

# The research method



**Abstract**

This article is a summary of the research method, Systematic Review. There are four facets, a short introduction of the systematic review, including the features, the steps of the methodology, the discussion of some steps, and the conclusion from the above investigation and some vista for the systematic review.

**Introduction**

There are several kinds of research methods, and each of them has their own features and function to use to fit their research design. For instance, Pavlov's dog, a classic behavioral experiment, scientist design a situation in the laboratory and try hard to control the varieties to find the answer of the hypothesis. However, in some conditions, experimental design ways may not so appropriate in using to the program, for example, if the research is aimed to collation the finds of others' study outcomes, tried to find an answer that is adaptive to every arguments, then systematic review method will be a good choice to select.

Systematic review method, which aims to combine, compares, or did a synthesis to the research outcomes. There are two reasons to use the method, one is that the limitation of traditional review, and the other is the added power brought by the synthesis of multiple studies. It's different from the review, which is try to combine two or more researches in a given topic, as it comes to systematic review, it's more specific, detailing, structural under the topic. Otherwise, meta-analysis method is also used in systematic review study sometimes, but it's just a part of the method, or a kind of skills, they are not the same affair, compared to meta-analysis, systematic review

content qualitative and quantitative outcomes. Instead, meta-analysis research is a specific statistical strategy to assess the review outcomes.

It's useful that systematic reviews has some advantages and surmount some restriction in some way, just like, there are some limitations in traditional review, for instance, the narrative reviews may just describe the literatures but not so strategy and structural, SR can improve the power of the question through the evidences from the studies, and it can summaries the available information in a more structural way.

### **Method**

According to the Handoll and Smith's collection of the systematic review, they point out the process which is general guideline to analysis this research method, title, protocol, sources, search strategy, scope and filtering the literature, collecting and extracting the data, assessing the quality of studies, meta-analysis, presentation, discussing the review findings, and drawing the conclusion.

First, the title, it's necessary that a specific and clear definition of topic or question to process systematic review. Clear definition can not only help researchers ensure the worth of the question, but also avoid the duplication and checking the realistic and achievable, If the propose is specific and explicit, the strategy of the source researching work might be easier than unclear theme. Then, protocol. To let the final outcome achieve the researchers' goal in the systematic review method of the research, protocol play an important role in select the literature or references, that is, depending on the researchers' need on their studies, to include or exclude

what they need or what's the most important to the research, and in the protocol, experiment methods also is a great point in the literature selected, for instance, now the topic is "depression and commit suicide, what's the main factor associate these two items?", that is, the methodology in this topic might be trying to find out the references that include the correlative statistic skills or so on to discover the relationship between depression and suicidal behavior. Source, identifying sources will be the next step after formulate the protocol. The main purpose of the systematic review is to help to make a clinical decision base on the evidence resources, so when the researchers consider about the database of the references, maybe some medical databases, like MEDLINE and CINAHL (medical, health, and nursing databases), Cancerlit (subject databases), and Cochrane Library (databases of reviews), and so on. The above-mentioned databases might be helpful when researchers required. There are other ways to search the data pools, through keywords, like the author name whose research theme is fitting of the researchers, or some relative institutions that their job is appropriate to the topic, like if the topic is about the wellbeing of normal life to the women with breast cancer, researcher might can find the reference in the local hospital databases or find it from the breast cancer center.

Next, search strategy, as there talked before, search strategy rely on a specific topic. When the clear propose shows out, researchers can distinct about what should be included or what should be excluded. Scope and filtering the literature, as researchers define an explicit question, the work of literature selecting become easier. To ensure the domination of the reviews is corrected; reviewers have to define more detail about the topic, like the

demography, language, specific intervention and so on. Collecting and extracting the data, followed the question the researchers have, collecting relate articles and thinking about the title, methods of the articles, extracting these items directly. Cochrane Collaboration will be useful when researchers collecting and extracting the data. Next, assessing the quality of studies, after collecting the data, the steps follow it is that reading. To focus on emphasis on the part of the studies that researchers think it's suitable for the topic, reading the studies play an important role. The articles are chose for increasing the validity of the study conclusion and these resources must relate tightly to the question. However, a checklist must be helpful in assessing the studies, to prevent the situation that some important information missed or ignored.

Meta-analysis, to integrate all the data, researchers needs the statistical strategy to comprehensive the literature. As the suggestion from Mulrow, statistical analysis is to increase the power and precision of estimates of treatment effect and exposure risk. There are two points of meta-analysis method has to remember, one is noted if the result of the studies expressed the “ effect measure”, the other is that if the literatures relevant each other to make a meaningful estimate. Presentation the result from meta-analysis processing or the reviews should include some points, like, followed the review questions, the conclusions base on the evidence, and the quality of the evidence. Either the result from meta-analysis, presentation also including reviewed evidence in computer-searchable format. Some figures or comparative tables also can make good help in presenting the outcomes of

the studies. Figures or tables will let the reviews clear and structural in the systematic review.

Here comes to the final facet of the systematic review, discussing the review findings and drawing conclusion, researchers in the final part have to express their comments and summary of their finding in the whole program, and the limitation of the study or what's the vista of the future research.

### **Discussion**

The main important question should follow the P. I. C. O. rule, which is, P means population, the question should include the particular participants, it cannot be general. I represents intervention, there must be an independent variable to operate the study, followed the intervention to search the resources. C is the comparison, just like experiment, which also have control group and main concerned group. O means outcome, the title should include the expect from the researchers like the hypothesis, for example, researchers may suppose a situation that after intervention what will happen, like increase some behaviors or decrease the blood pressure after specific coping skill. There is a journal that use the systematic review method, the title is “ Clinical and cost-effectiveness of new and emerging technologies for localized prostate cancer: a systematic review.”, the population of this study is the patient with prostate cancer, the intervention is that the new and emerging technologies, the compare group is the normal people or the patient with the prostate cancer still treated in traditional way, and the outcome is directed by the clinical and cost-effectiveness(S. Hummel, S. Paisley, at al. 2003).

When it comes to select the literature that good to the reviewers, the Jadad Scale may be a better way to help researchers in selecting the literatures. There are three questions content in this scoring system, “ Was the study randomized/appropriate?”, “ Was the study double blind/ appropriate?”, “ Description of attrition rates?”, all of the three questions are 5 points scale, the level of the scoring higher the best of the choice, it represent that the literature has the value to use in the study. There is another point of the research have to concern, that is, if the evidences are homogeneity or heterogeneity, homogeneity evidences are going to increase the power of the main question, but the heterogeneity studies will make some problems to the research purpose.

There are some useful tools for completing a systematic review, one is the PRISMA, which whole name is Preferred Reporting Items for Systematic Reviews and Meta-Analyses, the PRISMA statement consist of a check list to let the researchers arrive the purpose of their study. The Cochrane Collaboration, the aim of the institution is for the medical evidences based and improving the health care system, and for researchers who want to do systematic reviews. There are introduction of the systematic review and the process of the method, researchers also can consist a group from the institution to do a same topic for collecting the data.

## **Conclusions**

Systematic review method, as known as overview, is different from traditional review and meta-analysis method. Systematic review is more rigorous and structural to synthesis the studies than narrative review, and compared to meta-analysis, this method includes both qualitative and

quantities' research styles, but meta-analysis is more concern about the statistical methodological way to combine the data or the studies, in the other hand, meta-analysis research can be isolated but also see it as a part of the systematic review, especially when the research is needed to use the quantities way to proceed the study.

Compared to other experimental design, Systematic review method has its own predominance, for example, if it is a long-term plan, like the study of the expression variation of disease from the primary stage to the end with Alzheimer's patient, it may take a long time and cost lots of money to do the research, however, if use the systematic review to do the research, there may not so much disburse.

Following the program of doing the systematic review, researchers can find that this method can not only produce a structural protocol, but also include all the information that reviewers required. The most important point of the systematic review is the question from the reviewer, as previously mentioned, the P. I. C. O. rule is followed by the researchers to start a research in this method, and as the article release, a specific and distinction question will play an important role in the whole study, because it will effect the direction of the purpose, and the aspect of the literature collecting.

As previously presented, there are some institutions for helping researchers doing the systematic review, like the Cochrane Collaboration, based on the purpose of improving the health care system or medical state, providing the resource to the researchers to study, which has evolved to help prepare, maintain, and disseminate the use in systematic review with health relate



research. The Campbell Collaboration is also the institution for assisting reviewers in systematic review, the purpose of them is similar with the Cochrane Collaboration, also based on the evidence to clarify what helps or harms. The other similar institution is Joanna Briggs institute, and it's also a place for supporting and promoting researchers in systematic review. They are working in the dominant of nursing, medical and allied health researchers, clinicians, academics and quality management.

According to the article from Cook at al. in 1997, the future of the method may be improve the research's quality and the value, presentation formats will more user-friendly for the providers and patients. Make the connection more strongly between systematic reviews outcome and the clinical decisions.

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