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Is social desirability bias important for effective ethics research? A review of literature

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Abstract

Social desirability bias (SDB) is one of the main concerns in self-reported studies that measures explicit attitudes such as ethics research. Although SDB was introduced since the early 1950s, little effort has been made to understand the necessity of including an SDB scale in studies of sensitive topics such as ethics. The purpose of this paper was to (1) identify whether current ethics-related studies considered SDB when conducting their research and (2) ascertain whether SDB was a significant variable in such studies. This investigation takes the form of a systematic review of articles published within the last 20 years in well-known business ethics journals (2000–2019). We found that (a) only 13.67% of ethics research measured SDB; (b) although the majority of the reviewed articles were from the West, researchers in Asia have also made significant progress in recent years in measuring SDB in their studies; (c) SDB was used mainly as a control variable and as such researchers preferred scales with fewer items; and (d) SDB was unavoidable even when using online surveys. Based on our findings, we attempt to provide an overview of SDB in ethics research and encourage ethics researchers who adopt self-reported surveys to include an SDB measurement in their studies to control SDB.

Keywords Social desirability · Ethics · Literature review · Online survey · Sensitive surveys

Introduction

Ethics research has become increasingly important and relevant in today's world. Since the Enron and WorldCom scandals, corporate stakeholders have been more concerned about ethical issues and practices, especially in the financial world. The AACSB (Association of Advance Collegiate Schools of Business) has also recommended that

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business schools emphasize business ethics in their teaching, curricula, and research (Chan et al., 2010). For the past century, the vast majority of ethics research had employed self-reported surveys as an observation technique to investigate ethical intention and tolerance towards unethical acts (Ford & Richardson, 1994; O'Fallon & Butterfield, 2005; Randall & Gibson, 1990, 2013). Unfortunately, self-reported surveys, especially studies that examine ethical or unethical behaviors, are very susceptible to the problem of socially desirable responding (Dalton & Ortegren, 2011; Randall & Fernandes, 1991). It is because there are no precise "right" or "wrong" answers for such questions, and individuals have the tendency to want to appear more altruistic and society-oriented than they actually are (Krumpal, 2013). According to the subjective expected utility theory, individuals are more likely to select an option that maximize (minimize) the positive (negative) outcomes of their response (Shanteau & Pingenot, 2009). Hence, individuals are more likely to agree to statements that match their social norms (which they assume the majority of other individuals will answer) instead of statements that reflect their true feelings, in order to present a favorable image or to avoid negative feelings (Tourangeau & Yan, 2007; Zerbe & Paulhus, 1987). Such bias is known as social desirability bias (SDB).

The presence of SDB presents a significant risk to the validity of research findings, especially studies in ethics, compared to other more conventional studies in organizational behavior (Campbell & Fiske, 1959; Kemery & Dunlap, 1986; Randall & Fernandes, 1991). Such claims have been supported by Fernandes and Randall (1992) who found SDB had higher significant effects on ethics-related inquiry as compared to other types of inquiries. Bernardi et al. (2003) also found SDB to be consistently significant in responses to ethical dilemmas. For instance, individuals may perceive themselves as above the average person in positive characteristics such as honesty, ethicality, or reasonableness while less in negative characteristics such as being confrontational, lazy, or unethical (Dalton & Ortegren, 2011; Goethals et al., 1991; Randall & Fernandes, 1991; 2013; Tyson, 1990, 1992). All these studies provide support to the subjective expected utility theory that individuals tend to present themselves favorably so as to be accepted by society or to present a certain image of themselves.

SDB may lead to misleading findings that do not reflect the actual phenomenon being studied (Goethals et al., 1991; Larkin, 2000; O'Clock & Okleshen, 1993). Therefore, controlling SDB is crucial in ethics research or any studies which involve sensitive questions. In a previous study conducted by Randall and Gibson (1990), only one out of 96 studies had measured SDB in ethics research conducted in the past 29 years (1961–1989). This result is not encouraging, given the fact that individuals tend to present themselves favorably, especially when answering sensitive questions such as those asked in ethics studies (Krumpal, 2013). However, the study by Randall and Gibson (1990) was conducted 30 years ago, and we are of the opinion that an update to their study is needed to determine whether current studies in ethics include a measure of SDB. Therefore, this study is an attempt to systematically review recently published ethics research with three specific objectives: (1) to provide an overview of the current SDB trend in ethics research, (2) to examine whether SDB has been considered in recent studies, and (3) to provide an account of the scales commonly used to measure SDB. Although similar reviews have investigated the use of SDB scales, those studies were in clinical psychology (Perinelli & Gremigni, 2016) and the nursing context (Van

de Mortel, 2008), and only focused on a short period (e.g., 2010–2015). Hence, both the implications and recommendation of both these studies are not generalizable to ethics research.

This article is organized into five sections. In the first two sections, we presented the historical development and concept of SDB and highlighted how we searched for empirical research on SDB. In the third and fourth sections, we present the results and findings of our review. In the last section, we discussed the study's implications and limitations and provided some suggestions for future research.

SDB: the concept and development

SDB was first discovered in personality inventory questionnaires where desirable traits (e.g., hardworking, honest, and generous) tended to be scored higher than undesirable traits (e.g., laziness, shy, and dirty). This discovery raised the suspicion that respondents who were rated "good" on a personality inventory questionnaire were, in fact, "faking to look good" (Bernreuter, 1933; Humm & Humm, 1944). Thereafter, Edwards (1953) introduced the concept of SDB by expanding the work of Humm and Humm (1944). SDB is generally defined as "the need for social approval and acceptance, and the belief that it can be attained by means of cultural acceptance and appropriate behavior" (Crowne & Marlowe, 1960; p. 109). In other words, individuals who tend to approve socially desirable behaviors (e.g., voting in elections, church attendance) and disapprove socially undesirable behavior (e.g., abuse of alcohol or drugs) maybe be exhibiting SDB (Zerbe & Paulhus, 1987). Giving such socially desirable responses can lead to incorrect and/or inaccurate correlations between independent and dependent variables; and also affect the mediating and/or moderating effects between them (Ganster et al., 1983). In short, SDB can confound research findings and even contaminate the validity of the research (Campbell & Fiske, 1959; Kemery & Dunlap, 1986).

Edwards (1957) developed a scale to measure SDB using some of the items from the Minnesota Multiphasic Personality Inventory (MMPI). However, Edward's scale received numerous criticisms from Wiggins (1959), who claimed that the scale was not adequate for the task because it lacked empirical validity evidence and had psychopathology implications. Consequently, Crowne and Marlowe (1960) developed the 33-item Marlowe-Crowne Social Desirability scale (MCSDS) to address the weaknesses of the Edward scale. The MCSDS was designed to capture infrequent, but socially approved behavior; and also frequent, but socially disapproved behavior, wherein those people who tended to achieve high scores for socially approved behavior and low scores for socially disapproved behavior were considered to exhibit SDB (Uziel, 2010). The MCSDS gained popularity and was frequently cited in survey research in the early 1960s (Furnham, 1986). The original MCSDS contained 33 items. Subsequently, several simplified versions of the MCSDS were developed (see Hays et al., 1989; Reynolds, 1982; Strahan & Gerbasi, 1972). In all these scales, SDB was treated as a unidimensional construct.

Since then, SDB has evolved into a multidimensional construct where the most frequently used dimensions have been "self-deception" and "impression management" (Paulhus, 1984). These two dimensions were first introduced by Sackeim and Gur in 1978, as "self-deception" and "other-deception," wherein "self-deception" was

described as unrealistic positive self-depictions and other-deception as the conscious and deliberate distortion of self-descriptions to fool an audience (Sackeim & Gur, 1978). However, Paulhus later renamed "other-deception" to "impression management." He defined "self-deception" to be the propensity to "unintentionally portray oneself in a favorable light, manifested as a positively biased but an honestly believed self-description" and "impression management" to be "the tendency to intentionally tailor one's public image in order to be viewed favorably by others" (Paulhus, 2002, p. 54).

Based on these two dimensions, Paulhus (1984) developed the 40-item Balanced Inventory of Desirable Responding (BIDR) scale wherein 20 items were used to measure self-deception and the other 20 items to measure impression management on a 7-point Likert scale. However, the 40-item BIDR was criticized for being too lengthy. As a result, several simplified versions of the BIDR have been developed (see Bobbio & Manganelli, 2011; Hart et al., 2015), with the result of self-deception being further divided into the sub-dimensions of "self-deception enhancement" and "self-deception denial" (Paulhus, 2002; Paulhus & Reid, 1991; Vecchione & Alessandri, 2013); while impression management was further divided into "agentic management" and "communal management" (Blasberg et al., 2014). Self-deception enhancement involves promoting one's positive qualities, while self-deception denial involves denying one's negative qualities (Paulhus & Reid, 1991). On the other hand, agentic management involves exaggerating one's social or intellectual status, while communal management involves denying socially deviant impulse and claiming divine attributes (Blasberg et al., 2014). A more recent scale is the Bi-dimensional Impression Management Index (BIMI) by Blasberg et al. (2014) which measures both agentic management and communal management.

According to Beretvas et al. (2002), there are three uses for a SDB scale. First, the SDB scale can be used to validate other scales by comparing the newly developed scale with the SDB scale. If there was no correlation between the new scale and the SDB scale, this implied that the new scale was not biased in a socially desirable manner. Second, the SDB scale can be used to verify whether SDB and the items in the other scale are distinct dimensions. Third, the SDB scale can be used to improve the quality of the data. Samples with high SDB scores should be removed if they exhibit SDB since such samples may cause misleading results (Beretvas et al., 2002; Leite & Beretvas, 2005). Therefore, the SDB scale should be incorporated into sensitive research topics such as ethics-related studies to control for SDB to ensure that the results obtained from such studies are not biased.

Data and methodology

The quality of a literature review is contingent upon the relevance and quality of the journals reviewed; i.e., these journals must be both valid and reliable (Vom Brocke et al., 2009). Based on the citation and impact analysis study conducted by Paul (2004) on business ethics journals, *Business & Society* (B&S), *Business Ethics Quarterly* (BEQ), and the *Journal of Business Ethics* (JBE) were found to be the leading and most widely recognized journals in the field of business ethics. Hence, articles published in these journals were included in this study. To broaden our scope of review, we had also included several other well-known business ethics journals such as *Business Ethics, the Environment and Responsibility*

(formerly *Business Ethics: A European Review,* BEER), *Business and Society Review* (BSR), *Ethics and Information Technology* (EIT), *Ethical Theory and Moral Practice* (ETMP), *International Journal of Value Based Management* (IJVBM), *Journal of Markets and Morality* (JMM), and *Teaching Business Ethics* (TBE) as suggested by Sabrin (2002) and Chan et al. (2010). As a result, ten business ethics journals were assessed in this study (see Table 1). However, two journals had to be excluded in this study because IJVBM and TBE were later rolled into JBE in January 2004 (Chan et al., 2010). Hence, the review of the articles was based on eight journals. The criteria for the selection of articles from these journals were (a) empirical studies on topics related to ethics and (b) studies that incorporated a precise scale to measure SDB. The publication dates were limited to articles published between January 2000 and December 2019 (20 years) to focus on the recent trends. With this 20-year data, we were able to compare the current trend and provide an overview of SDB in ethics research.

The keyword "social desirability" was used to search the titles, abstracts, keywords, and content for the articles. Eligibility assessments were performed manually by the authors and cross-validated between authors to minimize biases. Disagreements were resolved through consensus from all authors. Since our study focused on ethics, studies which did not contain any ethical element (e.g., job satisfaction, turnover intention, and organization culture) were excluded. Abstracts were reviewed, qualifying texts were retrieved, and information was extracted using a data extraction form and verified among the authors. Information extracted from the articles included journal name(s), year of publication(s), scale measurement of SDB used, country the research conducted, types of the respondent, mode of survey, and the research finding(s).

Results

During the 20-year sample period, a total of 787 articles were initially identified in the preliminary search. However, upon examining the abstract, keywords and full texts, 202 articles were excluded due to not containing any elements of ethics. Subsequently, the remaining 585 articles were further examined to include a measure of SDB. This led

Table 1 List of leading business ethics research journals

Full name of journal	Abbreviated name	Impact factor (2019)
Journal of Business Ethics	JBE	4.141
Business and Society	B & S	4.074
Business Ethics, the Environment and Responsibility	BEER	2.919
Business Ethics Quarterly	BEQ	2.625
Ethics and Information Technology	EIT	2.263
Business and Society Review	BSR	-
Ethical Theory and Moral Practice	ETMP	-
Journal of Markets and Morality	JMM	-

Two journals, the International Journal of Value Based Management (IJVBM) and Teaching Business Ethics (TBE), were excluded from this study because both had been rolled into the Journal of Business Ethics (JBE) in January 2004

to another 505 articles being discarded for not including a measure of SDB (see the flow diagram in Fig. 1). For example, the studies by Culiberg and Bajde (2014) and De Waegeneer et al. (2016) were listed in our preliminary search but were later excluded because both studies did not include a scale to measure SDB. As a result, only 80 articles which fulfilled the criteria were retained for further review.

Table 2 presents the journals' information of the 80 reviewed articles, which satisfied the designated criteria (refer to the Appendix for a full list of all 80 included articles). Among these 80 reviewed articles, the *Journal of Business Ethics* contributed the highest number of studies that measured SDB (90%), while *Business Ethics*, *the Environment and Responsibility* was ranked second with 7.50%, followed by *Business Ethics Quarterly* (1.25%) and *Business and Society* (1.25%). No articles in *Ethics and Information Technology*, *Ethical Theory and Moral Practice* and *Journal of Markets and Morality* incorporated a measure of SDB.

Table 3 presents the reviewed articles by year and by journal. The results showed that at least one article per year that incorporated a measure of SDB was published in the *Journal of Business Ethics* while *Business Ethics*, *the Environment and Responsibility* showed a slight increase in recent years. We divided the 20-year data into two 10-year periods to make a comparison. The results showed a significant decrease between 2000 and 2010 in the number of articles that measured SDB but later picked up again between 2011 and 2019. Although several authors had repeatedly singled out ethics as a phenomenon that was easily influenced by SDB (Dunn & Shome, 2009; Randall &

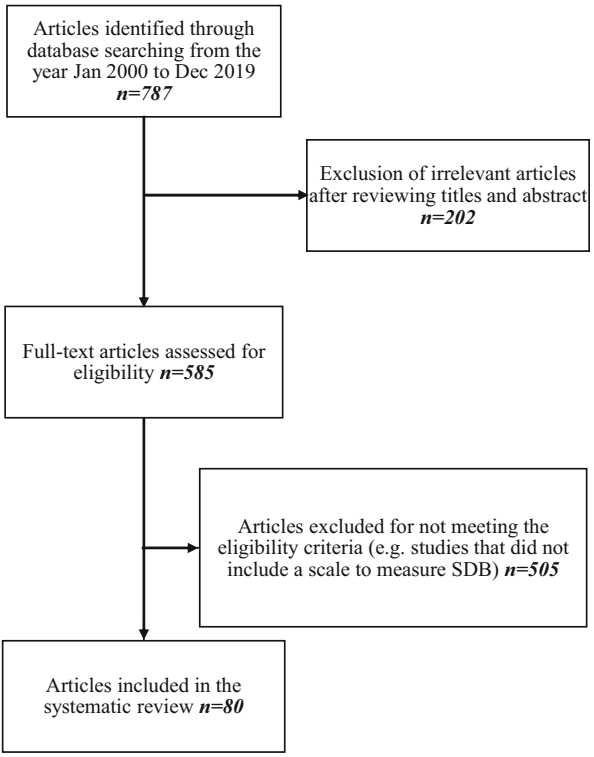

Fig. 1 Flow diagram of the literature search

Table 2 Summary of reviewed articles by journal

Journal: full name	Abbreviated names	No. of articles	Percentage (%)
Journal of Business Ethics	JBE	72	90.00
Business Ethics, the Environment and Responsibility	BEER	6	7.50
Business Ethics Quarterly	BEQ	1	1.25
Business and Society	B & S	1	1.25
Business and Society Review	BSR	0	0.00
Ethics and Information Technology	EIT	0	0.00
Ethical Theory and Moral Practice	ETMP	0	0.00
Journal of Markets and Morality	JMM	0	0.00
Total		80	100

Fernandes, 1991; 2013), only 13.67% (or 80) of ethics-related articles incorporated a measure of SDB into their research based on our review. Most articles merely mentioned SDB as their study limitation (see Chang & Yen, 2007; Hoogervorst et al., 2010; Mulki et al., 2009; Wagner-Tsukamoto, 2009).

Figure 2 presents the country of the reviewed articles conducted by region. The regional classification was according to the geographical location of the study where it had been conducted. Among the 80 reviewed articles, studies conducted in the United States (U.S) and Canada accounted for 62%, Asia-Pacific – 16%, United Kingdom (U.K) and Europe – 10% of the reviewed articles. The remaining 12% of the reviewed articles were either studies conducted in one or more countries or which did not mention the location of their studies. From the data presented in Fig. 2, it can be seen that by far the highest number of studies which incorporated a measure of SDB were by researchers from the U.S as compared to their counterparts in the U.K, Europe, and Asia-Pacific. We also present the distribution of reviewed articles by the year of publication and by region in Fig. 3. Based on Fig. 3, regions which consistently published at least one study that incorporated a SDB scale every year was the U.S and Canada, followed by the Asia-Pacific region and finally the U.K and Europe region. Furthermore, we divided the 20-year data into two 10-year periods to make a comparison. The results showed a significant increment in the number of studies that had incorporated an SDB scale after 2011 from all regions as compared to pre-2011. This indicates a positive step toward recognizing SDB as a possible research bias and the need to control or measure such a bias in the studies conducted. Perhaps reviews such as those by O'Fallon and Butterfield (2005) and Krumpal (2013) which highlighted the issues associated with SDB may have helped create awareness on the importance of controlling for SDB among ethics researchers.

Table 4 provides a summary of reviewed articles according to the types of scales adopted to measure SDB. Among the scales identified, the shortened versions of the MCSDS (see Fraboni & Cooper, 1989; Hays et al., 1989; Strahan & Gerbasi, 1972) were the most frequently used SDB scale (used by 61.25% of authors), followed by the BIDR scale (16.25%) (Paulhus, 1984; Steenkamp et al., 2010) and the full version of the MCSDS (11.25%) (Crowne & Marlowe, 1960). The remaining articles adopted either the Eysenck Personality Questionnaire–Lie scale (1.25%), Bolino and Turnley ' s (1999) Impression

Table 3 Number of articles by journal and year that have incorporated an SDB scale (N=80)

Year	Number of articles	JBE	B & S	BEER	BEQ	BSR	EIT	ETMP	JMM
2000	4	4							
2001	2	2							
2002	4	3			1				
2003	4	4							
2004	4	3		1					
2005	2	2							
2006	2	2							
2007	0								
2008	3	3							
2009	2	2							
2010	1			1					
2011	5	5							
2012	7	7							
2013	2	2							
2014	8	8							
2015	6	5		1					
2016	7	5	1	1					
2017	4	4							
2018	7	8							
2019	6	4		2					
Total	80	72	1	6	1	0	0	0	0

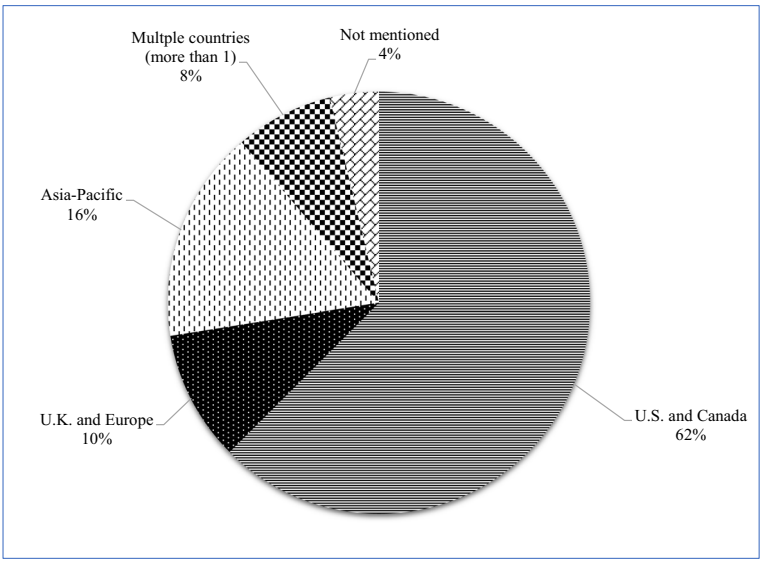

Fig. 2 Distribution of reviewed articles by region

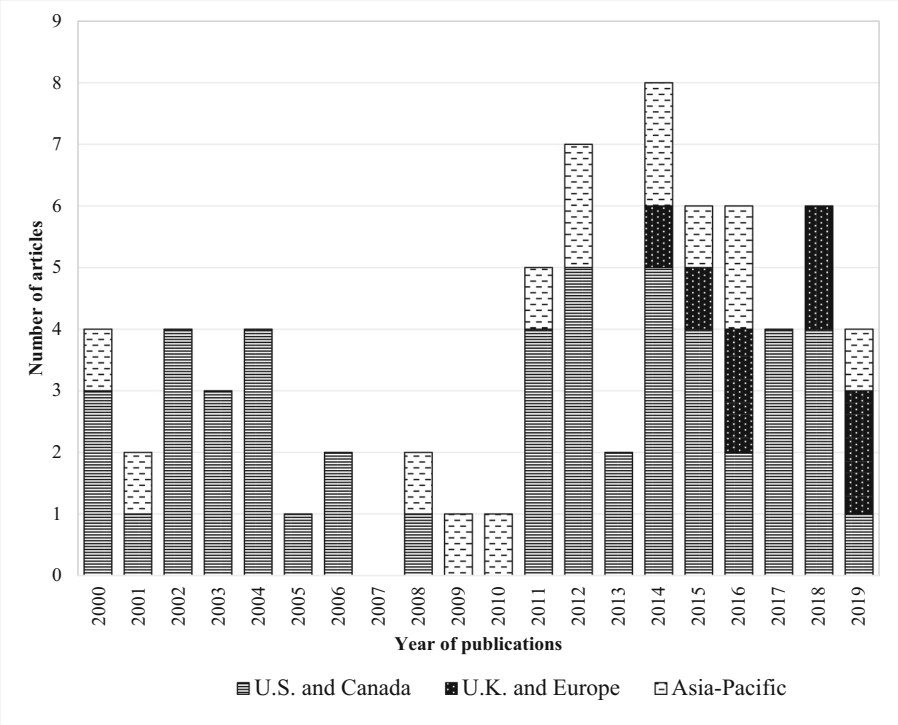

Fig. 3 Distribution of reviewed article by year of publications and region. Articles that did not mention the location of their study or which were conducted in multiple countries were excluded from this analysis

Management Scale (1.25%), the Over-Claiming Scale (5.10%), a German version of the SDB scale (1.25%), the 4-item SDB (1.25%), or the SDB scale for the working context (1.25%). What stands out in Table 4 is the scale preferences in measuring SDB by the scholars. For instance, only a small percentage of ethics research scholars used the BIDR scale (Paulhus, 1984) even though the scale is based on newer theoretical and empirical knowledge and tested using more rigorous multivariate techniques than the MCSDS. In fact, the BIDR scale is said to better able capture two widely recognized dimensions of SDB (i.e., self-deception and impression management) while the MCSDS did not have any specific dimensions (Paulhus, 1984). Our review also showed that scholars preferred the shortened version of the MCSDS scales, even though there were numerous shortened versions of the BIDR scale (e.g., BIDR-16; BIDR-17). One possible reason for the popularity of the MCSDS could be due to the fact that the MCSDS was the earliest scale created to measure SDB, which may result in it being the most well-known too. Furthermore, Lambert et al. (2016) found the MCSDS outperformed the BIDR in identifying fakers, thus making it suitable to detect for SDB.

Figure 4 presents the study population of the reviewed articles. The majority of the reviewed articles sampled non-student respondents (51 articles or 63.80%) as compared to student respondents (19 articles or 23.80%), while five (or 12.40%) of the reviewed articles used a combination of student and non-student respondents. From the data in Fig. 4, it can be seen that 54 of the 80 articles showed SDB to be significant in at least one of the variables in their study (or 67.50% of the total reviewed articles) and approximately 33% (or 26 articles)

stated that SDB did not influence their studies. Interestingly, Fig. 4 also showed that student respondents were as just as inclined to provide socially desirable responses, with 15 of the 19 articles which used student respondents found SDB to be significant. This indicated that students may also attempt to present a favorable impression in order to gain acceptance from their classmate and teachers and avoid rejection (Andrews & Meyer, 2003; Juvonen & Weiner, 1993; Pansu et al., 2008). Such evidence repudiates the earlier claims that student respondents are less likely to manifest SDB (Fastame & Penna, 2012).

Figure 5 summarizes the reviewed articles by mode of the survey and significant results with SDB. Our review found that 83.75% (or 67) of the reviewed articles used the offline mode of survey (i.e., traditional paper-and-pencil method), indicating that ethics researchers still preferred the offline mode of survey method as compared to the online mode of surveys (16.25% or 13 of the 80 studies). Of the 13 articles that used the online mode of surveys, ten studies (76.92%) found SDB to be significantly correlated with at least one of the study variables. On the other hand, SDB was significantly correlated with at least one study variables in 45 of the 67 articles (or 67.20%) that had used the offline mode of survey. These results indicated that SDB was present for both online and offline mode of survey.

Table 5 summarizes the significant and non-significant findings of SDB by categories of their dependent variables. The organizational ethics category included 36 studies that explored corporate ethical values, counterproductive work behaviors, organizational ethical climates, and the organization's corporate social responsibility. A total of 34 studies were categorized in the ethical decision-making category which included studies on ethical reasoning and ethical behaviors, while the environmental ethics category included seven studies that explored pro-environmental behaviors, ecological sustainability, and green consumer behaviors. Lastly, the moral philosophy category included three studies that examined deontological perspectives, idealism, and relativism. As shown in Table 5, 46 studies (57.50%) had at least one of their ethics-related variables significantly correlated with SDB while 34 studies (42.50%) found no statistically significant association between SDB with any of the ethics-related variables. From Table 5, it was interesting to note that SDB was significant in 20 of the 36 studies (55.55%) which explored organizational ethics while

Table 4 Types of scales used to measure SDB

Scales	Number of articles	Percentage (%)
Shortened version of Marlowe Crowne Social Desirability scale (MCSDS)	49	61.25
Balanced Inventory of Desirable Responding (BIDR)	13	16.25
Marlowe Crowne Social Desirability scale (MCSDS)	9	11.25
Over-claiming scale	4	5.00
4-items Social desirability scale	1	1.25
Bolino and Turnley's (1999) Impression Management scale	1	1.25
Eysenck Personality Questionnaire (Lie)	1	1.25
German version Social Desirability Bias scale	1	1.25
Social Desirability Bias scale for working context	1	1.25
Total	80	100

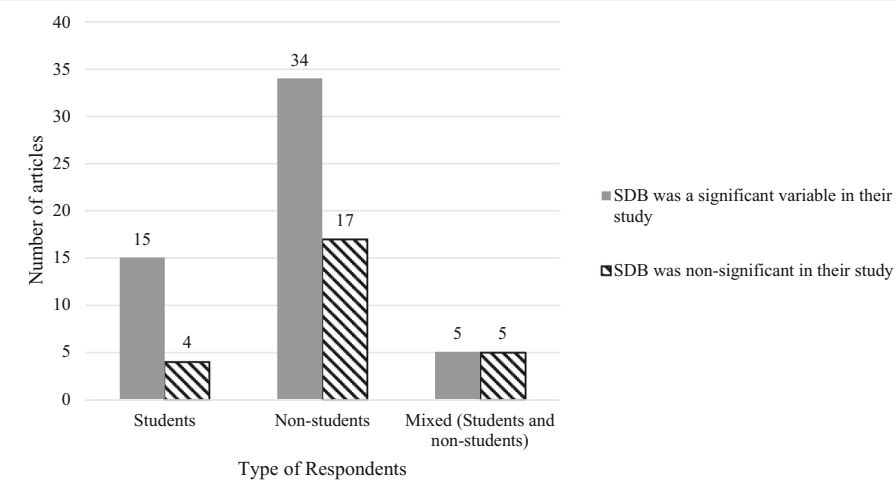

Fig. 4 Significance of SDB in the reviewed articles by study population

22 of the 34 studies (64.71%) that examined ethical decision making found SDB to be significant or partially significant in their studies. This supports our earlier contention and those of past researchers (e.g., Dalton & Ortegren, 2011; Randall & Fernandes, 1991) that studies which examine ethical or unethical behaviors are susceptible to the problem of socially desirable.

Table 6 presents the demographic variables which significantly and non-significantly correlated with SDB in the reviewed articles. Ten of the 25 reviewed articles (40%) that measured age found SDB to be significant, followed by four out of 23 reviewed articles (17.39%) and three out of 22 reviewed articles (13.64%) found tenure/work experience and gender to have a significant influence on SDB respectively. On the other hand, SDB was significantly correlated with types of job, position/job level, and education. What stands out in Table 6 is the fact that only a few demographic

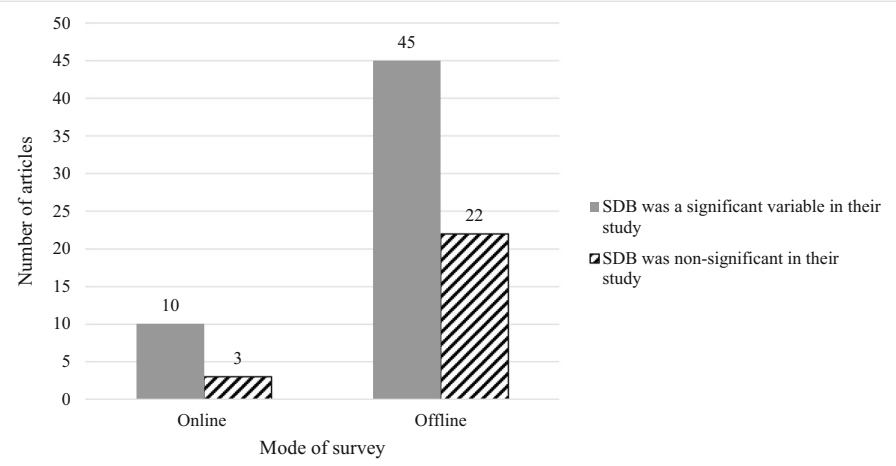

Fig. 5 Mode of the survey in the reviewed publications

variables were found to be significantly correlated with SDB while a majority of the demographic variables tested in the studies were not. This finding may suggest that respondents' demographic background may not be the root cause of SDB as previously mentioned by Fisher and Katz (2000), Kim and Kim (2015), and Larson (2019).

Discussion and conclusion

This article evaluated whether ethics researchers considered SDB when conducting their research and if SDB was a significant variable in ethics-related studies. With regard to the first question of the initial 585 ethics-related studies, only 80 studies incorporated a scale to measure SDB when conducting ethics research. A large majority (i.e., 90% or 72 articles) were published in the *Journal of Business Ethics*. On the question of whether SDB was a significant variable in ethics-related studies, this study found that such studies were indeed affected by SDB. Forty-six of the 80 articles found that SDB was significantly associated with at least one ethics-related research variable.

Most frequently used SDB scales

Within the 80 reviewed articles, the shortened versions of the MCSDS, especially the Strahan and Gerbasi (1972) and Reynolds (1982) versions were the most frequently used scale for measuring SDB, and this was followed by the BIDR scale and the full version of MCSDS. Such results may be due to the reason that SDB is usually used as a control variable (e.g., Valentine et al., 2019; Wang et al., 2019), and since lengthy questionnaires may cause response fatigue among the respondents, most researchers tend to opt for SDB scales with fewer items. However, the shortened versions of MCSDS have received numerous criticisms for its reliability and validity (see Ballard, 1992; Loo & Thorpe, 2000; Ventimiglia & MacDonald, 2012). For instance, Barger (2002) who analyzed nine shortened versions and the full version of MCSDS, concluded there was little evidence to support the model adequacy of different shortened versions across the different samples. He also noted that the apparent inadequacy of model fit found in some of the shortened versions might be a statistical artifact. Hence, based on empirical and conceptual grounds, Barger

Table 5 Summary of results according to categories

Factors	SDB is significant*	SDB is partially significant**	SDB is not significant***	Total
Organizational ethics	11	9	16	36
Ethical decision making	8	14	12	34
Environmental ethics	2	1	4	7
Moral philosophy	0	1	2	3
Total	21	25	34	80

*SDB is significant in all ethics-related variables in the study

**SDB is significant in some of the ethics-related variables in the study

***SDB is not significant in any of the ethics-related variables in the study

Table 6 Summary of demographic variables found significantly/not-significantly correlated with SDB

Demographic variables	SDB is significant	SDB is not significant
Age	10	15
Tenure/work experience	4	19
Gender	3	19
Education	3	6
Type of job	1	3
Position/job level	0	3
	21	65

Note: The total for both these columns will exceed the 80 articles as some studies had more than one demographic variable in their study while some studies did not have any

(2002) discouraged the use of both versions of the MCSDS as a control tool for SDB. Similarly, Leite and Beretvas (2005) also questioned the usefulness of the MCSDS as a measure of SDB due to instability in the scale's dimensionality.

In addition, SDB was widely recognized to consist of two factors—i.e., self-deception and impression management. However, most reviewed studies adopted the full and shortened version of the MCSDS instead of the BIDR that claimed to able to measure both of dimensions. The MCSDS was initially developed to only capture one factor which is the need for social approval (Crowne & Marlowe, 1960) while BIDR was developed to measure self-deception and impression management (Paulhus, 1991). Although researchers (e.g., Loo & Thorpe, 2000; Paulhus, 1991; Smith, 1997) who explored the items of the MCSDS claimed the scale was not a single factor but loaded on both self-deception and impression management; the MCSDS, unlike the BIDR, was not able to clearly separate the two factors into subscales. Hence, researchers who adopted the MCSDS might not able to clearly examine the relationship between self-deception or impression management separately with the study variables. Therefore, we strongly suggest that researchers who desire to control for SDB should consider other measurement tools of SDB such as the BIDR scale which can address the weaknesses of the MCSDS (Hart et al., 2015; Paulhus, 1984). The use of creative ways such as experimental techniques, in-basket exercises, or asking respondents from other peoples' perspectives could also be potential methods to reduce SDB.

Subsequently, our findings also revealed that ethics researchers had also used over-claiming and lie scales such as the Over-Claiming Scale and the Eysenck Personality Questionnaire–Lie scale as a substitute measure of SDB. While it can be argued that over-claiming is akin to not answering honestly (i.e., lying) and that individuals who score high in over-claiming or lie scales are said to portray SDB (Paulhus, 2012), we need to caution that over-claiming or lie scales only measure an "individual's attempt to deceive a question" and does not measure socially desirable responding (Randall & Fernandes, 1991; p. 814). While over-claiming or lying has been found to correlate with SDB (McCrae & Costa, 1983; Paulhus et al., 2003), it is now understood that this correlation is in fact affected by personality characteristics rather than perceived item desirability (Feeney & Goffin, 2015; Randall & Fernandes, 1991). For this reason, over-claiming scales are not capable of detecting SDB (Kam et al., 2015), and in any case, using either the over-claiming or lie scale as a substitute of SDB measure is inappropriate.

Regions of studies

The findings also showed that studies conducted in the U.S were more likely to incorporate a scale to measure SDB as compared to studies conducted in the U.K and Europe. This was based on our results which found that 62% of the studies conducted in the U.S and Canada incorporated a measure of SDB as compared to only 10% of the studies conducted in the U.K and Europe. We also found SDB to be significant in at least one of the variables in studies from the U.S and Canada (46 articles or 57.50%). Such results might be due to the fact that these regions contributed more studies as compared to the other regions (Thomson Reuters, 2019). For instance, the Journal Citation Reports (JCR) published by Thomson Reuters showed that the U.S contributed 451 articles in the *Journal of Business Ethics* followed by the U.K and Australia which contributed 185 and 150 articles respectively. Furthermore, studies from the U.K and other parts of Europe only started to incorporate SDB after 2013. Therefore, the findings of the studies conducted between prior to 2014 should be interpreted with care since SDB could be present in the studies conducted.

Study population

Earlier studies (e.g., Gucciardi et al., 2010; Stober et al., 2019; Wang et al., 2019) found that younger respondents/students had a higher tendency to exhibit SDB as compared to adults/non-students. Ryff (1995) mentioned that adults were less likely to exhibit SDB because they were self-determined by their own values which allowed them to resist social pressures better as compared to the younger respondents. However, the findings of our review suggest that individuals, regardless of age, have the same tendency in providing socially desirable responses. This outcome was contrary to the findings of Long (2016), Morales-Vives et al. (2014), and Soubelet and Salthouse (2011) who claimed that younger individuals were less likely to exhibit SDB. Specifically, the evidence from our study found that younger respondents/students were just as capable of presenting favorable impressions or providing socially desirable responses in order to gain approval or acceptance as adults/non-students. Younger respondents/students are said to also exhibit the tendency to present a favorable impression of themselves in order to gain the approval/acceptance from their teachers and classmates (Juvonen & Weiner, 1993; Pansu et al., 2008). While student samples are widely used by researchers because of their availability, researchers should still include a measurement to detect SDB when collecting data from this population.

Mode of survey

Our study also reviewed the mode of survey used in the reviewed studies since SDB appeared to be closely linked to the mode of survey used. Several lines of evidence suggest that the level of SDB for online surveys is lower than those of offline survey mode (Aquilino, 1994; Booth-Kewley et al., 1992; Ramo et al., 2011). One of the main reasons for this is that online survey provides a greater sense of privacy, security, and confidentiality than the offline surveys. Consequently, respondents are more willing to disclose sensitive information through online surveys than offline surveys (Aquilino, 1994; Booth-Kewley et al., 1992). Hence, online survey mode is often adopted by researchers as one of the

methods to minimize SDB. However, the results of our review did not support this claim. Our reviews found high significant results of SDB for studies which used offline (45 out of 67 articles or 67.16%) and online survey modes (10 out of 13 articles or 76.92%). It can therefore be assumed that SDB is present regardless of the mode of survey used. Our findings reflect those of earlier studies (e.g., Carlbring et al., 2007; Gnambs & Kaspar, 2017; Pettit, 2002) which show no significant differences between survey modes and SDB. A possible explanation why SDB could also be present in online survey mode might be that some respondents know that with advances in technologies, online surveys can be monitored and traced back to them (Rosenfeld et al., 1996; Whitener & Klein, 1995). Hence, in order to avoid any possibility of negative circumstances, respondents remain to exhibiting SDB regardless of the survey mode. Therefore, we can conclude that SDB is unavoidable regardless of the type of survey mode used. Adopting the online survey mode may only encourage respondents to share sensitive information but does not eliminate SDB (Booth-Kewley et al., 2007). Thus, we strongly encourage ethics researchers to incorporate both an indirect questioning technique (see Fisher, 1993) and a direct measurement method such as a SDB scale (see Podsakoff et al., 2003) even conducting their research through on online mode.

Categories of dependent variables

We could also conclude from our review that SDB was most frequently found to be a significant variable in organizational ethics studies, followed by ethical decision-making studies, and studies on environmental ethics and moral philosophies. Counterproductive work behaviors such as corruption, bribery, bullying, and cheating were the most frequently found variable to significantly correlate with SDB. This could be due to the reason that individuals were more likely to under-report such behaviors since these are viewed as "undesirable" or unethical behaviors. Another possible explanation is that most organizational ethics studies often required respondents to rate or compare their own work behaviors with those of their peers or superiors. Based on the holier-than-thou bias theory, individuals are more likely to perceive themselves to be more ethical than others (Dalton & Ortegren, 2011). These findings corroborate the earlier findings of Randall and Fernandes (1991), Randall and Gibson (1990), and Nyaw and Ng (1994) which showed SDB to be a significant variable in ethics-related studies. Future ethics researchers who measure ethics-related variables via self-reported surveys should always be aware of the possibility of SDB.

Demographic variables

Previous studies (e.g., Fisher & Katz, 2000; Kim & Kim, 2015; Larson, 2019) have discovered that the level of SDB varied across respondent's demographic variables. However, our results indicated that except for age, the demographic variables in the studies reviewed had negligible or no significant impact on SDB. For instance, our review did not find any significant relationship between SDB and gender in any of the 19 studies reviewed. Similar results were also found between tenure/work experience and SDB where 19 of the 23 studies which examined this variable reported non-significant results. Our results reflect those of previous studies (e.g., Andrews &

Meyer, 2003; Bobbio & Manganelli, 2011; Crutzen & Goritz, 2010; Haberecht et al., 2015; Kurz et al., 2016) who also reported no significant relationship between the demographic variables in their study with SDB. There are very limited studies which have examined the influence of demographic variables such as tenure/work experience, education level, types of jobs, and position/job level on SDB; and this would be a fruitful area for further work.

Among all the demographic variables, age was the only variable which had the greatest number of studies to have a significant relationship with SDB. We found that older respondents were more likely to provide socially desirable responses as compared to their younger counterparts. Such results were in line with Ones et al. (1996) and Thomsen et al. (2005) who found older respondents were more likely to over-report (under-report) desirable (undesirable) behaviors because they were more likely to be associated with positive traits (e.g., agreeableness and conscientiousness) and less likely with negative traits (e.g., neuroticism).

Theoretical implications

Our findings have several important theoretical implications. First, since the initial review conducted by Randall and Gibson (1990) which identified the number of ethics studies that had incorporated a scale to measure SDB, far too little attention has been paid to explore whether ethics researchers considered SDB when conducting their research and the extent to which SDB is actually measured in ethics studies. Prior studies have indicated that ethics-related studies are highly susceptible to SDB (Dalton & Ortegren, 2011; Randall & Fernandes, 1991), and steps should be taken to reduce this bias (Randall & Fernandes, 1991). Therefore, a review such as this is important to know about the state of ethics research and for researchers to evaluate the importance of controlling for SDB when conducting research in sensitive topics such as ethics. Our review found that of the initial 585 ethics-related studies, only 80 studies incorporated a scale to measure SDB when conducting ethics research. This figure, although is a significant increase from the review conducted by Randall and Gibson (1990), is still a small percentage as compared to the number of ethics-related studies conducted. This has allowed us to view the current state of ethics research, enabling us to further improve the reliability of data presented.

Second, there has been no detailed investigation to provide an overview of whether SDB was present in studies which used different modes of survey or type of respondents (younger persons vs adults) in the context of ethics studies. In addition, there has also been little discussion to provide an account of the scales commonly used to measure SDB primarily on ethics-related studies. While similar reviews have investigated the use of SDB scales, those studies were in clinical psychology (Perinelli & Gremigni, 2016) and nursing context (Van de Mortel, 2008). Our study addresses how the selection of survey mode and respondent type can be influenced by SDB and the importance of incorporating a measurement scale of SDB regardless of the type of survey mode used or sample selection. By doing so, we are able to identify and acknowledge which variables can potentially be influenced by SDB.

Finally, our review also identified the type of SDB measurement most used in ethics-related studies. This issue has grown in importance given that the MCSDS has been criticized for its weakly conceptualized dimensions (Ballard, 1992; Loo & Thorpe, 2000), outdated items (Snyder et al., 2000), validity issues (Dominguez Espinosa & Van De Vijver, 2014), and whether it measures SDB accurately (Jacobson et al., 1977). Indeed, Millham and Kellogg (1980) argued that the MCSDS did not measure SDB, but that the scale was more of a measure of "avoidance" (see Jacobson et al., 1970; Jacobson et al., 1977; Millham, 1974). However, the findings of our review indicated that the shortened and full versions of the MCSDS were still the most extensively used scale for measuring SDB. Since there have been several articles which have shown validity and conceptualization problems associated with MCSDS, ethics researchers should be cautious in using this scale to detect SDB. We also suggest various other methods to reduce SDB such as experimental techniques, in-basket exercises, or asking respondents from other people's perspectives which provide a basis for further empirical work on identifying which method is effective in detecting SDB.

Limitations and future research

Our study is not without limitations. First, our study was limited to only ethics-related research; future research could look into other areas such as organizational and marketing studies which have been found to be also influenced by SDB (Fisher, 2000; King & Bruner, 2000). Second, our study only reviewed articles that had incorporated a measure to control for SDB. Future research could look into the effectiveness of other methods such as item randomized responses and indirect questioning techniques that have been cited as effective measures to control for SDB (De Jong et al., 2010; Fisher, 1993). Finally, studies need to be carried out to determine how the different versions of SDB scales are effective in detecting SDB.

As a conclusion, this study provided an overview of SDB in ethics-related studies conducted during the past 20 years (from 2000 to 2019). Only 80 articles published in eight leading business ethics journals have incorporated a SDB scale. Most of these articles were conducted in the U.S and were published in the *Journal of Business Ethics*. SDB is a significant variable in most of the ethics-related studies regardless of study samples or mode of survey used. Therefore, we strongly encourage ethics researchers who adopt self-reported surveys to include a measurement to detect SDB in their studies. Reviewers and editors of journals should also give greater attention to and consideration of whether authors include some forms of method to control for SDB since SDB can affect the veracity of the study's results.

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Declarations

Conflict of interest The authors declare no competing interests.

Appendix

No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
1.	Chia, A. & Lim, S. M. (2000). The effects of issue characteristics on the recognition of moral issues. *Journal of Business Ethics, 27*(3), 255–269.	The full version of MCSDS (Crowne & Marlowe, 1960)	187 respondents (executives, managers or professionals in the private or public sector) from Singapore	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
2.	Larkin, J. M. (2000). The ability of internal auditors to identify ethical dilemmas. *Journal of Business Ethics, 23*(4), 401–409.	The shortened version of MCSDS (17-items)	64 members at an internal audit department from the U.S	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
3.	Latif, D. A. (2000). The link between moral reasoning scores, social desirability, and patient care performance scores: empirical evidence from the retail pharmacy setting. *Journal of Business Ethics, 25*(3), 255–269.	The shortened version of MCSDS [Reynolds, 1982's 13-items scale]	114 community pharmacists from the U.S	Independent variable and control variable	Ethical decision making	Yes. SDB was significantly and negatively correlated with moral reasoning.
4.	Yetmar, S. A. & Eastman, K. K. (2000). Tax practitioners ' ethical sensitivity: A model and empirical examination. *Journal of Business Ethics, 26*(4), 271–288.	The full version of MCSDS (Crowne & Marlowe, 1960)	413 tax practitioners from the U.S	Control variable	Ethical decision making	Yes. A total of 65 respondents were removed from the study because they gave socially desirable answers in more than 50% of the questions.
5.	Lim, G. S. & Chan, C. (2001). Ethical values of executive search consultants. *Journal of Business Ethics, 29*(3), 213–226.	The full version of MCSDS (Crowne & Marlowe, 1960)	65 search consultants from Singapore	Control variable for pre-screening	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
6.	Ryan, J. J. (2001). Moral reasoning as a determinant of organizational citizenship behaviors: a study in the public accounting profession. *Journal of Business Ethics, 33*(3), 233–244.	The shortened version of MCSDS (6 items)	116 public accountants and professional personnels from the U.S	Control variable	Organizational ethics/ demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was not significantly correlated with age, gender, and job tenure.

(continued)

No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
7.	Arnett, D. B. & Hunt, S. D. (2002). Competitive irrationality: The influence of moral philosophy. *Business Ethics Quarterly, 12*(3), 279–303.	The shortened version of MCSDS	365 MBA/eMBA students from the U.S	Control variable	Moral philosophy	No. SDB was not significantly correlated with any ethics variables.
8.	Uddin, N. & Gillett, P. R. (2002). The effects of moral reasoning and self-monitoring on CFO intentions to report fraudulently on financial statements. *Journal of Business Ethics, 40*(1), 15–32.	The shortened version of MCSDS [Fischer and Fick (1993)'s 6-item scale]	139 top management (including CEO, CFO, and treasurers) from the U.S	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
9.	Valentine, S. & Barnett, T. (2002). Ethics codes and sales professionals ' perceptions of their organizations ' ethical values. *Journal of Business Ethics*, 40(3), 191–200.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	214 sales managers from the U.S	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
10.	Valentine, S. & Fleischman, G. (2002). Ethics codes and professionals' tolerance of societal diversity. *Journal of Business Ethics, 40*(4), 301–312.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	143 business and legal professionals from the U.S	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
11.	Fleischman, G. & Valentine, S. (2003). Professionals' tax liability assessments and ethical evaluations in an equitable relief innocent spouse case. *Journal of Business Ethics, 42*(1), 27–44.	The shortened version of MCSDS [Strahan and Gerbasi (1972)'s 10-item scale]	214 certified public accountants, attorneys, and human resource managers from the U.S	Control variable	Ethical decision making	Yes. SDB was significantly and positively correlated with ethical decision of general relief decision.
12.	Shaw, T. R. (2003). The moral intensity of privacy: An empirical study of webmaster ' s attitudes. *Journal of Business Ethics, 46*(4), 301–318.	The full version of MCSDS (Crowne & Marlowe, 1960)	359 webmasters through online survey. No mention of location.	Control variable	Moral philosophy	No. SDB was not significantly correlated with any ethics variables.
13.	Valentine, S. & Fleischman, G. (2003). Ethical reasoning in an equitable relief innocent spouse context. *Journal of Business Ethics, 45*(4), 325–339.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	357 accounting, legal and human resource professionals from the U.S	Control variable	Ethical decision making	Yes. SDB was significantly and positively correlated with the ethical decision of grant equitable relief.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
14.	Valentine, S. & Fleischman, G. (2003). The impact of self-esteem, Machiavellianism, and social capital on attorneys' traditional gender outlook. *Journal of Business Ethics, 43*(4), 323–335.	The shortened version of MCSDS (Strahan & Gerbasi, 1972)	106 attorneys from the U.S	Control variable	Organizational ethics/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was not significantly correlated with age, gender, and occupational tenure.
15.	Bernardi, R. A. & Vassill, K. M. (2004). The association among bribery and unethical corporate actions: an international comparison. *Business Ethics: A European Review, 13*(4), 342–353.	Impression Management scale from the BIDR (Paulhus, 1991)	506 business major students from Canada, the U.S, Spain, and Ireland.	Control variable	Organizational ethics	Yes. SDB was significantly and positively correlated with bribery and unethical corporate actions.
16.	Connelly, S., Helton-Fauth, W., & Mumford, M. D. (2004). A managerial in-basket study of the impact of trait emotions on ethical choice. *Journal of Business Ethics, 51*(3), 245–267.	The full version of MCSDS (Crowne & Marlowe, 1960)	197 college students from the U.S	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
17.	Valentine, S. & Fleischman, G. (2004). Ethics training and businesspersons' perceptions of organizational ethics. *Journal of Business Ethics, 52*(4), 391–400.	The shortened version of MCSDS (Strahan and Gerbasi (1972))	308 business professionals from the U.S	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
18.	Watley, L. D. & May, D. R. (2004). Enhancing moral intensity: the roles of personal and consequential information in ethical decision-making. *Journal of Business Ethics, 50*(2), 105–126.	Impression Management scale from the BIDR (Paulhus, 1989)	314 members of the American Management Association (AMA) from the U.S	Control variable	Ethical decision making	Partially. SDB was significantly and negatively correlated with perception of proximity dimension, while not significantly correlated with magnitude of consequences, dimension of moral intensity, and ethical behavioral intent.
19.	Andersson, L., Shivarajan, S., & Blau, G. (2005). Enacting ecological sustainability in the MNC: a test of an adapted value-belief-norm framework. *Journal of Business Ethics, 59*(3), 295–305.	The shortened version of MCSDS (10 items)	294 managers and above from the U.S, the U.K, and India.	Control variable	Environmental ethics	Yes. SDB was found to have limited (low) impact on self-reporting from supervisors on environmental support.

(continued)

No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
20.	Buchan, H. F. (2005). Ethical decision making in the public accounting profession: an extension of Ajzen's theory of planned behavior. *Journal of Business Ethics, 61*(2), 165–181.	The shortened version of MCSDS (Strahan & Gerbasi, 1972)	95 employees from five public accounting firms from the U.S	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
21.	Deshpande, S. P., Joseph, J., & Prasad, R. (2006). Factors impacting ethical behavior in hospitals. *Journal of Business Ethics, 69*(2), 207–216.	Over-claiming scale (Randall & Fernandes, 1991)	203 members of hospitals from the U.S	Control variable	Organizational ethics/demographic variables	- Partially. SDB was significantly and negatively correlated with ethical behavior of successful manager, while not significantly correlated with ethical behavior of self and co-workers and education in ethics. - SDB was not significantly correlated with gender and race.
22.	Valentine, S., & Page, K. (2006). Nine to five: skepticism of women ' s employment and ethical reasoning. *Journal of Business Ethics, 63*(1), 53–61.	The shortened version of MCSDS (Strahan & Gerbasi, 1972)	195 university students from the U.S	Control variable	Ethical decision making/demographic factor	- No. SDB was not significantly correlated with any ethics variables. - SDB was not significantly correlated with age, gender, education, and job tenure.
23.	Chan, R. Y., Wong, Y. H. and Leung, T. K. (2008). Applying ethical concepts to the study of "green" consumer behavior: an analysis of Chinese consumers ' intentions to bring their own shopping bags. *Journal of Business Ethics, 79*(4), 469–481.	The shortened version of MCSDS [Reynolds, 1982's Form C scale]	250 consumers from China.	Control variable	Environmental Ethics	No. SDB was not significantly correlated with any ethics variables.
24.	Valentine, S. & Fleischman, G. (2008). Ethics programs perceived corporate social responsibility, and job satisfaction. *Journal of Business Ethics, 77*(2), 159–172.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	313 business professionals through online survey. No mention of location.	Control variable	Organizational ethics/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was significantly and positively correlated with age, while not significantly correlated with gender and job tenure.
25.	White, D. W. & Lean, E. (2008). The impact of perceived leader integrity on subordinates in a work team environment. *Journal of Business Ethics, 81*(4), 765–778.	The shortened version of MCSDS [Andrews & Meyer's, 2003 MC Form C]	245 MBA students from the U.S	Control variable	Organizational ethics	Yes. SDB was significantly and positively correlated with ethical situation impacting specific teammates while negatively correlated with ethical situation

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
						impacting overall team and organization.
26.	Collins, J. D., Uhlenbruck, K. & Rodriguez, P. (2009). Why firms engage in corruption: a top management perspective. *Journal of Business Ethics, 87*(1), 89–108.	BIDR (Paulhus, 1991)	341 executives from India.	Control variable	Organizational ethics/demographic variables	- Yes. SDB was significantly and positively correlated with the view that corruption was harmful, while significant negatively correlated with propensity to engage in corrupt transactions and rationalize practices of corruption. - SDB was not significantly correlated with position.
27.	Shawver, T. J. & Sennetti, J. T. (2009). Measuring ethical sensitivity and evaluation. *Journal of Business Ethics, 88*(4), 663–678.	BIDR (Paulhus, 1991)	54 students through online survey. No mention of location.	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
28.	Ho, J. A. (2010). Ethical perception: are differences between ethnic groups situation dependent? *Business Ethics: A European Review, 19*(2), 154–182.	The shortened version of MCSDS (10-items)	272 managerial level executives from Malaysia.	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
29.	Fu, W., Deshpande, S. P., & Zhao, X. (2011). The impact of ethical behavior and facets of job satisfaction on organizational commitment of Chinese employees. *Journal of Business Ethics, 104*(4), 537–543.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	214 employees working at a Chinese state-owned steel company from China.	Control variable	Organizational ethics/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was not significantly correlated with age, gender, job experience and job type.
30.	O'Fallon, M. J. & Butterfield, K. D. (2011). Moral differentiation: exploring boundaries of the "monkey see, monkey do" perspective. *Journal of Business Ethics, 102*(3), 379–399.	The shortened version of MCSDS (13-item scale)	655 undergraduate business students from the U.S	Control variable	Organizational ethics/demographic variables	- Yes. SDB was significantly and positively correlated with ethical behavior, introversion, observers' unethical behavior, while significantly and negatively correlated with moral identity. - SDB was significant negatively correlated with age, while not significantly correlated with gender and education.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
31.	Valentine, S., Godkin, L., Fleischman, G. M., & Kidwell, R. (2011). Corporate ethical values, group creativity, job satisfaction, and turnover intention: The impact of work context on work response. *Journal of Business Ethics, 98*(3), 353–372.	The shortened version of MCSDS [Strahan and Gerbasi (1972)'s 10-item scale]	Study 1: 781 healthcare and administrative employees from the U.SStudy 2: 127 sales and marketing employees from the U.S	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables in Study 1 and 2.
32.	Valentine, S., Godkin, L., Fleischman, G. M., Kidwell, R. E., & Page, K. (2011). Corporate ethical values and altruism: the mediating role of career satisfaction. *Journal of Business Ethics, 101*(4), 509–523.	The shortened version of MCSDS [Strahan and Gerbasi (1972)'s 10-item scale]	781 employees working in four campuses and regional health science centers in the U.S	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
33.	Valentine, S. R., & Bateman, C. R. (2011). The impact of ethical ideologies, moral intensity, and social context on sales-based ethical reasoning. *Journal of Business Ethics, 102*(1), 155–168.	The shortened version of MCSDS [Richins and Dawson (1992)'s 10-item scale]	389 business students from the U.S	Control variable	Ethical decision making	Partially. SDB was significantly and positively correlated with idealism and relativism of ethical ideologies, while not significantly correlated with recognition of ethical issue and ethical intention of ethical reasoning and social consensus of moral intensity.
34.	Cojuharenco, I., Shteynberg, G., Gelfand, M., & Schminke, M. (2012). Self-construal and unethical behavior. *Journal of Business Ethics,* 109(4), 447–461.	The shortened version of MCSDS (Strahan and Gerbasi (1972)'s 11-item scale)	607 full-time employees from the U.S	Control variable	Organizational ethics/demographic variables	- Yes. SDB was only measured in study 3. SDB was significantly and positively correlated with organizational fairness, utilitarian, formalist, working unethical behavior, and survey cheating. - SDB was significant positively correlated with age, while not significantly correlated with gender and race.
35.	Fu, W. & Deshpande, S. P. (2012). Antecedents of organizational commitment in a Chinese construction company. *Journal of Business Ethics, 109*(3), 301–307.	Over-claiming scale (Randall & Fernandes, 1991)	144 employees working at a Chinese private construction company from China.	Control variable	Organizational ethics/demographic variables	- Partially. SDB was significantly and positively correlated with caring climate and rules climate of ethical climate, while not significantly correlated with professional climate,

(continued)

No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
						instrumental climate, efficiency climate, and independence climate of ethical climate. - SDB was not significantly correlated with age, gender, and type of job.
36.	Fu, W. & Deshpande, S. P. (2012). Factors impacting ethical behavior in a Chinese state-owned steel company. *Journal of Business Ethics, 105*(2), 231–237.	Over-claiming scale (Randall & Fernandes, 1991)	208 employees of a Chinese state-owned steel company from China.	Control variable	OrganizationalEthics/demographic variables	- Partially. SDB was significantly and positively correlated with the ethical behavior of self, while not significantly correlated with ethical behavior of co-worker and successful manager, and ethical climate. - SDB was not significantly correlated with age, gender, type of job, and job experience.
37.	Lowe, D. J. & Reckers, P. M. (2012). An examination of the contribution of dispositional affect on ethical lapses. *Journal of Business Ethics, 111*(2), 179–193.	The full version of MCSDS (Crowne & Marlowe, 1960)	63 mid-level managers located in the U.S	Control variable in pre-testing	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
38.	Mudrack, P. E., Bloodgood, J. M., & Turnley, W. H. (2012). Some ethical implications of individual competitiveness. *Journal of Business Ethics, 108*(3), 347–359.	The shortened version of MCSDS [Reynolds (1982)'s 13-item scale)	263 senior-level undergraduate business students from the U.S	Control variable	Ethical decision making/demographic variables	- Yes. SDB was significantly and positively correlated with the ethical judgement, ethical intention, and idealism ethical ideologies. - SDB was not significantly correlated with age.
39.	O'Fallon, M. J. & Butterfield, K. D. (2012). The influence of unethical peer behavior on observers' unethical behavior: a social cognitive perspective. *Journal of Business Ethics, 109*(2), 117–131.	The shortened version of MCSDS (13-item scale)	600 undergraduate business students from the U.S	Control variable	Organizational ethics/demographic variables	- Yes. SDB was significantly and positively correlated with unethical peer behavior and observer's unethical behavior. - SDB was significant negatively correlated with age, while not significantly correlated with gender and education.
40.	Valentine, S. & Hollingworth, D. (2012). Moral intensity, issue importance, and ethical reasoning in	The shortened version of MCSDS [Strahan and Gerbasi (1972)'s 10-item scale]	527 business professionals (from all business	Control variable	Ethical decision making	Partially. SDB was significantly and positively correlated with temporal immediacy dimension of moral intensity and perceived importance

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
	operations situations. *Journal of Business Ethics, 108*(4), 509–523.		functional areas) from the U.S			of ethical issue and ethical judgement dimensions of ethical reasoning while not significantly correlated with seriousness of consequences, social consensus, proximity dimensions of moral intensity, and recognition of ethical issues and ethical intention dimensions of ethical reasoning.
41.	Bateman, C. R., Valentine, S., & Rittenburg, T. (2013). Ethical decision making in a peer-to-peer file sharing situation: the role of moral absolutes and social consensus. *Journal of Business Ethics, 115*(2), 229–240.	The shortened version of MCSDS (Randall and Fernandas, 1991)	387 undergraduate business students from the U.S	Control variable	Ethical decision making/demographic variables	- Partially. SDB was significantly and positively correlated with idealism ethical ideologies, while not significantly correlated with ethical reasoning, moral absolutism, and social consensus. - SDB was significantly and positively correlated with working experiences while not significantly correlated with gender.
42.	Wurthmann, K. (2013). A social cognitive perspective on the relationships between ethics education, moral attentiveness, and PRESOR. *Journal of Business Ethics, 114*(1), 131–153.	The shortened version of MCSDS [Hays et al., (1989)'s 5-items scale]	224 upper division undergraduate students from the U.S	Control variable	Organizational ethics/demographic variables	- Partially. SDB was significantly and positively correlated with stakeholder view of PRESOR but not significantly correlated with moral attentiveness, ethics education, and stockholder view of PRESOR. - SDB was significantly and positively correlated with age.
43.	Antonetti, P. & Maklan, S. (2014). Feelings that make a difference: how guilt and pride convince consumers of the effectiveness of sustainable consumption choices. *Journal of Business Ethics, 124*(1), 117–134.	The shortened version of MCSDS (Reynolds, 1982)	181 Amazon Mechanical Turk (AMT) respondents from the U.S through online survey.	Control variable in pre-testing	Environmental ethics	No. SDB was not significantly correlated with any ethics variables.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
44.	Fu, W. (2014). The impact of emotional intelligence, organizational commitment, and job satisfaction on ethical behavior of Chinese employees. *Journal of Business Ethics, 122*(1), 137–144.	Over-claiming scale (Randall and Fernandas, 1991)	507 employees from China.	Control variable	Organizational ethics/demographic variables	- Yes. SDB was significantly and positively correlated with the ethical behavior. - SDB was significantly and positively correlated with gender, age and job type, while not significantly correlated with work years.
45.	May, D. R., Li, C., Mencl, J., & Huang, C. C. (2014). The ethics of meaningful work: types and magnitude of job-related harm and the ethical decision-making process. *Journal of Business Ethics, 121*(4), 651–669.	BIDR (Paulhus, 1989)	185 Chinese professionals from China.	Control variable	Ethical decision making	Partially. SDB was significantly and positively correlated with moral evaluation and moral intention dimensions of ethical reasoning but not significantly correlated with moral recognition dimension.
46.	May, D. R., Luth, M. T., & Schwoerer, C. E. (2014). The influence of business ethics education on moral efficacy, moral meaningfulness, and moral courage: a quasi-experimental study. *Journal of Business Ethics, 124*(1), 67–80.	BIDR (Paulhus, 1991)	84 business students from the U.S	Control variable	Moral philosophy/demographic variables	- Partially. SDB was significantly and positively correlated with moral meaningfulness, while not significantly correlated with moral courage and moral efficacy in pre-test and post-test. - SDB was significantly and positively correlated with work experience.
47.	Salvador, R. O., Merchant, A. & Alexander, E. A. (2014). Faith and fair trade: the moderating role of contextual religious salience. *Journal of Business Ethics, 121*(3), 353–371.	BIDR (Paulhus, 1991)	Study 1: 92 students from the U.S Study 2: 146 business students from the U.S	Control variable	Organizational ethics/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was significantly and positively correlated with age and religious in study 2 but not in study 1, while not significantly correlated with gender.
48.	Steinbauer, R., Renn, R. W., Taylor, R. R., & Njoroge, P. K. (2014). Ethical leadership and followers' moral judgment: the role of followers' perceived accountability and self-leadership. *Journal of Business Ethics, 120*(3), 381–392.	The shortened version of MCSDS [Reynolds, 1982's Form A]	101 proteges at the institute for leadership education from the U.S	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
49.	Valentine, S., Nam, S. H., Hollingworth, D., & Hall, C. (2014). Ethical context and ethical decision making: examination of an alternative statistical approach for identifying variable relationships. *Journal of Business Ethics, 124*(3), 509–526.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item]	187 business professionals from the U.S	Control variable	Ethical decision making	Partially. SDB was significantly and positively correlated with ethical judgment, ethical intention, and corporate ethical values, while not significantly correlated with perceived importance of ethical issue and recognition of ethical issue dimensions of ethical reasoning, ethical culture, and corporate social responsibility.
50.	Yeow, P., Dean, A., & Tucker, D. (2014). Bags for life: the embedding of ethical consumerism. *Journal of Business Ethics, 125*(1), 87–99.	The full version of MCSDS (Crowne & Marlowe, 1960)	316 respondents from the U.K	Control variable	Environmental ethics	Yes. SDB was significantly and positively correlated with environmental impact and quality and desirability of "bags for life."
51.	Albert, L. S., Reynolds, S. J., & Turan, B. (2015). Turning inward or focusing out? Navigating theories of interpersonal and ethical cognitions to understand ethical decision-making. *Journal of Business Ethics, 130*(2), 467–484.	BIDR (Paulhus, 1984; 1988)	Study 1: 430 individuals holding managerial positions from the U.S Study 2: 250 undergraduate business students from the U.S	Control variable	Ethical decision making	Study 1: Yes. SDB was significantly and negatively correlated with high social consensus ethical behaviors but not low social consensus ethical behaviors. Study 2: Yes. SDB was significantly and negatively correlated with illegal behaviors.
52.	Bodur, H. O., Duval, K. M., & Grohmann, B. (2015). Will you purchase environmentally friendly products? Using prediction requests to increase choice of sustainable products. *Journal of Business Ethics, 129*(1), 59–75.	The shortened version of MCSDS (Steenkamp et al., 2010)	101 undergraduate business students from Canada.	Control variable	Environmental ethics	No. SDB was not significantly correlated with any ethics variables.
53.	Hollingworth, D. & Valentine, S. (2015). The moderating effect of perceived organizational ethical context on employees' ethical issue recognition and ethical judgments. *Journal of Business Ethics, 128*(2), 457–466.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	144 employees from the U.S	Control variable	Ethical decision making	Partially. SDB was significantly and positively correlated with corporate ethical values and ethical judgment, while not significantly correlated with ethical culture, corporate social responsibility, and recognition of an ethical issue.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
54.	Holtbrugge, D., Baron, A., & Friedmann, C. B. (2015). Personal attributes, organizational conditions, and ethical attitudes: a social cognitive approach. *Business Ethics: A European Review, 24*(3), 264–281.	The shortened version of MCSDS [Reynolds (1982)'s Form C)	215 employees from Germany through online survey.	Control variable	Organizational ethics/demographic factor.	- No. SDB was not significant with any ethics variables. - SDB was significantly and negatively correlated with age, conscientiousness, and emotional stability.
55.	Verbos, A. K. & Miller, J. S. (2015). When harm is at stake: ethical value orientation, managerial decisions, and relational outcomes. *Journal of Business Ethics, 127*(1), 149–163.	BIDR (Paulhus, 1991)	89 participants from the U.S	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
56.	Yu, Y. M. (2015). Comparative analysis of Jones ' and Kelley's ethical decision-making models. *Journal of Business Ethics, 130*(3), 573–583.	The shortened version of MCSDS (Fraboni and Copper, 1989)	354 civil servants from Taiwan.	Control variable	Ethical decision making	Yes. 33 questionnaires were discarded due to high scores in the MCSDS, indicating the presence of SDB.
57.	Hutter, K., Hoffmann, S., & Mai, R. (2016). Carrotmob: a win-win approach to creating benefits for consumers, businesses, and society at large. *Business & Society, 55*(7), 1059–1077.	The shortened version of MCSDS [Strahan and Gerbasi (1972)'s 10-item scale]	337 consumers from Germany.	Control variable	Environmental ethics	No. SDB was not significant correlated with any ethics variables.
58.	Kacmar, K. M., & Tucker, R. (2016). The moderating effect of supervisor's behavioral integrity on the relationship between regulatory focus and impression management. *Journal of Business Ethics, 135*(1), 87–98.	Impression management scale (Bolino & Turnley, 1999)	133 foresters from the U.S	Dependent variables	Organizational ethics/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was not significantly correlated with age.
59.	Long, C. P. (2016). Mapping the main roads to fairness: examining the managerial context of fairness promotion. *Journal of Business Ethics, 137*(4), 757–783.	The full version of MCSDS (Crowne & Marlowe, 1960)	152 managers from the U.S through online survey.	Control variable	Organizational ethics/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was significantly and positively correlated with age and working experiences but not significantly correlated with gender and tenure.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
60.	Raineri, N. & Paille, P. (2016). Linking corporate policy and supervisory support with environmental citizenship behaviors: the role of employee environmental beliefs and commitment. *Journal of Business Ethics, 137*(1), 129–148.	The shortened version of MCSDS [Fischer and Fick (1993)'s 6-item scale]	531 employees from France.	Control variable	Environmental ethics/demographic variables	- Partially. SDB was significant and positively correlated environmental policy, while not significantly correlated with environmental beliefs and environmental commitment. - SDB was significant and negatively correlated with level of education, while not significantly correlated with age, tenure, and job level.
61.	Sendjaya, S., Pekerti, A., Härtel, C., Hirst, G., & Butarbutar, I. (2016). Are authentic leaders always moral? The role of Machiavellianism in the relationship between authentic leadership and morality. *Journal of Business Ethics, 133*(1), 125–139.	The shortened version of MCSDS (10-item scale)	70 managers in a large public agency from Australia.	Control variable	Ethical decision making	No. SDB was not significantly correlated with any ethics variables.
62.	Tian, Q. & Peterson, D. K. (2016). The effects of ethical pressure and power distance orientation on unethical pro-organizational behavior: the case of earnings management. *Business Ethics: A European Review, 25*(2), 159–171.	The shortened version of MCSDS (Strahan and Gerbasi (1972)'s 10-item scale)	354 accountants from China.	Control variable	Organizational ethics/demographic Variables	- Partially. SDB was significantly and positively correlated with ethical beliefs in support of the company while negatively correlated with perceived ethical pressure but not significantly correlated with earning management. - SDB was significantly and positively correlated with education, while not significantly correlated with age, gender, and tenure.
63.	Xu, Z. X. & Ma, H. K. (2016). How can a deontological decision lead to moral behavior? The moderating role of moral identity. *Journal of Business Ethics, 137*(3), 537–549.	Eysenck Personality Questionnaire Lie (EPQ Lie) scale (Qian et al. 2000)	437 people who were enrolled in Sojump website from Asian countries through online survey.	Control variable	Ethical decision making/demographic variables	- No. SDB was not significantly correlated with any ethics variables. - SDB was significantly and positively correlated with age.
64.	Alexandra, V., Torres, M. M., Kovbasyuk, O., Addo, T. B., & Ferreira, M. C. (2017). The relationship between social cynicism	BIDR (Steenkamp et al., 2010)	Study 1: 586 undergraduate students from Russia	Control variable	Ethical decision making/demographic variables	- Partially. SDB was significantly and positively correlated with perceived unethical behaviors in study 2 but not in study 1.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
	belief, social dominance orientation, and the perception of unethical behavior: a cross-cultural examination in Russia, Portugal, and the United States. *Journal of Business Ethics, 146*(3), 545–562.		and the U.S through online survey. Study 2: 334 working professionals from Portugal and the U.S through online survey.			- SDB was not significantly correlated with age, gender, and working experience in any of the study.
65.	Sturm, R. E. (2017). Decreasing unethical decisions: the role of morality-based individual differences. *Journal of Business Ethics, 142*(1), 37–57.	The full version of MCSDS (Crowne & Marlowe, 1960)	199 undergraduate students from the U.S	Control variable	Ethical decision making/ demographic variables	- Partially. SDB was significantly and negatively correlated with reflective moral attentiveness, while not significantly correlated with perceptual moral attentiveness, ethical prototypes, and cheating decision. - SDB was not significantly correlated with age, gender, and GPA.
66.	Triki, A., Cook, G. L., & Bay, D. (2017). Machiavellianism, moral orientation, social desirability response bias, and anti-intellectualism: a profile of canadian accountants. *Journal of Business Ethics, 144*(3), 623–635.	The shortened version of MCSDS [Reynolds, 1982's Form C]	93 professional accountants from Canada.	Independent variable	Ethical decision making	Partially. SDB was significantly and positively correlated with Idealism but not relativism of moral orientation.
67.	Wurthmann, K. (2017). Implicit theories and issue characteristics as determinants of moral awareness and intentions. *Journal of Business Ethics, 142*(1), 93–116.	The shortened version of MCSDS (Hays et al., 1989)	Study 3: 256 working undergraduate students in the U.S	Control variable	Ethical decision making	- Partially. SDB was significantly and positively correlated with moral awareness, while not significantly correlated with moral intention in study 3.
68.	Alleyne, P., Hudaib, M., & Haniffa, R. (2018). The moderating role of perceived organizational support in breaking the silence of public accountants. *Journal of Business Ethics, 147*(3), 509–527.	Impression Management scale from the BIDR (Paulhus, 1988)	226 public accountants from the U.S	Control variable	Organizational ethics/demographic variables	- Partially. SDB was positively and significantly correlated with personal responsibility for reporting an unethical act, while not significantly correlated with whistle-blowing intentions and attitudes toward whistle-blowing.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
						- SDB was positively and significantly correlated with gender but not significantly correlated with tenure.
69.	Bossuyt, S. & Van Kenhove, P. (2018). Assertiveness bias in gender ethics research: why women deserve the benefit of the doubt. *Journal of Business Ethics, 150*(3), 727–739.	Impression Management scale from the BIDR (Paulhus, 1988)	Study 1: 154 students and university staff from Europe. Study 2: 204 students and university staff from Europe.	Control variable	Ethical decision making/ Demographic variables	- Yes. SDB has a significant effect on honest reactions and doubting reactions. - The results also showed that women are more inclined to provide socially desirable answers than men.
70.	Gorsira, M., Denkers, A., & Huisman, W. (2018). Both sides of the coin: motives for corruption among public officials and business employees. *Journal of Business Ethics, 151*(1), 179–194.	Self-constructed 7-items social desirability scale for work context	402 public officials and business employees from Europe through online survey.	Control variable	Organizational ethics	Yes. SDB was significantly and negatively correlated with corruption-proneness
71.	Lee, G., Pittroff, E., & Turner, M. J. (2018). Is a uniform approach to whistle-blowing regulation effective? Evidence from the United States and Germany. *Journal of Business Ethics*, 1–24.	The shortened version of MCSDS [Fischer and Fick (1993)'s 6-item scale]	182 employees working as accounting role (98 respondents from the U.S and 84 respondents from Germany)	Control variable	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
72.	Sguera, F., Bagozzi, R. P., Huy, Q. N., Boss, R. W., & Boss, D. S. (2018). The more you care, the worthier I feel, the better I behave: how and when supervisor support influences (un)ethical employee behavior. *Journal of Business Ethics, 153*(3), 615–628.	The shortened version of MCSDS [Reynolds, 1982's 6-items scale]	Study 1: 200 working adults from the U.S through online survey.	Control variable	Organizational ethics	Yes. SDB was significantly and negatively correlated with counterproductive workplace behaviors.
73.	Valentine, S., Fleischman, G., & Godkin, L. (2018). Villains, victims, and verisimilitudes: an exploratory study of unethical corporate values, bullying experiences, psychopathy, and selling professionals' ethical reasoning. *Journal of Business Ethics, 148*(1), 135–154.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	356 working adults from the U.S	Control variable	Organizational ethics	Yes. SDB was significantly and positively correlated with moral intensity, perceived importance of the ethical issue, ethical judgment, and ethical intention while negatively correlated with bullying experiences and unethical corporate value.

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
74.	Johnson, H. H., & Umphress, E. E. (2019). To help my supervisor: identification, moral identity, and unethical pro-supervisor behavior. *Journal of Business Ethics, 159*(2), 519–534.	BIDR [Paulhus, 1991's 18 items]	Study 2: 250 full-time employees from the U.Sthrough online survey.	Control variable	Organizational ethics	Partially. SDB was negatively and significantly correlated with moral identity (internalized), while not significantly correlated with career self-interest and unethical pro-supervisor behavior.
75.	Lythreatis, S., Mostafa, A. M. S., & Wang, X. (2019). Participative leadership and organizational identification in SMEs in the MENA Region: testing the roles of CSR perceptions and pride in membership. *Journal of Business Ethics, 156*(3), 635–650.	4-item Social Desirability Bias scale (Donavan et al., 2004).	740 employees from SME (260 respondents from UAE, 268 from Lebanon, and 212 from North Africa).	Pre-test	Organizational ethics	No. SDB was not significantly correlated with any ethics variables.
76.	Mackey, J. D., McAllister, C. P., & Alexander, K. C. (2019). Insubordination: validation of a measure and an examination of insubordinate responses to unethical supervisory treatment. *Journal of Business Ethics*, 1-21. https://doi.org/10.1007/s10551-019-04231-7	The shortened version of MCSDS (Fischer and Fick (1993)'s 7-item Revised X1 scale)	Study 5: 287 working adults from the U.S through online survey.	Control variable	Organizational ethics	Partially. SDB was significantly and negatively correlated with unfairness with the supervisor and insubordination, while not significantly correlated with injustice with supervisor and abusive supervision.
77.	Stober, T., Kotzian, P., & WeiBenberger, B. E. (2019). Culture follows design: code design as an antecedent of the ethical culture. *Business Ethics: A European Review, 28*(1), 112–128.	German version 3-items BIDR-6 (Winkler, Kroh, and Spiess (2006)	143 students and academic staff from Germany through online survey.	Control variable	Ethical decision making/demographic variables	- Partially. SDB (impression management) was positively and significantly correlated with environmentalism, idealism, and religiosity, while not significantly correlated with egoism and relativism. - SDB was not significantly correlated with age, gender, and working experiences.
78.	Tormo-Carbó, G., Oltra, V., Klimkiewicz, K., & Seguí-Mas, E. (2019). "Don't try to teach me, I got nothing to learn": management students' perceptions of business	The shortened version of MCSDS (Strahan & Gerbasi, 1972)	307 management students from Poland.	Control variable	Ethical decision making/demographic variables	- Partially. SDB was positively and significantly correlated with the group where the student who participated in the business ethics courses tend to score higher than

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No	Reviewed article	Type of SDB scale	Type of respondents/ location of study	Usage of SDB	Category	Was SDB significant?
	ethics teaching. *Business Ethics: A European Review, 28*(4), 506–528.					students who did not participate, while not significantly correlated with perceived importance of ethics. - SDB was not significantly correlated with age, gender, and working experience.
79.	Valentine, S. R., Hanson, S. K., & Fleischman, G. M. (2019). The presence of ethics codes and employees' internal locus of control, social aversion/malevolence, and ethical judgment of incivility: a study of smaller organizations. *Journal of Business Ethics, 160*, 657–674.	The shortened version of MCSDS [Strahan & Gerbasi, 1972's 10-item scale]	158 employees from the U.S	Control variable	Ethical decision making	Partially. SDB was significantly and positively correlated with ethical judgment, while not significantly correlated with presence of ethics code.
80.	Wang, T., Long, L., Zhang, Y., & He, W. (2019). A social exchange perspective of employee–organization relationships and employee unethical pro-organizational behavior: the moderating role of individual moral identity. *Journal of Business Ethics, 159*(2), 473–489.	The shortened version of MCSDS (Strahan and Gerbasi (1972))	73 middle-level manager and 256 employees from China.	Control variable	Organizational ethics/demographic variables	- Yes. SDB was significantly and positively correlated with unethical pro-organization behavior. - SDB was significantly and negatively correlated with education, while not significantly correlated with age and company tenure.

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