



A Review of Behavior-Analytic Articles that Cite a Source of Misinformation about ABA

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Abstract

The misinformation that originated from the Wakefield et al. (1998, *The Lancet*, 351(9103), 637–641) paper that claimed vaccines cause autism exemplifies the lasting negative impact that unsubstantiated claims about health and human service practices can have on society. As the profession of behavior analysis has grown and developed, the amount of misinformation about it has increased. One such source of misinformation about behavior analysis is a paper by Kupferstein (2018, *Advances in Autism*, 4(1), 19–29), which suggested that applied behavior analysis causes post-traumatic stress disorder in individuals with autism. The purpose of the current paper was to evaluate the way that behavior-analytic publications discuss sources of misinformation about applied behavior analysis by reviewing the way that Kupferstein (2018) has been referred to in behavior-analytic publications. We identified and coded papers published in behavior-analytic journals based on the way that they cited Kupferstein (2018). The results of the review indicate that Kupferstein (2018) has been cited in behavior-analytic journals as (a) a source of misinformation about applied behavior analysis, (b) a critique of applied behavior analysis with a caveat, and (c) a critique of applied behavior analysis without a caveat.

Keywords Misinformation · Autism · Trauma · PTSD

Misinformation about health and human service practices is prevalent and dangerous to society because it spreads rapidly and has the potential to create a lasting negative impact on the consumers of those services (Wang et al., 2019). Sources of misinformation can vary—sometimes spawning from obviously untrustworthy charlatans who have no credentials or expertise in the area they are spreading misinformation about and other times originating from presumed authorities. A famous example of enduring harm caused by misinformation originating from a presumed authority is the belief that the measles, mumps, and rubella (MMR) vaccine causes autism spectrum disorder (ASD). The erroneous notion that MMR vaccines cause ASD developed because of a paper by Wakefield and colleagues that was published in

a well-respected British medical journal—*The Lancet*—in 1998. Despite Wakefield et al. (1998) having been retracted by *The Lancet* for ethical research violations and decades of subsequent research finding no link between the MMR vaccine and ASD, beliefs that MMR vaccines cause ASD persist and have been associated with a reduction in childhood vaccinations that have been linked to an increase in measles outbreaks (DeStefano, 2019).

As scientists and human services practitioners, it is incumbent on all behavior analysts to be aware of prominent misinformation related to applied behavior analysis (ABA) and the clients they serve. Being aware of misinformation is beneficial to behavior analysts and their clients for at least three reasons. The first reason is that it can help prevent behavior analysts from incorporating faulty information into their practices that could negatively impact their clients. For example, behavior analysts who are aware of the dangers of facilitated communication (see Lilienfeld et al., 2015) would be much more likely to protect their clients from being exposed to it. The second reason is that it can help behavior analysts avoid inadvertently contributing to the spread of misinformation. Specifically, being aware of

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misinformation can help ensure that behavior analysts avoid behavior that might further perpetuate the misinformation, such as telling a client's parent about a fad treatment. Finally, the third reason is that it can enable behavior analysts to actively challenge a source of misinformation when appropriate. For example, a behavior analyst aware of the potential dangers of chelation therapy (see Singer & Ravi, 2015) might be more likely to strongly advocate that a family who is considering it for their child seek medical consultation before trying it.

One prominent source of misinformation about ABA is a study published by an independent researcher in the journal *Advances in Autism*—Kupferstein (2018). In that study, 460 self-diagnosed adults with autism and caregivers of children with autism were recruited to complete an online survey asking questions about the types of interventions they received for autism and potential post-traumatic stress disorder (PTSD) symptoms related to that treatment. Of the respondents who reported lifetime exposure to ABA, 46% of them met what the author claimed to be the “diagnostic threshold for PTSD” (Kupferstein, 2018, p. 23). The final conclusion of the study was that “Autistic respondents exposed to ABA were 1.86 times more likely to meet the PTSD diagnostic criteria” (Kupferstein, 2018, p. 27). Thus, a basis for the claim that ABA interventions cause PTSD was born.

Concerns about the validity of Kupferstein (2018) quickly arose after its publication. For example, Leaf et al. (2018) immediately responded to Kupferstein (2018) by publishing a critique of it in *Advances in Autism*. Leaf et al.'s critique of Kupferstein outlined several critical issues with its methods and procedures. Some of the issues included the self-report data and correlational analyses used in the study, issues with the sample selection process, ambiguity in how ABA was defined in the survey, and issues with the measures used. Specific issues with the measures included (a) a PTSD diagnosis requires a formal evaluation by a professional and cannot be obtained through an online self-report survey, (b) the self-report questionnaire was not a validated PTSD assessment tool, and (c) the survey used leading questions. Additional concerns about Kupferstein that extend even beyond those mentioned by Leaf et al. include that Kupferstein (2018) referred to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013) when considering the measures of PTSD symptoms, but the way that the symptoms appear to have been measured did not actually align with the DSM-5 criteria or even the more lenient criteria for PTSD argued for in the paper.

Despite the noted issues with Kupferstein (2018), it continues to be widely referenced, and claims that ABA interventions cause PTSD based on its findings appear to persist. In fact, Kupferstein (2018) seems to be frequently

cited in a variety of sources ranging from explicitly anti-ABA sources like webpages devoted to banning ABA (e.g., Stop ABA, Support Autistics, 2023) to research articles published in prominent behavior-analytic journals (e.g., Gitimoghaddam et al., 2022; Marshall et al., 2023; Rajaraman et al., 2022). It also appears to be cited frequently in the rationale for other questionable studies that claim similar outcomes, such as Anderson (2023), McGill and Robinson (2020), and Sandoval-Norton et al. (2019). Thus, the potential negative impact of Kupferstein (2018) on ABA and the treatment of individuals diagnosed with ASD is substantial and highly concerning.

There is some debate about how to best counteract sources of misinformation about ABA, such as Kupferstein (2018). For example, Leaf et al. (2018) directly challenged the scientific validity of the purportedly scientific claims made by Kupferstein as a way to counteract its misinformation. Others have argued that expanding the types of measures used in ABA studies would be a more effective response to sources of misinformation than criticizing individual claims (e.g., Rajaraman et al., 2021). Regardless of what might be the best long-term strategy to counteract sources of misinformation about ABA, it seems apparent that, at the very least, behavior analysts should be sure not to contribute to the spread of misinformation. One way to do so is to be careful about the way that sources of misinformation are referred to in published work so as to avoid inadvertently supporting or giving credence to the claims made by sources of misinformation.

Little is known about the way that behavior analysts refer to sources of misinformation in their publicly available work, like publications in behavior-analytic journals. One way to estimate these practices is to review the way that a known source of misinformation about ABA, like Kupferstein (2018), has been cited in behavior-analytic journals. Thus, the purpose of the current paper was to evaluate the way that behavior-analytic publications discuss sources of misinformation about ABA by reviewing the way that Kupferstein has been referred to in behavior-analytic publications.

Method

Journals listed on the Association for Behavior Analysis International (ABAI) website (see Table 1 for a list of the journals) were searched for reference to Kupferstein (2018) using Google Scholar's advanced search function. Specifically, the term “Kupferstein” was entered into the search cell labeled “with all of the words,” while journal names were entered individually into the cell labeled “return articles published in.” The date range of the search included

Table 1 List of journals included in the initial review

Journal Name
The Psychological Record
Perspectives on Behavior Science
The Analysis of Verbal Behavior
Behavior Analysis in Practice
Behavior and Social Issues
Education and Treatment of Children
Brazilian Journal of Behavior Analysis
EAHB Bulletin
European Journal of Behavior Analysis
Japanese Journal of Behavior Analysis
Journal of Applied Behavior Analysis
Journal of Behavioral Education
The Journal of Early and Intensive Behavior Intervention
Journal of the Experimental Analysis of Behavior
Journal of Organizational Behavior Management
Mexican Journal of Behavior Analysis
Monitor on Psychology
Psychonomic Society Publications
Speech and Language Pathology and Applied Behavior Analysis

everything published following the publication of the Kupferstein paper in 2018 to January 2024, when this review was completed.

Each article produced by the search process was then reviewed for the inclusion and exclusion criteria. The inclusion criterion was that a paper had to directly reference Kupferstein (2018), which was defined as citing Kupferstein in the paper. Only papers that listed Kupferstein as a reference were included in the review. Papers that indirectly cited Kupferstein were excluded from the review. Indirect citations to Kupferstein were defined as including the name “Kupferstein” in the paper without actually referencing the article. The indirect reference criterion was relevant for this review because a paper titled “Evaluating Kupferstein’s Claims of the Relationship of Behavioral Intervention to PTSD for Individuals with Autism” by Leaf et al. (2018) created multiple false positives in the initial search because of the inclusion of “Kupferstein” within the paper’s title.

Following the selection of the included articles, each paper was reviewed and coded into categories based on the way that Kupferstein (2018) was referenced within the paper. The categories that the articles were organized into were developed inductively by the reviewers following a preliminary review. The three categories consisted of Kupferstein (2018) being referenced as (a) a source of misinformation about ABA, (b) a critique of ABA with a caveat, and (c) a critique of ABA without a caveat. Articles were coded in the source of misinformation about ABA category if they cited Kupferstein as an example of faulty information about ABA.

Articles were coded in the critique of ABA with a caveat category if they cited Kupferstein as evidence of an empirical basis or a negative perspective of ABA while acknowledging or alluding to concerns about its validity or methodological flaws. Finally, articles were coded in the critique of ABA without a caveat category if they cited Kupferstein as evidence of an empirical basis or a negative perspective of ABA without acknowledging or alluding to concerns about its validity or methodological flaws.

Interrater Reliability

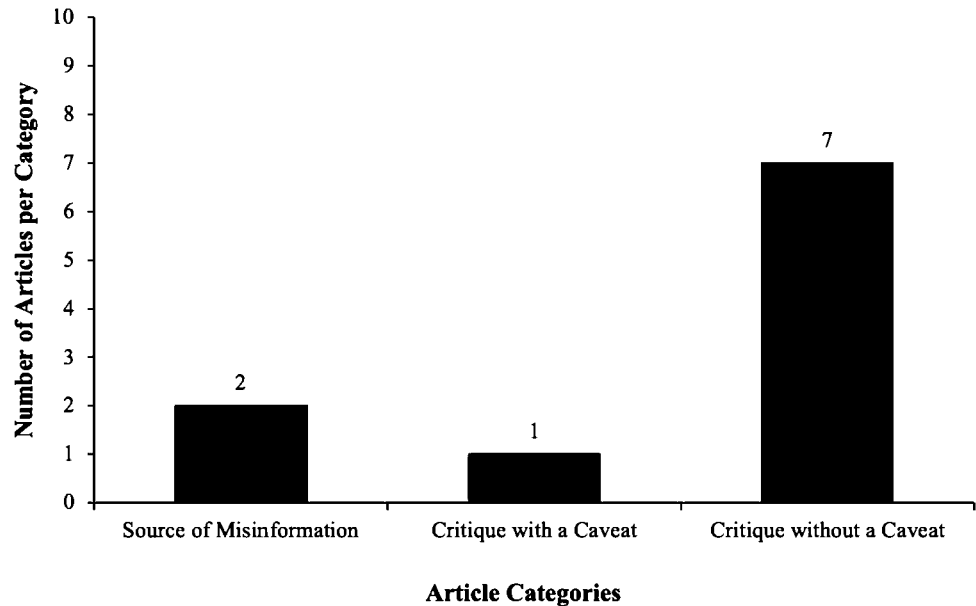
To assess the reliability of the findings, two independent reviewers searched for the articles and coded the papers following the same task analysis. The reviewers consisted of two students enrolled in a master’s and doctoral program in behavior analysis. The initial search and application of the inclusion and exclusion criteria produced complete agreement (100%) across the two reviewers. Coding the papers into their specific categories resulted in an initial agreement of 90%. The first author, a researcher with experience conducting and publishing literature reviews, reviewed each disagreement, discussed it with the research team, and resolved the discrepancy by consensus. The reported findings are based on the agreements and resolved discrepancy.

Results

The initial search produced 13 articles. Three of those articles were excluded because they did not directly refer to Kupferstein (2018).¹ The final yield of the search was ten articles that were published in five different behavior-analytic journals. *Behavior Analysis in Practice* and the *Journal of Applied Behavior Analysis* each published three of the papers included in this review, the *European Journal of Behavior Analysis* published two of the papers included in this review, and *Perspective on Behavior Science* and *Behavior and Social Issues* each published one of the papers included in this review. Two of the articles (20%) cited Kupferstein (2018) as a source of misinformation about ABA, one of the articles (10%) cited Kupferstein as a critique of ABA with a caveat, and the remaining seven articles (70%) cited Kupferstein as a critique of ABA without a caveat. See Fig. 1 for a summary of the results by category.

¹ The excluded papers referenced Leaf et al. (2018), whose article name included “Kupferstein,” thereby producing false positives in our initial search.

Fig. 1 Number of Behavior-Analytic Articles by Category of Reference



Discussion

The purpose of the current paper was to evaluate the way that behavior-analytic publications discuss sources of misinformation about ABA by reviewing the way that Kupferstein (2018) has been referred to in behavior-analytic publications. The way that behavior-analytic publications discuss sources of misinformation is important because behavior analysts are responsible for protecting their clients and their profession from any source of potential harm, including misinformation. Although counteracting misinformation is highly complex and involves many things outside of the control of behavior analysts, evaluating and changing publication practices for papers published in behavior-analytic journals is achievable. Therefore, identifying the current practices of referring to a prominent source of misinformation about ABA in behavior-analytic publications is helpful because it can illuminate practices that behavior analysts can immediately improve.

The results of the review indicated that a majority of the papers that referenced Kupferstein (2018) in behavior-analytic journals cited it as a critique of ABA without providing caveats, while a minority of the papers cited it as a source of misinformation or critique of ABA with a caveat. Citing Kupferstein and other possible sources of misinformation as a source of misinformation is, of course, a helpful practice in preventing the perpetuation of misinformation by directly challenging them. Citing Kupferstein and other possible sources of misinformation as a critique of ABA is also a potentially helpful practice because it acknowledges a pervasive belief about the field. What warrants more discussion is whether caveats are advisable when citing Kupferstein and other possible sources of misinformation as a

critique because a vast majority of the articles evaluated in this review did not provide a clear caveat or contextualize their reference to Kupferstein.

There are several reasons that papers published in behavior-analytic journals might not provide caveats when referencing Kupferstein (2018) and other potential sources of misinformation when referring to them as critiques of ABA. Some of those reasons could include the authors not being aware that their sources are problematic, intentionally choosing to avoid the controversy of calling something misinformation, or assuming the issues with their sources are common knowledge. Although there may be many good reasons to withhold from acknowledging issues with sources of misinformation when referencing them as critiques of ABA, citing them without contextualizing them as substantially flawed sources could be unduly harmful. Specifically, citing misinformation in the absence of instructive information about its issues could inadvertently lend legitimacy to it as a source of information and help perpetuate its claims. For example, it is perhaps not unreasonable to think that someone unfamiliar with Kupferstein could see it cited in a prominent behavior-analytic journal in the absence of any warnings about its quality and presume that it is a high-quality study even if the paper that cited it only referred to it as a perspective or critique of ABA.

When considering the importance of caveats when referring to sources of misinformation, it might be helpful to remember the idiom: “A lie can travel halfway around the world before the truth can get its boots on.” As has been shown by Wakefield et al. (1998), misinformation can spread rapidly and easily. To avoid the possibility of inadvertently perpetuating misinformation about ABA, behavior analysts should be sure to cite Kupferstein (2018) and other dubious

sources of potential misinformation carefully by including caveats about their validity or contextualizing them in some way. One paper identified in this review did so by referring the readers to review Leaf et al. (2018) after mentioning Kupferstein as a critique of ABA. Behavior analysts who cite Kupferstein and other sources of misinformation in future papers should consider a similar approach by including a description of the source's issues or referring readers to review another paper that explains the issues with their source.

Conclusion

It is important to note that the review described in this paper was conducted with the explicit purpose of informing future publication practices, not admonishing researchers for individual references to Kupferstein (2018). In fact, to be clear, none of the papers reviewed in this study directly endorsed or supported the claims made by Kupferstein. All ten of the papers that were found in behavior-analytic journals either cited Kupferstein as misinformation or a critique of ABA. Thus, the general aims of each of the references to Kupferstein seem appropriate and potentially beneficial. However, when considering the complexities involved with the spreading of misinformation, it appears that a majority of the reviewed papers could have been strengthened by the inclusion of a caveat explaining the issues with Kupferstein when citing it. Future researchers and editorial teams should consider the findings of this study and engage in practices to ensure that papers using references with noted issues acknowledge those issues when citing them.

It is also important to note that the recommendation to contextualize sources of misinformation when referring to them in behavior-analytic publications is not meant to generalize to all potential critiques of ABA. There is a very important difference between sources of misinformation and genuine concerns or critiques of ABA. Misinformation is inaccurate and misleading content that is often disguised as authoritative information. Genuine concerns and critiques are informative perspectives that could come from a variety of sources. Genuine concerns and critiques should be solicited and shared as a way of spreading awareness in the behavior-analytic community and helping improve practices, whereas misinformation must be counteracted to prevent it from causing harm.

Counteracting misinformation is often complex and complicated by the fact that behavior analysts may have limited to no influence over the way that misinformation is discussed in a majority of outlets, including social media, blogs, and even most academic journals. The field would likely benefit from a multifaceted approach that involves qualified groups directly challenging sources of misinformation when they

arise, researchers and practitioners expanding the types of measures they use to better inform the public of the benefits of ABA, and all behavior analysts making a concerted effort to avoid actions that may perpetuate the misinformation. The field would also likely benefit from additional research focused on the prevalence of misinformation about ABA within and beyond the behavior-analytic community and how to curb its spread. All of these efforts are incredibly important because failing to counteract misinformation not only threatens the integrity and future of the field but also risks services being disrupted for those who depend on ABA to lead healthy and fulfilling lives.

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Data Availability Data are available upon request to the corresponding author.

Declarations

Research Involving Human Participants and/or Animals Not Applicable.

Informed Consent Not Applicable.

Conflicts of Interest Five of the six authors are either behavior analysts or are studying to become behavior analysts. The sixth author is a behaviorally oriented clinical psychologist.

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