

Revisiting the Walpole Prison Solitary Confinement Study (WPSCS): A Content Analysis of the Studies Citing Grassian (1983)

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In the last decade, scholars have expressed growing concerns about the credibility of some studies in the biomedical and social sciences domains that are broadly regarded as classics, that is, studies that are widely cited as the definitive answer on a topic and are in the public interest. In the current investigation, we directed our attention toward one such classic—the Walpole Prison Solitary Confinement Study (WPSCS)—which reported that inmates placed in prison solitary confinement suffered traumatic psychological damage (Grassian, 1983). Our survey of the peer-reviewed literature referencing the WPSCS from 1983 to 2017 confirmed that a very large proportion (i.e., 81%) of articles cited the study without any discussion of its fatal methodological limitations (e.g., response bias confounds, no comparison group). The number of uncritical articles, moreover, has increased over time despite the fact that 30 years ago the first criticisms of the study appeared and have continued to do so. We offer several reasons from the cognitive psychological literature as to why the WPSCS has been viewed favorably. Lastly, we discuss how the WPSCS may have diverted attention away from managing prisons in a humane fashion and provide recommendations for reducing reporting biases in the academic literature.

Keywords: solitary confinement, segregation, prison, replication, peer review

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Concerns about the quality of research published in peer-reviewed journals are not a new phenomenon. The initial warning signs about the trustworthiness of scientific research can be traced back about a half century ago from philosophers in mathematics and physics (de Solla Price, 1963; Ravetz, 1971). Fast forward to the present, there is now substantial evidence that the credibility of more than a few studies deemed to be classics in the biomedical sciences, economics, and psychology have been disputed because their results could not be replicated (Bohannon, 2016; Chang & Li, 2015; Ioannidis, 2005; Lehrer, 2010; Open Science Collaboration, 2015).

The forgoing issue has received very little critical attention in forensic psychology and criminology until recently in the case of the 1971 Stanford prison experiment (SPE; Griggs, 2014; Kulig, Pratt, & Cullen, 2017; J. M. Bartels, 2015). The SPE was a simulated experiment of prison life which reported dramatic pathological behaviors from college student participants as a result of being housed in harsh physical living conditions and having to endure humiliating personal interactions with noninmate/guards (Haney, Banks, & Zimbardo, 1973; Zimbardo, 1972). Kulig et al. (2017) surveyed the peer-reviewed literature on the SPE and found a very high acceptance rate by scholars (80%) despite the study never being directly replicated. Just recently, however, the SPE has also been the subject of an alarming number of criticisms on scientific and ethical criteria (Blum, 2018; Haslam, Reicher, & Van Bavel, 2019; J. Bartels, 2019; Le Texier, 2019; McLeod, 2018). Zimbardo has now claimed the SPE was a “demonstration,” not an experiment and was unrepresentative of prison life (Resnick, 2018).

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In this article, we focus on another classic study in the prison literature that was conducted by Grassian (1983)—the Walpole Prison Solitary Confinement Study (hereafter referred to as the WPSCS). We begin by describing the context, methodology, and results of the WPSCS. And then follow by reviewing the controversy regarding the study’s methodological quality and the replicability of its findings.

The WPSCS: Context, Methodology, and Results

The Walpole State Prison has had a notorious history of appalling levels of inhumane care (Cadambi, 2010; and Willson, 2011). In the early 1980s, some of its inmates initiated a class-action lawsuit against the Massachusetts Department of Corrections claiming that the use of solitary confinement was cruel and unusual punishment in violation of their Eighth Amendment rights. Grassian was an expert witness representing the inmate plaintiffs in this case and he conducted clinical interviews with them in the prison's solitary confinement unit (Grassian, 1983). The study involved a cross-sectional, posttest-only research design that did not include presegregation mental health information. In collecting information from the inmates, Grassian (1983) stated that he actively encouraged the disclosure of information when it was not forthcoming, provided reassurance, and persistently confronted and explored gaps in the reported accounts from the study participants (pp. 1451–1452).

Based on his assessment, Grassian (1983) concluded that each inmate suffered severe psychological damage as a result of their experience in this setting. It was his opinion that these negative effects formed a unique "clinically distinguishable syndrome" (Grassian, 1983, p. 1453; see also Grassian, 2006; and Grassian & Friedman, 1986). He later coined the term security housing unit (SHU) syndrome to refer to the constellation of psychological symptoms that result from placement in solitary confinement. More specifically, Grassian (1983) described these symptoms to include:

- (1) sensory disturbances: perceptual distortions and loss of perceptual constancy, in some cases without hallucinations; (2) ideas of reference and paranoid ideation short of overt delusions; (3) emergence of primitive aggressive fantasies, which remained ego-dystonic and with reality-testing preserved; (4) disturbances of memory and attention short of overt disorientation and confusional state; and (5) derealization experiences without massive dissociative regression. (pp. 1453–1454)

The esteem held for his study has been pronounced. It has been proclaimed as the seminal study on the effects of solitary confinement in prison (Haney, 2018). It has also become the "go to" study whenever there are initiatives driven by the media, prison reformers, and civil rights advocates to abolish solitary confinement (Fettig, 2016). Indeed, the WPSCS has frequently been used in court cases challenging the use of solitary confinement.¹

Research Quality and Replication of the WPSCS

There have been many investigations on the psychological effects of solitary confinement in different prison settings throughout North America and abroad that postdate the WPSCS. Given the enormity of this literature base, we discuss here only some of the key works in this area. For a more thorough description of this literature, we refer the reader to the reviews by Gendreau and Labrecque (2018); Kapoor and Trestman (2016); Morgan et al. (2016), and Scharff-Smith (2006). Our discussion of this research is separated into two types—qualitative and quantitative investigations—because the conclusions drawn from these analytical approaches differ substantially.

The qualitative solitary confinement research has supported Grassian's (1983) findings and further suggested that solitary

confinement can produce long-lasting functional disability and psychosis (Haney, 2018; Kupers, 2017; Lobel & Scharff-Smith, 2020; Rhodes, 2004). For example, a study of seven inmates in a Canadian federal penitentiary concluded that each suffered serious psychological damage as a result of placement in isolation (Jackson, 1983). An evaluation of 69 inmates in three maximum-security prisons further indicated significant psychopathological consequences as a result of segregated inmates being largely restricted to their cells and denied opportunities for program participation (Brodsy & Scogin, 1988). Another investigation in the Pelican Bay State Prison in California indicated that inmates in solitary confinement presented a wide range of psychological symptoms, including anxiety and self-mutilation (Haney, 1993; see also Haney, 2003; and 2009). Finally, a case study in the Washington State prison system reported that a large proportion of inmates held in solitary confinement settings (45%) suffered from serious mental illness, including psychological symptoms, psychological breakdowns, and brain damage (Lovell, 2008). Although supportive of the SHU syndrome, these qualitative investigations shared all, or most, of the methodological characteristics that were present in the Grassian (1983) study.

The quantitative solitary confinement research, on the contrary, has generally concluded that this setting produces much less serious detrimental psychological effects. Here, we draw attention to a smaller subset of empirical work on this topic (for more information on these studies and others, see Morgan et al., 2016). Suedfeld, Ramirez, Deaton, and Baker-Brown (1982) examined the effects of solitary confinement in five United States and Canadian prisons and found that inmates exhibited no statistically significant differences on several psychological indicators in comparison to those among the general inmate population. In another investigation in the Canadian federal prison system, Zinger, Wichmann, and Andrews (2001) found that although inmates in solitary confinement had higher levels of depression, anxiety, and psychosocial adjustment than those in the general population, this group did not show any signs of mental health deterioration over the 60 days spent in segregation. A longitudinal study in the Colorado state prison system revealed similar psychological outcomes for inmates held in a solitary confinement unit for 1 year compared to those among the general population and a specialized psychiatric care facility (O'Keefe, Klebe, Stucker, Sturm, & Leggett, 2010; see also O'Keefe et al., 2013). Another empirical evaluation in Kansas found that although segregated inmates reported higher levels of distress (e.g., anxiety, depressed mood, posttraumatic stress, somatic complaints), these inmates generally did not deteriorate on indicators of mental health as time in solitary confinement increased (Chadick, Batastini, Levulis, & Morgan, 2018). Finally, two recent meta-analyses of the empirical literature found that solitary confinement generated weak negative effects on a variety of psychological outcomes, especially among the studies rated higher on methodological rigor (Morgan et al., 2016). These quantitative investigations, however, are not "perfect" and some possess methodological shortcomings as well, including the choice

¹ Grassian (2016) has appeared as an expert witness in at least three dozen court litigation trials and he has often referenced the WPSCS findings in his reports and testimonies.

of psychological assessments, group selection biases, inmate response bias, and problems of attrition.

In summary, it seems reasonable to conclude from the conflicting reports in the qualitative and quantitative literature that researchers have fundamentally different opinions on the magnitude of the effect that solitary confinement has on psychological outcomes. Although the current investigation cannot settle this debate, a critical examination of how this study has been presented in the greater scientific literature is warranted. The goal of the current investigation was to evaluate how authors describe the validity of the SHU syndrome in peer-reviewed publications: the ultimate standard for assessing research integrity in academia. This study examined the extent to which articles referencing the WPSCS provide an objective interpretation of its findings or simply cite the study without any acknowledgment of its methodological limitations. As we point out later, our work is not meant to fully discount the findings of Grassian (1983), but rather to emphasize that the WPSCS provides an intriguing provisional hypothesis and not an incontrovertible truth.

Method

Sample of Studies

To identify publications citing Grassian (1983), a citation reference search was conducted in Google Scholar. This process identified a total of 224 sources. In order to be included in the current study, publications had to meet two basic criteria. It had to be written in English and published in a peer-reviewed journal between 1983 and 2017. These criteria excluded other forms of literature, including books, book chapters, technical reports, and conference presentations.

This process retained 91 articles meeting our inclusion criteria (see references for a complete list of the included studies). Although this figure represents only a portion of the broader literature citing Grassian (1983), the peer review process is the most likely to ensure authors are critical in their review of the study.

Coding of Studies

The studies were coded as either “uncritical” or “critical” of the WPSCS methodology. Our coding criteria required that critical articles discussed limitations specific to the study’s research design. This definition excluded articles merely describing the WPSCS as a qualitative study or criticizing qualitative research generally, if the authors did not also elaborate on the methodological problems of the study. The uncritical articles were subdivided into three groups, including (a) those that specifically noted Grassian (1983) as evidence of psychological harm, (b) those that referenced the WPSCS in general terms (i.e., included in a string citation with other works) as evidence of psychological harm, and (c) those that acknowledged the study but took an impartial position on the effects of solitary confinement.

The critical articles were separated into two categories, including (a) those that mentioned one or two limitations, and (b) those that discussed three or more limitations. The types of limitations coded included “small sample size,” “selection bias,” “no comparison group,” “cross-sectional design” (e.g., no pre- and posttest), “response bias” (i.e., the tendency of a person to answer questions

untruthfully or misleadingly as a result of a pressure to give answers because of situational factors internal and external to the setting and the conduct of the experimenter), and the use of “unstructured interviews.”²

Author discipline and journal information, including the type of article (i.e., quantitative, qualitative, or review) and year of publication was also tabulated for all of the articles. The first and fourth author coded the studies and the level of agreement was 92%. When questions arose about a specific coding classification, the second author was contacted to collaboratively reach a decision on the coding item of concern.

Analytical Strategy

This study addresses four distinct, yet interrelated, questions about the description of the WPSCS in peer-reviewed publications. First, how often did authors present no criticism of the WPSCS versus discuss the study’s limitations when citing Grassian (1983) in peer refereed journal articles? Second, how did uncritical studies present the findings of the WPSCS? Third, among critical studies, what explicit limitations did the authors describe? And fourth, has there been an increase or decrease in the number of critical and uncritical studies in the 35 years since the initial 1983 publication?

Results

This investigation involved a total of 91 studies that met the inclusion criteria. The majority of the articles appeared in print between 1998 and 2007 (42.9%), and from 2008 to 2017 (41.8%), with 15.8% from 1983 to 1997. Most of these studies appeared in psychology journals (47.3%), followed by 33.0% in criminology, and 19.8% in other scientific fields (i.e., health, humanities, and other social sciences). The majority of these studies were review articles (61.5%), followed by quantitative (28.6%) and qualitative investigations (9.9%).

As can be seen from Table 1, 74 of the 91 articles (or 81.3%) cited the WPSCS without any mention of its methodological limitations, 8.8% discussed one or two limitations, and 9.9% described three or more limitations.³ Among the uncritical studies, 81.1% cited the WPSCS as evidence of psychological harm. This included 47.3% with a specific reference to the study and 33.8% with a general reference (i.e., string citation). Hagan et al. (2018) provided an example of the articles in the former category by referring to the WPSCS as documenting “a distinct set of shared disturbances among [inmates in solitary confinement], including perceptual distortions, paranoid ideation without overt delusions, ego-dystonic aggressive fantasies, difficulties with memory and attention, and derealization experiences” (p. 142). Saher and Cetin (2016) provided an example of the articles in the latter category by stating generally that “the results of scholarly research (such as Brodsky & Scogin, 1988; Grassian, 1983; Grassian & Friedman, 1986; Korn, 1988; Kupers, 1996; Miller, 1994; etc.) prove that

² These categories were developed by reviewing the descriptions of the WPSCS in each of the included studies. For more information about the specific criticisms listed, please refer to the online supplemental materials.

³ For the interested reader, a full list of the articles falling into each category is provided in the reference section. Articles with no criticism appear with one asterisk, those with one or two criticisms include two asterisks, and those with three or more criticism have three asterisks.

Table 1
Summary of Journal Articles Citing the WPSCS, by Level of Criticism

Measure	Number of publications	Percentage of total publications
Number of criticisms (<i>n</i> = 91)		
None	74	81.3
1 or 2	8	8.8
3 or more	9	9.9
Categories of uncritical studies (<i>n</i> = 74)		
Discussed specifically as evidence of harm	35	47.3
Referenced generally as evidence of harm	25	33.8
Presented impartially	14	18.9
Types of criticisms among critical studies (<i>n</i> = 17)		
Response bias	11	64.7
No comparison group	8	47.1
Selection bias	8	47.1
Small sample size	6	35.3
Unstructured interviews	5	29.4
Cross-sectional design	3	17.6

Note. WPSCS = Walpole Prison Solitary Confinement Study.

solitary confinement carries serious psychiatric risks” (p. 63). The remainder of articles (18.9%) presented the WPSCS in a balanced or impartial manner (e.g., Clements et al., 2007, p. 925). Table 2 lists the 74 articles that fell within each of these three categories.

Table 1 also shows that of the 17 articles noting the study’s limitations (18.7% of the total reviewed), the most common critique leveled against the WPSCS was response bias (64.7%), followed by lack of a comparison group (47.1%), selection bias (47.1%), small sample size (35.3%), use of unstructured interviews (29.4%) and cross-sectional design (17.6%). Articles published in criminology journals were the most likely to discuss methodological limitations (30%), followed by psychology (18.6%) and other disciplines (0%). Quantitative studies were also the most likely to report methodological shortcomings (38.5%), followed by review articles (12.5%) and qualitative investigations (0%).

Table 3 summarizes the number and type of critiques raised in journal articles that were critical of the WPSCS. The following characterizes the nature of these critical comments. Ward and Werlich (2003) declared that “judgments based on a limited number of interviews with a small, non-randomly selected group of inmates does not provide the kind of evidence needed for a comprehensive assessment of the psychological effects of supermax confinement” (p. 61). Pizarro and Stenius (2004) acknowledged “[drawing] inferences on the basis of inmates under special circumstances, such as class-action suits against jurisdictions for the treatment they receive in isolation makes their results difficult to generalize to other populations” (p. 257). Glancy and Murray (2006) drew attention to the fact that the Grassian used “confrontation” and “encouragement” to elicit the answers from inmates which call into question the role of interviewer bias and suggestion (p. 363; also see Grassian, 1983, pp. 1451–1452). Finally, O’Keefe (2008) noted several study limitations, including a “small sample size,” “no discussion of sampling procedures,” “study participants [were] plaintiffs in a class-action lawsuit regarding their conditions of confinement who might benefit from reporting negative effects,” “interviewer [pressed] the participants into endorsing negative symptoms after initially denying them,” and a failure to “provide a relative comparison of the participants’ behavior in other settings” (p. 127).

Figure 1 depicts the number of peer-reviewed citations of Grassian (1983) quinquennially since its initial publication date, which are separated dichotomously by criticism status. In general, this figure shows a monotonic increase in the number of uncritical studies in each successive 5-year block across this 35-year time span. This figure also reveals the percentage of critical studies peaked in frequency between 2003 and 2007 (39.1%) and has dropped substantially since (14.3% in 2008–2012 and 7.7% in 2013–2017).

Discussion

This content analysis of articles citing Grassian (1983) revealed that discussions of the WPSCS in the peer-reviewed literature were largely uncritical of its research methodology (81%). This finding is nearly identical to that reported by Kulig et al. (2017) for the SPE (80%). The credibility of the SHU syndrome has also grown exponentially during the 5-year span between 2012 and 2017 (see Figure 1), which is disturbing given that a number of fundamental shortcomings in the study’s research design were identified prior to that period.

The most frequently noted criticism (65%), and one which we draw particular attention to here, is that of response bias confounds. Given the circumstances at the Walpole prison during the time of this study (i.e., ongoing litigation) and Grassian’s (1983) interview method to encourage the disclosure of symptoms, it is curious why this design flaw has been so often overlooked. In fact, the initial warning signs emerged in the sensory deprivation literature more than 50 years ago where it was demonstrated that subtle cues in this physical setting, the interview process, and the demeanor and actions of the experimenter were capable of producing evidence of detectable pathological effects (Jackson & Kelly, 1962; Orne, 1962; Orne & Scheibe, 1964; Suedfeld, 1980). Furthermore, cognitive memory researchers have established that an interviewees’ answers in various types of situations can easily be manipulated (Fisher & Geiselman, 1992; Gudjonsson, 1986, 1992). The subtle wording of questions and instructions, even the altering of a spoken or written word, can change an interviewees’ recollection of events. Since the interviewer is often in a position

Table 2

Summary of Uncritical Journal Articles Citing the WPSCS, by Reference Type

Specific reference of harm (<i>n</i> = 35)	General reference of harm (<i>n</i> = 25)	Impartial reference (<i>n</i> = 14)
Appelbaum (2007)	Ahalt et al. (2017)	Berger, Chaplin, and Trestman (2013)
Awopetu (2014)	Andersen et al. (2001)	Bessire (2012)
Burton and Burrow (2015)	Bendfeldt-Zachrisson (1988)	Briggs, Sundt, and Castellano (2003)
Colb (2002)	Cunningham, Reidy, and Sorensen (2016)	Clements et al. (2007)
Gibbons and Katzenbach (2006)	Erickson (2012)	Felthous (2011)
Golembiewski (2013)	Freeman and Garety (2003)	Hoskins (2013)
Guenther (2011)	Haines, Williams, Brain, and Wilson (1995)	Martel (2001)
Guenther (2012)	Haney and Zimbardo (1998)	Maxwell, Day, and Casey (2013)
Hagan et al. (2018)	Hill, Rapp, and Capella (2015)	Morris (2016)
Haney (2003)	Hyland et al. (2015)	Rhodes (1998)
Hart and Burton (2013)	Mawson (2012)	Rhodes (2001)
Humphreys and Burnett (1994)	Mears and Watson (2006)	Scott (2006)
Kapoor (2014)	Michael and Park (2016)	Sestoft, Andersen, Lillebaek, and Gabrielsen (1998)
Kennedy, Williams, and Pesut (1994)	Miller and Young (1997)	Valera and Kates-Benman (2016)
Kupers (1996)	Murphy, Shevlin, Adamson, and Houston (2013)	
Kurki and Morris (2001)	Palazzolo (2014)	
Lenta (2015)	Perkinson (2006)	
Levin (2006)	Pierre (2010)	
Mason (1992)	Pizarro, Stenius, and Pratt (2006)	
Matthews (2004)	Rogers (1993)	
McGovern and Turkington (2001)	Rosenfarb (2013)	
McMillan (2016)	Saher and Cetin (2016)	
Meehan, Vermeer, and Windsor (2000)	Toch and Kupers (2007)	
Mitchell and Varley (1990)	Wang, Owens, Long, Diamond, and Smith (2000)	
Morrison (1998)	Yanofski (2011)	
Morrison (2001)		
Muth (2016)		
Olivero and Roberts (1987)		
Perkinson (1994)		
Robertson (2001)		
Segovia, Moore, Linnville, Hoyt, and Hain (2012)		
Shalev (2011)		
Way, Sawyer, Barboza, and Nash (2007)		
Whittaker (1988)		
Zoglin (2014)		

Note. *N* = 74. WPSCS = Walpole Prison Solitary Confinement Study.

of authority, it is not uncommon for the former to take the path of least resistance and provide answers they believe might benefit themselves (Loftus, 2003).⁴ This is particularly disconcerting, given Grassian's (1983) report that he "was required . . . to actively encourage disclosure of information, to provide reassurance, and persistently confront" study participants (pp. 1451–1452).

In essence, Grassian (1983) conducted a forensic assessment, not a research evaluation. Forensic clinicians estimate that nearly 20% of criminal cases and 30% of civil cases involve malingering (i.e., falsely reporting or exaggerating symptoms with the goal of receiving a reward; Mittenberg, Patton, Canyock, & Condit, 2002; Rogers, Salekin, Sewell, Goldstein, & Leonard, 1998; Rogers, Sewell, & Goldstein, 1994). Even more striking, one study found that two thirds of individuals assessed in a forensic context distorted their presentations in response to external motivations (e.g., financial gain; Heilbrun, Bennett, White, & Kelly, 1990). Thus, assessing individual responses is a "fundamental element" (Goldstein, 2007, p. 7) of any forensic assessment (see also Rogers, 1997; Rogers & Bender, 2003). Simply stated, accepting a plaintiff's report without critically examining the accuracy of their statements is "naïve at best . . . ignores the obvious motivation to

deceive and does not meet acknowledged practice standards in the field" (Goldstein, 2007, p. 7).

Our final point is that the WPSCS also failed to recognize the contribution of a major theory on how offenders adjust to prison life throughout their commitment. Grassian's (1983) posttest only design did not provide any assessment of participants' preexisting psychological functioning before entering prison, while in prison before being placed in solitary confinement, or after release to the general prison population. A longitudinal baseline reporting of symptoms is indispensable to understanding if there were any causal relationships (Shadish, Cook, & Campbell, 2001). According to the importation theory, proposed by Thomas (1977) and later extended in Zamble and Porporino's (1990) coping model of prison behavior, there is evidence that a significant portion of an inmate's maladaptive behavior in prison (i.e., coping skills) existed

⁴ This is not an obscure literature that has had limited circulation in the behavioral sciences. E. F. Loftus' work has been cited more than 66,000 times, according to Google Scholar.

Table 3

Summary of Critical Journal Articles Citing the WPSCS, by Number and Type of Criticism

Journal article	Number of criticisms	Type of criticism
Andersen et al. (2000)	1	Cross-sectional design
Andersen, Sestoft, Lillebaek, Gabrielsen, and Hemmingsen (2003)	1	Cross-sectional design
Andersen (2004)	5	Response bias, no comparison group, selection bias, unstructured interviews, cross-sectional design
Arrigo and Bullock (2008)	2	Response bias, small sample size
Bonta and Gendreau (1990)	4	Response bias, no comparison group, unstructured interviews
Coid et al. (2003)	1	Selection bias
Glancy and Murray (2006)	3	Response bias, no comparison group, unstructured interviews
Metzner and Dvoskin (2006)	3	Response bias, selection bias, no comparison group
Miller (1994)	1	Response bias
Morgan et al. (2016)	3	Response bias, selection bias, unstructured interviews
O'Keefe (2007)	3	Response bias, selection bias, small sample size
O'Keefe (2008)	4	Response bias, no control group, selection bias, small sample size
O'Keefe et al. (2013)	1	No comparison group
Pizarro and Stenius (2004)	2	Response bias, small sample size
Scharff-Smith (2006)	3	No control group, selection bias, small sample size
Ward and Werlich (2003)	2	Selection bias, small sample size
Zinger, Wichmann, and Andrews (2001)	3	Response bias, no comparison group, unstructured interviews

Note. N = 17. WPSCS = Walpole Prison Solitary Confinement Study.

prior to incarceration (for a review, see Gendreau & Goggin, 2013).

Contributing Factors to Uncritical Literature Reviews

We now present two theories from the cognitive motivation reasoning literature that outline the reasons why people adopt beliefs that do not have empirical substance. We then provide two examples from the solitary confinement literature that highlight how these theories are relevant to the results of this study.

The first theory states that people maintain beliefs for partisan reasons such as personal gain and the preservation of self-identity (Kahan, Landrum, Carpenter, Helft, & Jamieson, 2017). There are two subtle variations on this theme. The convenience bias describes a process whereby one searches for information that conforms to preexisting values (Kahan et al., 2017; Nickerson, 1998) and the desirability bias refers to a course of action where one seeks out evidence that they wish to be true (Tappin, van der Leer, & McKay, 2017).

Unfortunately, the use of the convenience/desirability reasoning processes may lead one to place too much trust on quick and intuitive forms of reasoning (i.e., availability heuristic; Tversky & Kahneman, 1973) to search for "facts" that are easily retrievable from sources such as high-profile single research studies as well as the Internet and social media. Kahneman (2011) and Meehl (1993) pointed out, however, that this heuristic is susceptible to stereotypical and emotional reasoning. The end result is that opinions on a subject may be expressed in overly confident common sense declarations of the truth (e.g., "what everybody knows"; Flagel & Gendreau, 2008; Gendreau, Goggin, Cullen, & Paparozzi, 2002; Kimble, 1994). Lilienfeld, Lynn, Ruscio, and Beyerstein (2010) have documented how common-sense reasoning has led researchers to arrive at false conclusions about a wide variety of psychological topics.

The second theory claims that the acceptance of beliefs is less about partisanship and more about the failure to take the time to reflect seriously about the truth of a matter. That is to say, people can be cognitively lazy or reluctant to make the effort to use their critical skills to determine the validity of a belief (Pennycook & Rand, 2019a). Consider the following two examples from the prison and solitary confinement literature which illustrate how these two cognitive thinking processes may have contributed to the results from this study.

First, Kulig et al. (2017) remarked that one reason the SPE was so widely endorsed was because a landmark study by Sykes (1958) established a core belief in the minds of many scholars that prison environments are invariably toxic, a sentiment which has likely been further reinforced by the compelling media accounts of tragic events that occurred in prisons over the years (e.g., riots in Attica, New Mexico, and South Carolina) and the frequent reports of substandard prison living conditions (Weber, 2018; Williams, 2016). In a similar vein, it is plausible that the convenience/desirability biases, in combination with the use of the availability

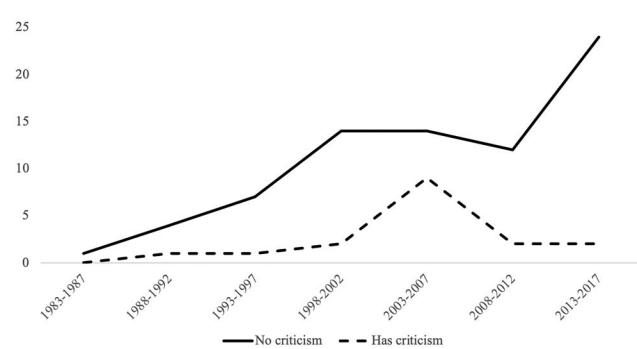


Figure 1. Number of peer-review citations of the Walpole Prison Solitary Confinement Study quinquennially with and without criticisms.

heuristic, played a role in choosing information to conclude that [Grassian's \(1983\)](#) findings made common sense.

The second example we draw upon involves the cognitive laziness hypothesis of [Pennycook and Rand \(2019a, 2019b\)](#). An often-heard lament among scholars is that the voluminous increases in research literatures make it all but impossible to "keep up" with current developments ([Johnson, Watkinson, & Mabe, 2018](#); [Larson & von Ins, 2010](#); [Pain, 2016](#)). The scholarship on solitary confinement is no exception in this regard. It encompasses several disciplines (e.g., criminology, criminal justice sociology, psychology, medicine, and economics). Some of this literature is highly specialized and technical in nature (i.e., perceptual theory). It also includes some "old" studies (i.e., 30 years or more) which are often relegated to the dust bin of history in psychology reviews ([Adair & Vohra, 2003](#)), a situation especially applicable to the topic of solitary confinement ([Gendreau & Labrecque, 2018](#)). For this reason alone, some reviewers may put their faith in the results of the WPSCS rather than wading through hundreds of studies to reach a conclusion on the matter.

Policy Implications

There are several policy implications of this study. The first has to do with managing prisons in a safe and humane manner. As noted in the introduction, the results of the WPSCS has been featured in many court litigations to restrict the use of solitary confinement to 15 days ([United Nations General Assembly, 2016](#)) or to abolish the practice outright ([Lloyd, 2017](#)). There is no debate that the use of such confinement must be significantly curtailed, especially in the United States, where estimates have suggested that 4% of the prison population are held in segregation on a daily basis and nearly 20% of its inmates have experienced this type of housing in the previous year ([Beck, 2015](#)). A universal policy without context, however, may serve to undermine institutional safety and security.

Within the prison population, there is a meaningful percentage of inmates who are at high risk for perpetuating violence ([Labrecque & Smith, 2019a](#); see also [Helmus, Johnson, & Harris, 2019](#)). The use of segregation is one strategy for safeguarding the risks that these offenders pose to staff, other inmates, and themselves. Although we are not proponents of solitary confinement, its use may be necessary in some cases while prison authorities conduct an investigation or seek alternative housing arrangements for a particular offender (see also [Dvoskin, Gendreau, & Serin, 2015](#); and [Morgan, Labrecque, Gendreau, Ramler, & Olafsson, 2017](#)). We contend that segregation should only be used when absolutely necessary and for the shortest duration possible. We further believe that the use of segregation should be developed and implemented with best practices that are flexible. For example, a universal, unyielding policy imposing a maximum of 15 days in segregation is naïve to the reality of the dangers that some inmates pose in prison and could present significant risks to institutional safety and security. Although many situations can be resolved within 2 weeks or less, one cannot ignore there are complex situational personality dynamics in prison ([Gendreau, Goggin, & Law, 1997](#)) which interact negatively with the volatile nature of some offenders who resist a quick solution and require more time to sort out their institutional adjustment problems.

One of the most disconcerting outcomes of the largely uncritical review of the WPSCS is that it has allowed this study to maintain a powerful and direct influence on correctional policy. In just one recent example, the sheriff of Cook County, Illinois, whose responsibilities include oversight of the Cook County Jail, cited the WPSCS as a reason for abolishing the use of solitary confinement ([Dart, 2019](#)). As noted previously, we agree that segregation is used too frequently in the United States. Reviews of the empirical research have also concluded that solitary confinement appears ineffective at improving inmate behavior following their release from this setting ([Gendreau & Goggin, 2019](#); [Labrecque & Smith, 2019b](#); [Steiner & Cain, 2016](#)). There are other correctional practices that may be better able to reduce inmate violent, disruptive, and self-harming behaviors—common reasons for placement in solitary confinement. Correctional rehabilitation programs, for example, are a viable possibility ([Bonta & Andrews, 2017](#); see also [Batastini, Morgan, Kroner, & Mills, 2019](#); [Gendreau & Goggin, 2013](#); [Labrecque & Smith, 2019a](#); [Morgan, Kroner, Mills, & Batastini, 2013](#); and [P.Smith, 2016](#)). Until these types of services are widely available, however, abolishing or drastically restricting the use of segregation, particularly in penal settings that have very high-risk offenders, runs the risk of increasing institutional violence and disorder. One of the challenges to advancing policy and practice in custodial settings is that most correctional departments do not have applied behavioral research units to help authorities successfully develop and implement such rehabilitative strategies.

Another unintended consequence of the solitary confinement debate is that the focus on how a small subset of offenders are managed has inadvertently drawn attention away from the long-standing macro issue in prison reform—the quality of prison life in general. The study of segregation and its potential impact on physiological and psychological outcomes certainly warrants attention, but researchers should not lose sight of the events that occur in "regular" prison life. Evidence suggests that some conditions can produce powerful iatrogenic effects in the general prison environment, including mixing high- and low-risk offenders, frequent population turnover, a lack of treatment programs, and the capricious treatment of inmates by staff ([Bonta & Gendreau, 1990](#); [Gendreau et al., 1997](#); [Gendreau & Labrecque, 2018](#); [P. Smith & Schweitzer, 2012](#); [Vantour, 1975](#); [Walters, 2018](#)). Thus, solving the solitary confinement "problem" in the immediate will be shortsighted if offenders are only to return to a prison environment where the effects may be as psychologically regressive ([Frost & Monteiro, 2016](#); [Kapoor & Trestman, 2016](#)).

We close by recognizing how journal practices and publication standards may be contributing to the uncritical reviews of prior studies in the academic literature. Journal peer review practices have long been source of uneasiness (e.g., [Lee, Sugimoto, Zhang, & Cronin, 2012](#); [Maxwell, Lau, & Howard, 2015](#); [R. Smith, 2006, 2010](#); [Suls & Martin, 2009](#)) or outright dissatisfaction ([Belluz & Hoffman, 2015](#); [Couzin-Frankel, 2013](#); [R. Smith, 2006](#); [Suls & Martin, 2009](#)) across all scientific disciplines. The results of this study are important in this regard because they have implications for criminology and the psychology of corrections. If left unchecked, the blind acceptance of studies will inevitably lead to poor policy decisions and will further stunt theoretical growth and development. The evidence of this trend with the SPE and WPSCS coincides with the replication crisis in the social sciences (e.g., [Bohannon, 2016](#); [Ioannidis, 2005](#); [Open Science Collaboration,](#)

2015) and necessitates action on the part of all scientists involved in the publication business, including authors, reviewers, and editors. The finding in this review that such a high proportion of uncritical comments were published in psychology, criminology, and other scientific journals suggests there may be a training deficit in graduate programs.

We suggest that universities need to train the next generation of scholars to adopt a mindset of “organized skepticism” (Merton, 1973, p. 277) as consumers of knowledge and to refrain from merely accepting study results at face value (i.e., without critically evaluating research quality). For example, if research methods courses were to include lectures on how to conduct thorough searches of the literature, the researchers of the future may be less likely to omit important articles and more likely to provide accurate assessments in the peer review process (for guidelines, see Pain, 2016).

Pennycook and Rand (2019b) offer another constructive approach to counteract the despair by some scientists over the rise of “fake news” appearing in stories on scientific topics (also see Kaufman, 2019). Pennycook and Rand (2019b, p. 41) outline advances in the motivated reasoning literature regarding the development of psychometric measures (e.g., Cognitive Reflection Test, see Frederick, 2005) to identify deficits in one’s critical thinking abilities. In so doing, young scholars could be trained to optimize their critical thinking skills.

Lastly, the real “threat” to replication and the accuracy of results in the social sciences, to include penology, criminology, and the psychology of corrections, is poor science (i.e., “questionable research practices”) and a tendency to publish articles with positive findings (i.e., “publication bias;” Schmidt & Oh, 2016; p. 36). For science to progress, authors must accurately report their procedures (which, we submit, is typically done), and more accurately reflect limitations in their studies (which, we submit is less typically done). Authors should be careful not to misinterpret or overgeneralize a study’s findings when citing prior research, and reviewers and editors should hold authors accountable (i.e., uncritical acceptance of prior research should be met with critical commentary during the review process). These recommendations are essential for mitigating the problem of publication momentum, which is analogous to diagnostic momentum in psychiatry and clinical psychology whereby a previous diagnosis is accepted without criticism (Ioannidis, 2005; Kicinski, Springate, & Kontopantelis, 2015; Schmidt & Oh, 2016).

Conclusion

“Science must begin with myths, and with the criticism of myths” (Popper, 1962, p. 50). This investigation reinforces the need to take stock of the status of classic studies in the fields of criminology and forensic psychology. It is concerning that so many peer-reviewed articles reference the WPSCS (as with the SPE) without any acknowledgment of the study’s limitations. These results also raise serious questions about the integrity of the peer-review process itself, which apparently has failed in the estimation of many to keep overgeneralizations and mischaracterizations in refereed journal articles to an acceptable level (R. Smith, 2006, 2010; Suls & Martin, 2009).

This is not to say that researchers should simply dismiss the WPSCS conclusions. It did not achieve its status as a classic by accident. It is an important document historically in the penological literature. It was one of the early empirical investigations into the psychological effects of solitary confinement on inmates in the modern penological era⁵ and it has contributed to a vigorous debate on the issue. This review suggests that, given the number of serious methodological limitations in the research design of the WPSCS, this work should not continue to be viewed as the unequivocal proof that solitary confinement produces the SHU syndrome as described by Grassian (1983).⁶ It is important to acknowledge, nonetheless, that one of the inferences that can be taken from the WPSCS is that for the purposes of systematic replications (i.e., meta-analysis), more methodologically adequate studies are needed to determine under which conditions solitary confinement may produce iatrogenic consequences.

⁵ To our knowledge, the first study on this topic was conducted by Walters, Callagan, and Newman (1963), followed shortly thereafter by the second authors research group (e.g., Ecclestone, Gendreau, & Knox, 1974; Gendreau, Freedman, Wilde, & Scott, 1968, 1972).

⁶ After our survey was completed, Walters (2018) failed to confirm the SHU syndrome. He reexamined the data from the Colorado study (O’Keefe et al., 2010) and concluded that Grassian’s (1983) SHU syndrome theory had more to do with prior mental health problems than with solitary confinement.

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