The Impact of Supervision on Worker Outcomes: A Meta-analysis

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Effective supervision is a vital aspect of service delivery in social service organizations. This article provides a meta-analysis of 27 qualified research articles published between 1990 and 2007. The analysis thus includes a combined sample of 10,867 workers in child welfare, social work, and mental health settings. The results indicate that supervisory dimensions of task assistance, social and emotional support, and supervisory interpersonal interaction are positively and statistically significantly related to beneficial outcomes for workers. The dimensions of social and emotional supervisory support and supervisory interpersonal interaction are found to be negatively and statistically significantly related to detrimental outcomes for workers. All effect sizes were moderate (r at the 0.30 to 0.40 range). These findings underscore the importance of effective supervision in fostering beneficial outcomes and in limiting detrimental outcomes for workers. They also indicate that social service agencies should devote resources to training supervisors across all supervisory dimensions.

Researchers, practitioners, and policy makers alike acknowledge that social service workers deal with a host of stressful experiences in their day-to-day work. Workers in child welfare, social work, and mental health settings report that numerous stressors are part of their daily environment. In addition to low pay, demanding workloads, excessive paperwork, and high travel times, workers report such stressors as staff short-

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ages, administrative burdens, a lack of balance between work and family life, risk of violence, inadequate training, and limited time with clients (USGAO 2003; APHSA 2005). These types of stressors are rooted in various aspects of work design, organization, and management, as well as in the social-environmental contexts of service delivery (Cox and Griffiths 1996).

Previous research indicates that effective supervision can buffer the negative effects of working in social and human service organizations (Mor Barak, Nissly, and Levin 2001; Kadushin and Harkness 2002). Researchers consistently find that effective supervision at the worker's level can contribute to such positive worker outcomes as job satisfaction, organizational commitment, and worker retention (Abu-Bader 2000; Landsman 2001; Annie E. Casey Foundation 2003; Mor Barak et al. 2006). The quality and type of supervision is notably cited as one of the most instrumental factors contributing to turnover and intention to leave (Landsman 2001; USGAO 2003; APHSA 2005). Effective supervision also is known to serve as a buffer against stressful work conditions, to provide protection from unreasonable job demands, to offer emotional and social support during difficult times, and to guide workers in negotiating the challenges of the job and the organizational context (Mor Barak et al. 2001; Kadushin and Harkness 2002). Supervisors can offer valuable educational, administrative, and social support. This support can contribute to worker effectiveness and can translate into quality service delivery (Kadushin and Harkness 2002). Effective supervision of workers in social and human service organizations therefore has the potential to generate positive client outcomes; ineffective supervision can be detrimental to both workers and their clients (Glisson and Hemmelgarn 1998; Poertner 2006).

Effective supervision can encompass distinct dimensions that involve a supervisor's ability to (1) offer guidance and education on work-related issues in a knowledgeable and skillful manner (Kadushin and Harkness 2002), (2) provide emotional and social support to staff (Eisenberger et al. 2002), and (3) interact effectively with and influence supervisees (Liden, Wayne, and Stilwell 1993; Graen and Uhl-Bien 1995). Research suggests that, armed with a combination of these types of interrelated skills, a supervisor can positively enhance a supervisee's overall work experience (Kadushin and Harkness 2002). As a result, supervisors may improve client outcomes (Glisson and Hemmelgarn 1998; Yoo and Brooks 2005; Poertner 2006).

Recognizing the research accumulated over the past 2 decades and the growing emphasis on evidence-based practice, this article attempts to systematically assemble and analyze the disparate research on the role that supervision plays in affecting worker outcomes. The work uses a meta-analysis of 27 qualified research articles published in academic journals between 1990 and 2007. The articles provide a combined sam-

ple of 10,867 child welfare workers, social workers, and mental health workers. The statistical analysis uses a factorial framework that represents three antecedent (supervisory dimensions) and two outcome (beneficial and detrimental) variables (hereafter, a 3 × 2 framework). The work thus examines five relationships among supervisory dimensions and worker outcomes.

Conceptual Model and Theoretical Framework

This study's conceptual model, which is depicted in figure 1, is based on the state-of-the-art review and theoretical framework. The model proposes that the supervisor-supervisee exchange fosters beneficial outcomes and limits detrimental outcomes. Three supervisory dimensions emerge from the systematic review of the literature: task assistance, social and emotional supervisory support, and supervisory interpersonal interaction. These dimensions are conceptualized here as the antecedents to beneficial and detrimental outcomes for workers.

Supervisory Dimensions

In the context of social and human service organizations, the role of a supervisor is quite broad. Alfred Kadushin and Daniel Harkness (2002) emphasize the supervisor's responsibility for executing the administrative, educational, and supportive functions. They further define the supervisor as "an agency administrative-staff member to whom authority is delegated to direct, coordinate, enhance, and evaluate the on-the-job performance of the supervisees for whose work he or she is held accountable" (23).

Tom Packard (2004) elaborates on the supervisor's role as an architect and contractor of change. In this capacity, the supervisor uses analytical and conceptual skills to define and describe a new desired state. The supervisor, therefore, is "hands-on, making things happen through the effective use of interpersonal skills" (151). These authors' perspectives are useful in providing context for the role of the supervisor as an agency representative and as a champion for her or his supervisee.

The three distinct dimensions of supervision identified here may not be independent of one another, but they are conceptually distinct enough to be treated separately. Karen Hopkins (2002) similarly looks at supervisory interpersonal interaction (which is elsewhere described as leader-member exchange) and task assistance in supervision. Although Hopkins finds that the supervisory relationship is statistically significantly correlated with the opportunity to develop skills, she treats these two factors as distinct in her analysis. Similarly here the three dimensions are considered to be distinct.

Task assistance.—Supervision is directly related to job functioning. This

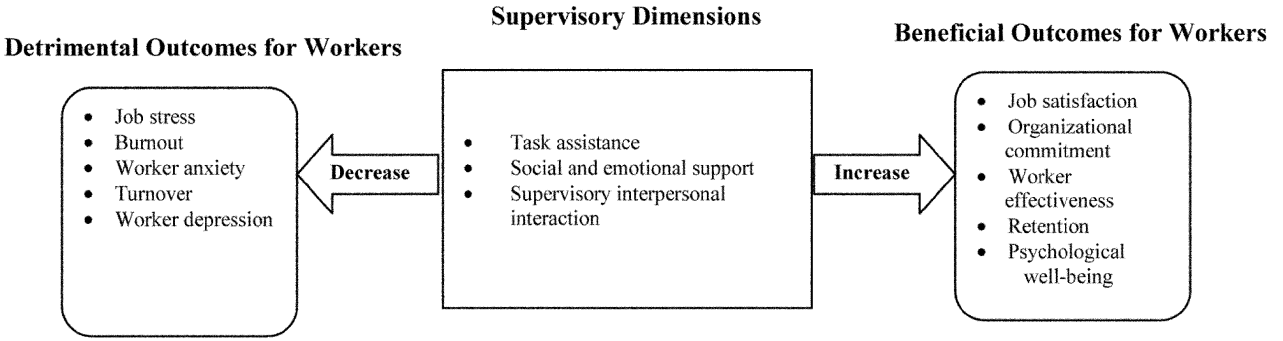

FIG. 1.—Conceptual model

dimension includes a supervisor's tangible, work-related advice and instruction to a supervisee. It focuses on educating, training, and developing workers so that they are equipped to perform their jobs (Kadushin and Harkness 2002). Also included in this dimension are such supervisory activities as providing assistance in job-related tasks (Cearley 2004), supporting training and learning activities (Curry, McCarragher, and Dellmann-Jenkins 2005), coaching employees, and offering solutions to work-related problems (Gimbel et al. 2002).

Social and emotional supervisory support.—This dimension represents supervision that is focused on responding to workers' emotional needs and job-related stress. It may entail listening to workers as they discuss job difficulties or providing supportive statements. It may also include relating to the emotional needs of the workers when they feel overwhelmed, stressed, or confused by their work (e.g., Gant et al. 1993; Aronson et al. 2003; Acker 2004; Mor Barak et al. 2006; Juby and Scannapieco 2007).

Supervisory interpersonal interaction.—This dimension refers to workers' interpersonal experience with their supervisors. The dimension is clearly distinct from the previous two (task assistance; social and emotional supervisory support), because it focuses on a worker's perception of the quality of his or her relationship with the supervisor, not on whether the worker believes that he or she received either help (i.e., task assistance) or support (i.e., social and emotional supervisory support). Studies reviewed for this dimension reflect two areas of interpersonal supervisory experience: (1) workers' perceptions of the quality of and experience with their supervisor or supervision in general (Collings and Murray 1996; Schroffel 1999; Webster and Hackett 1999; Hopkins 2002; Cole, Panchanadeswaran, and Daining 2004; Wallach and Mueller 2006; Weaver et al. 2007) and (2) workers' satisfaction with their supervisor or supervision (Cohen and Laufer 1999; Abu-Bader 2000).

Beneficial or Detrimental Outcomes for Workers

A second distinction that emerges from the review of the literature is the categorization of worker outcomes as beneficial or detrimental. Beneficial outcomes encapsulate desirable worker cognitions, attitudes, and behaviors. Thus, beneficial outcomes have the greatest potential to aid organizations in meeting goals and contributing to service effectiveness. Beneficial outcomes considered in this study include workers' job satisfaction and organizational commitment; heightened sense of psychological well-being and empowerment; and effectiveness on the job (i.e., ability, competence, and performance).

Detrimental outcomes relate to those worker cognitions, attitudes, and behaviors that organizations may wish to limit because of their potential to impede worker effectiveness and service quality. These in-

clude such forms of job stress as role conflict, role ambiguity, and role overload. They also include burnout, depression, and other forms of mental distress.

Theoretical Framework

Social exchange theory (Blau 1964), psychological contract breach (Morrison and Robinson 1997; Coyle-Shapiro 2002), leader-member exchange (Dansereau, Graen, and Haga 1975; Graen 1976), and role stress theory (Biddle 1986) offer insights into the likely connections between the supervisory dimensions and worker outcomes (see fig. 1 for the conceptual model).

According to social exchange theory, the way an individual thinks about a relationship is based on the balance between her or his efforts in the relationship and the rewards, whether anticipated or actual (Blau 1964; Cook 1977). The theory implies that if the supervisory exchange is deemed to be beneficial, the worker will reciprocate by having more positive emotions toward the supervisor and toward the workplace. The worker may also respond by devoting more effort to his or her other work. For example, if the exchange is deemed to be beneficial, a worker's attitudes toward work may improve (i.e., greater job satisfaction or organization commitment) and there may be declines in intention to leave or in turnover. The opposite may also be true. If the worker perceives supervision as less than what is expected or desired, the worker may reciprocate with negative emotions toward the supervisor and the workplace. His or her commitment to the organization may decline, as may his or her job performance.

Social exchange theory also extends to models of psychological contract breach (Morrison and Robinson 1997; Coyle-Shapiro 2002). Such models further help to explain the relationships between supervision and worker outcomes. A worker's expectation regarding the supervisory relationship is part of the psychological contract for the relationship and serves as a backdrop against which she or he will evaluate the nature of the relationship that will ensue. Based on the norm of reciprocity, the notion of psychological contract breach reflects an employee's perception that his or her supervisor has not lived up to expectations or obligations. "Perceived contract breach results in a sense of discrepancy between what is promised and what is fulfilled" (Coyle-Shapiro 2002, 927); workers perceive such a breach as betrayal (Morrison and Robinson 1997). This, in turn, may influence worker behavior. As individuals experience a psychological contract breach, they may reciprocate attitudinally by decreasing their commitment or behaviorally by disengaging from work-related tasks and organizational activities (Coyle-Shapiro 2002).

Leader-member exchange theory (Dansereau et al. 1975; Graen

1976), an extension of social exchange theory, highlights the interaction between leaders and followers (or between supervisor and supervisee, as is the context for the current study). The leader-member exchange process (LMX) is specifically defined as the reciprocal relationship between a person who has direct authority (e.g., the supervisor) over another and the person subject to that authority (e.g., the supervisee or worker; Dansereau et al. 1975; Graen and Cashman 1975). Research links LMX with various worker outcomes. Over 25 years of research, high-quality LMX has been shown to diminish turnover, increase positive performance evaluations, expand levels of organizational commitment, improve job attitudes, cultivate attention and support from the leader, and augment participation (Liden et al. 1993; Graen and Uhl-Bien 1995). Peter Northouse (2007, 155) concisely summarizes the point: "When leaders and followers have good exchanges, they feel better and accomplish more, and the organization prospers." Thus, it is expected that when workers have good relationships with their supervisors, there are both individual and organizational benefits. In essence, LMX theory holds that the organization will reap beneficial outcomes (e.g., reduced turnover and worker stress) if the worker perceives that he or she has a quality relationship with his or her supervisor.

Finally, role theory (Kahn et al. 1964; Biddle 1986) provides additional perspective on supervision's function in affecting two specific types of detrimental outcomes for workers: stress and burnout. Role theory focuses on employees' perceptions of the extent to which they experience role conflict (i.e., the demands of meeting the competing demands of the job), role ambiguity (i.e., the extent of clarity about the expectations of one's role), and role overload from their personal lives and work environments (i.e., the amount of work responsibilities and commitments; Tetrick 1992). Ralph Dolgoff (2005) discusses supervisors' responsibility to be aware of and help alleviate employees' stress and burnout. Put together, these theories indicate that workers who experience effective supervision through task assistance, social and emotional supervisory support, and the interpersonal supervisory relationship will reciprocate with more positive feelings and behaviors toward their job and the organization.

Literature Review

This literature review focuses on all available studies examining the vital role of supervision in social service organizations. This includes varying types of articles (theoretical, qualitative, and empirical) that extend beyond the scope of the specific criteria for inclusion in the meta-analysis. For example, conceptual manuscripts and qualitative articles contribute to the discussion of the relationship among the supervisory

dimensions and worker outcomes. Such research can provide helpful information and texture to the statistical analysis.

Supervisory Task Assistance and Worker Outcomes

Previous studies suggest that supervisory task assistance is related to several beneficial outcomes, including worker retention, empowerment, and organizational citizenship behaviors. Dale Curry and associates (2005) find that when a supervisor helps a worker prepare for training workshops by discussing the worker's individual learning needs, the worker is more likely to stay (e.g., retention) than a worker who does not receive task assistance from his or her supervisor. Sarah Cearley (2004) finds that workers' perceptions of whether their supervisors provide instrumental assistance are related to workers' sense of empowerment. In two separate studies, researchers find that supervisors' ability to help workers engage in problem solving (as an aspect of supervisor task assistance) is associated with job satisfaction in general (Gimbel et al. 2002) and with satisfaction concerning workload and resources (Juby and Scannapieco 2007). Hopkins (2002) finds that workers' organizational citizenship behaviors and performance are related to the worker perception that the supervisor offers opportunities to develop skills. Studies that focus on the task-assistance supervision dimension all examine beneficial outcomes for workers; none examines detrimental outcomes.

Social and Emotional Supervisory Support and Worker Outcomes

Most of the studies that examine the importance of social and emotional supervisory support find statistically significant relationships between such support and beneficial outcomes, particularly job satisfaction. For example, researchers find that social support from supervisors is positively related to job satisfaction among social workers in mental health settings (Acker 2004) as well as among child welfare workers (Landsman 2001; Mor Barak et al. 2006). Similarly, emotional support is linked to job satisfaction among social workers in the field of gerontology (Poulin and Walter 1992), as well as among agency workers holding managerial and administrative responsibilities (Silver, Poulin, and Manning 1997). Mary Elizabeth Rauktis and Gary Koeske (1994) find that supportive supervision is related to workers' satisfaction with specific facets of their jobs, both extrinsic facets (e.g., salary) and intrinsic ones (e.g., job satisfaction). In addition, Michàlle Mor Barak and colleagues (2006) find that social support from supervisors is linked to worker well-being and organizational commitment.

Regarding detrimental outcomes, Larry Gant and colleagues (1993) find that social support from supervisors is associated with reductions of such negative worker outcomes as anxiety, depression, somatic complaints, depersonalization, and emotional exhaustion. Supervisor sup-

port is also negatively related to burnout (Siebert 2006). In short, studies are consistent in finding that supervisor support is important in limiting detrimental outcomes. This consistency is further solidified in studies among child welfare workers (Mor Barak et al. 2006). Among workers who left agencies, lack of supervisor support is found to be related to employee turnover (Smith 2005).

Supervisory Interpersonal Interaction and Worker Outcomes

Research examining beneficial outcomes finds that satisfaction with the supervisory relationship is related to a worker's self-assessment of his or her competence as a professional (Cohen and Laufer 1999). Soleman Abu-Bader (2000) and Danny Cole and colleagues (2004) find that quality of supervision is positively associated with levels of job satisfaction. Quality of and satisfaction with supervision are also positively related to workers' sense of personal accomplishment (Webster and Hackett 1999). Several studies on LMX examine the quality of the working relationship between a supervisor and a supervisee. These studies find a relationship between positive LMX and beneficial outcomes for workers (Liden et al. 1993; Graen and Uhl-Bien 1995). For example, research indicates that positive LMX is related to organizational citizenship behavior (Hopkins 2002) and to workers' sense of empowerment (Wallach and Mueller 2006).

With respect to detrimental outcomes, John Collings and Philip Murray (1996) find that levels of stress are negatively related to workers' positive ratings concerning their overall experience with their supervisors. Similarly, the perception that supervision is of good quality is negatively associated with intention to leave and with actual turnover (Weaver et al. 2007) as well as with two dimensions of burnout: emotional exhaustion and depersonalization (Webster and Hackett 1999). Vicki Wallach and Charles Mueller (2006) find that workers' positive perception of their relationship with their supervisors is negatively related to role ambiguity and role overload.

Methodology

Identification of Studies for Review

Criteria for inclusion.—To systematically analyze the effect of supervision on worker outcomes, this article determines whether studies are appropriate for inclusion in the meta-analysis. Each such study must meet all of the following conceptual and statistical criteria: (1) the study must include at least one measure of supervision as an antecedent or independent variable; (2) the study must include at least one worker outcome (e.g., job satisfaction, organizational commitment, job stress, and burnout); (3) the study must examine a sample of child welfare

workers, social workers, or mental health workers; (4) the study must have had a publication date between 1990 and 2007; (5) the study must report the appropriate statistics necessary for conducting the meta-analysis (bivariate correlations, *t*-statistics, regression coefficients, and *p*-values); and (6) the study must report the size of the sample used for the statistical analysis. A combination of key words, detailed in figure 2, was used to identify studies with a connection between supervision and worker outcomes.

Peer-reviewed journal articles are selected because the review process contributes to quality assurance. Studies not printed in English are excluded, as are dissertations, because of the length of time necessary for retrieval of such sources.

Systematic search process.—This study uses the specified criteria to identify existing empirical studies published in academic journals between 1990 and 2007. Three procedures were employed in the search for studies: computerized search, a manual search in key journals, and a search for unpublished manuscripts.

Computerized search.—A comprehensive computerized search was made of three electronic databases that feature abstracts of articles published in the fields of psychology, social work, child welfare, and social services. PsycInfo is a comprehensive computerized database that includes scholarly publications in psychology and related fields. Social Service Abstracts is a database that includes abstracts in the fields of social work, social services, and related areas, including social welfare, social policy, and community development. The third, Social Work Abstracts, focuses on 450 journals in all areas of the profession, including theory, practice, areas of service, social issues, and social problems.

Searches using the combination of key words (see fig. 2) identified abstracts for 1,622 sources, which the researchers reviewed. This review indicated that over one-third of the 1,622 abstracts were duplicates (i.e., the same article was identified in two or more databases). Of the remaining abstracts, 259 were identified as empirical research articles with quantitative statistical results (per the search criteria, conceptual and qualitative articles are excluded). Next, the 259 empirical articles were reviewed to determine whether they meet the first four criteria. The 95 articles that met these criteria were examined to determine whether they also meet statistical criteria (the last two criteria). At the end of this selection process, 27 were determined to have met all the criteria for inclusion in the meta-analysis.

Manual search in key journals.—In addition, a manual search was conducted for studies in eight key child welfare, social services, and social work journals. The journals selected using Social Science Citation abstracts and the Social Science Citation Index Journal Citation Reports include (in alphabetic order) *Administration in Social Work, Administrative Science Quarterly, Child Welfare, Children and Youth Services Review, Journal*

Supervision-Related Search Terms:	Worker-Outcome-Related Search Terms and:	Field-of-Service-Related Search Terms:*
• Supervision • Supervisor • Leader-Member Exchange	• Job satisfaction • Organizational commitment • Stress • Role conflict • Role ambiguity • Role overload • Burnout • Empowerment • Turnover • Retention • Intention to leave	• Child welfare • Social work • Social services

FIG. 2.—Listing of search terms for the computerized literature. * Used in PsycInfo only.

of Social Service Research, Research on Social Work Practice, Social Service Review, and *Social Work.* This manual search identified 12 articles that meet the criteria for inclusion in the meta-analysis, but all were also detected and selected for inclusion through the computerized search.

Search for unpublished manuscripts.—The researchers contacted the authors of the manuscripts included in this meta-analysis to determine if any of them were engaged in a significant research effort that could add to the already published articles. These authors were also asked to identify manuscripts that were not published; findings that are not statistically significant (so-called drawer articles) could shed additional light on the relationship between supervision and worker outcomes. To locate appropriate unpublished papers, researchers sent e-mail messages to all the authors of articles included in the meta-analysis, asking them to provide information about additional unpublished manuscripts that they or their colleagues produced during the period under the study. Although many responses were received (almost all of the authors responded), and some additional manuscripts were identified, none meets the criteria for inclusion.

Study Sample

The systematic literature search identified 27 qualified articles published in academic journals. The combined sample represents 10,867 workers in social service settings. Of the 27 studies, seven (25.9 percent) examine child welfare workers, 13 (48.1 percent) study social workers, and seven (25.9 percent) examine mental health workers. Studies typically lack a specific agency identifier or include workers from multiple agencies. In these studies, sample members identify themselves as social workers or indicate that they hold a degree (bachelor's or master's) in social work.

Coding of Studies

Each article is coded for the following: (1) study sample (child welfare workers, social workers, or mental health workers), (2) whether the study reports correlation coefficients or regression coefficients (standardized or unstandardized), and (3) sample size. The articles are also coded for whether (4) the dimension of supervision is an antecedent variable and (5) for the worker outcome variables.

Coding the antecedent and outcome variables presented some analytic challenges. There is a series of different supervisory dimensions as well as several types of outcome variables. Although some articles use the same measure of the antecedent (e.g., Caplan Social Support Index; Caplan et al. 1975, 1980) and outcome variable (e.g., Malsach Burnout Inventory), no combination of articles holds the same antecedent and outcome variable, and no two articles measure the antecedent in the

same way. To permit the meta-analytic combination of these studies, both the independent and outcome variable were coded based on whether the study shares a similar measurement technique or conceptual definition. Each antecedent variable is coded into one of the three dimensions: task assistance, social and emotional supervisory support, and supervisory interpersonal interaction. Each outcome variable is coded as beneficial or detrimental to the workers.

Measures

Supervisory dimensions.—Table 1 summarizes the supervisory dimensions and the measures used by different studies to capture various aspects of each dimension.[1] The first dimension, supervisor task assistance, is measured as the supervisor's ability to provide tangible, work-related, positive advice and guidance. For example, a supervisor might provide task assistance by solving work-related problems or giving feedback to help workers become more effective on the job. Six articles use at least one antecedent variable that reflects supervisor task assistance.

The second dimension, social and emotional supervisory support, relates to workers' perceptions of a supervisor's ability to respond to the workers' emotional needs, provide social support, and help workers deal with job-related stress. About half of the articles (13) include at least one antecedent variable that represents this dimension. The third dimension, supervisory interpersonal interaction, reflects workers' perceptions of the quality of their relationship with their supervisors and the extent to which the relationship helped them become more effective in their jobs. Twelve articles employ at least one antecedent variable that reflects this dimension.

Worker outcomes.—The outcome variables reviewed in this meta-analysis are categorized as either beneficial or detrimental to workers' psychological well-being and effectiveness on the job. The definitions and measurement of worker outcomes vary across the analyzed studies. However, the broad categories (beneficial and detrimental) are employed as guidelines to develop a system for classifying worker outcomes. Outcomes such as job satisfaction, organizational commitment, psychological well-being, and worker effectiveness are coded as beneficial. Intention to leave, turnover, job stress, and burnout are coded as detrimental. In these analyses, beneficial outcomes are coded as one; detrimental outcomes are coded as two. Several subcategories are also coded in a similar manner. For example, under the psychological well-being outcome, self-confidence is coded as beneficial, but depression is coded as detrimental (see table 2). Twenty-three (67.6 percent) of the worker outcomes reported in the reviewed studies are coded as having beneficial outcomes; 11 (32.3 percent) of those outcomes are coded as detrimental.[2]

Table 1

SUPERVISION DIMENSION (Coding)

Measure Cited by Studies Included in This Meta-analysis	Meta-analysis Studies That Cited Using the Corresponding Measure
Dimension: Supervisor task assistance	
Supervisor Helpgiving Scale; adapted from Dunst, Trivette, and Hamby (1996)	Cearley (2004)
Supervisor Instrumental Support Index (source not specified)	Poulin and Walter (1992)
Adapted from Curry's (1996) Transfer Potential Questionnaire	Curry et al. (2005)
Wayne, Shore, and Liden's (1997) development experiences items	Hopkins (2002)
Source not specified or author created	Gimbel et al. (2002); Juby and Scannapieco (2007)
Dimension: Social and emotional supervisory support	
Social Support Index; Caplan et al. (1975; 1980)	Acker (2004); Rafferty et al. (2001); Mor Barak et al. (2006)
Supervisor Emotional Support Index (source not specified)	Poulin and Walter (1992)
Young's (1991) Supervision Scale	Rauktis and Koeske (1994)
Source not specified or author created	Jones et al. (1991); Gant et al. (1993); Poulin (1995); Silver et al. (1997); Landsman (2001); Aronson et al. (2003); Smith (2005); Siebert (2006)
Dimension: Supervisory interpersonal interaction	
Adapted from on Heppner and Roehlke's (1984) expectation about supervision	Cole et al. (2004)
Leadership Practices Inventory (source not specified)	Webster and Hackett (1999)
Correlates of Work Satisfaction (supervision subscale, 16 items; Abu-Bader 1998)	Abu-Bader (2000)
Adapted Thyer et al. (1989) index rating student satisfaction with fieldwork supervisors	Cohen and Laufer (1999)
Scandura and Graen's (1984) Leader-Member Exchange Scale	Hopkins (2002)
Supervision Attitude Scale adapted from Kavanagh et al. (1997)	Kavanagh et al. (2003)
Efstation, Patton, and Kardash (1990) Supervisory Working	Wallach and Mueller (2006)
Clinical Supervisor Rating Scale (source not specified)	Webster and Hackett (1999)
Source not specified or author created	Collings and Murray (1996); Schroffel (1999); Kavanagh et al. (2003); Weaver et al. (2007)

Table 2

CODING OF BENEFICIAL AND DETRIMENTAL OUTCOME VARIABLES

Outcome and Subcategory	Code*
Job satisfaction:	
Satisfaction with workload management	1
Satisfaction with resources	1
Satisfaction with salary	1
Satisfaction with opportunities for promotion	1
Satisfaction with salary	1
Intrinsic satisfaction	1
Job satisfaction (in general)	1
Retention:	
Intention to leave	2
Turnover	2
Retention	1
Organizational commitment:	
Affective commitment	1
Continuous commitment	1
Normative commitment	1
Loyalty	1
Organizational commitment (in general)	1
Job stress:	
Role conflict	2
Role ambiguity	2
Role overload	2
Burnout:	
Emotional exhaustion	2
Depersonalization	2
Personal accomplishment or achievement	1
Psychological well-being:	
Irritability	2
Depression	2
Anxiety	2
Somatic complaints	2
Self-confidence	1
Empowerment	1
Self-efficacy	1
Psychological well-being (in general)	1
Worker effectiveness:	
Worker ability	1
Impact on practice	1
Organizational citizenship behavior	1
Job performance	1
Professional competence	1

* 1 = beneficial; 2 = detrimental.

Statistical Analysis

In total, this study analyzes 27 articles that meet the criteria for inclusion in the meta-analysis. From these studies, there are 54 correlation coefficients (r) and 20 standardized regression (beta) coefficients for associations among the three dimensions (task assistance, social and emotional supervisory support, and supervisory interpersonal interaction) and the two worker outcomes (beneficial and detrimental). A 3 × 2

factorial framework is employed in the statistical analysis to represent the three antecedent and two outcome variables. The framework enables analysis of five types of relationships. No studies meet the criteria for the fifth relationship, a connection between task assistance and detrimental outcomes for workers.

Two common methods are employed to overcome challenges presented by the data. First, for the studies that report only beta coefficients, the missing correlation coefficients (r) are imputed by following the procedures outlined in Robert Peterson and Steven Brown's article (2005). The imputation approach is based on an analysis of more than 1,700 corresponding beta and r coefficients extracted from published studies. It is found to provide relatively accurate and precise estimates of population effect size. Second, some of the studies included here report several correlations among variables under the same construct category. For example, Gant and associates (1993) examine the correlations among social support and a host of psychological well-being measures (e.g., depression, anxiety, irritability, somatic complaints, depersonalization, and emotional exhaustion). The correlation effect sizes are aggregated here to have one psychological well-being measure reflective of a detrimental worker outcome. An aggregated correlation effect size is calculated by averaging these correlation coefficients (Gimbel et al. 2002).

After addressing these two issues, the data include a total of 37 correlation coefficients. With respect to the beneficial outcomes for workers, data include six correlation coefficients for the task assistance dimension, 12 for the social and emotional supervisory support dimension, and eight for the supervisory interpersonal interaction dimension. With regard to the detrimental outcomes for workers, data include six correlations for the social and emotional supervisory support dimension and five for the supervisory interpersonal interaction dimension.

The statistical analysis is conducted using the STATA statistical software (version 8). In this study, the product-moment correlation coefficient, r, is used for effect size estimates from selected studies. The correlation coefficient is already a standardized index and is usable as a meta-analytic effect size statistic in its raw form, even if the correlated independent and dependent variables are differently operationalized. However, as the population value of r gets further from zero, the distribution of r becomes more skewed. This may complicate the comparison and combination of r (Rosenthal 1994). Fisher Z-transformation is recommended to achieve a nearly normal distribution (Fisher 1928). Therefore, Ronald Fisher's Z-transformed correlation coefficient is used in the meta-analysis instead of the original and derived correlation coefficients. The relationship between r and Z_r is given by

$$Z_r = 0.5 \log_e [(1 + r)/(1 - r)],$$

where r is the correlation coefficient, and $\log_e$ is the natural logarithm (Lipsey and Wilson 2001). The standard error of the transformed coefficient is calculated with the formula provided by Mark Lipsey and David Wilson (2001):

$$\mathrm{SE}_{Zr} = 1/(\text{Squared root of } N - 3),$$

where N is the total sample size.

The heterogeneity in effect sizes across studies is examined using the Q statistic (DerSimonian and Laird 1986; Hedges and Pigott 2001). The statistical significance level of $p < .10$ is used rather than the conventional level ($p < .05$), as the statistical power of the test may be low (Stuck et al. 1993; Cappelleri et al. 1996; Sun et al. 2006). If the result of the Q test indicates that there is homogeneity among studies, the fixed-effect model is used to calculate summary effect size. Otherwise, a random-effect model is adopted (Lipsey and Wilson 2001). The fixed-effects model assumes that variability across studies is exclusively due to random variation and individual studies are simply weighted by their precision. The random effects model assumes a different underlying effect for each study and takes this into consideration as an additional source of variation. A forest plot was made to show the transformed coefficient and 95 percent confidence interval (CI) for each study, as well as the pooled coefficient and 95 percent CI of each. The pooled coefficient and 95 percent CI were finally transformed back to the original scale.

Next, publication bias is assessed. Publication bias refers to the hypothesized underrepresentation in systematic reviews and meta-analyses of studies that lack statistically significant results. The bias is hypothesized to occur because such studies are less likely to be submitted or accepted for publication in academic journals. A simple method for assessing publication bias is the construction of a funnel plot, which is a scatter plot of the effect size estimate from each study in the meta-analysis against a measure of its precision, usually 1/standard error (Sutton et al. 2000). A Begg's funnel plot is drawn to assess the potential publication bias in the meta-analysis, and the transformed coefficient for each study is plotted on the vertical axis against the corresponding standard error on the horizontal axis (Lipsey and Wilson 2001). Asymmetry of the funnel plot is an indicator of publication bias. That is, in the absence of bias, the plot should resemble a funnel shape, as smaller, less precise studies are more subject to random variation than are large studies when estimating an effect. In the presence of publication bias, some small studies reporting negative results will be missing from the plot, and their absence leads to an asymmetrical funnel plot. When the number of studies is small (as is the case in the current study), the reliability of the funnel plot or Egger's test may be called into question because the number of data points on the scatter plot is not sufficient to permit visual inspection for asymmetry of the funnel plot. Its reliability

may also be called into question because the sample is smaller than that required to achieve sufficient statistical power for Egger's test, which is mainly based on a regression method (Lau et al. 2006). Therefore, it may not be possible to completely exclude the potential publication bias existing in these analyses.

In addition to inspecting the funnel plots, the current study uses Matthias Egger and colleagues' (1997) unweighted regression asymmetry test to detect publication bias by examining the actual degree of asymmetry in the funnel plots. Egger and colleagues' analysis is based on a regression model in which the standard normal deviate (SND), defined as the effect size divided by its standard error, is regressed against the study-specific estimate of precision of the correlation coefficient. This precision estimate is the inverse of the standard error. If the funnel plot is symmetrical (i.e., indicating no publication bias), data points of this regression will scatter about a line that runs through the origin at SND equal to zero; the slope indicates the size and direction of effect (Egger et al. 1997). However, if the funnel plot is asymmetrical, the regression line will not run through the origin, and the intercept then can provide a measure of asymmetry. The funnel plot's asymmetry becomes increasingly pronounced as the intercept deviates further from zero. Therefore, a statistically significant p-value for the intercept of Egger and associates' (1997) regression line suggests that the funnel plot is asymmetrical. Egger and colleagues' consideration of asymmetry is based on $p < .10$. This standard is used in previous meta-analyses of heterogeneity (Stuck et al. 1993; Cappelleri et al. 1996; Sun et al. 2006).

Results

Table 3 presents information on sample and effect sizes (including correlation coefficients and 95 percent CIs) for the 37 coefficients classified by the five types of relationships. For the six studies reporting relationships between task assistance and beneficial outcomes, the correlation coefficients range from 0.28 to 0.69. Among the 12 studies reporting relationships between social and emotional supervisory support and beneficial outcomes for workers, the correlations range from 0.14 to 0.50. In the eight studies that report relationships between supervisory interpersonal interaction and beneficial outcomes for workers, the correlations range from 0.12 to 0.53.

Social and emotional supervisory support is related to detrimental outcomes in six studies, which report correlations that range from −0.20 to −0.35. Among the five studies reporting relationships between supervisory interpersonal interaction and detrimental outcomes, the correlations range from 0.09 to 0.61.

Table 4 presents pooled coefficients and 95 percent CIs for both fixed- and random-effect models, as well as the results of heterogeneity tests.

The *p*-values for the heterogeneity test are less than 0.1 for studies on each of these five types of relationships. These results indicate the presence of heterogeneity among studies. As a result, pooled coefficients from the random effects model are considered. The absolute values of the pooled correlation estimates range from −0.31 to 0.40, and this range reflects approximately moderate-sized associations according to Jacob Cohen's (1988) definition of effect sizes. In addition, all effect sizes are statistically significant, and *p*-values are less than 0.01.

The results of Egger and colleagues' (1997) regression test of asymmetry are presented in table 5. The results of all the tests of asymmetry conducted on the five dimensions are not statistically significant. This finding fails to confirm publication bias. In addition, visual inspection of the funnel plots also provides no indication of publication bias.

In summary, all the supervisory dimensions (task assistance, social and emotional supervisory support, and supervisory interpersonal interaction) are found to be positively and statistically significantly related to beneficial outcomes for workers. Effect sizes are moderate. The task-assistance dimension has a larger effect size ($r = 0.40$) than either the social and emotional supervisory support ($r = 0.33$) or the supervisory interpersonal interaction ($r = 0.33$) dimensions. The dimensions of social and emotional supervisory support and supervisory interpersonal interaction also are negatively and statistically significantly related to detrimental outcomes for workers. The effect sizes are moderate (social and emotional supervisory support: $r = -0.28$; interpersonal supervisory interaction: $r = -0.31$). No studies assess relationships between task assistance and detrimental outcomes.

Discussion

The current study offers a state-of-the-art review of the literature and meta-analysis of research on the relationship of supervision to worker outcomes in social and human service organizations. The findings are in line with previous research that links effective supervision to positive worker outcomes (e.g., Abu-Bader 2000; Landsman 2001; Annie E. Casey Foundation 2003; Mor Barak et al. 2006). The explanation for the links found in this study is rooted in the theoretical articulation that guides the conceptual framework. That framework is based on social exchange theory in general and, more specifically, on LMX theory. These theories suggest that workers who experience good supervision through task assistance, emotional support, and effective relationships with supervisors reciprocate with positive feelings and behaviors toward their jobs and the organization (Liden et al. 1993; Graen and Uhl-Bien 1995; Morrison and Robinson 1997; Coyle-Shapiro 2002; Northouse 2007).

The findings are consistent with previous research that links task assistance by supervisors with such positive worker outcomes as empow-

Table 3

Summary of Effect Sizes for Individual Studies by Type of Analysis

Source	Sample Description	Sample Size	r	95% CI	
				Lower Limit	Upper Limit
3.1: Task assistance by beneficial outcomes:					
Cearley (2004)	child welfare workers	91	.69	.56	.79
Curry et al. (2005)	child welfare workers	406	.38	.30	.46
Gimbel et al. (2002)*	mental health workers	286	.29	.07	.49
Hopkins (2002)	social workers†	120	.34	.17	.49
Juby and Scannapieco (2007)*	child welfare workers	350	.28	.18	.37
Poulin and Walter (1992)*	social workers	813	.32	.25	.38
3.2: Social and emotional support by beneficial outcomes:					
Acker (2004)*	social workers	259	.32	.21	.42
Aronson et al. (2003)	mental health workers	3,024	.32	.29	.35
Gant et al. (1993)*	social workers	520	.42	.35	.49
Landsman (2001)	child welfare workers	1,113	.20	.14	.25
Mor Barak et al. (2006)*	child welfare workers	418	.27	.18	.35
Poulin (1995)*	social workers‡	145	.32	.18	.45
Poulin and Walter (1992)*	social workers	813	.36	.30	.42
Rafferty et al. (2001)	mental health workers	164	.14	−.01	.29
Rauktis and Koeske (1994)*	social workers	111	.29	.11	.45
Schroffel (1999)*	mental health workers	84	.34	.14	.52
Silver et al. (1997)	social workers	70	.32	.09	.52
Smith (2005)	child welfare workers	264	.50	.41	.58
3.3: Social and emotional support by detrimental outcomes:					

Acker (2004)*	social workers	259	−.20	−.32	−.08
Gant et al. (1993)*	social workers	520	−.20	−.28	−.12
Jones et al. (1991)*	social workers	117	−.23	−.40	−.05
Mor Barak et al. (2006)*	child welfare workers	418	−.34	−.42	−.25
Rafferty et al. (2001)*	mental health workers	164	−.35	−.48	−.21
Siebert (2006)	social workers	751	−.32	−.38	−.25
3.4: Supervisory interpersonal interaction by beneficial outcomes:					
Abu-Bader (2000)*	social workers	218	.35	.23	.46
Cohen and Laufer (1999)	social workers	290	.15	.04	.26
Cole et al. (2004)	social workers[§]	232	.41	.30	.52
Hopkins (2002)	social workers[†]	120	.13	−.05	.30
Kavanagh et al. (2003)*	mental health workers	272	.46	.36	.55
Schroffel (1999)	mental health workers	84	.35	.15	.52
Wallach and Mueller (2006)*	mental health workers[‖]	157	.53	.41	.64
Webster and Hackett (1999)	mental health workers[#]	151	.12	−.04	.27
3.5: Supervisory interpersonal interaction by detrimental outcomes:					
Abu-Bader (2000)	social workers	218	−.61	−.69	−.52
Collings and Murray (1996)	social workers	243	−.18	−.30	−.06
Wallach and Mueller (2006)	mental health workers[‖]	157	−.32	−.45	−.17
Weaver et al. (2007)*	child welfare workers	382	−.09	−.19	.01
Webster and Hackett (1999)*	mental health workers[#]	151	−.23	−.38	−.07

NOTE.—CI = confidence interval.

* To prevent parameter overestimation, the effect size generated from the multiple analyses from the same study that had the same sample and supervisory dimensions and worker outcomes in the same category were averaged.

[†] Social workers comprised 80% of the sample in the study.

[‡] Administrators.

[§] Licensed social workers.

[‖] Paraprofessionals in child welfare.

[#] Licensed clinical social worker; marriage, family, and child counselor; doctor of psychology.

Table 4

Pooled Correlation Coefficients

		Fixed-Effects Estimation				Random-Effects Estimation				Heterogeneity Test		
			95% CI				95% CI					
Dim	*n*	*r*	Lower Limit	Upper Limit	*p*	*r*	Lower Limit	Upper Limit	*p*	*Q*	df	*p*
1	12	.33	.30	.35	<.01	.33	.28	.39	<.01	47.2	11	<.01
2	6	−.29	−.33	−.25	<.01	−.28	−.35	−.22	<.01	1.2	5	.07
3	6	.36	.32	.41	<.01	.40	.29	.52	<.01	24.4	5	<.01
5	8	.34	.29	.39	<.01	.33	.21	.46	<.01	41.1	7	<.01
6	5	−.28	−.34	−.22	<.01	−.31	−.53	−.09	<.01	56.2	4	<.01

Note.—Dim = dimension; CI = confidence interval; df = degrees of freedom; Q = a test of the heterogeneity in effect sizes across studies. Dimension 1: social and emotional support by beneficial outcome; dimension 2: social and emotional support by detrimental outcome; dimension 3: task assistance by beneficial outcome; dimension 5: supervisory interpersonal interaction by beneficial outcome; dimension 6: supervisory interpersonal interaction by detrimental outcome.

erment (Cearley 2004), organizational citizenship behavior (Hopkins 2002), job satisfaction (Gimbel et al. 2002; Juby and Scannapieco 2007), and retention (Curry et al. 2005). Previous research also supports the finding that social and emotional support from supervisors is associated with such outcomes as well-being, organizational commitment (Mor Barak et al. 2006), and job satisfaction (Silver et al. 1997; Landsman 2001; Acker 2004). Similarly, research points to a link between supervisory interpersonal interaction and positive worker outcomes such as workers' sense of competence (Cohen and Laufer 1999), sense of personal accomplishment (Webster and Hackett 1999), organizational cit-

Table 5

Pooled Correlation Coefficients

		Egg Test (Weighted Regression)			
Dimension	*n*	Coef.	SE	*t*	*p*
1	12	−.08	1.62	−.05	.96
2	6	1.55	2.9	.53	.62
3	6	1.9	2.0	.95	.4
5	8	−.16	5.99	−.03	.98
6	5	−11.07	9.43	−1.17	.33

Note.—Egg = Egger and colleagues (1997); Coef. = coefficient; SE = standard error. Dimension 1: social and emotional support by beneficial outcome; dimension 2: social and emotional support by detrimental outcome; dimension 3: task assistance by beneficial outcome; dimension 5: supervisory interpersonal interaction by beneficial outcome; dimension 6: supervisory interpersonal interaction by detrimental outcome.

izenship behavior (Hopkins 2002), and job satisfaction (Abu-Bader 2000; Cole et al. 2004).

With respect to negative worker outcomes, findings are in line with previous research in indicating that supportive supervision is associated with reductions in such negative worker outcomes as anxiety, depression, somatic complaints, burnout, and turnover (Gant et al. 1993; Smith 2005; Siebert 2006). Effective supervisory relationships are linked to reduced levels of stress and burnout (Collings and Murray 1996; Webster and Hackett 1999; Wallach and Mueller 2006) as well as to reduced intention to leave (Weaver et al. 2007).

The findings also suggest the need to devote more attention to the role of supervisors in supporting workers by providing task assistance. Although this dimension is the least studied, the analysis suggests that it plays a potentially powerful role in promoting beneficial outcomes for workers. The accumulating research on supervision indicates that the various dimensions of supervision may have protective, proactive, or preventive roles in ensuring a positive work environment that can contribute to worker effectiveness and potentially to quality service delivery (Kadushin and Harkness 2002). Effective supervision, therefore, can delay or mitigate the effects of detrimental factors and can contribute to positive outcomes for workers in social service organizations (Landsman 2001; USGAO 2003; APHSA 2005).

Limitations and Strengths of Study

The most important limitation of the current study stems from the relatively small number of studies with the type of data needed for conducting meta-analysis (see the criteria for inclusion sec. above). With 27 qualified studies and a relatively large combined sample of 10,867 workers, there are just enough data to generate effect size estimates for the relationships among the three supervisory dimensions and the two worker outcomes. However, the relatively small number of studies and the fact that they are not typically drawn from representative samples imply a limited ability to generalize the findings from the study to the overall population.

A second limitation stems from the small number of studies in each worker outcome category. Metaregression would otherwise help to clarify the relative importance of each dimension for the beneficial and detrimental outcomes for workers. It would inform a more advanced stage of statistical modeling. It also could help in distinguishing supervision's respective influence on job satisfaction, organizational commitment, turnover, and some variables (including role conflict, role ambiguity, and role overload) that are sometimes treated as stress-related antecedents to those outcomes.

A third limitation is the lack of research that examines the relationship

of task assistance to detrimental outcomes for workers. As a result, the contribution of that dimension in mitigating unfavorable worker outcomes is unknown. A fourth limitation lies within the examined studies themselves; there is no consistency in measuring the various predictor and outcome variables. Different measures were sometimes used to assess similar variables, and some authors employed original measures that were not validated elsewhere before.

A fifth limitation stems from the potential for mono-method bias (common method variance), which is a typical risk when study respondents are the source of information for both the predictor and the outcome variables. The effect of mono-method bias remains controversial; such bias is likely influenced by methodological and measurement considerations (Crampton and Wagner 1994; Williams and Anderson 1994). Nevertheless, because most studies are potentially subject to mono-method bias, there may be some inflation in the results. In addition, since studies do not model all potential control variables, causality is in further doubt.

The primary strength of the current study is that it represents the first integrated effort to produce a comprehensive systematic review and meta-analysis of the research on supervision and worker outcomes in child welfare, social work, and mental health settings. Although the importance of supervision is recognized and demonstrated in the literature (e.g., Glisson and Hemmelgarn 1998; Kadushin and Harkness 2002; Poertner 2006), this is the first attempt to assemble research accumulated in this area over the past 2 decades and to assess its combined contribution to the knowledge base. In addition, a theory-based conceptual framework guides the statistical analysis, providing a typology of three supervisory dimensions (task assistance, social and emotional support, and supervisory interpersonal interaction) as well as two categories of worker outcomes.

Implications for Policy, Practice, and Future Research

The findings from this study quantify and underscore the importance of supervision in creating positive worker outcomes; they also show its role in mitigating detrimental ones (Kadushin and Harkness 2002; Austin and Hopkins 2004). Given the accumulated evidence for the benefits of supervision, the most important implication from this study is that organizations may benefit from generating policies and investing resources in nurturing the supervisor-supervisee relationship. If one assumes that reported results are truly causal, perhaps organizations should stress the importance of supervision and ensure an organizational culture that highlights positive working supervisor-supervisee relationships (Nissly, Mor Barak, and Levin 2005). Organizations might

stipulate the mandatory nature of supervision in their policies and indicate the expected frequency of the supervisory meetings.

In addition, it may be helpful for organizations to provide supervisors with training that covers the three supervisory dimensions: task assistance, social and emotional support, and supervisory interpersonal interaction. The results indicate that the task-assistance dimension has the strongest link to beneficial work outcomes. Organizations may therefore emphasize this aspect of supervision. It may seem self-evident that an inherent aspect of supervision involves helping supervisees perform tasks that are directly related to their jobs, but without appropriate training, some supervisors may not realize the importance of this element or may not know how to do it.

It is important to remember that all three dimensions are statistically significantly related to increasing beneficial worker outcomes and mitigating detrimental ones. Supervisory training might therefore highlight the two other dimensions by helping supervisors become more supportive and by facilitating development of skills for building effective supervisory relationships. Such training could also be helpful for organizations by enabling them to continually assess worker outcomes and to create a supervisory feedback mechanism. The implication here is that organizations need to survey their employees to gage job satisfaction, organizational commitment, stress, burnout, and other outcomes, both beneficial and detrimental. This assessment could be done as an organization-wide survey or as part of the evaluation of the supervisor-supervisee relationship. Results from these surveys could create a feedback mechanism that could inform the organization about training needs for its supervisors and could also inform individual supervisors about areas in which they might improve in their supervisory relationships.

Future research should address several gaps in the knowledge base on supervision and worker outcomes. Despite the widespread recognition of the importance of supervision, there is little empirical research in this area, and few empirical studies emerge from this systematic review of the literature published over almost 2 decades. Internal and external validity of findings could be improved by the use of representative samples and of valid and reliable measures across studies. Another area of further research involves distinguishing the supervisory dimensions within individual studies. The goal would be to create a measure of supervision that encapsulates and differentiates the elements related to worker experience of each of the three dimensions. Such a measure could provide researchers with an opportunity to integrate these concepts.

As more research on supervision becomes available, the next meta-analysis should also include a metaregression. Metaregression can help to clarify the relative importance of each supervisory dimension for each set (beneficial and detrimental) of worker outcomes and to inform a more advanced stage of statistical modeling. It can also help in distin-

guishing supervision's respective influences on job satisfaction, organizational commitment, and turnover. Moreover, metaregression can differentiate those variables that are sometimes treated as stress-related antecedents to those outcomes. Particularly relevant to this field of inquiry would be studies that identify supervisory dimensions' connections with worker outcomes, as well as those that connect worker outcomes with client outcomes. Carrying out such studies would be challenging because of design and confidentiality issues, but the research has great potential to dramatically advance the field.

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Notes

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1. Several of the studies included in this meta-analysis examine more than one of the supervisory dimensions. This challenge is discussed in the statistical analysis section.
2. Some studies assess both beneficial and detrimental outcomes.