



Efficacy of Mental Health Interventions for Psychosis in Low and Middle-Income Countries (LMICs): A Systematic Review

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Abstract

Schizophrenia, a psychotic disorder, involves experiences outside reality, like hallucinations and delusions. Psychological Interventions is an empirically based psychological treatment, which showed effectiveness in the betterment of patients who have schizophrenia. The current study aims to evaluate the effectiveness of interventions for treating psychosis such as schizophrenia among Low and Middle-Income Countries 'LMICs.' The Academic databases "SCOPUS, Web of Science, PsycINFO, and MEDLINE" was searched for collecting the research studies. PICO stands for Population, Intervention, Comparison, and Outcome, was used to develop specific criteria to include or exclude studies for this review. A total of 26,612 records were included in the screening process. Further, 74 studies were identified from other sources, such as through manual searches and while checking the reference of the studies, so any potential research will not be missed. After initial screening, the duplicate data was removed were 9,924 research studies. The Final seven studies conducted in different cities in LMICs were included in the narrative synthesis. The results indicated that Psychoeducation and culturally adopted therapies are more effective for severe mental health issues among Low and Middle-Income Countries (LMICs).

Keywords: Psychosis, schizophrenia, mental health, intervention

1. Introduction

Schizophrenia is an impairing condition that affects a person's ability to work and live independently (Janoutová et al., 2016) and affects the lives of caregivers and family members (Koujalgi & Patil, 2013). Even more daunting are the fatalities corresponding to schizophrenia (Hor & Taylor, 2010; Palmer et al., 2005). Extensive studies reveal a high incidence of schizophrenia among 'ethnic minorities.' (Harrison et al., 1997; Zane et al., 1993). Researchers, studies, and professionals are tasked to develop 'the most effective' treatment methods and treatments that work effectively for all cultural groups.

According to the "American Psychiatric Association (1994)", the symptoms of hallucinations and delusions are considered Schizophrenia (APA, 1994). An absence of external stimulus because of impairment in sensory perception is referred to as sensory perception, while delusions are false beliefs, despite contradictory evidence against that thought or belief (Arciniegas, 2015). DSM-IV diagnosis for schizophrenia must include at least three symptoms persisting for six months or more, such as hallucinations, delusions, negative symptoms, disorganized speech, and abnormal behavior (American Psychiatric Association, 1994).

Schizophrenia is a persistent mental health disorder affecting over 21 million people globally (WHO, 2017), with a reported incidence of 15.2 per 100,000 persons (Simeon et al., 2018). The World Health Organization (WHO) rated Schizophrenia, among the top 25 leading causes of disability, with the costs of schizophrenia in Western countries ranging from 1.6% to 2.6% of total healthcare disbursements (Chong et al., 2015). It affects the patient, family, and other caregivers regarding health, social and economic factors (Chong et al., 2016). The financial burden is more than US\$60 billion annually (Marcus & Olfson, 2008). More than 80% of the population in "Low- and middle-income countries" have mental health issues (Rethod et al., 2017). However, among individuals with psychosis, approximately 20 to 50% experienced extreme symptoms that cause distress (Leucht et al., 2012). Most individuals with schizophrenia, even those who benefit from medication, have disabling residual symptoms and impaired social functioning (Bustillo et al., 2002).

The effectiveness of anti-psychotic medications in reducing symptoms of schizophrenia is evident. Studies based on systematic reviews and meta-analyses for therapeutic interventions in schizophrenia from the last decade encompass this area either in parts or whole (Mari & Streiner, 1994; Mojtabi et al., 1998; Dixon et al., 2000; Adams, 2000; Gould et al., 2001; Pitschel-Walz et al., 2001; Bustillo et al., 2001; Rector & Beck, 2001; Cormac et al., 2002). Cognitive Behaviour Therapy (CBT) is an empirically based psychological treatment, which showed effectiveness in the betterment of patients who have schizophrenia (Tarrier N., 2010).

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CBT showed higher efficacy for 'important development' in mental state and positive effects on steady measures of mental state at follow-up (Pilling et al., 2002).

1.1. Aim of the study

The current study aspires to evaluate the statistical effectiveness of interventions for treating psychosis such as schizophrenia in 'Low and Middle-Income Countries (LMICs).'

1.2. Objectives of the Study

The following are the objectives of the study;

- To evaluate a Comprehensive search of existing literature and databases to identify relevant studies investigating mental health interventions for psychosis in LMICs.
- To examine the methodological quality of the identified studies to assess their validity and potential biases.
- To analyze and synthesize the findings from the selected research studies to determine the overall success of mental health interventions for psychosis in LMICs.
- To Identify any potential gaps or limitations in the literature on psychological interventions for psychosis in LMICs.
- To develop future recommendations for the policy development and implementation of mental health interventions for psychosis in LMICs based on the systematic review findings.

By addressing these aims and objectives, the review will provide a comprehensive and evidence-based assessment of the efficacy of mental health interventions for psychosis in LMICs, offering insights that can guide future research and inform mental health practices in these countries.

2. Method

Systematic reviews include data from various research studies and results collated to answer the question related to the determined research question (Mulrow, 1994). The predefined inclusion and exclusion criteria support choosing the research studies related to the research question. The purpose of the review is to provide comprehensive details. Hence, healthcare professionals refer according to the perspective of patients' health care and well-being (Moher, 2009) but also to bring to light whether there is an overall consistency of findings for the study's research question. Furthermore, a review is an efficient way of getting together results to answer the research question for the present study. Randomized Control Trials (RCTs) are considerable for addressing the intervention-related health question as it provides the detail of the participants, tend to recruit small numbers of participants, and equally considered sample from ethnic minority backgrounds; this, therefore, provides reliable results that could be generalized to the individuals in a broader perspective.

Table 1

PICO framework	Inclusion Criteria	Exclusion Criteria
Population (P)	Studies administered in 'Low and Middle-Income Countries (LMICs).'	• Studies conducted exclusively in high-income countries.
Intervention (I)	Studies evaluating mental health interventions specifically targeting psychosis (e.g., cognitive-behavioral therapy, Family intervention, psychosocial interventions).	Studies focus on interventions for other mental health conditions unrelated to psychosis.
Comparison (C)	Studies that include a comparison group, such as placebo, treatment as usual, or alternative interventions.	Studies without a comparison group or only reporting pre-post intervention outcomes.
Outcome (O)	Studies reporting quantitative data on the efficacy of mental health interventions for psychosis (e.g., symptom reduction, functional improvement, relapse prevention).	Studies without relevant outcome measures or those reporting only qualitative data.
Language	Studies issued in the English language	Studies issued in other than the English language
Duration	Studies published in the last ten years from June 2013 till June 2023	Published later than the recent ten years
Quantitative Studies	Quantitative studies, including randomized controlled trials, case-control studies, and cohort studies.	Qualitative studies, literature review articles, conference abstracts, editorials, and opinion pieces.

In this review of the ‘efficacy’ or statistical power of mental health treatments for psychosis in LMICs, the inclusion and exclusion criteria can be defined using the PICO framework. PICO stands for Population, Intervention, Comparison, and Outcome. Here is an example of how inclusion and exclusion criteria can be formulated based on the PICO elements:

According to the “National Institute for Health and Clinical Excellence, ” the minimum duration of any intervention is six months, so changes or impact can be determined. In the current review, only those students who fulfill the follow-up criteria will be considered so that comprehensive results are included. Furthermore, studies that assessed the intervention’s effectiveness, reducing the psychotic symptoms, relapse of the intervention, and the individual functioning determined were included in the current review.

2.1. The Search Strategy

Academic databases “SCOPUS, Web of Science, PsycINFO, and MEDLINE” was searched for collecting the research studies. These multidisciplinary academic databases include many scientifically reviewed articles, including public health problems and social sciences (Gusenbauer & Haddaway, 2020). By utilizing these databases, the search strategy of a current systematic review can provide disciplinary perspectives, ensuring a comprehensive and diverse range of sources (Gusenbauer & Haddaway, 2020). The search has been run in the following databases conducted in the last years from “June 2000 till June 2023” using the combinations of the following terms; “Psychosis” OR “Schizophrenia” OR “Interventions” OR “psycho-social support” OR “LMICs” OR “adolescents.”

2.2. Data Extraction

The significant component in the systematic review is the data extraction which includes following the step-by-step procedure. The Key characteristics or variables determined while developing the research question will be formulated in a structured or standardized form so the conclusion can be concluded from the existing literature (Shaffril et al., 2021). The systematic review specifically focused on reliable data and rechecked the data, so any biases should be noticed, regardless of the impact and conclusion. The extraction usually requires an independent researcher’s effort through hand scrutiny, known manual data extraction of the studies selected for the review, or a software system’s support to get the relevant results. The manual extraction of the data requires a sheet in Microsoft Office mentioning the needed variables, such as; study characteristics, population, country, sample, instruments, primary outcome, secondary outcome, etc. The set format has been designed or predetermined and extracted the information from all the studies step by step. Furthermore, software such as EndNote (Gotschall, 2021) and DistillerSR are also used for data extraction and support to define the accuracy and consistency among included studies selected for the systematic review (McKeown et al., 2021).

3. Data synthesis

The Narrative method has been used to synthesize the results in the current systematic review. A narrative synthesis is an approach to synthesizing the systematic review results with an explanation while comprehensively evaluating each study. The cultural adaptation of the interventions, studies, and heterogeneity of the results or findings were also determined using narrative synthesis.

3.1. Quality Assessment

The CASP tool has been used to assess the included studies’ quality. CASP refers to Critical Appraisal Skills Programme (2013). The assessment tool determines every study on an individual basis on the selected points, such as the study’s design, generalizability, reported results, and bias. The Cochrane Risk of Bias Tool also determined the quality and risk assessment of the included research studies (Higgins et al., 2011). These tools have been recommended and commonly preferred to evaluate the efficacy of intervention trials based on interventions such as RCTs (Zeng et al., 2015). Treatment Fidelity Workgroup was made based on recommendations (Bellg et al., 2004). The fidelity assessment tool has been implemented to assess the reliability and validity of the intervention studies considered to be included in the systematic review.

4. Results

There was a total of 26,612 records included in the screening. The search terms were run into the following academic databases “SCOPUS, PsycINFO, MEDLINE, and Web of Science.” Further, 74 studies were ident from other sources, such as through manual searches and while checking the reference of the studies, so any potential research will not be missed. After initial screening, the duplicate data was removed were 9,924 research studies. Initial screening was started with title screening, the separate sheet for maintaining the inclusion and exclusion reasons in detail. Nine thousand three hundred seventy-one studies have been excluded at the title and abstract screening stage due to not fulfilling the systematic review criteria. Of the full-text articles screened that were 553 of which 548 articles were excluded due to a variety of reasons such as; studies not including LMICs, Psychosis population, non-prospective studies not conducted within or around mental health settings, and some only published their protocols and interventions trials are being delayed or not published yet. The Final seven studies conducted in different cities in LMICs were included in the

narrative synthesis (Asher et al., 2016: Kumar et al., 2016: Abbasi & Moritz, 2023: Naeem et al., 2015: Rao et al., 2021: Nasr & Kausar, 2009: Barekatin et al., 2014).

Figure 1: PRISMA Flow Diagram

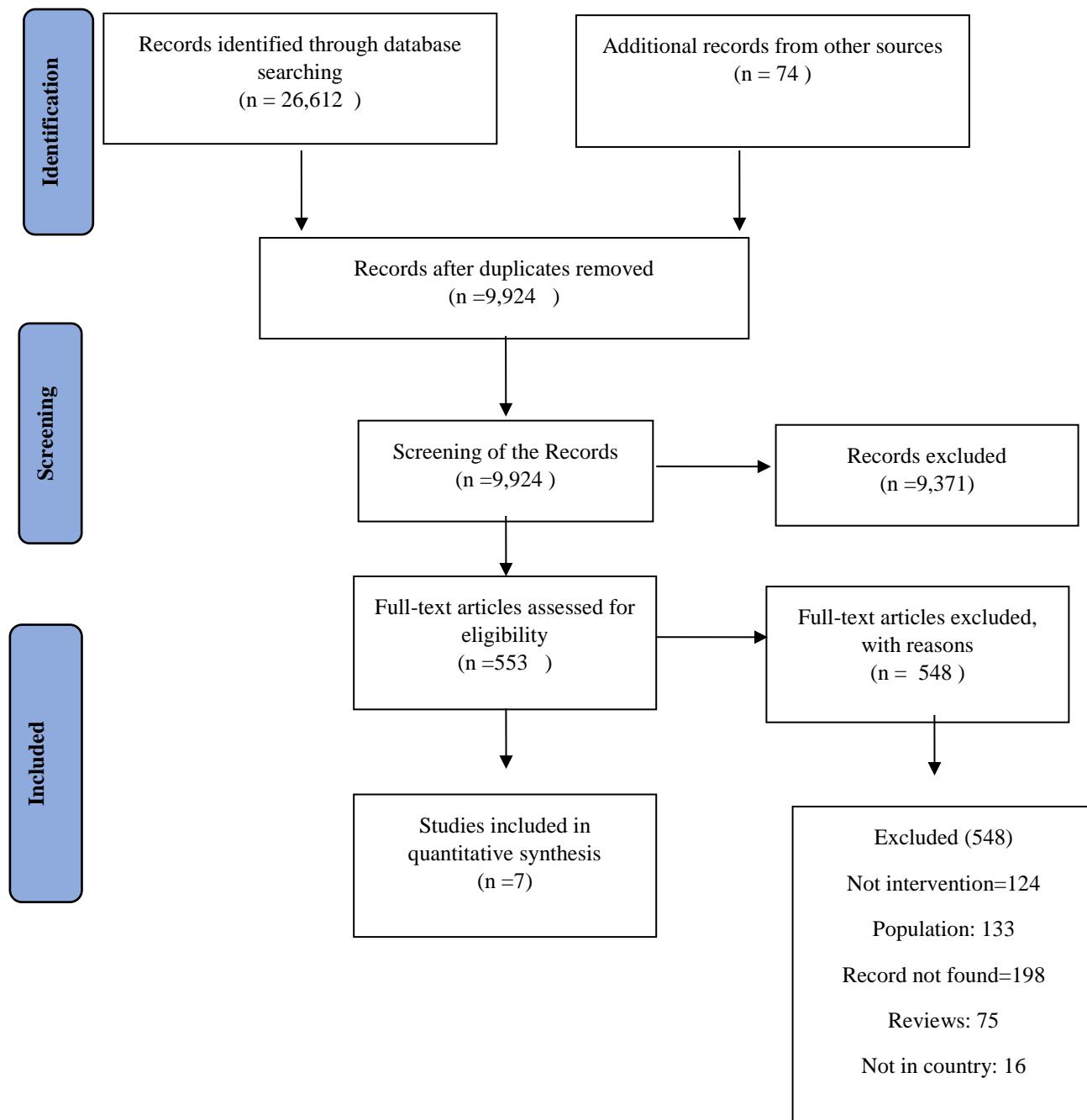


Table 1: The characteristics of the studies included in the review

Author, Year	Study Type	Age	Intervention	Location of the study	Participants (intervention, control group)	Duration of the intervention	Follow-up included (optional)	Main findings
Asher et al. (2016).	RCT	Above 18 years	Community-based rehabilitation (CBR)	Ethiopia	N=182 (I=91; C=91)	Three months	One year	‘CBR’ delivered by workers combined with task-shared facility-based care effectively minimized disability among people with schizophrenia. The ‘RISE study CBR model’ is particularly relevant to low-income countries with few mental health specialists.
Kumar et al. (2020).	RCT	18-50 years	Brief psychosocial intervention (BPI)	India	N=66 (I=33; C=33)	Three months	Every two weeks for three months	The BPI group demonstrated a statistical decrease in the burden of care and an improvement in critical relatives' and patients' quality of life (QOL). The intervention was related to a substantial improvement in important relatives' QOL and burden of care, which improved their patients' QOL.
Abbasi and Moritz, (2023)	Randomized controlled trial (RCT) <i>(Pre-post design, parallel, two-arm, double-blinded, feasibility)</i>	20 to 60 years	Metacognitive Training for Psychosis (MCT)	Pakistan	N= 60 (I=30, C=30)	4 Weeks	12 Months Study <i>(every three months follow up)</i>	Compared to standard therapy, MCT improved symptom severity and cognitive understanding in people with schizophrenia. MCT was ineffective in enhancing the quality of life and disability in schizophrenic participants.
Naeem et al. (2015).	RCT	Not specified	Brief culturally adapted CBT for psychosis (CaCBTp) in addition to treatment as usual (TAU)	Pakistan	N= 116 <i>(I=59, C=57)</i>	Four months	Not mentioned	In contrast to the ‘control group,’ participants in the treatment group who received short CaCBTp with TAU demonstrated statistically significant progress in all measures of psychopathology. Delusions, positive and negative symptoms, hallucinations, and insight improved significantly.
Rao et al. (2021).	RCT	Not mentioned	Add-on yoga treatment	India	N= 64	‘Yoga training sessions over two weeks, followed by ten weeks of home practice	12 weeks	Subjects in the add-on yoga group progressed considerably more than those in the treatment-as-usual (wait-list control) group. The ‘Scale for the Assessment of Negative Symptoms (SANS)’ was used to assess the improvement in negative symptoms.
Nasr & Kausar, (2009)	RCT	18-45 years	Psychoeducation, in addition to psychotropic drug	Pakistan	N= 108 (I=52, C=56)	Six months	12 months	Intention-to-treat analysis revealed that the psychoeducation group significantly reduced family hardship compared to the non-psychoeducation group.
Barekatin et al., 2014	RCT	Above 18 years	The psycho-education program VS Treatment as usual	Iran	N=123 Patients with severe psychosis <i>(I=61; C=62)</i>	3 Months	12 Months	Aftercare services could reduce re-admission rates throughout the first year after discharge of patients with severe mental disorders. On the other hand, higher levels of improvements in functioning would be expected after one year.

4.1. Participant characteristics

Across the studies, 719 patients participated in the trials, such as RCTs, as the studies included following this research methodology. The average age of the participants recruited in the studies were from 20s to 40s years. The studies followed the DSM-IV and V diagnostic criteria ((American Psychological Association, 1994) for following the criteria of Schizophrenia, and one study followed ICD-10 for the recruitment of the participants (WHO, 1992). All included studies indicated that schizophrenia was the most commonly reported disorder, followed by schizoaffective disorder and schizopreniform disorder. The recruited participants were also taking first- and second-generation anti-psychotic medication to reduce the severity of their symptoms. One study indicated that the participants took long-acting injections or anti-depressants to deal with the comorbid symptoms. Furthermore, the family members associated with the intervention were mainly parents, spouses, and siblings, from whom the participants were primarily responsible for taking care. Furthermore, the participants' grandparents for the moderate role were also associated with the other family members that can play an essential role in the well-being of the participants. As a collective, participants were of the following cultural groups; Indian, Pakistani, Iranian, and Egypt (Asher et al., 2016; Kumar et al., 2016; Abbasi and Moritz, 2023; Naeem et al., 2015; Rao et al., 2021; Nasr & Kausar, 2009; Barekatin et al., 2014).

4.2. Comparators

The treatment, as usual, includes medication for the symptoms that were the control group of the participants in almost all the studies. No interventions were studied or compared the other public health intervention or the participants' well-being (Asher et al., 2016; Kumar et al., 2016; Abbasi and Moritz, 2023; Naeem et al., 2015; Rao et al., 2021; Nasr & Kausar, 2009; Barekatin et al., 2014). In all the studies, the routine check-up of the participants recruited was done. In addition, one study included anti-psychotic medicinal treatment (Naeem et al., 2015). Among all included studies, one intervention study did not mention the control group or the comprehensive treatment that was received by other comparators (Rao et al., 2021). Other services such as checkups of the patients, family services and counseling, and other services are standard care that is almost included in the research (Asher et al., 2016; Kumar et al., 2016; Abbasi and Moritz, 2023). In Bradley et al. (2006) study, the control group depended on the discussion in which different cases were discussed with the recruited participants. Further, mental health-related symptoms are also managed along with the case discussions. Nasr & Kausar (2009) used standard psycho-education as its control involving identifying and educating symptoms.

4.3. Psychoeducation

Similar to psychoeducation used by Nasr & Kausar (2009) and Barekatin and Colleagues (2014) used psycho-education as their intervention. In the sessions, the side effects of the medication, health-related problems, and the severity of the symptoms are discussed. The psychoeducation sessions involved basic knowledge of the symptoms of schizophrenia and how to report and deal with issues associated with the symptoms, which were discussed in all the studies. In this instance, the beliefs and principles held in common by a group of individuals known as cultural tenets (Merriam-Webster, 2017) by those of the same culture are also considered during the psychoeducation phase. Naeem and Colleagues (2015) considered an essential element of psycho-education in the study while promoting a mutual support group. The elements of psychoeducation consisted of presenting information about schizophrenia to family members and discussing schizophrenia and real-life situations so they can relate the patient's situation in real life to realize the problem. Mutual support groups were promoted through communication among family members (both within and outside of multi-family sessions).

4.4. Methodological Quality Assessment

Most studies accounted for attrition or had meager dropout rates, indicating they were of good quality. All seven studies used a random selection process to recruit interventions with severe mental health problems. Some were quantitative, 'Randomized Control Trials RCT.' The studies showed different rates of dropout. The research that should have discussed participant withdrawal was that although there was no dropout, as the recruitment was done through a selected sampling technique, the sample size needed to be more significant among studies.

5. Implications and Limitations

For future research, the lack of statistical significance draws the need for improvement into focus. An issue identified for some of the randomized controlled trials was that the sample size was small. As a result, the 'amount of power' used to detect statistical significance may have needed to be increased. Other researchers have also identified this issue (Newton & Perri, 2004). In support of this, Rao (2021) used an 'Integrative Data Analysis (IDA)' to pool together studies involving small numbers of ethnic minority recruits. Using Psychoeducation, they generated enough power to establish that multidimensional family therapy was more effective than controlled treatments for the individuals. This finding from Nasr & Kausar, 2009; Barekatin et al., 2014 provide evidence for future studies to recruit more participants to identify any natural effect. Another possible reason for significant progress may be related to the type of cultural adaptation made to the intervention. Many cultural variations were made to the family intervention at different levels

across studies (Asher et al., 2016; Kumar et al., 2016; Abbasi and Moritz, 2023; Naeem et al., 2015; Rao et al., 2021; Nasr & Kausar 2009; Barekatin et al., 2014).

Table 2: Quality assessment of the included studies, format extracted from (Whiting et al., 2017)

Study Author	Design	Allocation concealment	Participant drop-out	The overall risk of bias
Asher et al. (2016)	Longitudinal study	Unclear	High	High
Kumar et al. (2016)	Cross-Sectional Study	Low	High	Moderate
Kocovska et al. (2014)	Cross-Sectional Study	Unclear	High	High
Abbasi and Moritz (2023)	Longitudinal Study	Low	Low	Low
Naeem et al. (2015)	Randomized controlled trial	Unclear	Low	Low
Rao et al. (2021).	Longitudinal study	Low	High	Moderate
Nasr & Kausar (2009).	Comparative study	Unclear	Low	Moderate
Barekatin et al. (2014).	Longitudinal study	Unclear	Low	High

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