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## Section 4 Evidence Component Appraising

### Evidence Part 1:

#### Introduction to Validity, Reliability, and Bias

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##### Overview

The goal of this module is to introduce participants to the concepts of validity, reliability and bias.

##### Objectives

- Identify factors that influence evidence credibility.
- Discuss how bias impacts evidence usefulness and applicability.

##### Key Points

- All evidence is not created equally; thus, not all evidence is credible. Credible evidence is evidence that you can believe and trust. To weigh credibility, it is important to have a working knowledge of Validity and Reliability.
- Validity broadly refers to soundness, or whether information is convincing and believable. Evidence is believable when it comes from well-designed studies conducted with rigor (based on design criteria) *and* the results are applicable beyond the study participants.
- Reliability refers to the consistency or trustworthiness of information obtained. Evidence is trustworthy when it can be dependably replicated.
- Often a target is used to visually describe validity and reliability (see 'Validity and Reliability Target' PPT slide). In this example, validity (accuracy) is the ability to hit the target center. Reliability (consistency) is the ability to hit the center on repeated shots. As this PPT illustrates, just because one's aim is consistent, it might not necessarily be accurate. Credible evidence – evidence that you believe and trust – is valid and reliable.
- Bias is another important yardstick when judging credibility. Bias is anything that distorts the true meaning and all evidence is biased to some degree (see Types of Bias handout). The presence of bias potentially alters the meaning and interpretation of study results.
- No matter the type of study or inquiry, it is the responsibility of the project team to minimize bias. The team should acknowledge existing bias and its potential impact on study results in publications or presentations.
- Because bias ultimately impacts credibility and usefulness, it is imperative for clinicians to determine the extent to which bias influences if, how, and when evidence is used for practice. Critical appraisal helps discriminate credible and non-credible evidence.

Evidence-Based Practice



##### Suggested Activities

###### Practice Application Exercise

Provide participants with 1 original research article. Ask participants to read the article and discuss the following:

1. How believable (valid) is the evidence? Do you believe the evidence? Why or why not?
2. How dependable (reliable) are the results?
3. What are potential sources of bias? Did the authors acknowledge biases? Did they discuss how the biases might impact the results and conclusions?
4. In your view, to what extent does the bias impact the credibility and usefulness of this evidence?

###### Personal Commitment to EBP Exercise

1. Ask the participants to share some of the important take-home points that they have learned in this lesson.
2. How will you use what you learned today in your practice?

**Materials** are available through the provided hyperlink:

Handouts [Types of Research Bias](#)

**Suggested Time** 30 minutes