
APPENDIX 6.1: Checklist for Evaluating Scientific Communication

When evaluating scientific claims, it is important to consider a variety of factors, including information related to the researchers' backgrounds, where the research was published, and how the research was conducted. Note that some articles may present information that is not based on research but rather opinions. Such articles should be interpreted with skepticism, as we cannot trust scientific claims that are not grounded in research. The subsections below detail many of the key considerations when evaluating information related to happiness reported in popular media. In addition to the suggestions provided in this chapter, there are many freely available sources that provide additional guidance on how to evaluate sources (Columbia University Libraries, 2020; Kipnis & Baer, 2023; Purdue Writing Lab, 2018).

WHO IS THE AUTHOR?

When evaluating the validity of scientific claims, it is essential to recognize whether the author of the reported research has sufficient credentials and background to justify the claims they make in their research. More specifically, in the field of positive psychology, look for authors who hold advanced degrees in psychology or related fields and conduct their research either in university settings or through well-established government research bodies, such as the National Institutes of Health. Avoid sources authored by individuals who do not have an explicitly scientific background or who are not affiliated with reputable research entities, for example, universities. Note that private entities, for instance, corporations, often employ scientists to conduct research on their behalf. When evaluating research funded by these private entities, carefully consider whether the background of the company or the researcher represents a conflict of interest. For example, if you find a study funded by the dairy milk industry that claims that frequent milk intake can increase happiness, it would be advisable to approach this research with skepticism, as the origin of the research represents a potential conflict of interest.

WHO PUBLISHED THE RESEARCH?

Blogs, videos, podcasts, and other popular media sources that discuss happiness often refer to specific empirical research studies in their content. When determining whether these sources can be trusted, you should also determine where the research being discussed was originally published. Reputable popular media sources will likely disclose this information (e.g., an experiment published in *Psychological Science*), while less reputable sources may omit this information entirely. Always question sources that do not disclose where the research they describe was originally published, as this might indicate that the claims made in the source are not based on research but rather the author's opinion. Additionally, just as an author may have a conflict of interest that could bias their research, publications may also have conflicts of interest that impact what they publish and how they interpret research. For instance, if a religious website publishes an article exploring how prayer can increase happiness, carefully consider whether this publication may introduce some degree of bias. For this reason, it is essential to refer back to the original research to avoid any inaccurate representations of the findings.

Once you know where the research being discussed was originally published, your next step is to determine whether the publication mentioned is reputable. One critical factor that determines the reputability of a publication is whether the experiments described were subject to *peer-review*—a process where experts in the field collectively determine whether a submitted research study is suitable for publication. Peer-reviewed research is categorically considered more trustworthy than non-peer-reviewed research. If research is not subject to peer-review, you, as a reader, do not have any way to verify that the research was collected, analyzed, and interpreted accurately.

WAS THE RESEARCH WELL-DESIGNED/CONDUCTED?

For this phase of evaluation, it is usually necessary to find the original source of the research (i.e., the original publication) rather than the popular media source (i.e., the news article, blog, podcast), as popular science media does not always give you the level of detail needed to know whether a study was well-designed. Once you have determined that the author of the research is qualified and that the research is published in an acceptable journal, the next step in deciding whether a research finding is trustworthy is to critically evaluate the components of the scientific research article itself. The criteria described here are not exhaustive but represent a good starting point for scientific considerations specific to research related to happiness. See the Suggested Readings section for additional information on research design considerations.

Sample Size and Representativeness

How many participants took part in the study? Look for samples larger than 100 participants as a general guideline. Next, ensure that the participants who comprise the sample are representative of the claims made in the article. For instance, if the article asserts that a proposed intervention increases happiness in all adults, ensure that the experiments include a diverse sample of adults. If the sample does not align with the claims, the authors' interpretations of their findings should not be taken at face value.

Design Concerns

Research that explores scientific strategies for increasing happiness often involves an experimental intervention to one group of participants and compares their postintervention happiness to a control group—a second group of participants who did not experience the intervention. Ideally, any research that discusses an intervention should include a control. A secondary consideration concerns whether the control and experimental groups are aware of the intervention and their relative participation. Well-conducted studies usually make sure that participants are not aware of which group (experimental vs. control) they are in—they are thus considered blind to condition. Studies in which participants are not blind to condition often have two problems with their results. The first problem is the *placebo effect*—an effect in which participants in the experimental group may show improvements in well-being not because the intervention has a true causal effect on their happiness but instead because they expect to experience improvements to their well-being as a result of the intervention. A second potential problem is the *nocebo effect*—an effect in which participants in a control group expect that they

will not experience any improvement to their happiness. If participants in the control group are aware they are assigned to a control group, they may show little change in their well-being, not because the intervention did not have a positive causal effect but because they did not expect to show any improvements due to their status as a control. Optimally, participants will be assigned to either the control or experimental condition randomly. This technique, known as random assignment to condition, minimizes the likelihood that factors outside of the experimental manipulation could lead to changes in the dependent variable being measured. Unfortunately, random assignment to conditions is not always possible. For example, consider a group of researchers who want to design an intervention to explore whether participating in a meditation program improves positive emotion. Ideally, these researchers would compare the positive emotion of a group of participants who completed the intervention (experimental group) to a group that did not complete the intervention (control group), and participants would be randomly assigned to one of these two different conditions. However, it may be difficult—or in some cases unethical—to recruit participants who will not receive the intervention. For this reason, researchers sometimes use what is known as a waitlist control condition such that both groups of participants eventually receive the intervention, but one group (the waitlisted group) receives the intervention at a later time than the experimental group and can thus serve as a control group until they receive the intervention. Waitlist control designs enable researchers to deliver their interventions to all participants they recruit, which can alleviate some of the ethical concerns associated with withholding an intervention or treatment from a group of participants. The downside to waitlist control designs is that participants are not blind to the conditions of the experiment, as they are aware of their status either in the experimental group or on the waitlist. Further, such studies often include some bias because they tend to include only individuals who *want* to learn how to meditate (or be happier, etc.), which means the sample may not be representative of all types of people.

Experimental Versus Correlational Designs

When interpreting the claims made by scientific research, it is essential to consider whether the claims are appropriate for the type of research conducted. Experimental designs involve the manipulation of an independent variable (e.g., the presence or absence of a gratitude intervention) and its impact on a dependent variable (e.g., a self-reported well-being score; see the Suggested Readings section for a more detailed description of experimental designs). Experimental designs enable researchers to infer a causal link between the independent variable and the dependent variable (e.g., individuals who participated in a gratitude intervention might show a larger increase in positive emotion compared with individuals who did not participate in the intervention; thus, the researchers could conclude that participating in the gratitude intervention caused more positive emotion). Correlational designs do not involve the manipulation of a variable but instead explore the naturally occurring relationship between two variables (e.g., individuals who naturally express more gratitude might show higher levels of positive emotion; see the Suggested Readings section for more detailed descriptions). Notably, correlational designs do not suggest a causal link between the two variables being measured. Often, popular media sources misinterpret the results of correlational studies and incorrectly report that one variable caused a change in the other variable. The findings of correlational studies are still valuable and worth considering because they document natural relationships between variables, but as a consumer of scientific information, it is vital to discern between experimental and correlational designs and to not falsely attribute a causal link between variables in correlational studies.

A NOTE ON SUMMATIVE MEDIA

If the source in question is not about a specific research finding but rather a summary of a topic (e.g., a blog or podcast covering a range of information), it is essential to refer back to the original source material and evaluate the authors' credentials for each research finding. In other words, for articles, blogs, and podcasts that summarize research, carefully examine the criteria listed above for each source summarized in the article, blog, or podcast. If this information is not available, consider this a signal that the article, blog, or podcast may not be trustworthy.

APPENDIX 6.2: Sample Excerpts

The excerpts below are fictitious examples of how you might encounter scientific information related to happiness reported in popular media. For each example, refer to the checklist in Appendix 6.1 to determine whether the reporting can be trusted.

Please consider this table as a tool to try applying the evaluations above on your own, scoring each category from 1 (*worst*) to 10 (*best*).

Criteria	Question to evaluate	Score (1–10)	Note and comment
Author	Is the author qualified to write about positive psychology? Does the author have an explicitly scientific background? Is the author affiliated with a reputable research entity?		
Publication	Is the publication reputable? Is the publication peer-reviewed?		
Research	Was the research well-designed? Was there a control group? Were participants randomly assigned to groups? Was the sample size large enough? Were the participants representative of the population? Was the research conducted using an experimental design?		
Conclusions	Are the conclusions supported by the evidence? Are the conclusions overstated or exaggerated? Are there any alternative explanations for the findings?		

To better understand the impact of skiing on happiness, we reached out to professional skier Simon Red, who conducted a survey of 25 male skiers' happiness before and after a day on the slopes. They found that skiers were, on average, 11% happier after a day of skiing compared with their happiness scores before skiing.

—The SkiCast Podcast

Psychologist Ernest Purple and colleagues designed an experiment to explore whether participation in a 6-week meditation course would decrease stress in college students. The researchers recruited 200 students; they assigned 100 students to complete a fall session of the course and the remaining 100 students to a waitlist. These waitlisted students would eventually complete a spring session of the course. Compared with the waitlisted students, the students participating in the meditation course showed significant reductions in their stress levels.

—Meditation Monthly

Psychologist Frankfort Green conducted an independent survey of students in their class at Fake University and found a strong correlation between the number of recent romantic partners and overall happiness. Professor Green published the results on their personal website and told us that their results represent an exciting next step in understanding how relationships impact mental health.

—Relationships Podcast

A team of researchers at Northeastern Rhode Island University collected information about the exercise and sleep habits of 25 college students. They found a strong correlation between the students' average hours of exercise and average hours of sleep. Thus, we now know that frequent exercise causes us to get more sleep.

—The SleepCast

A team of researchers at Northeastern Connecticut University carried out an experiment to determine if listening to jazz music reduces stress in college students. The researchers randomly assigned 100 students to listen to jazz music each day for 30 days and 100 students to listen to other types of music during that same duration. Participants in both groups reported their levels of stress both before and after their music-listening intervention. The results from this experiment, published in *Psychological Science*, suggest that the genre of music may play a key role in stress reduction, as students who listened to jazz reported a significantly larger reduction in stress relative to the students who listened to other genres of music.

—Music Cognition Magazine

An experimental study conducted by the Cotton Growers' Association of America found that participants who wore clothing made from 100% organic cotton reported statistically significantly higher levels of positive emotion and significantly lower levels of stress compared with a control group who wore clothing made of polyester and other synthetic fibers.

—Textiles and Science