

CRITICAL APPRAISAL FOR RANDOMIZED CONTROL TRIAL

Mr. Suresh V.¹, Dr. J. D. Lakhani²

¹. *Associate Professor, Department of Mental Health Nursing,
Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University, Piparia,
Waghodia, Vadodara, Gujarat.*

². *Professor, Dept. of General Medicine, SBKSMI & RC
Sumandeep Vidyapeeth deemed to be University, Piparia,
Waghodia, Vadodara, Gujarat.*

Corresponding Author:

Mr. Suresh V.

*Associate Professor, Department of Mental Health Nursing,
Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University, Piparia,
Waghodia, Vadodara, Gujarat.*

Email: yss_ssh@yahoo.co.in

Contact No.: +919558992443

Critical appraisal is a systematic process used to determine strength and weakness of a research article in order to assess the usefulness of research findings. The most important components of a critical appraisal are an evaluation of research design, methodology of research. The factors also evaluated by critical appraisal like suitable Statistical methods and reliability of research. Critical appraisal is the process of carefully and systematically assessing the outcome of scientific research to know the trustworthiness, value and relevance of research.¹

Critical appraisal helps to reduce the burden and help to you focus on relevant research question, and helps to reduce the bias of research. It also helps researcher to improve further research. Critical appraisal also help to separate a significant thing of research projects like what is priority of research and when result influence by external variable.²

A randomized controlled trail is a type of scientific experiment that aims to decrease some of bias when we testing the effectiveness of new treatment. This is happening when we randomly allocate the subject to two or more groups, reading them differently and then comparing them with respectively view to measure outcome.³ Randomization prevents the bias of research and both participants and research can influence results unless the researchers prevent participants to group random.⁴

For the critically appraisal of Randomized Control Trial, you need to have knowledge about hoe to appraise the RCT article and which criteria you have to focus.

Following the checklist of some criteria in which you have to appraise the RCT article.

Following are the mainpoints to focus in critical appraisal of randomized control trial

Assessing validity	Where to look for	Yes/No
1. Are the objectives of the study clear with a clearly defined question?	Introduction - PICO	
2. Have they selected appropriate study design according to their objectives?	Methodology	
3. Are the inclusion criteria correctly chosen to include right representatives to answer the objectives?	Inclusion criteria	
4. Have they explained sample size estimation? Is the sample	Methodology	

size adequate?		
5. How is randomization carried out? Is it concealed?	Methodology – study design	
6. Is the allocation to treatment properly randomized?	Table of basic characters of two groups	
7. Are patients and clinicians kept “blind” to treatment?		
8. Are all appropriate outcomes (both benefits and harm) considered?	Methodology	
9. Have they taken up follow-up of patients for sufficient time? How many are lost to follow-up in each arm?	Methodology, Flowchart	
10. Have they analysed all randomised patients including those who lost to follow-up after randomisation? (Is intention to treat analysis done?)	Methodology – confirm from results	
12. Are the groups treated equally, apart from the experimental treatment?	Methodology	
Assessing reliability:		
1. Have they described all the important components of the basic characteristics of participants of the two groups?	Table of basic characteristics of the two groups	
2. Are the two groups comparable at baseline?	Baseline characters table	
3. Have they applied appropriate statistical methods?	Methodology	
4. Have they reported all important outcomes (both benefits and	Results	

adverse effects)		
5. Are the results internally consistent, i.e. do the numbers add up properly?	Results	
6. Are the results presented in a way so as to enable one to make own decision?	Results	
7. Is there a difference between the outcomes of the treatments compared and how big is the difference?	Results	
8. Is the difference statistically significant? Is it clinically significant?	Results, Assess on the basis of benefit to harm ratio	
9. Will the result impact your practice and the patients you treat?		
Assessing applicability:		
1. How similar are the patients included in study to your patient?		
2. Is the treatment studied feasible in your setting?		
3. What are your patient's potential benefits and harms from the therapy?		
4. If the study is valid with reliable result, can you apply this evidence about therapy in caring for your patient?		

Conclusion: 1. Validity, 2. Reliability, 3. Applicability

Checklist for Randomization Controlled Trials

SR NO.	Questions	YES	NO	UNCLEAR	NA
1.	Was true randomization used for assignment of participants to treatment groups? <ul style="list-style-type: none"> - In this question we have to check that participant are chosen by randomization method (computer method, table method) 				
2.	Was allocation to treatment groups concealed? <ul style="list-style-type: none"> - In this question we have to check the allocation of participant is sealed or not. 				
3.	Were treatment groups similar at the baseline? <ul style="list-style-type: none"> - In this question we have to check the homogeneity of both group are maintained or not 				
4.	Were participants blind to treatment assignment? <ul style="list-style-type: none"> - In this question we have to assess that participant are unknown from intervention or not. 				
5.	Were those delivering treatment blind to treatment assignment? <ul style="list-style-type: none"> - In this question we have to assess that investigator is unknown to intervention or not. 				
6.	Were outcomes assessors blind to treatment assignment? <ul style="list-style-type: none"> - In this question we have to assess that third person who measure outcome is unknown from intervention or not? 				
7.	Were treatments groups treated identically other				

	than the intervention of interest?				
8.	<p>Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?</p> <ul style="list-style-type: none"> - In this we have to assess that follow up of participant is done for all participant and same participant or not. 				
9.	<p>Were participants analysed in the groups to which they were randomized?</p> <ul style="list-style-type: none"> - In this we have to check that same participant are analyzed or not. 				
10.	<p>Were outcomes measured in the same way for treatment groups?</p> <ul style="list-style-type: none"> - In this we have to check that researcher measured outcome of treatment group in same way like control group. 				
11.	<p>Were outcomes measured in a reliable way?</p> <ul style="list-style-type: none"> - In this question we have to check that outcome is measured in appropriate way or not. 				
12.	<p>Was appropriate statistical analysis used?</p> <ul style="list-style-type: none"> - We have to check the statistical method is appropriate or not 				
13.	<p>Was the trial design appropriate to the topic, and any deviations from the standard RCT design accounted for in the conduct and analysis of the trial?</p> <ul style="list-style-type: none"> - We have to check that the research design, research methodology is appropriate to the topic or not 				

Reference

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