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The Frequency of Nonresponse Analyses in the *Journal of Sport Management*

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The failure to adequately address nonresponse issues in survey research may lead to nonresponse bias in overall survey estimates, which can severely restrict researchers' ability to make inferences to a target population. This study was designed to assess the frequency of nonresponse analyses in articles published in the *Journal of Sport Management* (JSM). All articles from the years 1987 through 2008 published in JSM ($N = 371$) were content analyzed based on a previously established coding scheme as well as additional indicators. The results revealed that only a small number of articles reported the use of nonresponse analyses as a means to control for nonresponse error.

A prominent debate within the sport management discourse has surrounded the quality, focus, and direction of academic research (e.g., Chalip, 2006; Cuneen & Parks, 1997; Parks & Bartley, 1996). While the emphasis has predominately been on the usefulness of theory to sport practitioners (e.g., Chalip, 2006; Slack, 1996; Weese, 1995) a more immediate concern is that of the methodological quality of published research (e.g., Boucher, 1998; Mahony & Pitts, 1998; Olafson, 1990, 1995). Paton (1987) was among the first to espouse the need for strengthening sport management research, a concern later echoed by Costa (2005) and Chalip (2006). In this light, constructive effort to evaluate the methodological rigor employed by sport management scholars seems a necessary ongoing step toward strengthening the field in general, and its flagship journal, the *Journal of Sport Management (JSM)*, in particular.

Social science research has advanced, in part, based on the development and implementation of valid and reliable methods for the measurement of different characteristics of a population (Ary, Jacobs, Razavich, & Sorensen, 2009). The ability of researchers to draw conclusions based on observations and infer these findings back to a larger population is dependent upon the use of sound methodology when conducting survey-based research (Gall, Borg, & Gall, 1996). Further, the application of accepted survey research methods is essential to advance an academic discipline (Tuckman, 1999). While Olafson (1990) noted that surveys had been disproportionately used when compared with other data collection methods within sport management, this criticism doesn't speak to the rigor of survey research per se, but rather to the diversity of methods used in our field. Since 1990, sport management researchers have used various methodologies for data collection however, as in most social science fields, surveys remain popular. In line with this popularity, sport research has advanced (in part) due to the efforts of scholars having produced valid and reliable instrumentation for measuring a variety of social variables (e.g., Heere & Dickson, 2008; Kim & Kim, 1995; Seo & Green, 2008; Verner, Hect, & Fransler, 1998; Wann, Schrader, & Wilson, 1999). However, there are limitations to survey research which need to be addressed and overcome before the results can be accurately interpreted. One specific limitation is the issue of nonresponse bias in survey research (e.g., Armstrong & Overton, 1977; Dooley & Lindner, 2003; Groves, 2006; Lindner, Murphy, & Briars, 2001; Miller & Smith, 1983; Singer, 2006), which may significantly hinder the ability to generalize research findings to larger populations (see Groves & Couper, 1998; Smith, 2007). Survey nonresponse commonly is taken as an indicator of the quality of survey data. However, nonresponse is a source of bias in survey estimates only to the extent that those who respond are different from those who do not with respect to the characteristics of interest (Groves, 2006).

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Improving research methods and scholarship in sport management requires that as a discipline, we periodically examine the research methods and techniques employed. To accomplish this, analyses that enable researchers to describe and draw inferences about research practices need to be undertaken. Therefore, the purpose of the current study is delimited to focus on nonresponse bias and was intended to determine the frequency and nature of nonresponse analyses in articles published in JSM. By understanding the relationship between nonresponse processes and key research variables, sport management scholars may then begin to evaluate if and how nonresponse introduces bias into survey estimates (Johnson, Cho, Campbell, & Holbrook, 2006). As noted by Singer (2006), nonresponse bias should be handled through the systematic application of statistically sound and professionally accepted procedures. Doing so, will allow sport management scholars to bolster their methodological acumen and at the same time improve the overall quality of their work and the outlets designated for such work.

This article is organized into several sections. First, an explanation of nonresponse bias is presented followed by a discussion of sample size issues in survey-based research (i.e. as they relate to biasing effects). Second, we discuss the results of several analyses dealing with nonresponse bias in varying academic disciplines. This discussion is followed by a description of the methods used for the current study (highlighting notably the objectives of the analyses and the coding scheme for the content analyses). Next, the results of the analyses are presented followed by a discussion of the results. Finally based on our findings, we offer several concluding remarks and recommendations for sport management researchers moving forward with survey-based studies.

Managing Nonresponse Bias

Dillman (2000) identified four sources of error which pose a significant threat to the validity and reliability of studies that use survey methodology: (1) sampling error; (2) coverage error; (3) measurement error; and (4) nonresponse error. So important are these four types of error that Dillman referred to them as the "… cornerstones of conducting a quality survey" (p. 9) and others have reaffirmed his assertion (see Linder et al., 2001). The presence of any one of these types of error poses a significant threat to the findings of the research study. As one or more of these sources of error increases the likelihood of obtaining reliable and valid results decreases, severely limiting the value of the research. Therefore, when conducting survey research it is imperative to include strategies for controlling each type of error as part of the methodology. Survey (or unit) nonresponse, is a major component of total survey error (Groves, 2004; Smith, 1995), and biasing effects resulting from nonrespondents have become increasingly problematic in academic research from the perspective of external validity (e.g., de Heer, 1999; Groves & Couper, 1998; Smith, 1995; Synodinos & Yamada, 2000).

Researchers across several academic disciplines have examined the causes of nonresponse bias and tested procedures for reducing these problematic occurrences (e.g., de Leeuw & Hox, 2004; Diaz de Rada, 2001; Groves, Dillman, Eltinge, & Little, 2002; Warriner, Goyder, Gjertsen, Hohner, & McSpurren, 1996). However, the issue of nonresponse bias has for the most part, not been addressed in the sport management discourse, which is disconcerting given the large number of studies that have used survey methods. Dillman (2000) suggested that nonresponse error results from individuals in the sample, who (if responded) would have provided significantly different answers than those participants who completed the questionnaire. Kish (1965) was among the first to address nonresponse defining it as the failure to obtain results from some participants selected for the sample; and as Miller and Smith (1983) noted, could impact any inferences made to larger populations. Given the influence that nonresponse error could have on the study results, it was surprising to find that of the four types of error discussed by Dillman (2000), nonresponse bias has received the least attention by researchers and journal editors (e.g., Dooley & Lindner, 2003; Lindner et al., 2001). Regardless of the (albeit scarce) attention given to this issue, the importance of addressing nonresponse error cannot be overstated, as one of the main functions of survey research is to generalize findings back to a larger population. If respondents are significantly different than individuals who participated in the study, the ability to make inferences back to the population can be severely limited.

Much of the early work concerning nonresponse error discussed the perceived difficulties of making valid estimates of survey nonrespondents. However, subsequent research has established several strategies that should be employed in an attempt to reduce the impact of nonresponse (see Bartlett, Bartlett, & Reio, 2008; Linder et al., 2001; Werner, Praxedes, & Kim, 2007). Further, the discussion of nonresponse error has become standard practice in most research methods courses and has been generally accepted as standard practice for survey based research among academics (e.g., Dillman, 2000; Fraenkel & Wallen, 2006; Miller & Smith, 1983). Despite this increased attention, examinations of how nonresponse is addressed in the academic literature have revealed, in the aggregate, that researchers do not actively account for this source of error. Thus, a large portion of the published research (i.e., not utilizing census sampling) is significantly limited in terms of overall generalizability (e.g., Bartlett et al., 2008; Linder et al., 2001; Werner et al., 2007).

Armstrong and Overton (1977) suggested that it is possible to garner information about nonrespondents through various extrapolation methods (i.e., a process of estimating nonresponse bias based on statistical analyses). These authors identified three methods to measure nonresponse error: (1) comparing known values of the population with that of respondents; (2) subjective estimates based on comparisons between respondents and

nonrespondents on known values; and (3) extrapolation based on time trends and waves of responses. The work of Armstrong and Overton built the foundation for subsequent research, most notably by Miller and Smith (1983), who suggested five strategies for handling nonresponse error (i.e., once appropriate follow-up methods were conducted). Miller and Smith's five strategies included: (1) ignoring nonrespondents; (2) comparing respondents to the population on characteristics of interest known a priori; (3) comparing respondents to nonrespondents on characteristics of interest known a priori; (4) comparing early to late respondents on core study variables; and, (5) sampling nonrespondents a second time. Also warranting attention in the discussion of nonresponse bias is the issue of sample size as pertaining to the response rate of the study.

The Role of Sample Size and Response Rates

The use of samples to obtain relatively precise information about a population is a very efficient technique. However, the efficiency of sampling does not guarantee its accuracy and as such, a number of concerns related to small sample sizes have been forwarded. For example, small samples may negatively impact statistical power, the ability to incorporate advanced statistical techniques into study designs, and an increase in the size of the confidence intervals around sample statistics (Rogelberg et al., 2003). Further, the likelihood of systematic error being introduced into a study increases as sample size decreases, with low response rates increasing the chance of obtaining a biased sample (Rogelberg & Luong, 1998). Biased sample usage in survey-based research has been identified as one of the most serious concerns surrounding low response rates (e.g., Bartlett et al., 2008; Dooley & Lindner, 2003; Miller & Smith, 1983; Rogelberg et al., 2003). Dillman (2000) stated that to make inferences back to a population, researchers must confirm that a 100% response rate would result in the same findings as those reported with the actual response rate (which may be quite low in some instances). Therefore, to be completely confident in making generalizations back to larger the population, researchers must fully understand how respondents compare with nonrespondents.

One important caveat when discussing sample size is that a study's response rate is a measure of data quantity rather than quality (e.g., Olson, 2006; Wilcox, Bellenger, & Rigdon, 1994); thus additional procedures should be introduced to ensure the data obtained from respondents are representative of the data that would have been obtained from nonrespondents (had they participated). In addition, nonresponse by itself does not constitute nonresponse error (Rogelberg & Luong, 1998), which only exists when respondents differ significantly from nonrespondents on measures of core study variables. To quantify nonresponse bias, the following equation is presented and discussed:

$$\text{Nonresponse bias} = NR\,(\bar{X}_{res} - \bar{X}_{non})$$

In this equation NR represents the number of nonrespondents in a study where $\bar{X}_{res}$ is the respondents' score on a variable of interest and $\bar{X}_{non}$ is the score of nonrespondents on the same variable (Rogelberg & Luong, 1998). What can be surmised from this equation is that nonresponse bias only occurs in situations where nonrespondents score significantly different on a particular measure. Meaning that, studies with a low response rate may not experience nonresponse bias if actual respondents' scores are consistent with what would have been obtained from nonrespondents. According to Miller and Smith (1983), studies obtaining a high response rate (even as high as 90%) might still suffer from nonresponse bias. Therefore, survey response rates should not be viewed as a panacea—more may not necessarily be better.

Recent research has suggested that there is no consistent relationship between survey response rates and bias in survey estimates (for a synthesis and review, see Groves, 2006). Therefore, in many cases, the time and effort spent on soliciting respondent cooperation might be better utilized on other survey-related activities. To reach this conclusion for any particular survey, however, requires quality evidence on how nonresponse might be impacting the survey estimates. However, it is important to note that the likelihood of nonresponse error in a study decreases as the response rate increases (i.e., presuming adequate sampling procedures were employed) but it cannot be eliminated as a potential bias until some mechanism of control is instituted.

Much debate (e.g., Ary et al., 2009; Bartlett et al., 2008; Dooley & Lindner; 2003; Lindner et al., 2001; Tuckman, 1999) has surrounded the issue of what constitutes an adequate response rate for studies utilizing survey research methodologies. While the likelihood of introducing systematic bias into a study increases with a low response rate, debate is ongoing as to what constitutes an "adequate" enough rate to offset any potentially biasing effects (e.g., Bartlett et al., 2008; Dooley & Lindner, 2003; Lindner et al., 2001; Miller & Smith, 1983; Werner et al., 2007). Previous work on the topic has identified that before nonresponse bias can be addressed, researchers must use appropriate methods intended to maximize study participation (e.g., Dillman's *Tailored Design Method*).

In terms of study participation, Ary et al. (2009) maintained that after appropriate follow-up techniques have been implemented, a response rate of less than 75% requires an analysis of how respondents may differ from nonrespondents using one or more comparison strategies. Fowler (2001) suggested that a minimum response rate of 50% and the use of nonresponse analyses are needed to control for nonresponse error. A number of other authors (e.g., Dooley & Lindner, 2003; Lindner et al., 2001; Werner et al., 2007) have suggested that an 85% response rate is the minimum that must be achieved if researchers are to assume that nonresponse does not threaten external validity. As Werner and colleagues (2007) noted, "… researchers should provide both empirical

and theoretical evidence refuting nonresponse bias whenever the response rate is less than 85%" (p. 293). While there is some theoretical (rather than empirical) support for using this percentage as a benchmark, researchers should remain mindful that nonresponse bias could be a threat even when response rates exceed this threshold (e.g., Miller & Smith, 1983; Rogelberg & Luong, 1998). Therefore, studies incorporating sampling methodology should also include strategies for addressing nonresponse bias as part of the methods used for data collection. Inclusion of one or more strategies intended to establish that respondents do not differ from nonrespondents should be performed a priori so that researchers can collect the necessary information to conduct the analyses.

Analyses of Nonresponse Management

The work of Miller and Smith (1983) has served as the framework for a number of studies on nonresponse error management techniques (e.g., Bartlett et al., 2008; Dooley & Lindner, 2003; Lindner et al., 2001; Werner et al., 2007; Rogelberg & Luong, 1998). Most of this work has focused on how nonresponse is handled within a single academic discipline, and more specifically the frequency and type of nonresponse analyses reported in selected academic journals. For example, Lindner et al. (2001) reviewed research published in the *Journal of Agricultural Education* over a ten year period (1990–1999) and found that nonresponse error was a threat to 70% of the articles that employed sampling techniques. Within this group, nearly half (46.7%) failed to report any attempts to control for nonresponse error, or make mention of nonresponse as a significant threat to external validity. For those who attempted to control for nonresponse bias, the most prevalent analysis was the comparison of early to late respondents. However, the authors concluded that the "… specific procedures for making such comparisons varied and were not standardized" (p. 51). In a similar study, Dooley and Lindner (2003) examined articles published in *Human Resource Development Quarterly* from 1990 to 1999. This work was conducted in response to Lindner et al. (2001) who encouraged replication of their study within other academic disciplines to provide a broader perspective of nonresponse error and how the issue is addressed. Their findings were consistent with others, in that, the majority of articles that used sampling techniques (and did not achieve a 100% response rate) failed to control for nonresponse error. Of the 47 articles in which nonresponse posed a threat, 39 (78.7%) did not report the application of any nonresponse analyses.

Werner et al. (2007) extended this line research by examining multiple journals as opposed to a focus on one specific journal. These authors examined articles published in nine management journals over a five-year period (2000–2004) and categorized the journals based on tier ranking. The primary purpose of this study was to determine if journal quality (i.e., based on rankings) impacted the use and reporting of managing nonresponse bias. The authors found that in "tier one" journals, nonresponse analyses were conducted 29% of time, as compared with 34% (tier two) and 27% (tier three), suggesting a general lack of control of nonresponse bias as well as little distinction among the various journals. When controlling for extraneous factors (e.g., publication year, review time, rejection rate, and sample type), they were able to conclude that studies with lower response rates and studies published in higher tier journals were more likely to document the handling of nonresponse error. It is notable that while studies with higher response rates were less likely to include nonresponse analyses, the mean response rate for all studies across the three tiers was 52%, far below the 85% threshold previously discussed (see Dooley & Lindner, 2003; Lindner et al., 2001; Werner et al., 2007). Finally, Bartlett et al. (2008) explored nonresponse bias by reviewing research published in the *Delta Pi Epsilon Journal* from 1995 to 2004. Of the 166 articles published during this period, 85 (51.2%) used sampling and survey techniques, and thus nonresponse posed a threat to external validity. Again, similar to previous work, the majority (81.9%) of the articles that employed methods other than census sampling, or achieved a 100% response rate, failed to report any nonresponse analyses. The authors tested for potential relationships between nonresponse analyses and population size, sample size, response size, response rate, use of sample formula, and use of follow-up procedures. Only a moderate relationship was found with sample size (r = .33) and the use of follow-up strategies (r = .36) suggesting a lack of systematic factors that predict the use of strategies to control nonresponse bias. Consistent with previous work, Bartlett et al. (2008) discussed the importance of addressing nonresponse error in survey research that does not achieve a 100% response rate. The authors echoed previously held assertions that "… by not addressing nonresponse issues, the researcher is less likely to be able to generalize the findings from the sample to the groups beyond the sample" (p. 54), and suggested that future scholars "… promote the importance of the nonresponse issue for conducting rigorous research" (p. 55).

Method

Analysis of Nonresponse in *JSM*

Improving research and practices of scholarship published in the *Journal of Sport Management* requires a periodic examination of the technique and methods used to conduct quality research, and failure to critically analyze how research is conducted and reported threatens the credibility of the discipline and prohibits the development of rigorous standards (Dooley & Lindner, 2003). As noted, the purpose of this study was to determine the frequency and nature of nonresponse analyses in articles

published in JSM from its inception through to the end of the 2008 volume. Specific objectives of this study included the identification of the following:

Objective 1: The number and type of articles published in JSM

Objective 2: The sampling procedures and methods of data collection utilized

Objective 3: The response rates for surveys and augmentation strategies utilized

Objective 4: The frequency and nature of reporting nonresponse management strategies

All articles published in JSM from 1987 to 2008 ($N = 371$) were analyzed using a content analysis technique which is a systematic, nonobtrusive, and replicable technique for examining communication methods (Berger, 2000). Qualitative content analysis is appropriate when existing theory or research literature on a phenomenon is limited (Hsieh & Shannon, 2005). Hence, from this initial inquiry it should be possible to describe and draw inferences (i.e., analytical not statistical generalizability; see Yin, 2003) about the handling of nonresponse bias in JSM using the posited indicators. The instrument used for this study was based on previous research (e.g., Dooley & Lindner, 2003; Lindner et al., 2001; Miller & Smith, 1983) which examined how nonresponse error was addressed in other academic journals. As such, coding for the study included the following:

1. Article type – those that used sampling procedures vs. those that did not.
2. Sampling method – categorized into one of ten categories identified by Fraenkel and Wallen (2006) and labeled as probability or non-probability.
3. Data collection – method for collection coded into one of six categories.
4. Response rate – actual response rate achieved.
5. Strategies to augment response – coded into one of seven categories.
6. Mentioning nonresponse – those that noted nonresponse error as a threat to external validity vs. those that made no mention of the threat.
7. Nonresponse analysis – coded into one of five categories proposed by Miller and Smith (1983).
8. Results of analysis – results of employed techniques to ameliorate nonresponse concerns were coded as no difference found vs. difference found.
9. Literature – coded as the actual reference to the literature used in the paper.

A panel of experts comprised of sport management faculty and doctoral students reviewed the data collection instrument for content validity. Following this assessment and to reduce researcher bias, three researchers reviewed each article independently. To meet the requirements of the research objectives, the three coders determined: (1) the number and type of articles published in JSM, (2) the sampling procedures and methods of data collection used, (3) the response rates for surveys and response augmentation strategies used, and (4) the frequency and nature of reporting nonresponse management strategies. After fully acquainting themselves with the operational definitions of the coding scheme measures, the coders began the analysis of data. Any coding ambiguities were thoroughly discussed between the coders and resolved, with the primary researcher being the final arbiter for reliability of the coding scheme (see Tashakkori & Teddlie, 1998). Before data analysis, it is strongly recommended to document the degree of intercoder agreement in content analysis, so as to specifically determine the "…extent to which the different judges tend to assign exactly the same rating to each object" (Tinsley & Weiss, 2000, p.98). To document reliability among the coders, we computed a Cohen's Kappa statistic for each of the variables which showed values ranging from .962 (mention of nonresponse bias) to .993 (study population), indicating a high and acceptable level of intercoder agreement (Jarvenpaa, 1999; Lombard, Snyder-Duch, & Bracken, 2002).

Results

Objective One

The first objective was to describe the number and type of articles published in JSM from 1987 to 2008. A total of 371 articles were published in the journal during this period. Among them, 162 (43.7%) used sampling procedures on various populations (see Table 1), whereas 209 (56.3%) were conceptual in nature or used techniques not requiring a sampling protocol. For the subsequent analyses, we reviewed only the 162 articles that used

Table 1 Sample Types

Study Populations	*f*	%
Administrators	52	30.2
General Students	26	15.1
Multiple Population Surveyed	26	15.1
Others	22	12.8
Coaches	13	7.6
Local Population	11	6.4
Spectators	10	5.8
Faculty	5	2.9
Alumni	4	2.3
Athletic Donors	3	1.7
Totals	172	100.0

sampling procedures. However, since multiple data collections were reported in several of these studies, we treated each data collection procedure as an independent study, thereby resulting in a total of 172 observations.

Objective Two

The second objective was to identify the type of sampling and the method of data collection used in the JSM publications. As illustrated in Table 2, the most common sampling procedure was convenience sampling (29.1%), followed by census techniques (23.8%). Regrettably, about 8% of the studies ($f = 13$) did not report the sampling procedures used. Regarding the method of data collection, about half of the studies (50.6%) used mail surveys, while onsite intercepts were also among the most popular (27.9%). A large number of studies ($f = 24$) did not specify the method used to collect data.

Table 2 Sampling Procedures & Collection Methods

Sampling Procedures	*f*	%
Convenience Sampling	50	29.1
Census	41	23.8
Stratified Sampling	18	10.5
Purposeful Sampling	18	10.5
Simple Random Sampling	13	7.6
Not Reported	13	7.6
Multiple Sampling Used	9	5.2
Systematic Sampling	6	3.5
Cluster Sampling	2	1.2
Others	2	1.2
Totals	172	100.0
Sampling Methods	***f***	**%**
Mail Survey	87	50.6
Onsite Survey	48	27.9
Not Reported	24	14.0
Multiple Survey Used	8	4.7
Phone Survey	3	1.7
Web-Based Survey	2	1.2
Totals	172	100.0

Objective Three

The third objective was to describe the response rate of studies published in JSM and identify the use of strategies intended to maximize study participation. As illustrated in Table 3, the average response rate was 62.2% (SD = 23.0) with the minimum response rate of 13.5% and the maximum of 100% achieved by 17 (9.9%) of the studies. Approximately 17% of the articles ($f = 30$) did not provide response rates. Table 3 also illustrates that the majority of the studies analyzed (65.1%) did not report any strategies intended to increase response rates. Among the studies that mentioned any strategies, postnotification (25.6%) was the most prevalent.

Table 3 Response Rates & Strategies for Survey Research

Response Rates[a]	*f*	%
100%	17	9.9
90–99%	6	3.5
80–89%	9	5.2
70–79%	24	14.0
60–69%	13	7.6
50–59%	24	14.0
< 50%	49	28.5
Not Reported	30	17.4
Totals	172	100.0
Response Rate Strategies	*f*	%
Did Not Mention Any Strategies	112	65.1
Post-Notification	44	25.6
Multiple Strategies	5	2.9
Pre/Post-Notification	4	2.3
Pre-Notification	3	1.7
Prize Incentives	3	1.7
Extra Class Credit	1	.6
Totals	172	100.0

Note. [a]$M = 62.2$; $SD = 23.0$; $Min = 13.5\%$; $Max = 100\%$

Objective Four

The final and most salient objective of this study was twofold: (1) determine the frequency nonresponse error was mentioned as a threat to external validity and (2) determine and describe the methods that were designed to control for this threat. Before this analysis, we identified the number of investigations that reported less than 85% response rates. As previously discussed, there is growing consensus among scholars that a response rate of 85% can be used as a reasonable cutoff for determining whether nonresponse error is a threat to external validity (e.g., Dooley & Lindner, 2003; Lindner et al., 2001; Werner et al., 2007). Following this suggestion, we considered a study with a response rate less than 85% subject to nonresponse error.

As shown in Table 4, 144 studies (83.7%) reported less than 85% response rates and thus were considered to be susceptible to nonresponse error (or at least being in need of reporting nonresponse management techniques). Of the 144 studies identified, only 31 (21.5%) mentioned nonresponse error as a threat to external validity. However, the majority of these 31 studies (58.1%) did not report any nonresponse analyses, despite acknowledging the potential threat to external validity (see Table 4). For the remaining 13 (41.9%) studies that attempted to control for nonresponse error, the comparison between early and late respondents on core study variables (25.8%) was the primary choice for addressing nonresponse bias.

Table 4 Mentioning the Threat of Nonresponse Error & Handling Techniques Employed

Mentioning Nonresponse Error	***f***	**%**
Less Than 85% Response Rate Achieved	144	83.7
Did Not Mention Nonresponse Error as a Threat	113	78.5
Mentioned Nonresponse Error as a Threat	31	21.5
85% or More Response Rate Achieved	28	16.3
Totals	172	100.0
Handling Nonresponse Error	***f***	**%**
Did Not Control for Nonresponse Error	18	58.1
Compared Early and Late Respondents on Core Study Variables	8	25.8
Compared With Characteristics Known *a Priori*	3	9.7
Sample Nonrespondents A Second Time	1	3.2
Multiple Methods	1	3.2
Totals	31	100.0

Of the 13 studies that made efforts to control for nonresponse error, 12 (92.3%) did not find any differences between respondents and nonrespondents, and indicated with confidence that nonresponse error was not a threat to external validity. On the other hand, when comparing respondents and nonrespondents, one study found a significant difference among the sample, however no information was provided on how the difference was remedied. To guide future research and increase the rigor of sport management research regarding the handling nonresponse error, the final analysis of the data pertained to the citations used by JSM authors who included nonresponse management techniques in their articles. Recall however, that the vast majority of the studies (95.3%) published in JSM did not provide any references for the handling of nonresponse error. Three studies (1.2%) cited Miller and Smith (1983), while single studies cited Issac and Michael (1981), Krejcie and Morgan (1970) and Dooley and Linder (2003), respectively. Two studies (1.2%) provided multiple references for the handling of nonresponse error.

Discussion

As noted within this article and others, methodological rigor is critical for research to contribute to the understanding of phenomena of interest. To infer accurately from samples to target populations, researchers must adhere to generally accepted research protocols (Dillman, 2000). In a field where survey research and relatively low response rates (i.e., < 85%) are commonplace, sport management researchers must employ strategies for controlling nonresponse bias in advance of, and following data collection (Rogelberg & Luong, 1998). While in no way intended *a priori* to be an indictment of the quality of research in sport management generally or in JSM in particular, this study is nevertheless revelatory in several regards. We were struck initially by the predominance of convenience samples among the studies (i.e., nearly one third used this method). This finding was troubling because this method should be one of last resort (i.e., unless theory testing in the most basic sense is the goal) and from the perspective of being a relatively young field that is in need of accumulating disparate studies into a coherent narrative. Notable also was the failure to adapt technology to broaden the scope of our research. As of the end of the 2008 volume, JSM had only two articles that employed a web-based survey methodology as part of the data collection protocol. While this does not represent a deficiency per se it is nonetheless an interesting finding. Also notable was the relatively high number with incomplete and/or imprecise methods sections. On several occasions, it was not possible to determine such basic elements as survey technique, sampling procedures, or response rate. These issues are cause for concern and should be addressed (both by the authors and reviewers) if sport management as an academic discipline is to continue to grow and develop.

However, nonresponse was the primary impetus for the current project, and as such we will focus the balance of discussion on this topic. As is evident from the findings, nonresponse has not been a documented issue of concern for the vast majority of JSM authors, nor by extrapolation, for JSM's reviewers. Of the 144 published studies that should have been concerned with nonresponse bias (due to < 85% response rate), only 13 (9%) actively took measures to appropriately address the issue. While the overwhelming majority of articles ignored the threat altogether, perhaps it is more noteworthy that 19 articles actually mentioned it as a threat, but then failed to detail any remedial measures taken to assuage any concerns that readers might have had. This may indicate that sport management scholars do not suffer from a lack of awareness of the issue, but perhaps have failed to internalize the seriousness of the threat that nonresponse bias poses.

As a first examination of the issue of nonresponse analyses in sport management research, we feel our study provides valuable insights on how this threat to external validity has been addressed. However, as with any research study there are limitations that must be noted. First, we examined research published in just one sport management academic journal and therefore findings cannot be inferred to other academic journals or sport management research as a whole. The selection of JSM was not by chance however, as this is generally ranked as the top journal of the discipline (Shilbury & Rentschler, 2007). Based on the work of Werner et al. (2007), who identified a significant relationship between journal quality and the reporting of nonresponse analyses, we anticipated that articles published in JSM would be more likely to address nonresponse bias based on the quality of the journal. The results of our study cannot be accurately compared with other sport management journals, and as such further research might consider addressing this issue field-wide. In addition, future research with other journals would promote meaningful discussion on what constitutes best practices for handling nonresponse error.

A further limitation is that this study focused on the frequency of reporting nonresponse analyses; however neither the quality of those analyses nor the underlying reasons for nonresponse were addressed. The relative quality of nonresponse analyses could also impact confidence in the degree that findings can be generalized to a larger population. "… Issues such as how many variables are compared, the convergence of findings, the relevance of those variables, the nature of comparisons, the nature of the population, and that statistical tests used may all affect the quality of nonresponse analyses" (Werner et al., 2007, p. 293). Further investigation is needed to evaluate these factors and other issues related to the implementation and moreover, quality of published nonresponse analyses. To assist with the understanding of the relative quality of nonresponse analyses, researchers should include as part of the study's methods, a complete description of how nonresponse analyses was conducted and the results of these tests (citing relevant research when appropriate). Indeed, it may be that nonresponse has been managed by sport management scholars to a greater degree than is reflected in our results, in that they may simply have not been included in the final published manuscript. As such, it would leave a false impression of the methodological rigor in our field with regards to the nonresponse issue.

Finally, this study did not attempt to address the underlying reasons that nonresponse occurs and the influence this can have on the external validity of a particular study. In general, reasons for nonresponse can be grouped into two general categories: (1) passive nonresponse and (2) active nonresponse (Rogelberg et al., 2003). Passive nonresponse is unintentional in nature and generally results in a decreased threat to external validity. Nonresponse in this context is not based on a conscious or overt decision to decline participation in the survey research project. Participants selected for inclusion in the study may have wanted to complete and return the questionnaire but for various reasons, such as losing the questionnaire or forgetfulness, could not or did not. The second category (i.e., active nonresponse) represents a group that consciously and purposefully chooses not to respond to a survey request. The decision to refrain from taking part in the research project normally occurs upon receiving the solicitation for participation and generally is not changed based on the use of different follow up procedures (e.g., postnotification or other inducement). There is a limited amount of research on the motives for nonresponse; however, preliminary work does suggest that nonrespondents in the passive group most closely resemble respondents, while those in the active group are normally quite different (Rogelberg et al., 2003). Therefore, researchers should not assume that all nonrespondents are the same but rather attempt to gather as much information about this group as possible to more clearly understand the reasons for nonresponse.

Recommendations

Based upon our review of the literature and the results of the current analyses, we feel it appropriate to conclude with recommendations for managing nonresponse for our field moving forward. While the focus of this study was an examination of how nonresponse error has been handled in JSM, this source of error also poses a threat in practitioner based research. Sport managers rely on data obtained from survey research when making evidence based decisions regarding the sport services or products provided by their organization. For example, a sport team considering offering premium services to consumers or a sport league considering expansion into a new market must both gather data from consumers to make informed decisions. The ability to make quality decisions in both scenarios is severely limited when the threat of nonresponse error is present. Thus, the threat of nonresponse error on the external validity of findings acquired from a sample should be a significant concern in practitioner based research just as in academic research. If information gleaned from a sample is not truly representative of a larger population due to nonresponse error an organization that attempts to implement evidence based decision making may in fact make decisions that do not align with the wants of their consumer group. Given the fact that survey research is a common way to gather data from sport consumers it is important that practitioners consider the threat of nonresponse error and when necessary use appropriate methods to control this error.

The following approaches to handling nonresponse bias are based on various methodologies that have been proposed as a way to detect the threat of nonresponse error. While each of the proposed methods does provide some insight on any differences between respondents and nonrespondents, it is important to understand that there is not a "one best way" to control the threat associated with this type of error (Rogelberg & Luong, 1998). Therefore, researchers are encouraged to employ multiple strategies

and demonstrate the convergence of results. Once this has occurred, researchers as well as consumers of the research can conclude that nonresponse error does not pose a threat to the external validity of the study findings (e.g., Dooley & Lindner, 2003; Lindner et al., 2001; Werner et al., 2007). The four methods that could be employed to test for and confirm the presence of nonresponse error are: (a) comparison of early to late respondents; (b) use "days to respond" as a regression variable; (c) comparison of respondents to nonrespondents; and (d) comparison of respondents to the population on characteristics known a priori.

Comparison of Early to Late Respondents

Extrapolation methods are based on the premise that subjects who respond late in the data collection cycle are most similar to nonrespondents (e.g., Armstrong & Overton, 1997; Miller & Smith, 1983; Pace, 1939). While this method is often the strategy of choice when addressing nonresponse error (e.g., Bartlett et al., 2008; Rogelberg & Luong, 1998) there is "… no consistent/standardized operational definition" of what constitutes a late respondent (Lindner et al., 2001, p. 51–52). One method of defining this group is to classify respondents based on successive waves of responses to a questionnaire (e.g., Dooley & Lindner, 2003; Rogelberg & Luong, 1998). This would mean that all participants who respond after a follow-up notice has been sent would be grouped in the last wave and thus be deemed "late respondents". According to Lindner et al. (2001) however, if the last stimulus does not solicit at least 30 useable responses, the researcher should group participants who returned questionnaires in the last two waves of responses. If respondents cannot be grouped based on successive waves or if the researcher is unable to obtain a minimum of 30 respondents in the "late" group, then Dooley and Lindner (2003) suggested that late respondents be defined arbitrarily as the later 50% of respondents. While supportive of the use of this form of extrapolation, Rogelberg and Luong (1998) caution that late respondents are not "pure" nonrespondents and thus this method cannot completely describe the extent of the bias.

Using "Days to Respond" as a Regression Variable

This method involves coding "days to respond" as a continuous variable and using it as an independent variable in regression equations. Similar to method one, this extrapolation strategy considers nonrespondents to be a linear extension of those participants that respond at the end of the data collection cycle. Therefore, any differences between early and late respondents can be detected based on the measure "days to respond" and be inferred back to nonrespondents. This determination is (of course) based on whether the regression equation yields statistically significant results. If not, then it is assumed that early and late respondents do not differ and that the threat of nonresponse bias is reduced. If the regression equation is significant for one or more dependent variables the researcher must describe these differences and strongly consider removing them from subsequent analyses.

Comparison of Respondents to Nonrespondents

This approach involves randomly selecting a group of nonrespondents and attempting to obtain completed questionnaires (e.g., often shortened versions consisting primarily of core variables) so that comparisons can be made with the respondent group. Because this method involves comparisons between respondents and actual nonrespondents, it is considered by many to be a more meaningful (albeit difficult to obtain) estimate of nonresponse error (e.g., Lindner et al., 2001; Rogelberg et al., 2003; Rogelberg & Luong, 1998). Despite the obvious constraints of this method, researchers should attempt to contact a minimum of 20 nonrespondents and seek their responses to key study variables. Using less than 20 nonrespondents limits statistical power making identification of any differences between groups difficult. If the researcher is unable to solicit responses from at least 20 nonrespondents, Lindner et al. (2001) suggested combing late respondents with nonrespondents and conducting comparisons using one or more extrapolation methods.

Comparison of Respondents on Characteristics Known *a Priori*

A final method to control for nonresponse error involves comparison of respondents and nonrespondents (or the larger population) on characteristics known before the collection of data. This method requires the researcher to have access to information about not only the sample but also the entire population of interest. Often times, characteristics such as age, socioeconomic status, length of employment, race, marital status, and other demographic variables are used for comparison purposes. Again, if no differences are found between comparison groups then researchers can proceed with the assumption that respondents do not differ from the larger population and thus are similar to nonrespondents. It is noteworthy that findings regarding differences based on the aforementioned characteristics have been inconsistent across studies. Rogelberg and Luong (1998) identified that the only characteristic that has consistently identified differences between groups is educational level, with nonrespondents tending to have lower levels of education compared with respondents.

Conclusion

Inclusion of these methods as part of a research design for studies that use sampling techniques and survey-based questioning (and measuring their effectiveness) will allow sport management as a discipline to verify or refute the utility of proposed methods for controlling nonresponse bias. Failing to address the issue of nonresponse bias

will continue to limit the external validity of much of the research published in JSM and other sport management journals. The methods presented in this study are consistent with those proposed by Miller and Smith (1983) and supported by scholars in other academic disciplines (e.g., Bartlett et al., 2008; Dooley & Lindner, 2003; Lindner et al., 2001; Rogelberg & Luong, 1998; Werner et al., 2007). If through subsequent research we find that these methods are effective in controlling nonresponse error, they should become established practice and editorial boards should evaluate academic scholarship, in part, based on the inclusion of nonresponse analyses when appropriate. If ineffective in addressing the issue then work should be initiated which seeks deeper understanding of what methods will most appropriately address nonresponse error and the threat it poses to the external validity of sport management research.

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