

The Beat of a Different Drum: Evaluating Research Methodology

by

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Part I – A New Treatment for Depression?

Lee and Sam are working together on a class-presentation assignment for their upper-division clinical psychology class. For the assignment students must conduct an online literature search of published research concerning nonpharmacological treatments for clinical depression. In class they have already learned about several evidence-based therapies; however, the professor wants students to go beyond what has been discussed in class and explore research concerning a different, lesser-known therapeutic intervention that might help individuals with depression.

Sam: Okay, I just found some articles about using acupuncture to treat depression and some other articles about using hypnosis. Do you want to focus on either of those treatments?

Lee: Hmm, I'd rather try to find something that most people haven't heard of. I don't want our presentation to be predictable and boring, you know?

Sam: Yeah, I see what you mean. Good point. Let's keep looking.

Lee: Hey! This website says, "Drumming Is More Effective than Antidepressants, Study Suggests."

Sam: Drumming!? More effective than antidepressants?! That's weird. Wait, let me do a search for that. ... Oh, ok, here's another website that says something like that. It says, "Study Suggests that Group Drumming Is Better than Prozac."

Lee: Oh yeah, this one is about group drumming, too. Hey, when your website says, "study suggests," what study does it refer to? Here it doesn't say where, or even if, it's published. It just says "UK-based researchers" and then says that African djembe drums were used.

Sam: Let me read a bit more. ... Okay, I think I'm reading about the same study because it says here that it was conducted in London, which is in the UK. This website also says that there were some people who did group drumming and there were other people who didn't. It also gives the authors' names and the name of the journal where the study is published.

Lee: Great! Let's see if we can access the published article to find out specifically how the study was done and what their exact results were. This should be interesting.

Questions

1. According to the online information that Lee and Sam have found so far, what seems to be the research hypothesis for the study about group drumming and depression?
2. To test this hypothesis, what research method(s) should be used? Why?

Part II – The Published Study: Participants, Measures, and Procedure

Lee and Sam have accessed the published article (Fancourt et al., 2016) describing the study that the researchers conducted about drumming and depression. The article's title is "Effects of Group Drumming Interventions on Anxiety, Depression, Social Resilience and Inflammatory Immune Response Among Mental Health Service Users." Lee is reading the information from the article out loud so that Sam can write it down.

Lee: There's a whole lot of information here, but I'll try to focus on the most relevant things.

Sam: Sounds good. I'm ready to write.

Lee: It says that there were 30 participants in the experimental group and 15 in the control group. All participants were adults from the United Kingdom who were accessing mental health services of some kind. The experimental group got a 90-minute group drumming session once a week for ten weeks and the control group stayed involved in their regular, weekly, non-musical, social activities for those ten weeks.

Sam: Got it. Does the article give any details about the actual drumming sessions?

Lee: Yep, here are the basics. There were 15 to 20 participants in each weekly session. They were taught by a male professional drummer and three assistants. Everyone got a drum and they sat in a circle. The instructor explained the fundamentals of how to drum and then had them copy the different rhythms and patterns he played. Later on, the rhythms they learned got more complex. Also, sometimes they got to make up their own patterns and rhythms.

Sam: Ok, I wrote all that down. What does it say about how they measured depression?

Lee: Let me look. ... Well, they measured more than just depression. But our presentation is supposed to be about depression, so I'll just tell you that information, ok?

Sam: I think that'll be ok, but we can ask the professor. So, how did they measure it?

Lee: They used a self-report measure called the "Hospital Anxiety and Depression Scale." It says that scores can range from 0 to 21, with higher scores indicating worse depression.

Questions

1. Based on the information that Sam and Lee obtained from the published article, is your answer to Question 1 in Part I correct? How can you tell?
2. Is the likely research question in the published article consistent with the headlines on the websites Lee and Sam accessed? How can you tell?
3. According to the information from the article, what is the study's independent variable?
4. What is the study's dependent variable?
5. According to the information from the article that Lee gave to Sam, what is the operational definition of the independent variable?
6. What is the operational definition of the dependent variable?

Part III – The Published Study: Hypotheses, Further Methodology, and Results

- Sam:* I'm really confused now because there's nothing in this study about Prozac or other antidepressants, but the websites said that group drumming is better than antidepressants.
- Lee:* Yeah, I know. I bet they just wanted eye-catching titles to grab people's attention.
- Sam:* Yep, and it worked. They certainly grabbed our attention. But now I'm not sure what their research hypothesis actually was. Does it say?
- Lee:* Well, overall, they wanted to see if a "music-making intervention" could help mental health. They hypothesized that group drumming would lead to reduced depression but that the control group's depression would not change. They also predicted that the drumming group's change in depression would continue for three months after the intervention's end.
- Sam:* Got it. Wait, so they're talking about change over time and not just a comparison between an experimental group and a control group? This is getting more complicated.
- Lee:* That's for sure. Let me find out how they assessed change over time. ... Ok, here it is. So, they gave the depression measure to everyone at the beginning of the study to get a baseline depression score for each group. Then, everyone's depression level was assessed again at Week 6 and at Week 10, which was the end of the drumming intervention. Oh yeah, and the drumming group also got their depression measured again three months later.
- Sam:* Ok, I wrote all that down. So, what were the findings?
- Lee:* Let me find the results specifically pertaining to depression. Just a minute while I search. ... Oh, wait! It says that the baseline depression scores for the two groups were statistically significantly different! The experimental group had significantly worse depression than the comparison group before the drumming intervention even began!
- Sam:* What?! If the groups had significantly different baseline depression levels, wouldn't that totally mess up the study?
- Lee:* Let me see what it says about that. ... Ok, no, because they conducted analyses that statistically controlled for the difference in baseline depression levels. When they did that, they found that the experimental and control groups' depression scores significantly differed at Week 10 but not at Week 6.
- Sam:* Got it. How about change over time?
- Lee:* It says that the drumming group's depression decreased significantly from baseline to Week 6 and from baseline to Week 10; however, there were no significant changes for the control group. Also, for the drumming group there was no significant change in depression from Week 10 to three months later. So, the researchers concluded that group drumming, a music-making intervention, can reduce depression.
- Sam:* Oh wow, I'm really surprised by those results! Group drumming reduces depression?!
- Lee:* Well, based on what we've learned in class about scientific research, I think we need to read the Method and Results sections in a lot more detail before we can come to that conclusion.
- Sam:* Yeah, good point. Before we get together again to discuss our presentation, let's both read the article thoroughly to get in-depth details.

Questions

1. To assess change over time, what research design was used in the published study?
2. When reading the article, Lee discovered that the baseline depression scores significantly differed between the two groups. If the researchers hadn't statistically controlled for the baseline difference in depression, what would that variable have become in their study? (Give the correct terminology and a definition.)

Although Sam was given a lot of information about the published study, Lee didn't give all the relevant details about the study's participants, measures, procedure, and analyses. They both decided they need many more details about the study so that it can be evaluated appropriately.

Questions

3. One aspect of a research study that needs to be evaluated is the strength of its internal validity. Explain what internal validity is.
4. Another aspect of a research study that needs to be evaluated is the strength of its external validity. Explain what external validity is.
5. To appropriately evaluate the strength of this study's internal validity, what other information about the participants, measures, and procedure do you think is important for Lee and Sam to know? Using page 5 for your ideas, create a comprehensive list of that information. In addition, explain why you think that information is important to know. (Note: your instructor may also ask you to list what else you think is important for Lee and Sam to know about the study's data analyses.)
6. To appropriately evaluate the strength of this study's external validity, what information about the study do you think is important for Lee and Sam to know? Using page 6 for your ideas, create a comprehensive list of that information. In addition, explain why you think that information is important to know.

Internal Validity

Student's name: _____

To evaluate the study's internal validity, what information is important to know? Why?

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External Validity

Student's name: _____

To evaluate the study's external validity, what information is important to know? Why?

- [illegible]

Part IV – Your Reading of the Published Article

1. Read the Article While Reviewing and Annotating Your Lists of Important Information

Your homework assignment is to read the published article (Fancourt et al., 2016), review the lists of ideas you presented on pages 5 and 6, and discover on your own whether the authors have included the information that you feel is important for Lee and Sam to know so that they can appropriately evaluate the study's internal validity and external validity. This involves an in-depth reading of the journal article, which can be found online at <https://doi.org/10.1371/journal.pone.0151136>.

Put a check mark (✓) next to the information on your lists that the article does include and put an X next to the information on your lists that the article does not include. In addition, add to your lists any important information the authors included that was not on your lists and put an exclamation point (!) next to that information. These annotations (i.e., ✓, X, and !) will help guide you as you next think about the study's strengths and weaknesses.

2. Create Lists of the Study's Strengths and Weaknesses

Using your annotated lists, as well as other knowledge you have gained from your in-depth reading of the entire published article, create lists of the study's strengths and weaknesses that you could share with Lee and Sam to help them with their evaluation of the published study. Use pages 8 and 9 for your ideas. (The authors, themselves, discuss some of the study's strengths and weaknesses, so be sure to include those.) Remember that Lee and Sam are only focusing on the parts of the study related to depression; therefore, you should do so, as well.

3. Give Your Opinion About the Researchers' Conclusion

Fancourt et al. (2016) concluded that group drumming can reduce depression. Based on your list of strengths and weaknesses, do you feel that the study has sufficient internal and external validity so that the researchers' conclusion is justified? Why or why not? What would you tell Lee and Sam? (Use page 9 for your ideas.)

4. Prepare for Participation in Part V – An In-Depth Discussion During Our Next Class Meeting

You will bring all your lists to our next class meeting and will use that information for our in-depth class discussion about what information was and was not included in the article, ideas about the study's strengths and weaknesses, and opinions about the researchers' conclusion. Prepare for Part V's discussion by reviewing your lists and opinions. (Note: you may also be asked to hand in all your lists to the instructor, so be sure to include your name on those pages.)

Be ready to share your findings and thoughts in class! As we explore and discuss the study's strengths and weaknesses, we will also investigate ideas regarding ways in which the study could be improved. Therefore, be prepared to share your opinions about possible improvements to the study!

References

- Anon. (2017, January 26). Study suggests that group drumming is better than Prozac. [Webpage]. The Article Feed. <<https://articlefeed.org/study-suggests-that-group-drumming-is-better-than-prozac/>>
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- Fancourt, D., R. Perkins, S. Ascenso, L.A. Carvalho, A. Steptoe, & A. Williamson. (2016). Effects of group drumming interventions on anxiety, depression, social resilience and inflammatory immune response among mental health service users. *PLOS ONE* 11(3), e0151136. <<https://doi.org/10.1371/journal.pone.0151136>>

Internet references accessible as of November 12, 2025.

Strengths

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- _____
- _____

Weaknesses (continued)

Student's name: _____

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Question

Do you feel that the study has sufficient internal and external validity so that the researchers' conclusion is justified? Why or why not?