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Involvement of Females as Authors, Editors, and Participants in Journals Concerned with Mental Retardation and Related Topics

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INVolvement of femaLes as auTHors, Editors, and Participants in Journals Concerned with Mental Retardation and Related topics

by

Cari L. Porter

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Cari L. Porter
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CHAPTER I

INTRODUCTION

Sex of Authors and Editors

Female Authors

According to the National Center for Education Statistics (NCES, 2000b), the proportion of women enrolled in higher education increased steadily from 1970 through 1996. For example, the percentage of females pursuing undergraduate degrees increased from 42% in 1970 to 56% in 1996. This change represents a 33% relative increase in female undergraduate students. An even larger increase, 44%, is evident with respect to females enrolled in graduate programs. In 1970, 39% of all graduate students were women. By 1996, the figure had increased to 56%.

Educational data clearly indicate that an increasing proportion of the female population is qualified for careers in professional fields.

The field of psychology is a good illustration of this trend. Psychology historically has been dominated by men, but during the past 15 years women have earned the majority of doctorate degrees conferred in psychology (American Psychological Association [APA] Task Force, 1995; Ostertag & McNamara, 1991). For example, women earned 66% of the psychology doctorates in both 1996 and 1999 (Kohout, 2001; National Research Council [NRC], 1998). Women hold an
increasing number of faculty positions in psychology; in 1997, approximately 40% of full-time psychology faculty positions were occupied by women (American Psychological Association Committee on Women in Psychology, 1998), compared to 21% in 1990 and 9% in the early 1970s (Pion et al., 1996). Many of these women report being involved in research. Pion et al. indicate that “the proportion of men and women [faculty] interested in research were equal (80%) among experimental psychologists, and more female clinical and social faculty endorsed research goals than their male counterparts” (pp. 522-523).

Despite the fact that women are receiving degrees appropriate to conduct research, and are reportedly interested in doing so, they have been underrepresented in some scientific activities. For example, surveys in several areas of psychology indicated that, although women’s participation as authors has increased over time, substantially more journal articles published in the last decade had male than female first authors and, overall, more authors were male (Jarema, Snycherski, Bagge, Austin, & Poling, 1999; McSweeney, Donahoe, & Swindell, 2000; McSweeney & Swindell, 1998; Myers, 1993; Pion et al., 1996; Poling et al., 1983; Skinner, Robinson, Brown, & Cates, 1999).

Female Editors

Authoring journal articles is one important way to contribute to an academic discipline. Serving on the editorial board of prominent journals in that discipline is another way. Some articles that described the participation of women as authors in
psychology journals also described women's participation as members of the editorial boards of those same journals (Jarema et al., 1999; McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993). Interestingly, in several journals where the participation of women as authors increased across time, their participation as members of the editorial board did not increase. In fact, McSweeney and her colleagues (2000) pointed out that, in behavior-analytic journals, women “were more likely to appear as authors than as first authors and as first authors than as members of the editorial board” (p. 275). They interpreted these data as reflective of a “glass ceiling” that caused the participation of women to decrease progressively as the selectivity and importance of the activity increased. Put differently, gender inequity appeared to reduce women’s opportunities to contribute to behavior analysis. Moreover, according to McSweeney et al., “finding the same results for so many journals suggests that the inequity is widespread” (p. 274).

Three of the journals to which McSweeney et al. (2000) referred (Journal of Applied Behavior Analysis [JABA], Behavior Modification [BM], Behaviour Research and Therapy [BRT]) regularly published intervention articles in which the participants were people with mental retardation. These journals also published other types of articles of interest to researchers and practitioners concerned with mental retardation. Therefore, data for these journals provide some indication of women’s contribution to the mental retardation literature as authors and as editors. Nonetheless, there are other journals that more directly focus on mental retardation
(and related topics), and it is unwise to assume that women’s participation in those journals has been similar to their participation in *JABA, BM*, and *BRT*.

**Sex of Participants**

The *Publication Manual of the American Psychological Association* (APA, 1994) dictates the style of manuscripts published in all APA journals and many other professional journals. For example, eight of the primary outlets for research dealing with mental retardation and related topics, *American Journal on Mental Retardation (AJMR), Exceptional Children (EC), Education and Training in Mental Retardation (ETMR), Journal of the Association for Persons with Severe Handicaps (JASH), Journal of Developmental and Physical Disabilities (JDPD), Journal of Special Education (JSE), Mental Retardation (MR), and Research in Developmental Disabilities (RDD)*, specify that manuscripts be prepared according to the *Publication Manual of the APA*. The manual specifically states that, “[When humans are the participants in a study], report major demographic characteristics such as sex . . .” (p. 13). Additionally, the Ad Hoc Committee on Nonsexist Research of the APA (Denmark, Russo, Frieze, & Sechzer, 1988), indicates that “at minimum, [researchers should] specify the sex and race of everyone involved in research” (p. 583).

Several authors have supported the notion that researchers in psychology and related fields should routinely report the sex of their participants and they have provided good reasons for doing so (Ader & Johnson, 1994; Carlson & Carlson,
1960; Denmark et al., 1988; Gannon, Luchetta, Rhodes, Pardie, & Segrist, 1992; Holverstott et al., in press; Jarema et al., 1999; Wann & Hamlet, 1995). They note that if the sex of participants is not specified in an article, readers cannot ascertain whether the reported results should generalize to males only, to females only, or to both males and females. Similarly, they cannot determine whether participants’ sex influences the behavioral characteristic or disorder of interest in the investigation.

The following two chapters will include a review of the literature specific to the involvement of females as authors, editors, and participants in journals concerned with mental retardation and related topics; a detailed description of the methods utilized in the two experiments also will be presented.
CHAPTER II

REVIEW OF THE LITERATURE

Sex of Authors and Editors

Previous surveys of the behavioral literature (Jarema et al., 1999; McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993; Poling et al., 1983) indicated that women were underrepresented both as journal authors (first and all) and journal editors. Poling et al. (1983) reviewed articles published between 1958 and 1981 and between 1968 and 1981 in the *Journal of the Experimental Analysis of Behavior (JEAB)* and the *Journal of Applied Behavior Analysis (JABA)*, respectively. Evaluation of the data revealed that for JEAB (for the years reviewed), the percentage of women as authors or first authors failed to reach 25% for any single year. For JABA during the selected period, the percentage of women as authors or first authors failed to reach 35% for any single year. When the data were examined to uncover possible increases in participation by women across time, the results were mixed; the proportion of total female authors of JEAB articles increased, while the proportion of total female authors of JABA articles did not increase (Poling et al., 1983). The overall conclusion of the study was that women published in JEAB and JABA less frequently than men (Poling et al., 1983). Although publication rates should not be interpreted as an exhaustive measure of
women's scientific activities, the results suggested that women may not have been as active or as successful as men in producing valued scientific research.

Myers (1993) extended the findings of Poling et al. (1983) by continuing the examination of data on authorship for JEAB and JABA from 1983 through 1992 and by including author data for The Behavior Analyst. He also concluded that women were underrepresented in behavior analysis, as indicated, in part, by the frequency of their publications in JEAB, JABA, and The Behavior Analyst. For The Behavior Analyst, an average of 16% of the articles published between 1983 and 1992 were authored (first) by women. For JEAB and JABA, an average of 15 and 31% of first authors were women from 1983 through 1992, respectively. The former journal is devoted to applied research, the latter to basic. Whether women are, in general, more successful or interested in applied research than in basic research is a question that may explain some of the observed variation.

In addition to examining author data, Myers (1993) analyzed the gender of editorial board members for the same three journals. He found that in JABA, from 1968 through 1992, the percentage of women on the editorial board ranged from 0 to 42% per year, with a yearly average of 29% from 1982 through 1992. In JEAB, from 1958 through 1992, women occupied from 0 to 16% of the editorial board positions per year, with a mean of 13% from 1982 to 1992 (Myers, 1993). Finally, in The Behavior Analyst from 1978 through 1992, editorial board composition ranged from 29 to 40% women, with a mean of 36% from 1982 to 1992 (Myers,
1993). These editorial board data provide further evidence that women have been underrepresented in behavior analysis.

McSweeney and Swindell (1998) reviewed articles published from 1978 through 1997 in JEAB, Animal Behavior Processes (ABP), Animal Learning and Behavior (ALB), and Learning and Motivation (LM) to "rule out differences in ability and interest as explanations for differing results" (McSweeney & Swindell, 1998, p. 193), and, therefore, report the participation rates of female authors. JEAB is a major outlet for, and ABP, ALB, and LM are all dedicated to, research in the experimental analysis of behavior. In general, female authorship for all three journals increased from 1978 through 1997. However, female participation as authors remained low across all four journals with the percentage of total authors and first authors occurring at rates between 10 and 30% during the selected years.

Along with authorship data, McSweeney and Swindell (1998) reported on editorial board membership for JEAB and ABP from 1978 through 1997. The percentage of female editorial board members on JEAB decreased, from a mean of 14.1% for 1978 through 1992, to a mean of 12.7% for 1993 through 1997. The percentage of female editorial board members on ABP increased from a mean of 5% for 1978 through 1992 to a mean of 21% for 1993 through 1997. Inasmuch as women's authorship and board membership reflect success in scientific activities, the data provide information on the status of women in the experimental analysis of behavior, again suggesting an underrepresentation of women in behavioral research.
As in the aforementioned areas of behavior analysis, research plays an important role in Organizational Behavior Management (OBM). One major outlet for dissemination of research in the field is the Journal of Organizational Behavior Management (JOBM). Jarema et al. (1999) extended previous research findings by examining author gender of all articles in JOB to determine whether women were adequately represented as authors and editorial board members from its inception in 1977 through 1997. The findings indicate that, in general, female authorship in JOB increased over time. Both the percentage of total female authors and female first authors increased, from an average of 10 to 33%, and from an average of 7 to 43%, respectively, for the years 1977 through 1997. Additionally, 32% of the articles published during this period had a female author.

Along with the gender of authors, Jarema et al. (1999) reported on the representation of females as editorial board members for JOB for the 20-year period. The percentage of female board members increased from 7% in 1977 to 11% in 1997. The authors also reported a statistically significant relationship ($r = .61, p < .01$) between the percentage of female editors and the percentage of female authors for the specified period, suggesting a strong positive relationship between authorship and board membership. The authors concluded that, based on their findings, “females have made, and are making, a substantial and increasing contribution to the OBM literature” (p. 90). However, they also recognized that “progress has been slow” (p. 90) and that encouraging productive female researchers through behaviors such as inviting females to hold positions on editorial
boards may help bridge the gender gap that exists between men and women in this, and other, areas of behavior-analytic research.

Recently, McSweeney et al. (2000) extended the research findings by examining every issue of JABA, Behavior Therapy (BT), Behavior Modification (BM), and Behaviour Research and Therapy (BRT) from 1978 through 1997 to determine participation rates for female authors. JABA is one of the premier outlets for research in behavioral psychology’s database and McSweeney and her colleagues chose the comparison journals based on the recommendation of researchers that consider their specialty area to be applied behavior analysis. From 1978 to 1997, the percentage of female authors (first and total) for all journals increased. Examining the changes from period one (1) (1978 to 1982) to period four (4) (1993 to 1997) revealed increases in total female authors of 27 to 42%, 23 to 40%, 24 to 39%, and 22 to 32% for JABA, BT, BM, and BRT, respectively. Exploring the data for changes in female first authors between the same periods revealed increases of 24 to 35%, 20 to 38%, 20 to 31%, and 22 to 25% for JABA, BT, BM, and BRT, respectively. However, despite an apparent trend toward increased participation among women in the four journals, it remains evident that, based on the findings, males are publishing at a ratio of 3:1 compared to females.

The purpose of Experiment I was to provide further information concerning women’s contribution to the mental retardation (and related) literature. This was accomplished by presenting authorship and editorial board membership data for articles published from 1991 through 2000 in AJMR, EC, ETMR, JASH, JDPD,
Although articles relevant to mental retardation appear in other journals, the eight journals selected for analysis cover a broad spectrum of prestigious outlets for research, theory, and opinion relevant to mental retardation. Articles that appeared in these journals from 1991 through 2000 were evaluated to determine (a) the sex of first authors, (b) the sex of authors of single-author articles, and (c) the sex of all authors. The sex of members of the editorial boards also was determined. These data provide a reasonable index of men’s and women’s relative contribution to a sizeable portion of the mental retardation (and related) literature. Moreover, by comparing men’s and women’s relative contributions as authors, first authors, single authors, and editors, it may be possible to determine whether a “glass ceiling” exists with respect to the field of mental retardation. If one accepts the analysis of McSweeney and her colleagues (2000), if a “glass ceiling” exists, then women’s participation should decrease more than men’s as one moves from all authors to first authors to editors. Although they did not consider this possibility, gender inequity, if present, might make it particularly difficult for women to publish single-author articles.

Sex of Participants

Despite specific recommendations (APA, 1994; Denmark et al., 1988), authors often fail to specify the sex of their research participants. Such an outcome was reported over 40 years ago by Carlson and Carlson (1960), who found that 21% of the articles published in the Journal of Abnormal and Social Psychology...
from 1958 through 1960 failed to report the sex of participants. Similarly, Pepinsky, Hill-Frederick, and Epperson (1978) found that 24% of all articles published in the counseling psychology literature from 1954 through 1977 failed to report the sex of participants.

More recent studies also have revealed that a substantial proportion of published articles have failed to report the sex of participants. Gannon et al. (1992) reported that of the articles in eight psychology journals that included participants, 25 and 34% failed to report their sex in 1970 and 1990, respectively. Similarly, Ader and Johnson (1994) found that 30% of the articles published in eight APA journals in 1990 did not report the sex of participants. Twelve percent of 593 articles published recently in eight sports psychology journals used participants but failed to report their sex (Wann & Hamlet, 1995) and 35% of the 909 articles with participants published in four school psychology journals followed the same pattern (Holverstott et al., in press). Nonreporting of participants occurred in over 50% of articles in the Journal of Organizational Behavior Management from its inception in 1977 through 1997 used participants but failed to report their sex (Jarema et al., 1999). Clearly, the sex of research participants is frequently not specified in peer-reviewed journal articles.

Several authors (Ader & Johnson, 1994; Carlson & Carlson, 1960; Denmark et al., 1988; Gannon et al., 1992; Holverstott et al., in press; Jarema et al., 1999; Wann & Hamlet, 1995) supported the notion that researchers in psychology and related fields should routinely report the sex of their participants and they have
provided good reasons for doing so. They also note that if the sex of participants is not specified in an article, readers cannot ascertain whether the reported results should generalize to males only, to females only, or to both males and females. Similarly, they cannot determine whether participants' sex influences the behavioral characteristic or disorder of interest in the investigation.

A further justification for reporting participant sex is that this information is necessary to demonstrate that neither males nor females were excluded from participation in a study. Having stated this, it is important to note that studying only males or only females is not necessarily bad and is obviously unavoidable when the condition of interest is evident only in males (e.g., fragile-X syndrome) or females (e.g., issues related to menopause). Nonetheless, there is concern that females (and minorities) historically have been underrepresented as research participants, and thereby deprived of direct or indirect benefits (National Institute of Health [NIH], 1994). This concern has been so strong as to incite the NIH (1994) to publish several guidelines aimed specifically at increasing the involvement of women and minorities in applied research. Following is an excerpt from the instructions for completing PHS 398 forms, which are used for most Public Health Service research grants, indicated that:

The NIH policy is that women and members of minority groups and their subpopulations must be included in all NIH-supported biomedical and behavioral research projects involving human subjects, unless a clear and compelling rationale shows that inclusion is inappropriate with respect to the health of the subjects or the purpose of the research. (NIH, 1995, p. 17)
An additional concern among the scientific community has been that males are overrepresented as research participants and that this overrepresentation raises significant problems concerning the generality of applied research results (Carlson & Carlson, 1960; Etaugh & Bohn Spandikow, 1979; Pepinsky et al., 1978; Wann & Hamlet, 1995). This conclusion has been based largely on the findings that, among selected psychology journals that included human-participant articles, the ratios of articles with only male participants to articles with only female participants were 2.3:1 (Wann & Hamlet, 1995), 2.5:1 (Pepinski et al., 1978), 7.5:1 (Carlson & Carlson, 1960), and 7.3:1 in 1975 (Etaugh & Bohn Spandikow, 1979). The authors of these articles concluded that a significant imbalance existed in the journals surveyed, suggesting that a greater amount of research involving male participants existed compared to research involving female participants. If findings are based on a preponderance of males (or females), results may be inappropriately generalized to the other sex.

Also of interest are the few surveys that have examined whether the rate of reporting of participants' sex differed between male and female first authors. Ader and Johnson (1994) found that female first authors reported the sex of participants significantly more often than male first authors. Jarema et al. (1999) found that female first authors reported the sex of their participants only slightly more often, with female first authors reporting sex in 49% of the articles and male first authors reporting sex in 41% of the articles.
Another relationship of interest is that between the sex of the first author and the sex of the participants; specifically, whether or not male or female first authors show a consistent preference for single-sex participant groups. This information is important inasmuch as historically the majority of authors publishing in psychological journals have been males (Jarema et al., 1999; McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993; Pion et al., 1996; Poling et al., 1983; Skinner et al., 1999). Consequently, if males prefer one sex to the other in their choice of participants, the potential for an imbalance between male and female participants would be present. In an early study, Etaugh and Bohn Spandikow (1979) found that of the single-sex participant articles, authors used same-sex participants more than participants of their opposite sex (i.e., male author studied male participants more often than female participants alone and female authors did the opposite). More recently, Gannon et al. (1992) reported no apparent relationship between the sex of authors and participants. In contrast, Wann and Hamlet (1995) reported that male first authors were more likely to study male-only participants than female-only participants. Overall, findings are inconsistent regarding the relationship between the sex of the participants and the sex of first authors.

None of the articles concerned with the sex of participants described above focused on journals devoted primarily to mental retardation and related topics. The purpose of Experiment II was to obtain information about the sex of participants in articles published in such journals. To do so, an evaluation of each article published in AJMR, EC, ETMR, JASH, JDPD, JSE, MR, and RDD from 1991 through 2000
was conducted to determine whether they used participants and, if so, (a) whether the sex of participants was reported; (b) if the sex of participants was reported, whether the study used males only, females only, or both males and females; and (c) the sex of the first authors for all articles that included participants. Although articles relevant to mental retardation appear in other journals, the eight journals selected for analysis cover a broad spectrum of prestigious outlets for research, theory, and opinion relevant to mental retardation. Furthermore, all eight journals require that authors conform to the style and requirements outlined in the *Publication Manual of the APA* (APA, 1994); as noted above, this document specifies that the sex of participants should be routinely specified.

Data were summarized and analyzed for all journals together. In view of the possibility that editorial requirements might differ across journals with respect to the specification of the sex of participants, data also were summarized and analyzed for each journal separately. Although all eight journals require adherence to the *Publication Manual of the APA* (APA, 1994) for preparation of manuscripts for publication, this does not guarantee that editors consistently enforce those standards.
CHAPTER III

METHOD

Experiment I

Authorship Data Collection

Every article in *AJMR, EC, ETMR, JASH, JDPD, JSE, MR,* and *RDD* from 1991 through 2000 was evaluated by one of two raters, each the holder of an advanced degree in psychology, to determine both the total number and the sex of authors and editorial board members. For each article, regardless of apparent or listed category (e.g., research article, commentary, book review), the rater recorded on a standardized data form (Appendix B) the name and sex of the first author, and the name and sex of each of the other authors.

The sex of authors was determined on the basis of personal knowledge or, if the author was unfamiliar to the rater, on the basis of the first name. If the first name was gender-neutral (e.g., Pat) or unfamiliar to the rater, or if only initials were provided, “unknown sex” was recorded on the data sheet. Subsequently, an attempt was made to identify the author’s sex by corresponding with colleagues of the rater with potential knowledge of the author. If this attempt was unsuccessful, an attempt was made to contact the author’s listed institution by e-mail and to seek information that would indicate sex (e.g., a university website with faculty descriptions including...
pictures or gender-identifying pronouns). If sex could not be determined on this basis, the Internet was used to search for an e-mail address or phone number at which the author could be contacted directly. If no phone number or e-mail address could be obtained for a given author, or if that person could not be contacted, that person was reported to be of undetermined sex. Across all years and all journals, it was not possible to determine the gender of 26 (<1%) of the first authors and 96 (<2%) of the other authors.

Data are reported in terms of the relative number of times that the names of male and female authors are listed; no attempt was made to ascertain the number of times that particular authors were cited (or served on editorial boards). Therefore, when we refer to the number of male and female authors, we are referring to the number of citations of males and females, not to the number of individuals who appeared as authors.

**Interrater Agreement**

To allow interrater agreement to be calculated, the two raters independently scored the same 306 articles (10% of the 2,972 total articles rated). They agreed perfectly with respect to the authors whose sex was not apparent (N = 11) and with respect to the sex of the other authors (N = 763). No attempt was made to determine interrater agreement for the 11 authors whose sex was not initially apparent because doing so might have required a given author to be contacted twice, which she or he might well have viewed as an unnecessary imposition.
Editorial Board Membership Data Collection

Editorial board data were based on information provided in the first issue of each journal for each year from 1991 through 2000. Initially, the names of all individuals described as serving an editorial function (i.e., Editors, Assistant Editors, Associate Editors, Field Reviewers, Book Review Editors, Perspectives Editors, and Consulting Editors) were recorded on data sheets. The sex of board members was determined in the same way as the sex of authors (see Authorship Data Collection in Experiment I). Across years and all journals, it was not possible to determine the gender of 10 of the 5,079 editorial board members (<1%).

Interrater Agreement

To allow interrater agreement to be calculated, the two raters independently scored 8 years (10%) of editorial board information (one randomly-selected year for each journal). They agreed perfectly with respect to the editors whose sex was not apparent (N = 1) and with respect to the sex of the other editors (N = 610). No attempt was made to determine interrater agreement for the editor whose sex was not initially apparent.

Experiment II

Participant Data Collection

Every article published in AJMR, EC, ETMR, JASH, JDPD, JSE, MR, and RDD from 1991 through 2000 was evaluated by the same raters from Experiment I.
to determine whether any participants were described in the article. If so, the raters recorded on standardized data sheets the number of participants and their sex (i.e., sex was coded as male, female, or unknown). The raters also recorded the name and sex of the first author for those articles on the same data sheet. The sex of first authors was determined using the same procedure as in Experiment I. It was not possible to determine the gender of 17 (1%) of the first authors of articles with participants.

**Interrater Agreement**

To allow interrater agreement to be calculated, the two raters independently scored the same 306 articles (10% of the 2,972 total articles rated). They agreed perfectly with respect to which articles used participants ($N = 188$; 100% agreement). They agreed almost perfectly on whether or not the sex of participants was reported ($N = 182$; 97% agreement). In the six cases where the two raters disagreed, a third independent rater evaluated the article and the consensus evaluation was accepted and used for the subsequent reliability analyses. The raters agreed perfectly on whether males only ($N = 15$; 100% agreement), females only ($N = 16$; 100% agreement), or both males and females ($N = 110$; 100% agreement) served as participants. They also agreed perfectly with respect to the first authors whose sex was not apparent ($N = 2$; 100% agreement). No attempt was made to determine interrater agreement for the two first authors whose sex was not initially
apparent, because doing so might have required contacting a given author twice, which she or he might well have viewed as an unnecessary imposition.
CHAPTER IV

RESULTS

Experiment I

In all, 2,972 articles were evaluated, with 539, 410, 349, 253, 252, 287, 566, and 316 from AJMR, EC, ETMR, JASH, JDPD, JSE, MR, and RDD, respectively.

For each year and journal, Figure 1 shows the percentage of total articles with a female first author and with a first author of undetermined sex. Also shown are mean values for the 10 years.

For all journals and years, the sex of nearly all first authors was determined. The mean percentage of authors with a female first author was 38, 49, 48, 55, 40, 40, 33, and 33 for AJMR, EC, ETMR, JASH, JDPD, JSE, MR, and RDD, respectively. The percentage of articles with a female first author appeared to remain stable in JASH, JSE, MR, RDD and to increase over time in AJMR, EC, ETMR, and JDPD, although the substantial variability evident across years makes interpretation difficult.

For AJMR, EC, ETMR, JASH, JDPD, JSE, MR, and RDD, 19, 22, 15, 27, 19, 29, 42, and 10% of the articles, respectively, had a single author. Figure 2 shows for each year and journal the percentage of single-author articles written by women and by authors of undetermined sex. Mean values also appear in the figure. The sex of nearly all single authors was determined.
Figure 1. Percent of First Authors Who Were Female and of Undetermined Sex for Each of Eight Journals Relevant to Mental Retardation and Related Topics From 1991 Through 2000.
Figure 2. Percent of Single Authors Who Were Female and of Undetermined Sex for Each of Eight Journals Relevant to Mental Retardation and Related Topics From 1991 Through 2000.
On average across the 10 years, 26, 53, 34, 47, 25, 43, 26, and 24% of single-author articles in *AJMR, EC, ETMR, JASH, JDPD, JSE, MR*, and *RDD*, respectively, were written by women. Data for this measure varied markedly across years and no clear trend was evident for any journal.

Figure 3 shows the mean and yearly values for the percentage of total female authors, for each journal. Mean values were 43, 51, 49, 62, 43, 44, 41, and 37% for *AJMR, EC, ETMR, JASH, JDPD, JSE, MR*, and *RDD*, respectively. The percentage of total authors who were women appeared to increase over time for *AJMR, EC, and JASH* and to remain relatively stable for the other journals. For all journals and years, the sex of nearly all authors was determined.

Figure 4 presents editorial board data. The sex of nearly all editorial board members was determined. From 1991 through 2000, the percentage of female editorial board members was 34, 51, 26, 49, 23, 34, 37, and 7% for *AJMR, EC, ETMR, JASH, JDPD, JSE, MR*, and *RDD*, respectively. No trend was evident in the editorial board data for any journal.

To facilitate comparison across the four dependent variables, Table 1 presents for each of the eight journals mean values for the percentage of (a) total authors who were female, (b) first authors who were female, (c) single authors who were female, and (d) editors who were female. Comparable data also are presented for males. Figure 5 presents similar data summed across all years and journals.
Figure 3. Percent of Total Authors Who Were Female and of Undetermined Sex for Each of Eight Journals Relevant to Mental Retardation and Related Topics From 1991 Through 2000.
Figure 4. Percent of Editorial Board Members Who Were Female and of Undetermined Sex for Each of Eight Journals Relevant to Mental Retardation and Related Topics From 1991 Through 2000.
Table 1

Percentage of Total Authors, Percentage of First Authors, Percentage of Single Authors, Percentage of Editors, and Sex of Authors

<table>
<thead>
<tr>
<th>Journal</th>
<th>Percentage of Female Authors</th>
<th>Percentage of Male Authors</th>
<th>Percentage of Female First Authors</th>
<th>Percentage of Male First Authors</th>
<th>Percentage of Female First Authors for Single-Author Articles</th>
<th>Percentage of Male First Authors for Single-Author Articles</th>
<th>Percentage of Female Board Members</th>
<th>Percentage of Male Board Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJMR</td>
<td>43%</td>
<td>54%</td>
<td>38%</td>
<td>61%</td>
<td>26%</td>
<td>73%</td>
<td>34%</td>
<td>34%</td>
</tr>
<tr>
<td>EC</td>
<td>51%</td>
<td>48%</td>
<td>49%</td>
<td>50%</td>
<td>53%</td>
<td>47%</td>
<td>51%</td>
<td>49%</td>
</tr>
<tr>
<td>ETMR</td>
<td>49%</td>
<td>50%</td>
<td>48%</td>
<td>51%</td>
<td>34%</td>
<td>62%</td>
<td>3%</td>
<td>74%</td>
</tr>
<tr>
<td>JASH</td>
<td>62%</td>
<td>37%</td>
<td>55%</td>
<td>44%</td>
<td>47%</td>
<td>53%</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>JDPD</td>
<td>43%</td>
<td>55%</td>
<td>40%</td>
<td>58%</td>
<td>25%</td>
<td>73%</td>
<td>23%</td>
<td>77%</td>
</tr>
<tr>
<td>JSE</td>
<td>44%</td>
<td>54%</td>
<td>40%</td>
<td>59%</td>
<td>43%</td>
<td>56%</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>MR</td>
<td>41%</td>
<td>58%</td>
<td>33%</td>
<td>66%</td>
<td>26%</td>
<td>73%</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td>RDD</td>
<td>37%</td>
<td>62%</td>
<td>33%</td>
<td>67%</td>
<td>24%</td>
<td>76%</td>
<td>7%</td>
<td>93%</td>
</tr>
<tr>
<td>Totals</td>
<td>45%</td>
<td>53%</td>
<td>41%</td>
<td>58%</td>
<td>34%</td>
<td>65%</td>
<td>34%</td>
<td>66%</td>
</tr>
</tbody>
</table>
Figure 5. Percent of Total Authors, First Authors, Single Authors, and Editorial Board Members Who Were Female and Male for Eight Journals Relevant to Mental Retardation and Related Topics From 1991 Through 2000.

Experiment II

Of the 2,976 articles evaluated, 1,929 (65% of the total) included participants. Of those, 429, 253, 263, 136, 183, 138, 268, and 259 appeared in AJMR, EC, ETMR, JASH, JDPD, JSE, MR, and RDD, respectively. As shown in Figure 6, across all years and all journals, of the 1,929 articles with participants, 26% included no description of the sex of the participants, 6% reported using only female participants, 8% reported using only male participants, and 60% reported using both male and female participants. The level of nonreporting of participants’ sex was 24, 32, 22, 30, 19, 29, 30, and 20% in AJMR, EC, ETMR, JASH, JDPD,
Figure 6. The Total Percentage of Articles With Participants That Used Male Only, Female Only, and Both Male and Female Participants. Also Shown Is the Percentage of Articles That Failed to Report the Sex of Participants. Data Are From Eight Journals Relevant to Mental Retardation for the Years 1991 Through 2000.

JSE, MR, and RDD, respectively. Figures 7 and 8 show for each journal yearly data indicating the total number of articles with participants that used males only, females only, and both males and females. Also shown in each figure is the number of articles for which the sex of participants was not reported. Findings were similar across the eight journals; in most years more articles in each journal used both male and female participants than only males, only females, or participants of unreported sex. In most cases, the number of articles with participants of unreported sex was second in frequency.
Figure 7. For Each Year From 1991 Through 2000 and for Four Journals (AJMR, EC, ETMR, and JASH) Relevant to Mental Retardation and Related Topics, the Number of Articles That Used Male Only, Female Only, and Both Male and Female Participants. Also Shown Is the Number of Articles in Which the Sex of Participants Was Not Reported.
Figure 8. For Each Year From 1991 Through 2000 and for Four Journals (JDPD, JSE, MR, and RDD) Relevant to Mental Retardation and Related Topics, the Number of Articles That Used Male Only, Female Only, and Both Male and Female Participants. Also Shown Is the Number of Articles in Which the Sex of Participants Was Not Reported.
For all years and all journals, the sex of nearly all first authors of the 1,929 articles was determined. Figure 9 shows the percentage of male and female first authors that used male only, female only, and both male and female participants from 1991 through 2000 for all eight journals. Also shown is the percentage of male and female first authors who failed to report the sex of participants. Across all years and all journals, participants of a single sex, participants of both sexes, and participants of unreported sex were represented in nearly equivalent proportions in articles with male and female first authors. That is, there were no apparent differences in these variables as a function of first-author sex.
Figure 9. The Percentage of Male and Female First Authors Who Used Male Only, Female Only, and Both Male and Female Participants From 1991 Through 2000 for Eight Journals Relevant to Mental Retardation and Related Topics. Also Shown Is the Percentage of Male and Female First Authors Who Failed to Report the Sex of Participants.
Authors and Editors

Despite an increase in women's participation as authors over the past several decades, males still are more likely than females to be authors of journal articles in several areas of psychology (Jarema et al., 1999; McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993; Pion et al., 1996; Poling et al., 1983; Skinner et al., 1999). The continued overrepresentation of males as authors has been viewed as a cause for concern (Jarema et al., 1999; McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993; Pion et al., 1996; Poling et al., 1983; Skinner et al., 1999). Although males outnumbered females as authors in the journals that we evaluated, the difference was relatively small. Across all years and all journals, 45 and 53% of all authors were female and male, respectively. The remaining 2% of the authors were of undetermined sex. Of 7,815 authors, there were 604 more male authors than female authors. While this difference is noteworthy, it is neither large nor necessarily reason for concern.

When comparing the present results to those of previous studies, it is clear that women contributed to a larger proportion of the articles in mental retardation (and related) journals than to journals representing various areas of psychology (e.g., BRT, JEAB, JOBM, Journal of Applied Psychology, Journal of Consulting...
Women clearly have made a major contribution to the literature in mental retardation and related areas over the past decade. Nonetheless, men have appeared more often as authors, and this outcome merits discussion.

One possible explanation is that during the period of interest more males than females were employed in positions that fostered research and publication in journals dedicated to mental retardation and related areas. Two research groups have reported that the leading institutions for applied research in developmental disabilities were almost exclusively university-based (Logan, Lott, & Mayville, 2000; Matson, Ary, & Gorman-Smith, 1986). Although over time women have come to hold an increasing proportion of academic jobs, men still hold the majority of positions in most disciplines. For example, the APA Task Force on Women in Academe reported in 2000 that females held 40% of full-time psychology faculty positions. Given that most research related to mental retardation comes from academe, and most academics are male, it is unsurprising that more males than females published articles in the journals that we examined. If the long-term trend towards hiring (and retaining) more female faculty continues, the relative contribution of women to the mental retardation literature should increase.

Data pertaining to first (i.e., primary) authors in various areas of psychology have been of considerable interest in prior discussions of the participation of women in science. Despite slight increases over time in the percentage of first authors who
are female in several psychology journals (McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993; Poling et al., 1983; Skinner et al., 1999) and a large increase in one journal (Jarema et al., 1999), males are the first author of the majority of articles. In the present study, for all years and all journals, 41% of articles had a female first author, whereas 45% of the total authors were female. This difference is relatively small. By convention, when a manuscript has multiple authors, the first author position is reserved for the individual who contributed most significantly to it (APA, 1994). This individual is often, although not necessarily, a senior academic. The relative proportion of positions occupied by women in academe declines with rank from Assistant to Associate and Full Professor, at least in psychology (Pion et al., 1996), and this factor may contribute to the finding that women were less likely to appear as first authors than as other authors in the journals that we evaluated. The difference was, however, small. If women are underrepresented as senior academics, as appears to be the case, this variable apparently does not make it substantially harder to be the first author of an article published in the journals that we examined than to be an author in general.

Some data collected from psychology faculty support the position that women typically spend more time on teaching and service activities (e.g., committee work, mentoring others) relative to research than do men (APA Task Force on Women in Academia, 2000; Astin & Snyder, 1982; Gibbons, 1986; NCES, 2000b; Park, 1996; Wilson & Reschly, 1995). This difference is assumed to contribute, in part, to women publishing less often than men. Although psychologists make a
substantial contribution to all of the journals that we examined, so do professionals from other disciplines (e.g., special education, speech pathology, medicine). It is not clear whether female academics in these areas spend more time on service and teaching than males, and, if so, whether this variable contributed to the finding that males authored more articles than females.

To my knowledge, only one study has reported data concerning the sex of authors of single-author articles (Wann & Hamlet, 1995). In their review of articles published in sport psychology and sociology journals, Wann and Hamlet reported that 78% of sole authors were men. In the present data set, 65% of single-author articles were written by men.

Like publishing articles, serving on the editorial board of a journal represents a substantial professional contribution. Previous surveys of selected psychology journals found that females were less likely than males to serve as editorial board members (Jarema et al., 1999; McSweeney et al., 2000; McSweeney & Swindell, 1998; Myers, 1993). A similar finding was evident in the present data, although results differed substantially across journals. For all years and all journals, 34% of editorial board members were female. It is noteworthy that the disparity in male and female participation increased progressively across the measures of total authors, first authors, sole authors, and editorial board members, as illustrated in Figure 5.

Other authors have suggested that such data provide evidence of a “glass ceiling,” which limits the participation of females in research as the prestige of the position increases (Chliwniak, 1997; McSweeney et al., 2000; Quina, Cotter, &
Romenesko, 1998). Other data used to support this analysis concern academic rank. For instance, in 1991 females held 30, 27, and 25% of the Assistant, Associate, and Full Psychology Professor positions in American universities (Pion et al., 1996).

The variables responsible for the "glass ceiling," if one exists, are open to speculation. Intentional or unintentional bias against women is one possibility. Differences in the environmental variables that characteristically influence the behavior of men and women are another. For example, the fact that women are underrepresented as editorial board members may be due to editors failing to ask qualified women to serve on their boards, which is a form of bias. Alternatively, more women than men who are asked to accept editorial responsibilities may decline the offer because the added work commitment and the ensuing conflict with family life may be more problematic for women (McSweeney et al., 2000; Myers, 1993; Neef, 1993).

As another example, the underrepresentation of women when single-author articles are considered may be due to bias in the review process or at some other level. It might, however, be due wholly or in part to a number of other factors. Although we did not attempt to quantify this, it was our impression that in the present data set a large number of single-author articles were nonempirical (e.g., commentaries, literature reviews, replies and/or responses to other authors, recommendations for the field, and theoretical papers). It is possible that tenured and senior academics, who to this point have been predominantly male (APA Committee on Women in Psychology, 1998; APA Task Force on Women in
Academica, 2000; Rabasca, 2000), had more opportunities to write these papers. Indeed, Skinner et al. (1999) observed in school psychology journals “a decreasing trend [over time] in the proportion of female authors of expository articles” (p. 80), suggesting that “researchers with less experience (e.g., students, junior faculty) may spend more of their time and energy establishing and publishing an empirical research base” (p. 81). Given that in 1990 nearly half of all tenure-track faculty positions in psychology were held by women (Ostertag & McNamara, 1991), and that increasing numbers of full-time faculty appointments are going to women (APA Research Office, 2001), it is reasonable to expect the proportion of single-author articles written by females to increase throughout the coming decades.

A second possibility for why there were fewer female single authors involves the fact that there are more females in applied settings compared to academic settings (Kohout & Williams, 1999; McSweeney & Swindell, 1998; Murray, 2000; Pion et al., 1996). Professionals in applied settings, particularly in the area of mental retardation, frequently function as a member of a multidisciplinary treatment team that might include a speech-language pathologist, occupational therapist, social worker, teacher, psychiatrist, and other people (Crutchfield, 1997). As a result of this team approach, those who work in applied settings—many of whom are women—may be unlikely to publish as a single author.

Obviously, it is possible to speculate widely about why women and men make quantitatively different contributions to an area of inquiry. Although it may be possible to obtain data relevant to these speculations, data regarding authorship and
editorial roles are not especially useful in that capacity. Such data are useful, however, in documenting what men and women do. In this regard, the data are heartening, at least when compared to those from many areas of psychology, in that women’s quantitative contribution to the mental retardation literature has approached that of men. That this is so is no reason for complacency, and no proof that women and men are treated equally. Each of us must always be vigilant to ensure that all who contribute to the field of mental retardation receive equal opportunities for career advancement and appropriate acknowledgement of their work based on scholarship rather than sex or any other irrelevant characteristic.

Participants

Previous studies have shown that researchers in psychology and related fields often fail to report the sex of their participants (Carlson & Carlson, 1960; Holverstott et al., in press; Jarema et al., 1999; Pepinski et al., 1978; Wann & Hamlet, 1995). The results of the current study indicate that this is also the case with respect to articles in the mental retardation literature. Across all years and all journals, 26% of the articles with participants contained no description of the sex of the participants. This rate seems unacceptably high and may create two related problems. One is that consumers of the research are simply unsure as to whom (i.e., males and/or females) the results apply. The second is that, unless participants’ sex is reported and data are analyzed separately for males and females, consumers cannot determine whether participants’ sex influences whatever behavioral
characteristic or disorder is of interest in the investigation. For instance, when Autistic Disorder (Autism) is considered, "Rates of the disorder are four to five times higher in males than in females. Females with the disorder are more likely, however, to exhibit more severe Mental Retardation" (American Psychiatric Association, 1994, p. 68). It is possible to state this information only because autism researchers have described the sex of their participants. Clearly, there are good reasons for reporting the sex of participants and no good ones for failing to do so. This potentially valuable information is easy to obtain and requires little space to report. In our opinion, the sex of participants should be reported routinely. Of course, other authors, as well as journal editors, obviously disagree.

A criticism that has been levied against psychological research is that males have been overrepresented as research participants and that this overrepresentation raises significant problems concerning the generality of applied research results (Carlson & Carlson, 1960; Etaugh & Bohn Spandikow, 1979; Pepinski et al., 1978; Wann & Hamlet, 1995). The results of the current study do not indicate that males are overrepresented as participants in the articles that we examined. Specifically, when only data from articles that reported the sex of participants were analyzed, 10.5% of those articles included only male participants in comparison to 8.2%, which included only female participants. The remaining 81.2% of the articles included both male and female participants. Stated differently, 91.7% of the articles included male participants and 89.4% of the articles included female participants. These data suggest that authors who published in the identified eight journals
relevant to mental retardation (and related topics) adequately utilized female participants and therefore closely adhered to the NIH (1994) dictate regarding the inclusion of females as research participants. Although the reason(s) for comparable representation of males and females as participants in the mental retardation literature is not apparent, this finding is encouraging inasmuch as we suspect it reflects awareness among researchers of the importance of studying the variables of interest in males and females alike.

A third issue that was examined in the current study was whether or not male or female first authors showed a preference for participants of a particular sex. Some (Etaugh & Bohn Spandikow, 1979; Wann & Hamlet, 1995), but not all (Gannon et al., 1992) prior studies indicate a tendency for authors to study participants of their own sex more often than participants of the other sex. No such pattern was evident in the journals that we examined. Moreover, male and female first authors were about equally likely to fail to report the sex of their participants.

Experiment II contributes to the literature by expanding the analysis of participants' sex to the mental retardation literature. A limitation of the study is that we did not survey all journals in which relevant articles appear. Nonetheless, the present findings strongly suggest that in the mental retardation literature, as in many other research areas, a sizable percentage of articles fail to report the sex of participants. This should be viewed as a potentially serious problem, but one that can be easily avoided in the future.
Appendix A

Footnote “Sex”
Footnote

1 There is substantial precedent in the psychological literature for using “gender” instead of “sex” when referring to categories such as “male and female,” “women and men,” and “boys and girls.” Nonetheless, we use “sex” in this context, insofar as our concern is primarily with females and males as biological rather than social groups. The *Publication Manual of the American Psychological Association* (APA, 1994) states that “sex” is appropriate “when the biological distinction is predominant,” whereas “gender is cultural and is the term to use when referring to men and women as social groups” (p. 47). In most cases, researchers probably determine the gender of their participants based on self reports or direct observation, and it is certainly possible that cultural rather than biological variables determine whether a person is self-reported as “male” or “female” or has features assumed to be characteristic of these categories. Therefore, issues of “gender” and “gender identity” are germane to the categorization of participants. Although such issues are important, they probably pertain to a relatively small percentage of participants in most (but by no means all) studies of mental retardation and related topics and will not be considered here.
Appendix B

Data Collection Form
<table>
<thead>
<tr>
<th>Title of Article (key words if long)</th>
<th>1st Author Name &amp; Gender M, F, or U</th>
<th>Other Authors' Names &amp; Gender M, F, or U</th>
<th>Total # Participants &amp; Gender M, F, U</th>
<th>Participants' Disabilities</th>
<th>Experimental Question</th>
<th>Comments?</th>
<th>Rel. Check (Initials)</th>
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BIBLIOGRAPHY


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