

UNDERSTANDING THE DISSEMINATION OF INFLUENTIAL PARENTING RESEARCH A Rapid Review With Article-Level Metrics

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This article presents a case study on parental discipline to describe a novel methodology for conducting rapid reviews using article-level metrics. A team of 3 researchers searched for studies that met predetermined thresholds of influence based on article-level metrics. These metrics included number of citations within the scientific literature and Altmetric scores, which measures a study's level of dissemination on blogs, news sites, and social media. Articles were reviewed for inclusion using traditional systematic review methods, with 52 articles meeting the criteria for influence, quality, and relevance. The studies captured in this review received significant attention from research consumers and suggest that fair discipline, enforced consistently, with explanation and discussion, is associated with favorable outcomes among adolescents. Similarities and differences in popular and scientific narratives were identified, such as the greater popularity of research on provocative topics (e.g., corporal punishment) among the general public. This rapid review methodology produced similar findings to systematic reviews and may provide an improved way for character education researchers and policymakers to understand translation and dissemination of parenting and adolescent health research, allowing them to address gaps in public knowledge more quickly and efficiently.

Keywords: adolescence, Altmetrics, discipline, parenting, rapid review

BACKGROUND

The systematic review has served as one of the most thorough and reliable methods of scien-

tific literature synthesis because of its rigor and transparency (Higgins & Green, 2011). These reviews are an objective method for determining consistency of findings and gener-

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alizability within fields of research. However, the average systematic review takes over a year to complete and may require a large team of researchers, which may make them less efficient for researchers operating with limited time and staffing (Borah et al., 2017). Further, this lengthy time frame makes it difficult for systematic reviews to stay current with new research and, as a result, they are often outdated by the time of publication (Bastian et al., 2010; Roberts et al., 2015). This presents an additional challenge to those who wish to rapidly translate and disseminate the latest research findings to the public. If the results of systematic reviews are biased toward older, outdated findings, policy makers and public health professionals may not have accurate information to pass on to consumers.

One solution to overcome these limitations is the use of a rapid review. Rapid reviews omit certain steps of the systematic review process and require less time to complete, enabling faster turnaround times while retaining the distinguishing features of systematic reviews—objectivity and transparency (Haby et al., 2016; Tricco et al., 2015). While rapid reviews offer a faster method of research synthesis, they lack a consistent, refined methodology and may be prone to scientific bias. For example, rapid reviews may overemphasize poorly designed studies in the interest of producing a timely synthesis of the findings (Grant & Booth, 2009). One way to protect against this is to rely on standard metrics of high quality and influential research, including traditional metrics like number of citations and modern metrics like Altmetric scores, respectively.

Traditionally, the number of citations a study receives is a good indication of its quality and credibility in the scientific literature (Saha et al., 2003), although this is not a fool-proof metric, as noted by more recent scholarship (Aksnes et al., 2019). Accordingly, traditional methods of establishing an article's impact and quality may need to adapt, especially as more scientific literature is translated and disseminated online. Indeed, a number of

such methods have been proposed in recent years. It is increasingly common for a scientific study to be described in a news article or posted and shared on social media, though not always in relation to the study's perceived quality within the scientific community (Costas et al., 2015). This allows for more rapid measurement of the general public's exposure and interpretation of a research article. Altmetric scores are alternative metrics of measuring a study's influence that consider platforms like blog posts, social media mentions, and mainstream media attention when assigning a score to a given scientific work (Priem et al., 2010). The score assigned by Altmetric conveys information about the amount of attention surrounding specific studies, tracking the studies that are highly influential to the public. Further, many scientists and scholars have joined social media and their most common activity on social media sites is the sharing of their own content or linking to other scientific content (Van Noorden, 2014). Thus, the scientific community likely plays a role in the Altmetric scores of many pieces of literature through what is shared on Twitter, science blogs, and news outlets.

Examining influence in both the scientific literature and the popular press, including social media, is vital within dynamic fields such as adolescent health and character education research where there can be a disconnect between the findings from the scientific community and the broader discussion in the media. This can make it difficult for the general public, and particularly parents and educators, to determine if advice is evidence-informed or anecdotal. For example, books and news articles sometimes portray adolescence as a time of "storm and stress" that parents must survive (Kolbert, 2015), even though scientific research offers a more nuanced perspective that demonstrates how parents and teens can thrive through adolescence. Educator and character development researcher Hersh contends conversations about moral and character education arise on social media and are increasingly common,

particularly on college campuses (Hersh, 2015). A rapid review which examines this intersection between science, media dissemination, and interpretation by the general public may provide character education and child-development researchers with the ability to correct misinterpretations and improve public understanding. By including the Altmetric score, researchers can evaluate the influence an article has in the mainstream media and on social media. The inclusion of both citations in the scholarly literature and Altmetrics could influence dissemination strategies.

This rapid review protocol was developed out of a need to quickly translate and disseminate foundational and emerging research findings for the Center for Parent and Teen Communication (CPTC). CPTC was established to help build youth with the character strengths that will position them to be their best selves, contribute to their communities and be prepared to lead fulfilling and meaningful lives. To accomplish this mission, CPTC disseminates evidence-informed content (e.g., articles, videos, and podcasts) posted to a website (www.parentandteen.com) and social media (@parentandteen) to support parents and caregivers to raise healthy adolescents with desirable character strengths who are poised to become successful adults. For a given parenting or adolescent development topic, content producers at CPTC develop a list of proposed article titles which CPTC's literature review team uses as guide to rapidly search the scientific literature for studies worthy of translation and dissemination in these articles.

This article describes a novel methodology for the rapid review of influential literature using parental discipline—a critical component of character education—as a case study. We summarize the results of that case study and present an analysis of the prevailing themes about discipline in the academic literature and the popular press by examining article-level metrics, comparing and contrasting interpretation of findings by the scientific community and the general public.

METHODS

Reviews were conducted by a team of three researchers at the CPTC. This team reviewed the proposed article titles for the section of the website designed to teach parents about discipline and outlined the research that would be needed to produce evidence-informed, translational articles. Search terms were generated via team discussion. Once appropriate search terms were developed, databases were searched for influential scientific literature. Table 1 displays the proposed website content about discipline and the search strategy for Scopus and APA PsycNet. The search strategy aimed to capture articles focused on parental discipline and punishment of adolescents that would form the evidence base for the proposed written content. Searches were limited to peer-reviewed scientific articles focused on adolescents. The search was also limited to articles that were written in English if this search filter was available. We defined literature as “influential” if they met at least one of two inclusion criteria during the screening process.

First, articles that met certain citation thresholds were considered highly influential within the scientific literature. Table 2 lists the thresholds for highly cited papers according to Thomson Reuters. Highly cited was defined as, “the minimum number of citations received by the top 1% of papers in the research field published in the specified year” (Thomson Reuters, 2017). Given the interdisciplinary nature of this work, citation thresholds from four research fields were used: clinical medicine, neuroscience and behavior, psychiatry and psychology and general social sciences. The average citation threshold of these four fields was used to determine if a paper should be included in the review. The 2006 citation threshold was used for any papers published before 2006.

Second, Altmetric scores were used to identify articles which have been influential outside of the scientific literature. This measure is generally only applicable to works published

TABLE 1
Proposed Content and Search Strategy

<i>Element</i>	<i>Content/Strategy</i>
Proposed written content	• Discipline means to teach or guide; It does not mean to punish or control • Privileges are something your child needs to earn • Make it about safety—your kids will listen • Make it about getting by in society—they'll hear you • Avoid personal territory—they'll push you away • You knew how to discipline when your child was two—it's the same now that he's 15—Catch Him being good, redirect him when he's Not • Avoiding a discipline cycle that assures your child will act out just to get attention • Giving your adolescent the opportunity to regain your trust
Scopus search strategy	TITLE-ABS (adolescen* OR teen* OR youth AND parent* AND disciplin* OR punish*) AND (LIMIT-TO (LANGUAGE, "English")) AND (EXCLUDE (DOCTYPE, "ch") OR EXCLUDE (DOCTYPE, "bk"))
APA PsycNet Search Strategy	Title: parent* OR Abstract: parent* AND Title: disciplin* OR Abstract: disciplin* OR Title: punish* OR Abstract: punish* AND Age Group: Adolescence (13–17 yrs)

TABLE 2
Thresholds for Highly Cited Articles (As of July 8, 2019)

<i>Research Field</i>	<i>Year</i>													
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Clinical medicine	226	207	186	208	189	163	140	118	96	77	52	30	10	3
Neuroscience and behavior	284	269	236	271	246	198	172	141	113	83	56	31	11	4
Psychiatry and psychology	236	215	177	213	194	156	124	99	79	55	36	20	7	4
Social sciences, general	133	120	100	85	119	109	90	76	63	52	37	24	14	6
Average	220	203	175	203	185	152	128	105	85	63	42	24	9	4

after 2011, as social media mentions were far less common before then (Costas et al., 2015). According to guidelines produced by the creators of Altmetrics, a score of ≥ 20 is considered highly influential among the lay public ("Putting the Altmetric," 2019). APA PsycNet and Scopus were searched because these databases allow sorting articles by number of times cited and the Altmetric bookmarklet functions well within these sites. The bookmarklet is a free downloadable toolbar for web browsers that quickly calculates the Altmetric score

based on the article Digital Object Identifier (DOI) listed on the webpage (<https://www.altmetric.com/products/free-tools/bookmarklet/>).

Once sorted, articles were scanned for the above-mentioned search criteria. Specifically, if the article met the highly cited threshold for the appropriate year and/or had an Altmetric score ≥ 20 (if published during or since 2011) it was extracted. A list of extracted articles was developed and downloaded so that article titles and abstracts could be further scanned for inclusion. Traditional systematic review meth-

ods were used to determine if a study should be included or excluded from the final synthesis. Specifically, two bachelor-level independent reviewers read the extracted titles and abstracts and assessed whether or not each article should be included in the final synthesis. If reviewers differed on whether an article should be included, this was reconciled during a consensus meeting overseen by the first author. During this meeting, the relevance of each article to the proposed written content was discussed before a group decision was made about inclusion or exclusion of the article.

Two syntheses were produced to understand the findings documented in the studies included in this review. The first synthesis involved summarizing the results from highly cited studies to understand the scientific perspective on parental discipline. The second synthesis involved summarizing the results from studies with high Altmetric scores and reviewing the lay literature (i.e., newspaper articles, blogs, and social media posts) that referenced a given study. This process allowed the authors to holistically compare and contrast findings that were influential in both the scientific literature and the lay literature.

RESULTS

Search Results

Over 2,000 articles were identified using this search strategy. Fifty-two eligible articles were included in the review after screening for article-level metrics and exclusion based on reviewer consensus (Figure 1). Article citations and article-level metrics are displayed in the Appendix. Nineteen articles had an Altmetric score greater than 20, which indicates high influence in the media (range: 0–485). Thirty-one articles were cited more than 220 times, the 2006 citation threshold for influence, in the scientific literature (range 0–904). Two articles met the citation number threshold for their respective publication year and achieved an Altmetric score greater than 20.

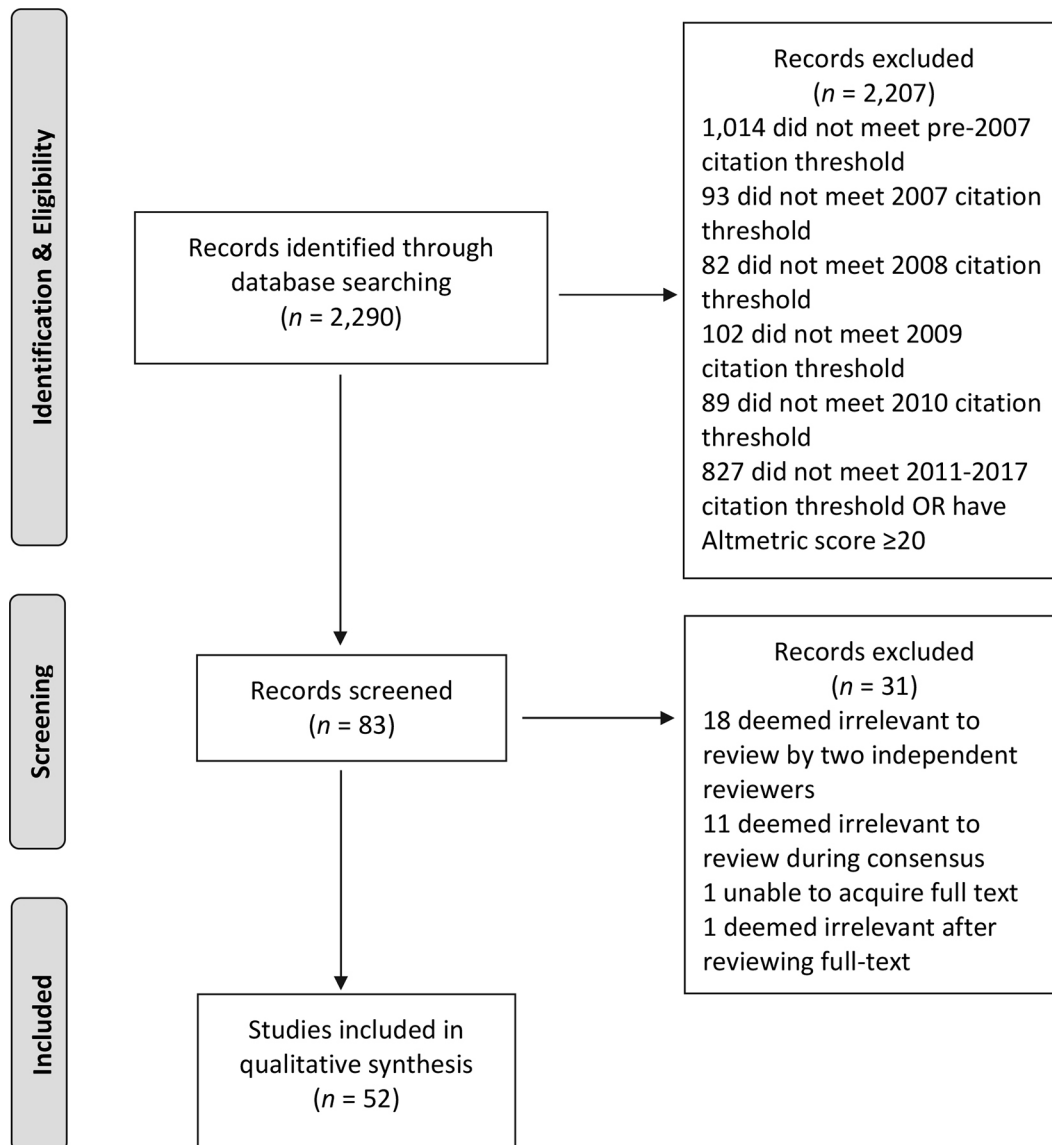
Synthesis of Findings From Influential Studies in the Scientific Literature

The highly cited studies captured in this review suggest that effective parental discipline involves setting and enforcing appropriate rules for children based on their development and maturity, implemented via reasoning, explanation, and talking with the child. For parents of adolescents, this means embracing their emerging independence while keeping them safe from danger and harmful behaviors. Parents who practice consistent discipline have children who can understand and feel a sense of fairness when facing consequences (Ge et al., 1996; Lempers et al., 1989). Conversely, research suggests that inconsistent discipline—such as, preferential treatment of different children, mood-based decisions—is associated with increased delinquent behaviors and substance use (Jensen & Whiteman, 2014; Lempers et al., 1989).

Poor parental discipline can take two forms: too permissive or too strict. Parents who are too permissive or strict in their disciplinary practices risk putting their children at an increased likelihood of delinquent behaviors, substance use/abuse, poor achievement, and depressive symptoms (Jensen & Whiteman, 2014). Children who are supervised and monitored by their parents are less likely to participate in risk behaviors like smoking and drinking (Griffin et al., 2000; Hawkins et al., 1999). Both overly harsh/punitive and permissive disciplinary practices negatively impact academic performance (Eckenrode et al., 1993; Tang & Davis-Kean, 2015).

The rate of corporal punishment declines as children grow older, according to the findings of this review (Straus & Stewart, 1999). Recent research suggests that parents understand that corporal punishment is not an effective disciplinary practice (Chen et al., 2016). Research also demonstrates that children who are physically disciplined are more likely to exhibit violent behaviors (Espelage et al., 2000) and may be at an increased risk of both

FIGURE 1
PRISMA Diagram



being a bully and being victimized by bullies (Ehrensaft et al., 2003).

Adolescents with special needs, such as attention-deficit hyperactivity disorder (ADHD) or conduct disorders, present different disciplinary needs to parents. Mothers of children with conduct disorders were signifi-

cantly more likely to be poor at supervising their children's behavior and consistently disciplining their children than mothers of children without conduct disorders (Frick et al., 1992; Lytton, 1990). Yet, research shows that they can benefit from the same effective disciplinary practices as adolescents without

special needs, especially when paired with appropriate levels of parental warmth and support (Zehe & Colder, 2014). Children with ADHD are more likely to see their ADHD persist throughout adolescence when their parents have high stress levels (Miranda et al., 2015).

Through educational interventions, parents can be taught how to discipline their adolescents more effectively. This can improve relations between parents and adolescents and promote the child's positive character development. Risk behaviors and problems in children and adolescents can be best managed by informing parents about the effectiveness of various practices and the benefits of certain kinds of discipline and monitoring practices (Beardslee et al., 2003; Zehe & Colder, 2014).

In high-risk neighborhoods where there are high rates of community violence, parents may need to utilize different discipline practices to keep their children safe. Exposure to community violence can lead to an increase in an adolescent's risk of aggressive behavior, including bullying (Espelage et al., 2000; Gorman-Smith & Tolan, 1998). However, greater parental monitoring and firm discipline, accompanied by reasoning and explanation, can counteract this risk, as studies show that these parenting practices are associated with less engagement in risk behaviors (Griffin et al., 2000).

Synthesis of Findings from Influential Studies in the Lay Literature

Three studies with high Altmetric scores focused on disciplinary practices in families with special needs, including parents with depression and children/early adolescents with ADHD. Of these three studies, Musser et al. (2016) attained the highest Altmetric score because it was described in 34 news outlets, typically with the headline "Study Ties Parents' Criticism to Persistent ADHD in Kids." News stories varied in the level of detail they provided about the study and most added a qualifying statement about the study's observational design, noting that it could not prove causation. Alternatively, the study by Miranda

et al. (2015) was tweeted about 31 times reaching at most over 57,000 users. Most of these were retweets of a link to the study from users in Japan and did not offer any additional commentary on the study.

Six studies focusing on adolescent risk behaviors (e.g., fighting, sexual behaviors, and substance use) received high Altmetric scores. Chen et al. (2016) received high Altmetric scores as it was cited in 19 news outlets, most often with the titles suggesting parents play a "big" or "vital" role in "preventing teen fighting. The articles focused on the research participants' acknowledgment that fighting prevention starts at home with education about the consequences of fighting and how to utilize nonviolent strategies to resolve problems. Calvete et al. (2015) was cited primarily on Twitter where users embedded the link and added lines such as "exposure to violence is what causes violent behavior" and "lack of parental warmth" is linked to "narcissism (& aggression toward parents)." The Altmetric score for the study by Okigbo et al. (2015) showed 11 tweets that provided links to the article with a short line highlighting the importance of parent-teen communication around sex education. The four other studies focused on adolescent substance use behaviors with Jensen and Whiteman (2014) attaining the highest Altmetric score with citations in 10 news outlets. Titles in the news outlets stressed that having a "favorite" child is linked to substance use in families and the articles referenced the research findings that children who felt "less favored" in "disengaged" families were four times more likely to abuse substances. Zehe and Colder (2014) was cited by two news outlets and six Twitter users. The news articles highlighted the research conclusions that when parents' attitudes about adolescent drinking behavior relaxes over time, adolescents' drinking behavior may increase. Finally, Ryan et al. (2010) was cited by three news outlets and three Twitter users who added links to the article in their Tweets but did not offer other information about the research.

Five studies with high Altmetric scores explored the impact harsh or punitive parenting strategies have on children and adolescents. Wang and Kenny (2014) received the highest Altmetric score of 532 with mentions from 44 news outlets and 136 Twitter users, with an estimated maximum reach of over 600,000 people. The news headlines included titles such as “Science Says Parents of Unsuccessful Kids Could Have These 6 Things in Common” and “Yelling at Teens May Be More Harmful Than You Think.” The article reached Twitter users internationally, with the majority being from Japan. Tweets included the link to the article and phrases such as “Link between parents’ harsh verbal discipline and adolescents’ conduct problems.” Kim et al. (2013) had the next highest Altmetric score and was cited in 35 Tweets and 20 news outlets, typically with the headline, “The last of the Tiger parents” alluding to the research findings showing that adolescents were more successful when they experienced supportive parenting styles. Research by Tang and Davis-Kean (2015) regarding punitive parenting techniques and student achievement was cited most notably on Twitter when a leading parenting expert in Australia embedded the article in his tweet reading: “Study of the Day: Kids not doing well at school? Punishing them for underperformance only makes things worse.” Research by Mackenzie et al. (2015) was mentioned in two news outlets that focused on the “vicious cycle” spanking sets in motion and both included direct quotes from the study author. Finally, research by Lansford et al. (2011) was linked in tweets predominantly by Japanese Twitter users.

Five studies with high Altmetric scores reviewed various topics including parental support, child temperament, racial differences in school punishment, sexual identity, and language. Lippold et al. (2017) had an Altmetric score of 370 and was mentioned in 43 news outlets who were primarily reposting an original National Public Radio article: “Moms Need Social Support, and Not Just in the Baby Years.” This article stressed the importance of

social support for parents of adolescents. Weinstein et al. (2012) explored parental support and sexual identities. This research was cited most often in news outlets and tweets that reached international audiences in Chile, Brazil, Mexico, Saudi Arabia, Japan, India, the United Kingdom, and the United States. Schofield et al. (2017) was cited in nine news outlets, generally with the title, “Bad Behavior May Not be a Result of Bad Parenting but a Lack of Common Language.” The articles noted how the study showed that language barriers between parents and adolescents lead to difficult communication dynamics. Slagt et al. (2016) received the most attention on Twitter with users retweeting original tweets from two prominent Twitter users (each with over 30,000 followers) who both used their accounts to highlight parenting information. Hannon et al. (2013) was cited mostly on Twitter with the article link embedded in tweets explaining that girls with darker skin are three times more likely to get suspended than those with lighter skin.

DISCUSSION

The purpose of this article was to use parental discipline as an illustrative example to describe the methodology of a novel rapid review of influential literature. This review method could help character education and child-development researchers identify disconnects between study findings and how the media summarizes those findings for the lay public. Further, it could improve translation and dissemination of research to parents, educators, and other caregivers of adolescents. In general, the results from our review suggest that news sites and blogs occasionally report study findings accurately, but sometimes misinterpret and exaggerate these findings. These results are discussed below, in addition to the strengths and limitations of this review methodology.

The highly cited studies captured in this review indicate that effective parental disci-

pline for adolescents involves consistent practices that are designed to allow them to push boundaries while ensuring their safety and well-being (Ge et al., 1996; Lempers et al., 1989). These older, highly cited studies have relatively low Altmetric scores, suggesting little penetration outside of the scientific literature. Alternatively, a study by Jensen and Whiteman (2014) which examined inconsistent discipline in the form of preferential treatment of different children received an Altmetric score of 105, yet has only been cited eight times, suggesting greater exposure to the lay public via blogs and news sites. This cross-sectional study showed that preferential treatment is associated with increased delinquent behaviors and substance use, but only in certain circumstances. For example, in families that scored low on measures of conflict and intimacy, adolescents who received less paternal intimacy were more likely to report delinquency, and those who perceived less favorable maternal treatment were more likely to report substance use. Notably, in “markedly warm” (i.e., low conflict/high intimacy) families, there were no significant associations between parents’ differential treatment and adolescents’ risk behaviors.

These nuances were sometimes, but not always, reported by news outlets. A 2017 *Wall Street Journal* article accurately summarized these details by stating,

Still, it depended on the circumstances.... Through interviews with the parents and children that assessed levels of intimacy, conflict and risky behavior, Dr. Jensen found that in more distant, “disengaged” families, children who viewed themselves as slightly less favored were twice as likely to use alcohol, cigarettes or drugs. In close families, perceptions of favoritism didn’t have an impact. (Wallace, 2017)

Conversely, a 2017 *Lifehacker* article entitled, “Admit to Yourself That You Probably Have a Favourite Child” failed to report these details and simply states,

But consistently treating one kid better than the others is where things can become unhealthy. The

child who believes he isn’t Mum and Dad’s most prized offspring is more likely to use alcohol, cigarettes and drugs. (Woo, 2017)

The absence of these important details may be caused by word limits placed on the author of the *Lifehacker* article. Nonetheless, by using the word “consistently” this article mischaracterizes the cross-sectional findings of the Jensen and Whitehead (2014) study, implying that the findings are longitudinal. The article title and the absence of the null finding about markedly warm families also may incorrectly lead parents to believe that preferential treatment of children is a feature of all families that they are powerless to change.

Harsh parental discipline is another topic that has consistent findings in the scientific literature and strong interest among the lay public, according to the studies captured in this review. It is well-established in the literature that harsh disciplinary practices are associated with numerous poor outcomes for adolescents, such as decreased academic achievement and behavioral problems (Eckenrode et al., 1993; Tang & Davis-Kean, 2015). Provocative findings such as these are typically reported by the news media but are prone to exaggeration and misinterpretation. For example, a study by Wang and Kenny (2014), which reported on the negative longitudinal effects of harsh verbal discipline on adolescent’s behavior and mental health, achieved the highest Altmetric score in our review. This study was reported in the *Wall Street Journal* with an article title reading, “Study Says Yelling is as Hurtful as Hitting” (Petersen, 2013). However, the study does not report that there is an equal effect between yelling at children and hitting them. In fact, physical punishment was controlled for when the study authors examined the effect of harsh verbal discipline.

This discrepancy was repeated on social media as well, with several Twitter users repeating this false equivalency and providing a hyperlink to the study. It is possible that these Twitter users never read the article, as research demonstrates that 59% of users share hyperlinks without clicking on and reading the

content they are sharing (Gabelkov et al., 2016). This speaks to how inaccuracies about scientific findings can quickly spread on social media and to the importance of understanding popular narratives about research studies.

Other news outlets reported the results of this study more accurately by avoiding hyperbole. For example, the *New York Daily News* published an article with the headline, “Yelling at Your Teen Can Backfire, Impact Mental Health: Study” (2013). The study’s methods and findings are reported more accurately and the study author is paraphrased offering some evidence-informed parenting advice, “Take a breather if you feel a surge of anger or worry, and Wang suggests talking to your teens about the consequences of misbehaving, rather than yelling.” It also offers some important context from previous research—90% of parents report yelling at their children (Straus & Field, 2003). To equate physical and verbal discipline, as the *Wall Street Journal* did, is to suggest that these parents are putting their children at risk for the same outcomes as parents who physically discipline their children. This could be discouraging to this large percentage of parents, especially because research captured in this review also suggests that parents understand that corporal punishment is not an effective disciplinary practice (Chen et al., 2016). The outcomes associated with both of these harsh parenting practices are worthy of accurate reporting in the media in a way that helps parents feel empowered to effectively discipline their adolescents. The review methodology proposed here allows for comparisons of research and popular narratives in a given area.

In sum, the studies in this review suggest that fair discipline, enforced consistently, is associated with the best outcomes among adolescents. These findings compare favorably with traditional systematic reviews. Both our rapid review and other systematic reviews came to similar conclusions about the effects of parental discipline. For example, a systematic review conducted by Ryan et al. (2010) found that parental discipline was associated

with reduced alcohol use, a finding that is supported by our rapid review. Moreover, this rapid review supports findings from systematic reviews demonstrating that harsh or physical parental discipline is associated with callous/unemotional traits or violent behaviors among teens (Hawes et al., 2014; Waller et al., 2013). This suggests that a rapid review of influential literature, like the one described above, is unlikely to come to contradictory conclusions simply because the review excludes studies that do not meet predetermined thresholds of influence.

Our rapid review methodology has several strengths. Our review requires less time and staff to complete than the average systematic review (Borah et al., 2017), enabling faster turnaround time and inclusion of more up-to-date findings for translation and dissemination. Moreover, our process is iterative, meaning that our reviews can be revised quickly as studies become more influential. This overcomes an important limitation of systematic reviews, which can be outdated by the time they are published (Bastian et al., 2010; Roberts et al., 2015). This rapid review methodology also helps to understand the alignment between popular and academic narratives. It allows us to determine if scientific studies are described in the media in ways that maintain the integrity and accuracy of the research.

This methodology also has some weaknesses. Articles that receive a large number of citations are not always high quality. In fact, there are numerous examples of questionably designed or retracted studies that are highly cited, such as the Stanford prison experiment (Le Texier, 2019; Zimbardo et al., 1971) and studies linking vaccines to cases of autism (Flaherty, 2011; Wakefield et al., 1998). It is important to rely on more than the number of citations when deciding which studies should be included in the review. This is why elements of traditional systematic reviews, such as dual independent review and group discussion and consensus, were integrated into this methodology. This ensures studies are in fact relevant to the review and high quality. A

subsequent check on the studies included in this review determined that none were retracted since this review was conducted.

Altmetrics also have some limitations. They are a relatively new tool for measuring a study's impact and engagement among the general public. As such, Altmetrics creators can only offer a suggested score of 20 for an influential study, pending further research into measures of online impact and engagement. (Liu & Adie, 2013). Furthermore, high scores can be inflated by wide dissemination of an article across affiliated news sites (e.g., National Public Radio sites) or via wire services. Researchers can also influence the Altmetric score by repeatedly promoting their work on social media. It is because of these limitations that we complemented the use of Altmetrics with other metrics, such as number of citations, and accepted systematic review techniques. In addition, it is difficult to know how the lay literature impacts parents' attitudes, beliefs, and intentions about discipline. Many parents use social media to find information about parenting (Duggan et al., 2015). Similarly, discussions about character education increasingly occur on social media (Hersh, 2015). Future research should examine how translations of scientific findings pertaining to both parenting and character education disseminated via social media alter parents' and educators' beliefs and behaviors in raising and teaching children.

IMPLICATIONS

Traditional methods of reviewing scientific literature must adapt to the ever-changing online landscape including social media sharing and consumer demand for timely news. The novel approach to rapid literature review described in this article was designed to address these realities and identify disconnects between scientific findings and the popular press. By uniting traditional citation metrics with the use of Altmetrics that measure online and social media attention, this rapid review methodol-

ogy was able to effectively examine influential literature from both the scientific community and the lay literature. In practice, this could allow researchers to address gaps or misunderstandings in the public's knowledge about parenting. For example, researchers could use this methodology to quickly assess what the scientific literature demonstrates and how the public is discussing study findings on social media platforms, such as Twitter. From their own social media accounts, researchers could then accurately translate and disseminate findings or intervene to correct inaccuracies or misinterpretations in widely shared news stores. This level of public engagement by researchers could have profound implications for educators, policy makers, and parents and improve their understanding of scientific studies.

AUTHOR NOTE

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APPENDIX

Table A1. Article-Level Metrics of Articles Included in Review (As of July 9, 2019)

<i>Citation</i>	<i>Number of Citations¹</i>	<i>Altmetric Score¹</i>
Aboujaoude, E., Savage, M. W., Starcevic, V., & Salame, W. O. (2015). Cyberbullying: Review of an old problem gone viral. <i>Journal of Adolescent Health, 57</i> (1), 10–18. https://doi.org/10.1016/j.jadohealth.2015.04.011	96	37
Beardslee, W. R., Gladstone, T. R. G., Wright, E. J., & Cooper, A. B. (2003). A family-based approach to the prevention of depressive symptoms in children at risk: Evidence of parental and child change. <i>Pediatrics, 112</i> (2), 119–131. https://doi.org/10.1542/peds.112.2.e119	331	25
Calvete, E., Orue, I., Gamez-Guadix, M., & Bushman, B. J. (2015). Predictors of child-to-parent aggression: A 3-year longitudinal study. <i>Developmental Psychology, 51</i> (5), 663–676. https://doi.org/10.1037/a0039092	22	117
Chassin, L., Curran, P. J., Hussong, A. M., & Colder, C. R. (1996). The relation of parent alcoholism to adolescent substance use: A longitudinal follow-up study. <i>Journal of Abnormal Psychology, 105</i> (1), 70–80. https://doi.org/10.1037/0021-843X.105.1.70	288	1
Chassin, L., Pillow, D. R., Curran, P. J., Molina, B. S. G., & Barrera, M. (1993). Relation of parental alcoholism to early adolescent substance use: A test of three mediating mechanisms. <i>Journal of Abnormal Psychology, 102</i> (1), 3–19. https://doi.org/10.1037/0021-843X.102.1.3	374	3
Chen, R. J., Flores, G., & Shetgiri, R. (2016). African-American and Latino parents' attitudes and beliefs regarding adolescent fighting and its prevention. <i>Journal of Child and Family Studies, 25</i> (6), 1746–1754. https://doi.org/10.1007/s10826-015-0355-8	4	142
Coatsworth, J. D., Duncan, L. G., Nix, R. L., Greenberg, M. T., Gayles, J. G., Bamberger, K. T., Berrena, E., & Demi, M. A. (2015). Integrating mindfulness with parent training: Effects of the Mindfulness-Enhanced Strengthening Families Program. <i>Developmental Psychology, 51</i> (1), 26–35. https://doi.org/10.1037/a0038212	102	4
Conger, R. D., Patterson, G. R., & Ge, X. (1995). It takes two to replicate: A mediational model for the impact of parents' stress on adolescent adjustment. <i>Child Development, 66</i> (1), 80–97. https://doi.org/10.1111/j.1467-8624.1995.tb00857.x	259	0
Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. <i>Developmental Psychology, 27</i> (1), 172–180. https://doi.org/10.1037/0012-1649.27.1.172	639	4
Eckenrode, J., Laird, M., & Doris, J. (1993). School performance and disciplinary problems among abused and neglected children. <i>Developmental Psychology, 29</i> (1), 53–62. https://doi.org/10.1037/0012-1649.29.1.53	350	4
Eddy, J. M., & Chamberlain, P. (2000). Family management and deviant peer association as mediators of the impact of treatment condition on youth antisocial behavior. <i>Journal of Consulting and Clinical Psychology, 68</i> (5), 857–863. https://doi.org/10.1037/0022-006X.68.5.857	394	4
Ehrensaft, M. K., Cohen, P., Brown, J., Smailes, E., Chen, H., & Johnson, J. G. (2003). Intergenerational transmission of partner violence: A 20-year prospective study. <i>Journal of Consulting and Clinical Psychology, 71</i> (4), 741–753. https://doi.org/10.1037/0022-006X.71.4.741	567	13
Espelage, D. L., Bosworth, K., & Simon, T. R. (2000). Examining the social context of bullying behaviors in early adolescence. <i>Journal of Counseling and Development, 78</i> (3), 326–333. https://doi.org/10.1002/j.1556-6676.2000.tb01914.x	294	7

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Citation	Number of Citations ¹	Altmetric Score ¹
Frick, P. J., Lahey, B. B., Loeber, R., Stouthamer-Loeber, M., Christ, M. A. G., & Hanson, K. (1992). Familial risk factors to oppositional defiant disorder and conduct disorder: Parental psychopathology and maternal parenting. <i>Journal of Consulting and Clinical Psychology</i> , 60(1), 49–55. https://doi.org/10.1037/0022-006X.60.1.49	239	1
Fuligni, A. J. (1998). Authority, autonomy, and parent-adolescent conflict and cohesion: A study of adolescents from Mexican, Chinese, Filipino, and European backgrounds. <i>Developmental Psychology</i> , 34(4), 782–792. https://doi.org/10.1037/0012-1649.34.4.782	345	1
Fuligni, A. J., & Eccles, J. S. (1993). Perceived parent-child relationships and early adolescents' orientation toward peers. <i>Developmental Psychology</i> , 29(4), 622–632. https://doi.org/10.1037/0012-1649.29.4.622	309	1
Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. <i>Child Development</i> , 63(1), 103–115. https://doi.org/10.1111/j.1467-8624.1992.tb03599.x	1051	2
Ge, X., Conger, R. D., Cadoret, R. J., Neiderhiser, J. M., Yates, W., Troughton, E., & Stewart, M. A. (1996). The developmental interface between nature and nurture: A mutual influence model of child antisocial behavior and parent behaviors. <i>Developmental Psychology</i> , 32(4), 574–589. https://doi.org/10.1037/0012-1649.32.4.574	334	7
Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. <i>Development and Psychopathology</i> , 10(1), 101–116. https://doi.org/10.1017/S0954579498001539	494	39
Gorman-Smith, D., Tolan, P. H., Zelli, A., & Huesmann, L. R. (1996). The relation of family functioning to violence among inner-city minority youths. <i>Journal of Family Psychology</i> , 10(2), 115–129. https://doi.org/10.1037/0893-3200.10.2.115	312	1
Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. <i>Psychology of Addictive Behaviors</i> , 14(2), 174–184. https://doi.org/10.1037/0893-164X.14.2.174	324	1
Hannon, L., DeFina, R., & Bruch, S. (2013). The relationship between skin tone and school suspension for African Americans. <i>Race and Social Problems</i> , 5(4), 281–295. https://doi.org/10.1007/s12552-013-9104-z	51	55
Hawkins, J. D., Catalano, R. F., Kosterman, R., Abbott, R., & Hill, K. G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. <i>Archives of Pediatrics & Adolescent Medicine</i> , 153(3), 226–234. https://doi.org/10.1001/archpedi.153.3.226	649	2
Hinduja, S., & Patchin, J. W. (2013). Social influences on cyberbullying behaviors among middle and high school students. <i>Journal of Youth and Adolescence</i> , 42(5), 711–722. https://doi.org/10.1007/s10964-012-9902-4	121	27
Jensen, A. C., & Whiteman, S. D. (2014). Parents' differential treatment and adolescents' delinquent behaviors: Direct and indirect effects of difference-score and perception-based measures. <i>Journal of Family Psychology</i> , 28(4), 549–559. https://doi.org/10.1037/a0036888	8	105
Kazdin, A. E., Siegel, T. C., & Bass, D. (1992). Cognitive problem-solving skills training and parent management training in the treatment of antisocial behavior in children. <i>Journal of Consulting and Clinical Psychology</i> , 60(5), 733–747. https://doi.org/10.1037/0022-006X.60.5.733	405	10
Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. <i>Developmental Psychology</i> , 36(3), 366–380. https://doi.org/10.1037/0012-1649.36.3.366	944	6

(Appendix continues on next page)

Citation	Number of Citations ¹	Altmetric Score ¹
Kim, S. Y., Wang, Y., Orozco-Lapray, D., Shen, Y., & Murtuza, M. (2013). Does “tiger parenting” exist? Parenting profiles of Chinese Americans and adolescent developmental outcomes. <i>Asian American Journal of Psychology</i> , 4(1), 7–18. https://doi.org/10.1037/a0030612	171	189
Lansford, J. E., Criss, M. M., Laird, R. D., Shaw, D. S., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2011). Reciprocal relations between parents’ physical discipline and children’s externalizing behavior during middle childhood and adolescence. <i>Development and Psychopathology</i> , 23(1), 225–238. https://doi.org/10.1017/S0954579410000751	94	45
Leaper, C., Anderson, K. J., & Sanders, P. (1998). Moderators of gender effects on parents’ talk to their children: A meta-analysis. <i>Developmental Psychology</i> , 34(1), 3–27. https://doi.org/10.1037/0012-1649.34.1.3	260	4
Lempers, J. D., Clark-Lempers, D., & Simons, R. L. (1989). Economic hardship, parenting, and distress in adolescence. <i>Child Development</i> , 60(1), 25. https://doi.org/10.2307/1131068	300	0
Lippold, M. A., Glatz, T., Fosco, G. M., & Feinberg, M. E. (2017). Parental perceived control and social support: Linkages to change in parenting behaviors during early adolescence. <i>Family Process</i> . https://doi.org/10.1111/famp.12283	3	370
Lochman, J. E., & Wells, K. C. (2004). The coping power program for preadolescent aggressive boys and their parents: Outcome effects at the 1-year follow-up. <i>Journal of Consulting and Clinical Psychology</i> , 72(4), 571–578. https://doi.org/10.1037/0022-006X.72.4.571	255	6
Loeber, R., & Dishion, T. (1983). Early predictors of male delinquency: A review. <i>Psychological Bulletin</i> , 94(1), 68–99. https://doi.org/10.1037/0033-2909.94.1.68	965	9
Lytton, H. (1990). Child and parent effects in boys’ conduct disorder: A reinterpretation. <i>Developmental Psychology</i> , 26(5), 683–697. https://doi.org/10.1037/0012-1649.26.5.683	430	1
MacKenzie, M. J., Nicklas, E., Brooks-Gunn, J., & Waldfogel, J. (2015). Spanking and children’s externalizing behavior across the first decade of life: Evidence for transactional processes. <i>Journal of Youth and Adolescence</i> , 44(3), 658–669. https://doi.org/10.1007/s10964-014-0114-y	30	36
McLoyd, V. C., Jayaratne, T. E., Ceballo, R., & Borquez, J. (1994). Unemployment and work interruption among African American single mothers: Effects on parenting and adolescent socioemotional functioning. <i>Child Development</i> , 65(2), 562–589. https://doi.org/10.1111/j.1467-8624.1994.tb00769.x	474	13
Miranda, A., Colomer, C., Fernández, M. I., Presentación, M. J., & Roselló, B. (2015). Analysis of personal and family factors in the persistence of attention deficit hyperactivity disorder: Results of a prospective follow-up study in childhood. <i>PLoS ONE</i> , 10(5), 1–16. https://doi.org/10.1371/journal.pone.0128325	4	23
Musser, E. D., Karalunas, S. L., Dieckmann, N., Peris, T. S., & Nigg, J. T. (2016). Attention-deficit/hyperactivity disorder developmental trajectories related to parental expressed emotion. <i>Journal of Abnormal Psychology</i> , 125(2), 182–195. https://doi.org/10.1037/abn0000097	17	259
Okigbo, C. C., Kabiru, C. W., Mumah, J. N., Mojola, S. A., & Beguy, D. (2015). Influence of parental factors on adolescents’ transition to first sexual intercourse in Nairobi, Kenya: A longitudinal study. <i>Reproductive Health</i> , 12, 73. https://doi.org/10.1186/s12978-015-0069-9	12	24
Ryan, M., Jorm, F., & Lubman, I. (2010). Parenting factors associated with reduced adolescent alcohol use: A systematic review of longitudinal studies. <i>The Australian and New Zealand Journal of Psychiatry</i> , 44(9), 774–783. https://doi.org/10.1080/00048674.2010.501759	290	38

(Appendix continues on next page)

Citation	Number of Citations ¹	Altmetric Score ¹
Sampson, R. J., & Laub, J. H. (1994). Urban poverty and the family context of delinquency: A new look at structure and process in a classic study. <i>Child Development</i> , 65(2), 523–540. https://doi.org/10.1111/j.1467-8624.1994.tb00767.x	446	3
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