 3

Dichotomous Moderators of the Effects of Self-Help Interventions

Moderator	k	N	d_+	Q
Effects of self-help interventions on overall symptoms				
Contact time				1.18
Guided self-help	9	423	0.43	
Pure self-help	10	304	0.27	
Complexity				11.64***
Single	15			
Multiple				
Theoretical basis (1 vs. 2)				1.79
1. Psychoeducation	7	198	0.24	
2. Behavioral	10	355	0.48	
3. Peer-support	2			
Diagnosis (1 vs. 3)				2.43
1. Psychosis	11	537	0.39	
2. Bipolar disorder	2			
3. Mixed diagnoses	5	127	0.08	
Mode of delivery				2.18
Face-to-face	8	403	0.48	
Remote	11	324	0.25	
Methodological design				0.22
RCT	9	441	0.35	
Repeated measures	10	286	0.42	
Effects of self-help interventions on positive symptoms				
Contact time				8.10**
Guided self-help	5	172	0.78	
Pure self-help	7	223	0.19	
Complexity				11.53***
Single	9	259	0.21	
Multiple	3	136	0.96	
Theoretical basis				
1. Psychoeducation	2			
2. Behavioral	9	328	0.44	

3. Peer-support	1			
Diagnosis (1 vs. 3)	0.59			
1. Psychosis	8	299	0.47	
2. Bipolar disorder	0			
3. Mixed diagnoses	3	80	0.27	
Mode of delivery				8.13**
Face-to-face	5	172	0.78	
Remote	7	223	0.19	
Methodological design	0.94			
RCT	5	173	0.36	
Repeated measures	7	222	0.56	
Effects of self-help interventions on negative symptoms				
Contact time				
Guided self-help	4	168	0.37	
Pure self-help	1			
Complexity				
Single	5	188	0.37	
Multiple				
Theoretical basis				
1. Psychoeducation	1			
2. Behavioral	4	168	0.37	
3. Peer-support				
Diagnosis				
1. Psychosis	3	124	0.47	
2. Bipolar disorder	0			
3. Mixed diagnoses	2			
Mode of delivery				
Face-to-face	1			
Remote	4	168	0.37	
Methodological design				
RCT	3	124	0.37	
Repeated measures	2			
Effects of self-help interventions on associated outcomes				
Contact time			0.14	

Guided self-help	9	762	0.11	
Pure self-help	9	565	0.15	
Complexity				0.00
Single	14	949	0.13	
Multiple	4	348	0.12	
Theoretical basis (1 vs. 2)				2.29
(1 vs. 3)				0.01
(2 vs. 3)				2.40
1. Psychoeducation	9	585	0.10	
2. Behavioral	6	187	0.35	
3. Peer-support	3	555	0.09	
Diagnosis (1 vs. 2)				0.23
(1 vs. 3)				0.04
(2 vs. 3)				0.12
1. Psychosis	6	437	0.15	
2. Bipolar disorder	4	158	0.08	
3. Mixed diagnoses	8	641	0.13	
Mode of delivery				0.03
Face-to-face	6	456	0.16	
Remote	11	687	0.14	
Methodological design				2.65
RCT	11	1137	0.09	
Repeated measures	7	190	0.35	

**p < .01, ***p < .001.

Table 4

Continuous Moderators of the Effects of Self-Help Interventions

Moderator	M	SD	β	t
Effects of self-help interventions on overall symptoms				
Follow-up point	13.89	20.89	0.44	2.03
Study quality	15.79	3.82	-0.33	-1.46
Publication date	2007.47	5.69	-0.19	-0.80
Effects of self-help interventions on positive symptoms				
Follow-up point	15.33	22.75	0.39	1.35
Study quality	14.17	2.33	0.37	1.26
Publication date	2007.33	6.23	-0.36	-1.21
Effects of self-help interventions on negative symptoms				
Follow-up point	5.60	7.80	0.83	2.60
Study quality	13.60	1.52	0.32	0.57
Publication date	2010.60	1.67	0.16	0.27
Effects of self-help interventions on associated outcomes				
Follow-up point	15.33	19.56	-0.12	-0.46
Study quality	17.72	4.31	-0.55	-2.67*
Publication date	2008.50	5.75	-0.33	-1.40

* $p < .05$