# **Best Evidence Summaries of Topics in Mental Healthcare**

# **BEST** in MH clinical question-answering service

## Question

"In adults with psychosis, how effective is yoga, compared to treatment as usual, in improving patient outcomes?"

## **Clarification of question using PICO structure**

Patients: Adults with psychosis Intervention: Yoga Comparator: Treatment as usual Outcome: Improving patient outcomes

## **Clinical and research implications**

Evidence identified by one good quality systematic review was found to be insufficient to support recommendations on the use of yoga in patients with schizophrenia; meta-analyses included in this review showed no significant difference in effect on symptoms between yoga and usual care, or between yoga and exercise. Two additional RCTs, both with significant methodological weaknesses, provided some contradictory evidence supporting an improvement in symptoms for patients with psychosis/schizophrenia treated with yoga compared to those treated with exercise or a waiting list control group. All studies included in this summary assessed the effectiveness of yoga as an adjunct to pharmacological therapy. Given the apparent contradictions in the available data, it is not currently possible to draw firm conclusions regarding the effectiveness of yoga in patients with psychosis. Further large, high quality RCTs are needed to inform this question, particularly for patients with diagnoses other than schizophrenia. An up-date to the systematic review and meta-analyses, including recently published studies, may also be informative.

#### What does the evidence say?

#### Number of included studies/reviews (number of participants)

We identified one systematic review,<sup>1</sup> and three additional randomised controlled trials (RCTs),<sup>2,3,4</sup> which reported data relevant to this evidence summary. The systematic review included five studies, with a total of 337 participants with schizophrenia and reported data on symptoms, cognitive and social function, and quality of life for yoga compared to usual care and for yoga compared to exercise.<sup>1</sup> All three RCTs assessed the effectiveness of yoga as an adjunct to pharmacotherapy.<sup>2,3,4</sup> One RCT compared yoga to exercise in patients with a diagnosis of functional non-affective psychosis and reported measures of symptoms, depression and clinical global impression at 2 and 6 weeks.<sup>2</sup> The second RCT compared yoga to usual care in patients with schizophrenia and reported data on general well-being, basic living skills and disability severity at one month; symptom scores were a

specified outcome, but no data were reported.<sup>3</sup> The final RCT was a three arm study comparing yoga, exercise and a waiting list control in patients with schizophrenia; this study reported data on symptom scores and social and occupational functioning at four months follow-up, but between group comparisons were only reported for selected symptom measures.<sup>4</sup>

#### Main Findings

The systematic review found no statistically significant differences between yoga and exercise on any outcome measure.<sup>1</sup> Two studies, using different quality of life scores (WHO QOL-BREF and GQOLI-74) both showed a small positive effect associated for yoga compared to usual care; pooled effect estimate SMD 2.28 (95% CI: 0.42 to 4.14),<sup>1</sup> but there were no significant differences between yoga and usual care for symptom scores, or cognitive and social functioning.<sup>1</sup> The RCT which compared yoga to exercise found no significant differences between the treatment groups at two weeks.<sup>2</sup> At six weeks, participants in the yoga group had lower mean scores than those in the exercise group on Clinical Global Impression (CGI), Hamilton Depression Rating Scale (HDRS), total Positive and Negative Syndrome Scale (PANSS) and PANSS general psychopathology subscore; there were no statistically significant differences in PANSS positive or negative scores.<sup>2</sup> The RCT which compared yoga to usual care reported greater improvements in measures of general well-being, basic living skills and severity of disability in the yoga group, however, numerical data were poorly reported and there were no data supporting between group comparisons.<sup>3</sup> The three arm RCT, which compared yoga with exercise and a waiting list control, reported that yoga was associated with significant improvements in PANSS scores from baseline to four months and both yoga and exercise were associated with significant improvements in social and occupational functioning.<sup>4</sup> The odds ratios (ORs) for obtaining improvement in PANSS negative scores were 5.00 (95% C: 1.01 to 24.74) for yoga versus exercise and 5.17 (95% CI: 1.32 to 20.1) for yoga versus waiting list control.<sup>4</sup> The OR for improvement in total PANSS score, for yoga versus waiting list control was 6.58 (95% CI: 1.69 to 25.66).<sup>4</sup> No between group comparisons were reported for PANSS positive score, SOFS score, or for yoga versus exercise on total PANSS score.<sup>4</sup>

#### Authors Conclusions

The systematic review concluded that there was only moderate evidence for short-term effects of yoga on quality of life and that the evidence was insufficient to support recommendations on yoga as a routine intervention for patients with schizophrenia. Three additional RCTs concluded that yoga may be beneficial, for patients with psychosis/schizophrenia, when used in addition to pharmacological treatment.

#### Reliability of conclusions/Strength of evidence

One good quality systematic review, reported some data suggesting a small beneficial effect on quality of life measures for yoga compared to usual care in patients with schizophrenia, but concluded that evidence was insufficient to support recommendations on the use of yoga in these patients; this conclusion accurately reflected the data presented.<sup>1</sup> Three additional RCTs were identified, which appeared to have been published subsequent to the date of the systematic review searches.<sup>2,3,4</sup> All three RCTs assessed the effectiveness of yoga as an adjunctive treatment to pharmacotherapy. One small RCT, of very poor methodological quality, reported that yoga was associated with improvements in measures of general well-being, basic living skills and severity of disability in patients with schizophrenia, when compared with usual care, however, the data presented were not adequate to support these observations.<sup>3</sup> Two larger RCTs, both with significant methodological weaknesses, provided some evidence to support an improvement in symptoms for

patients with psychosis/schizophrenia treated with yoga compared to those treated with exercise or a waiting list control group.<sup>2,4</sup> There was evidence of selective reporting of those outcome measures which showed a statistically significant treatment effect for yoga.<sup>3,4</sup>

#### What do guidelines say?

Neither NICE nor SIGN guidelines discuss the use of yoga as an intervention for psychosis.

The evidence contained in this summary does not add substantially to current guidelines.

Date question received: 19/11/2013 Date searches conducted: 19/11/2013 Date answer completed: 2/12/2013

#### References

## SR

1. Cramer, H., Lauche, R., Klose, P., Langhorst, J. and Dobos, G. (2013) Yoga for Schizophrenia: a systematic review and meta-analysis. *BioMedCentral Psychiatry 12* (**32**)

#### RCT

2. Manjunath, R.B., Varambally, S., Thirthalli, J., Basavaraddi, I.V. and Gangadhar, B.N. (2013) Efficacy of yoga as an add-on treatment for in-patients with functional psychotic disorder. Indian Journal of Psychiatry 55 (3) s374-378.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3768215/

3. Paikkatt B, Singh AR, Singh PK, Jahan M. Efficacy of yoga therapy on subjective well-being and basic living skills of patients having chronic schizophrenia. Ind Psychiatry J 2012;21:109-14 http://www.industrialpsychiatry.org/article.asp?issn=0972-6748;year=2012;volume=21;issue=2;spage=109;epage=114;aulast=Paikkatt

4. Varambally, S., Gangadhar, B.N., Thirthalli, J., Jagannathan, A., Kumar, S., Vankatasubramanian, G., Muralidhar, D., Subbakrishan, D.K. and Nagendra, H.R. (2012) Therapeutic efficacy of add-on yogasana intervention in stabilized outpatient schizophrenia: Randomized controlled comparison with exercise and waitlist. Indian Journal of Psychiatry 54 (3) pp.227-232. <u>http://europepmc.org/articles/PMC3512358;jsessionid=PjSlfpRa7LpE2Buinsv6.38</u>

#### Results

#### Systematic Reviews

Author	Search	Inclusion criteria	Number of	Summary of results	Risk of bias
(year)	Date		included		
			studies		
Cramer	28/08/	Participants:	5 studies,	The review aimed to assess the effectiveness	The review
et al.	2012	Adults with schizophrenia according to DSM, RDC,	n=337	of yoga in patients with schizophrenia.	reported a clear
(2013)		ICD, or other clinician based diagnosis criteria.	participants		objective and
		Participants with unclear diagnostic criteria, who		Included participants had a median age of	inclusion criteria
		were currently being treated for schizophrenia		32.5 years (range 28.2 to 48.1) and between	were fully defined.
		were also eligible. No exclusion criteria were		31 and 60% of participants in each study	
		reported.		were female. The median duration of illness	Searches included
		Intervention:		was 88.6 months (range 76.4 to 129.7	five bibliographic
		Yoga, including at least one of the following:		months) and all study participants were	databases, without
		physical activity, breath control, meditation,		stabilised on antipsychotic medication.	language
		and/or lifestyle advice (based on yoga theory			restrictions, and
		and/or traditional yoga practices). Studies on		All yoga interventions included yoga	were
		multimodal interventions, such as mindfulness-		postures, breath control, and meditation/	supplemented by
		based stress reduction and mindfulness-based		Relaxation. Yoga was taught by clincians,	reference
		cognitive therapy that include yoga were		physical or occupational therapists, or	screening, reducing
		excluded; other co-interventions were allowed.		certified yoga instructors. Intervention	the likelihood of
		Comparator:		duration varied from a single 30 minute	relevant studies
		Usual care, exercise, or other non-		session to 25 45-minute sessions over one	being omitted.
		pharmacological interventions		month, followed by three months of home-	However, only
		Outcomes:		based yoga. Where the yoga intervention	studies published
		Outcomes included measures of symptoms,		was compared to exercise, exercise	as full journal
		quality of life, cognitive and social function, and		interventions were matched to yoga in terms	articles were
		number and duration of hospital admissions.		of frequency and duration.	included, raising
		Study design:			the potential for

DCT	All studies assessed short term outcomes	publication bias
RCI		publication bias;
	(defined as the time point closest to 12	the small number
	weeks after randomisation) only.	of included studies
		meant that
	Yoga compared to usual care:	publication bias
	Yoga showed no statistically significant	could not be
	treatment effect on positive symptoms (2	formally assessed.
	studies), negative symptoms (2 studies),	
	cognitive function (1 study), or social	All stages of the
	function (3 studies). Two studies, using	review process
	different quality of life scores (WHO QOL-	included measures
	BREF and GQOLI-74) both showed a small	to minimise error
	positive effect associated with yoga; pooled	and/or bias
	effect estimate SMD 2.28 (95% CI: 0.42 to	(involvement of at
	4.14).	least two
		reviewers).
	Yoga compared to exercise:	
	No statistically significant difference was	The methodological
	found between yoga and exercise on any	quality of included
	short term outcome measure assessed	studies was
	(positive symptoms (2 studies), negative	assessed using the
	symptoms (2 studies), quality of life (1	Cochrane risk of
	study), cognitive function (1 study), social	bias tool.
	function (2 studies)).	
		Appropriate meta-
		analytic methods
		were used.

#### RCTs

Author	Inclusion criteria	Number of	Summary of results	Risk of bias
(year)		participants		
Manjunath	Participants:	n = 88, n=44	This study aimed to compare the effects of yoga or exercise	Group
et al.	Newly admitted (within one week) adult	(yoga	as adjunct treatments to antipsychotic medication, in newly	allocation used
(2013)	patients with a diagnosis of functional	group, n=44	admitted patients with functional non-affective psychosis.	а
	non-affective psychosis, according to DSM-	physical		randomisation
	IV, who's status permitted participation in	exercise	Patients received antipsychotic and anti-parkinsonian	table; there
	yoga/exercise.	group).	medication at the discretion of the treating psychiatrist.	was no
	Intervention:			indication of
	Yoga therapy, one hour daily for two		The mean age of study participants was 31 years and 44%	allocation
	weeks (at least 10 sessions), delivered by a		were female. Participants in the yoga and exercise groups	concealment.
	fully trained yoga therapist. After two		were comparable at baseline on all demographic, diagnostic,	
	weeks, patients were directed to practice		clinical (CGIS, PANSS, HDRS) and treatment characteristics	No blinding of
	daily for a further four weeks.		assessed. At week two, 5 patients in the exercise group and 1	study
	Comparator:		patient in the yoga group had dropped out At week six, 19	participants,
	Exercise therapy sessions, of the same		patients in the exercise group and 9 patients in the yoga	personnel, or
	duration and frequency, also delivered by		group had dropped out.	outcome
	a trained yoga therapist.			assessors was
	Outcomes:		There were no statistically significant differences between	reported.
	Severity of clinical state (PANSS, HDRS,		the two groups at two weeks, on any outcome measure.	
	CGIS), extrapyramidal side-effects (SAS).			Only
	Assessments were undertaken at baseline		At 6 weeks patients in the yoga group had lower mean scores	participants
	and at two and six weeks.		than those in the exercise group on CGIS (3.11±0.7 versus	who
			3.96±0.7, p<0.01), HDRS (4.71±1.8 versus 6.12±2.0, p<0.01),	completed the
			total PANSS (25.37±11.2 versus 32.76±12.90, p<0.05) and	six week study
			PANSS general psychopathology subscore (10.62±4.90 versus	were included
			14.12±6.30, p<0.05). There were no statistically significant	in the
			differences in PANSS positive or negative symptom scores.	analyses.

				Data were
				reported for all
				specified
				outcome
				measures.
Paikkatt et	Partcipants:	n=30. (n=15	This study aimed to assess the efficacy of yoga therapy on	The article
al. (2012)	Adult males with a diagnosis of chronic	voga group	subjective well-being, basic living skills, self-care.	reported that
	schizophrenia according to International	n=15	interpersonal, communicational and routine functions in	participants
	Classification of Diseases-10 criteria, a	control	patients with schizophrenia.	were randomly
	minimum duration of illness of 2 years.	group).		assigned to
	positive and negative syndrome scale	0	Study participants were aged between 20 and 50 years.	voga or control
	(PANSS) scores ranging from mild to		There were no statistically significant differences in	groups, but no
	moderate, who were admitted to a		demographic characteristics between the voga and control	details of the
	psychiatric ward in Ranchi. Patients with		groups. One participant each, in the voga and control groups.	randomisation
	major physical problems, co-morbid		did not complete the study.	procedure
	psychiatric disorders, history suggestive of			were provided.
	MR. epilepsy. head injury. concurrent		At the end of one month participants in the yoga group	
	active medical disorder. or an active		showed statistically significant benefits, compared to those in	No details of
	psychopathology that could interfere with		the control group for some measures of general well-being.	allocation
	following and understanding instructions		basic living skills, and communication and understanding.	concealment
	were excluded from the study.			were reported.
	Intervention:		General well-being:	
	Yoga therapy alongside pharmacotherapy,		The yoga group showed significant improvement, from	No blinding of
	1.5 hours daily (except holidays) for one		baseline to one month, in numbers reporting feeling	study
	month. The rationale and positive effects		happiness, feeling good, anger control, and feeling	, participants.
	of yoga were explained at the start of each		worthiness. Both the yoga and control groups showed	personnel, or
	session.		improvements in numbers feeling satisfaction and feeling	outcome
	Comparator:		healthy. Adequate sleep was significantly improved only in	assessors was
	Pharmacotherapy alone.		the control group. No numerical data were reported for	reported.

	Outcomes:		between group comparisons.	
	General wellbeing (PGI), positive and			Only
	negative symptoms (PANSS), disability due		Basic living skills checklist:	participants
	to mental disorder (IDEAS), and a 4 point		The article reported that the yoga group showed significant	who
	scale assessing basic living skills. Outcomes		improvement in the areas of personal hygiene in terms of	completed the
	were assessed at baseline and at one		toileting, brushing, bathing, hair care, nail care, eating habits	study were
	month.		and housekeeping, whereas in the control group significant	included in the
			improvement was noted only in few areas (mainly toileting	analyses.
			and eating habits). However, these results were unclear, as	
			the tabulated numerical data were reported in a way which	No data on
			appeared to indicate decline rather than improvement. No	PANSS scores
			numerical data were reported for between group	were reported.
			comparisons.	
			Indian disability evaluation assessment scale (IDEAS):	
			Both the yoga and control groups showed significant	
			improvements in levels of dysfunction, with respect to self	
			care, interpersonal activities and routine work, from baseline	
			to one month. Only the yoga group showed improvement in	
			levels of dysfunction with respect to communication and	
			understanding. No numerical data were reported for	
			between group comparisons.	
Varambally	Participants:	n=95 (n=39	This study aimed to compare the efficacy of yoga, as an	Randomisation
et al.	Adult patients attending outpatient	yoga, n=22	adjunct to pharmacotherapy, to exercise or a waiting list	(using random
(2012)	services with a diagnosis of schizophrenia	exercise,	control, in outpatients with schizophrenia.	numbers) was
	by DSM IV, confirmed by a psychiatrist.	n=34		undertaken by
	Inclusion criteria; receiving antipsychotic	waitlist).	There were no statistically significant differences in	one
	medication without a change in dose in		demographic characteristics between the three groups.	investigator
	previous three months, rated as		There were no statistically significant differences in baseline	who was not
	moderately symptomatic with a score of		clinical characteristics, for participants who completed the	involved in

three or more on clinical global	study, between the three groups. At four mont	h follow-up, treatment or
impression, not received ECT in previous	24 participants had dropped out; 4 from the yo	ga group, 14 assessment.
three months	from the exercise group, and 3 from the waiting	g list control
Intervention:	group.	Allocation was
Yogasana, 25, 45 minute sessions in the		concealed till
first month. Regimen included certain	Only the yoga group showed statistically signifi	cant randomisation;
postures and breathing patterns (no	improvements in PANSS scores (positive, negat	ive and total), only the social
meditation), delivered by a certified yoga	from baseline to one month. Both the yoga and	I the exercise worker and
instructor. Continued practice at home	groups, but not the waiting list control, showed	l statistically the yoga
was expected.	significant improvements in SOFS score from ba	aseline to four therapist were
Comparator:	months. The odds ratios (ORs) for obtaining im	provement in informed of
Exercise (same frequency and duration as	PANSS negative scores were 5.00 (95% C: 1.01	to 24.74) for allocation at
for yoga, also with continued practice at	yoga versus exercise and 5.17 (95% CI: 1.32 to 2	20.1) for yoga the start of the
home) or waitlist.	versus waiting list control. The OR for improver	nent in total intervention
Outcomes:	PANSS score, for yoga versus waiting list contro	l was 6.58 and the rest of
Schizophrenic phenomena (PANSS), social	(95% CI: 1.69 to 25.66). No between group com	parisons were the research
and occupational functioning (SOFS),	reported for PANSS positive score, SOFS score,	or for yoga team was
extra-pyramidal symptoms. Outcomes	versus exercise on total PANSS score.	unaware of
were assessed at baseline and at four		allocation.
months follow-up.		
		Outcome
		assessment
		was
		undertaken
		blind to group
		allocation.
		Only
		participants
		who

		completed the
		four month
		follow-up were
		included in the
		analyses.
		Data were
		reported for all
		specified
		outcome
		measures, but
		between
		group
		comparisons
		were only
		reported for
		selected
		measures.

## Risk of Bias: SRs

Author (year)	Risk of Bias					
	Inclusion criteria	Searches	Review Process	Quality assessment	Synthesis	
Cramer et al. (2013)	©	8				

#### RCTs

Study	RISK OF BIAS						
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting	
Manjunath et al. (2013)	8	8	?	?	8		
Paikkatt et al. (2012)	?	?	?	?	$\overline{\mathfrak{S}}$	3	
Varambally et al. (2012)			8		8	$\overline{\mathfrak{S}}$	

🙂 Low Risk

High Risk ? Unclear Risk

## Search Details

Source	Search Strategy	Number of hits	Relevant evidence identified
SRs and G	uidelines		4
NICE	(schizophrenia OR psychosis) AND (relaxation OR yoga OR exercise)	113	0
DARE	MeSH DESCRIPTOR Yoga EXPLODE ALL TREES 48 Delete 2 MeSH DESCRIPTOR Relaxation Therapy EXPLODE ALL TREES 115 Delete 3 (psycho*) IN DARE 3818 Delete 4 (schizo*) IN DARE 591 Delete 5 MeSH DESCRIPTOR Psychotic Disorders EXPLODE ALL TREES 138 Delete 6 MeSH DESCRIPTOR Schizophrenia EXPLODE ALL TREES 458 Delete 7 (yoga OR meditat* OR pranayama or asanas) IN DARE 157 Delete 8 (relaxation adj2 therap*) IN DARE 131 Delete 0 #1 OB #2 OB #7 OB #8 282 Delete	166	1
	10 #3 OR #4 OR #5 OR #6 4286 Delete		
	11 #9 AND #10		
Primary st	udies		
CENTRAL	<ul> <li>#1 MeSH descriptor: [Psychotic Disorders] explode all trees 1414</li> <li>#2 Enter terms for search psychosis or psychoticpsychosis or psychotic</li> <li>4734</li> <li>#3 Enter terms for search "psychotic disorders" "psychotic disorders"</li> <li>1582</li> <li>#4 Enter terms for search #1 or #2 or #3#1 or #2 or #3 4734</li> <li>#5 Enter terms for search worswors 706</li> </ul>	1	
	#6 MeSH descriptor: [Yoga] explode all trees 267		

	#7Enter terms for searc#5 or #6706		
	#8Enter terms for searc#4 and #7 42		
	Central only 1		
PsycINFO	53. PsycINFO; exp PSYCHOSIS/; 88950 results.	4	
	54. PsycINFO; yoga.ti,ab; 1448 results.		
	55. PsycINFO; YOGA/; 937 results.		
	56. PsycINFO; 54 OR 55; 1530 results.		
	57. PsycINFO; 53 AND 56; 28 results.		
	58. PsycINFO; exp PSYCHOSIS/; 88950 results.		
	59. PsycINFO; yoga.ti,ab; 1448 results.		
	60. PsycINFO; YOGA/; 937 results.		
	61. PsycINFO; 59 OR 60; 1530 results.		
	62. PsycINFO; 58 AND 61; 28 results.		
	63. PsycINFO; (psychosis OR psychotic).ti,ab; 48720 results.		
	64. PsycINFO; "psychotic disorder*".ti,ab; 5499 results.		
	65. PsycINFO; schizophrenia.ti,ab; 74804 results.		
	66. PsycINFO; 58 OR 63 OR 64 OR 65; 124440 results.		
	67. PsycINFO; 61 AND 66; 42 results.		
	68. PsycINFO; 67 [Limit to: Publication Year 2012-Current]; 4 results.		
Embase	35. EMBASE; exp PSYCHOSIS/; 205750 results.	38	
	36. EMBASE; yoga.ti,ab; 2464 results.		
	37. EMBASE; YOGA/; 3499 results.		
	38. EMBASE; 36 OR 37; 3827 results.		
	39. EMBASE; 35 AND 38; 97 results.		
	47. EMBASE; (psychosis OR psychotic).ti,ab; 54700 results.		
	48. EMBASE; "psychotic disorder*".ti,ab; 7429 results.		
	49. EMBASE; schizophrenia.ti,ab; 96753 results.		
	50. EMBASE; 35 OR 47 OR 48 OR 49; 224366 results.		
	51. EMBASE; 38 AND 50; 103 results.		
1	52. EMBASE; 51 [Limit to: Publication Year 2012-Current]; 38 results.		

Summary	NA	NA	
	63. MEDLINE; 62 [Limit to: Publication Year 2012-Current]; 17 results.		
	62. MEDLINE; 56 AND 61; 41 results.		
	61. MEDLINE; 53 OR 58 OR 59 OR 60; 124700 results.		
	60. MEDLINE; schizophrenia.ti,ab; 78090 results.		
	59. MEDLINE; "psychotic disorder*".ti,ab; 5041 results.		
	58. MEDLINE; (psychosis OR psychotic).ti,ab; 40931 results.		
	57. MEDLINE; 53 AND 56; 6 results.		
	56. MEDLINE; 54 OR 55; 2388 results.		
	55. MEDLINE; YOGA/; 1547 results.		
	54. MEDLINE; yoga.ti,ab; 1967 results.		
Medline	53. MEDLINE; exp PSYCHOSIS/; 38569 results.	17	

#### Disclaimer

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