**Webisode 6 – Justifiable Evidence Claims**

Presenter: David Gough (EPPI-Centre, UCL)

EPPI-Centre Evidence Tools, Products, and Projects – A series of webisodes from the Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre. Hosted by AIR’s Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR).

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JOANN STARKS: Welcome to another session from EPPI-Centre Evidence Tools, Products, and Projects. This series of brief webisodes will introduce the audience to several tools, products, and projects of the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre). Based at University College London’s Institute of Education, the EPPI-Centre focuses on the development of systematic reviews and studies the use of research evidence.

I am Joann Starks from the Center on Knowledge Translation for Disability and Rehabilitation Research or KTDRR, at American Institutes for Research. The Center on KTDRR is sponsoring these webisodes with support received from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) in the U.S. Department of Health and Human Services.

This session focuses on justifiable evidence claims. Our presenter is David Gough, director of the EPPI-Centre, and professor of evidence informed policy in practice. David's interests include the development of systematic review and the study of research use. Welcome, David. I will now hand things over to you.

DAVID GOUGH: Thank you, Joann. In this presentation, I’m going to speak briefly about justifiable evidence claims. In particular, in relation to systematic reviews.

So as you will be aware, either before or from the other webisodes in this series, research reviews are a meta of level of research that use the findings of existing studies to address such questions. And reviews vary considerably in the questions that they address, the methods that they use, the nature of the evidence claims that they make. That is, the findings-- what they are coming up as their conclusions, the evidence claims, and the certainties, and the scope and application, of such claims.

Now reviews are one part of the array of research products that are available. You have primary research that is undertaken out in the community. You have the reviews of the research that we're talking about today, and you have recommendations, conclusions that are used in practice. The application of research findings that may involve further evidence, further bits of information. And therefore, those further bits of information may have additional research claims attached to them.

So we're just going to focus today on research reviews. And they, as I previously said, have a range of different questions, could be driven by different perspectives, values, and priorities. The nature of the question is not just in the focus of the topic, but it's also how broad it is, and how detailed it is in this analysis. And, questions and reviews also vary in the extent that they are providing facts, whatever those mean, and the extent that they're using theory.

So in this presentation, I'm going to talk about three components that are involved in making an evidence claim. The first is how was the review conducted, the methodology of the review. The second is the studies that are included in the review and that are used to come up with to review conclusions and evidence claims. And three, the totality of the evidence that is created from looking at those studies. it's those three components together that are important methodologically in terms of making findings into our evidence claims.

And this judgment about the methodological worth, the basis of the evidence claim, is not just an issue of execution of method, this trustworthiness of method in its technical terms, it's also related to issues of the relevance of that method to the questions that you're asking. And it's also related to the focus, you how are applying these methods onto the particular issue that you are trying to make an evidence claim about.

So I'm going to go through these dimensions, these three components, one by one. And I'm not going to be discussing the details of how you make these evidence claims. My purpose is to give this overview about these three different dimensions, these three different components, that need to be addressed in considering an evidence claim.

So the first of these is the method of review. And this has three sub-dimensions. The first is the methodological issue. How well, methodologically, was the review undertaken according to the expectations of that particular method? Because there are many types of systematic review, and therefore, many types of method. And they all have different ideas about how they should be undertaken methodologically. So our basis for making a judgment of trustworthiness according to methodological standards is what's the normal methodological expectations for that method.

If you are asking a research question, which is about statistics, data, you may be very concerned about different types of biases that may creep in. And therefore, the methodological standards will be very concerned about making sure you didn't get any bias into your review.

If your review is more conceptual, and you bring together different theories, different concepts, different ideas, then your concerns may be about interpretation or representation, rather than bias.

There isn't one standard of methodology, but whatever method you are using, you need to attend to the important issues for that method.

The second sub-dimension is, however well you've executed that method, was it the most appropriate one to be using for this review? So you need to assess how the different choices you can make about review methodology allow you to say, no, this was the most powerful way to review this particular question. If it wasn't the most powerful way, then however well-executed it was, the nature of the evidence claims you make may be a bit weaker.

And then the third sub-dimension is the relevance of the focus of the review. Because when you ask any research question, including a systematic review question, it's framed in a very general way, and you need to clarify exactly what you mean, what we call the conceptual framework, the implicit assumptions underneath the review.

And the methodology of the review needs to be well aligned with the focus of your question. It's quite possible for the way that you undertake the review not to really represent what you're interested in, your review question. So that's another place where you can have strength or weakness, which will have an impact on the usefulness of the findings, and therefore, the strength of the evidence claim. So that's considering the quality and relevance of the review method.

The second dimension is the quality and relevance of the studies included in the review. Now the sub-dimensions are exactly the same as before. It's how well were the studies undertaken methodologically, were they fit for purpose methods, and was the focus fitting your needs.

The differences are twofold. The first is looking at the included studies rather than the method of the review. The second, and related to that, is that the authors of the included studies may have very different needs and aims to you doing this review.

So when you are evaluating the quality of the execution of the study, sub-dimension A, then that is a universal judgment. But when you are judging the fitness for purpose, the fitness for purpose of the method of the primary studies and the focus of the primary studies is not to the authors of those primary studies' aims, it's related to the aims of your review. So sub-dimensions B and C are review-specific judgments. They're judgments specific to the needs of your review, rather than making generic statements about the worth, as it were, of the included studies.

And the third dimension is the evidence produced by the review, the totality of evidence produced by the review. And this has two sub-dimensions.

A, the nature of the included studies. This is that the studies together have a quality, which is different to them individually. For example, heterogeneity. It may be important, if you're doing a review, that the studies are similar. And if they are too different, too heterogeneous, then you may not have to do statistical analysis and your conclusions, therefore, won't be as strong. But you cannot tell that from each individual study on its own. It's only by bringing them together that you can make that assessment. So you need to consider the included studies as a whole, as well as individually.

And then the second sub-dimension is the extent of evidence from the included studies. And that is that however well the review method has been undertaken, Dimension 1, however good quality and relevant the included studies are in Dimension 2, it may be just because of the nature of the world that the studies do not provide you with much information, much data. It may not allow you to make a strong evidence claim. It's not a methodological fault, it's a fault of what is available. So the evidence produced by the review will be affected by two sub-dimensions of nature of the included studies and the total extent of the evidence that is produced by those studies.

Now for each three of these dimensions, there are some available tools to assist you in making these judgments. So if we go back to the first dimension, Dimension 1, there is a tool called AMSTAR and a tool called ROBIS for assessing review methodology.

There are also tools for assisting with the reporting of the methods of studies. And even though these are concerned with reporting rather than evaluation, they are quite similar because they request you to report issues which are of methodological importance. And therefore, they are an indirect way, I suppose, of examining methodology. And a very famous one in systematic reviews is the PRISMA Statement but there are further reporting standards for particular types of reviews.

For Dimension 2, there are very many tools for assessing the quality of primary studies. But within this dimension, they're focusing particularly on sub-dimension A. They're assuming a particular type of research, and then providing a tool to evaluate and assess that particular method.

However, more recently, there have been developmental tools called GRADE and GRADE CERQUAL, which take a broader view to look at several of the subdimensions of Dimension 2, and they also look at sub-dimensions of Dimension 3.

So if you are undertaking a systematic review or if you are evaluating a systematic review, evaluating the evidence claims being made by that review, then what are the type of issues you need to be concerned with? Well, the first is, is the evidence claim relevant to your needs. If so, in what way, what does it cover, what does it not cover?

Is the applicability of the evidence claim, the breadth of situations it's relevant to, the confidence that’s within the evidence claim, are they relevant to your needs? And secondly, is it all sufficient methodological quality across the three dimensions I’ve explained, review method included studies, and totality of methods? Can you trust the quality of execution?

And third, even if the evidence claim seems relevant, even if the methodological quality is relevant, is the way that the study, the reviews, and included studies have been framed relevant to your specific needs? And is the evidence sufficient to answer your question?

So the take home message in a way from this presentation, is that methodological quality depends on the type of question you're asking. But the issues are not just technical. They're also about relevance. And they're also about sufficiency of evidence.

And finally, that you need to consider the evidence claim within a broader view of primary research production, the synthesis of that evidence, and then any further processes, and maybe further information, which have their own evidence claims issues that are used to make recommendations rising from those evidence claims.

So that's a very quick overview of some of the issues in making justifiable evidence claims. If this is of interest to you, you can read more about our approach to this in Chapter 10 of our textbook, *Introduction to Systematic Reviews*. Thank you for your attention.

JOANN STARKS: Thank you very much, David, for sharing the EPPI-Centre perspective on justifiable evidence claims. We also want to thank our funding agency, NIDILRR, for supporting this and other webcast activities. Please look for the other sessions in this series on the EPPI-Centre Evidence Tools, Products, and Projects.