Concerns remain that contingent workers experience greater adverse psychological outcomes than permanent employees, however findings remain inconclusive until now. Meta-analytic results of group differences in job satisfaction from 60 primary studies (N = 226,687) suggest that contingent workers experience slightly lower satisfaction. Practical implications and future research directions are discussed.

Introduction

With the shifting landscape of employment relations (Barley & Kunda, 2006), nearly everyone’s work experience is affected by the non-standardization of work (Ashford, George, & Blatt, 2007). The increasing growth of contingent work gives rise to an important area of research. Contingent work is defined as “any job in which an individual does not have an explicit or implicit contract for long-term employment or one in which the minimum hours worked can vary in a nonsystematic manner” (Polivka & Nardone, 1989, p.11). However, there is no universally accepted definition of contingent work, as some definitions include part-time workers (Kalleberg, 2000), while other definitions exclude independent contractors (De Cuyper, de Jong, De Witte, Isaksson, Rigotti, & Schalk, 2008). Even contingent workers may invariably define their employment relationships, depending whether or not they are currently on assignments (Connelly & Gallagher, 2004). The definition of “permanent employment” is somewhat more straightforward in that there are three typical components of permanent or standard employment: (1) employment is performed on a full-time basis, (2) employment continues indefinitely, and (3) employment is performed under the supervision of employers, at their place of business (Kalleberg, 2000).

Contingent work is increasingly being used by employers as a means to increase flexibility and reduce costs (Matusik & Hill, 1998). Because employers have initiated the increased use of contingent employment, concerns have been raised about how contingent work affects individuals’ psychological outcomes (De Cuyper et al., 2008). An important question remains as to whether or not “differences in work arrangements lead to differences in work attitudes and work-related behaviors” between permanent employees and contingent workers (Broschak, Davis-Blake, & Block, 2008, p. 4). One work attitude of certain importance is job satisfaction. Job satisfaction refers to “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (Locke, 1976, p. 1300). Because job satisfaction has received much attention from researchers (Connelly & Gallagher, 2004), unlike other frequently studied and important constructs (e.g., organizational commitment), there is a large enough body of empirical research to meta-analyze the findings. Job satisfaction is a construct of significant theoretical and practical concern because as a self-report measure, it provides researchers with meaningful

---

1The author would like to thank Dr. C.E. Connelly for her helpful guidance, Dr. R. Hackett for his comments on an earlier draft, and the authors of the primary studies who kindly provided additional requested information.
interpretations, it is intrinsically useful because happiness is a well-sought after goal (Locke, 1976), and it affects other outcomes such as job performance (Broschak et al., 2008), turnover (Galup, Klein, & Jiang, 2008), and citizenship behaviours (Chambel & Castanheira, 2007). More specifically, meta-analytic studies have shown that job satisfaction moderately predicts performance \((p = .30)\) (Judge, Thoresen, Bono, & Patton, 2001), turnover \((p = -.25)\) (Tett & Meyer, 1993), and citizenship behaviours \((p = .28)\) (Organ & Ryan, 1995). If contingent workers experience job dissatisfaction, then the costs of decreased performance, increased turnover, and decreased citizenship behaviours to employers may negate the benefits of using these workers; however, if there are benefits beyond the flexibility of using contingent workers (e.g., increased performance), then there are understated benefits of using contingent workers (Broschak et al., 2008). What remains to be seen is, if there are differences in work attitudes, then extant theories may need to be modified (Broschak et al., 2008; Gallagher & McLean Parks, 2001) but not discarded (Connelly & Gallagher, 2004). The purpose of this study is to provide the most comprehensive summary to date on potential differences in job satisfaction between contingent workers and permanent employees, identify and explore potential moderators, and provide avenues for future research.

The extant literature has widely assumed that contingent work arrangements are more unfavourable than permanent work arrangements (Wooden & Warren, 2004). Persistent concerns remain that contingent workers may experience more adverse psychological outcomes than permanent employees (De Cuyper et al., 2008). These unfavourable psychological outcomes stem from contingent workers’ sense of deprivation for not receiving similar outcomes to permanent employees (De Cuyper et al., 2008). Contingent workers often receive lower pay and fewer benefits (Kalleberg, 2000), infrequently participate in career planning and training (Virtanen, Kivimaki, Virtanen, Elovainio, & Vahtera, 2003), typically hold lower ranks in their workplaces (Rogers & Henson, 1997), and are often targets of unjust treatment (Boyce, Ryan, Imus, & Morgeson, 2007). Theories (e.g., social comparison theory) have been used to explain why contingent workers may experience unfavourable psychological outcomes (e.g., lower job satisfaction).

However, the research on contingent workers and permanent employees’ job satisfaction reveals mixed findings (Connelly & Gallagher, 2004). In particular, some studies suggest that contingent workers experience higher levels of job satisfaction than permanent employees (e.g., McDonald & Makin, 2000). Various theories (e.g., expectancy theory, psychological contracts) have been used to explain the findings that contingent workers are more satisfied than permanent employees with their jobs (e.g., De Cuyper et al., 2008; Hulin & Glomb, 1999). Nonetheless, other empirical findings have indicated that there is no difference in job satisfaction between contingent workers and permanent employees (e.g., Feather & Rauter, 2004). The mixed findings indicate that there may be moderators present. Hence, it is important to test for main effect differences between these two groups to determine if the variance is mainly attributable to measurement and statistical artifacts or substantive differences between the groups.

The Current Study

In spite of inconclusive and inconsistent research findings on the job satisfaction between contingent workers and permanent employees (De Cuyper et al., 2008), no study to date has provided a comprehensive summary on this topic. A recent narrative review by De Cuyper et al. (2008) has summarized these mixed findings, whereby some studies suggest that contingent workers experience lower job satisfaction (e.g., Forde & Slater, 2006; Tak & Lim, 2008), while other studies suggest that contingent workers experience higher job satisfaction (e.g., Guest & Clinton, 2006; McDonald & Makin, 2000), and many other studies provide no evidence for differences in job satisfaction (e.g., Feather & Rauter, 2004; Guest, Oakley, Clinton, & Budjanovcanin, 2006). Even though De Cuyper et al.’s (2008) narrative review is extremely useful to understand how job satisfaction findings remain inconclusive, the narrative review is limited because it cannot provide a conclusive answer about potential differences in
permanent employees and contingent workers’ job attitudes. It is therefore imperative for a meta-analysis to comprehensively summarize the extant findings in order to conclusively and definitively draw conclusions.

A meta-analysis will advance the study of job satisfaction in several ways. First, a meta-analysis quantitatively summarizes potential differences in job satisfaction between contingent workers and their permanent counterparts. A quantitative summary is especially important to definitively answer the question as to whether permanent employees are more satisfied with their jobs than contingent workers. Second, a meta-analysis tests whether differences between these two groups are mainly attributable to statistical artifacts or substantive differences. When there are substantive differences between the two groups, moderators may be tested to account for unexplained variance. Finally, avenues for future research will be suggested and practical implications are discussed.

**Theoretical Background**

Several theories have been used to account for why contingent workers may experience lower levels of job satisfaction. More specifically, social comparison theory has been used to explain why contingent workers may experience lower job satisfaction. Social comparison theory (Festinger, 1954) explains how workers compare their received outcomes to the outcomes received by others. Other workers may receive higher outcomes for their human capital based on their membership in primary labour markets. According to the dual economy model, workers in primary or internal labour markets receive higher returns on their human capital than workers in secondary or external labour markets (Silla, Francisco, & Peiro, 2005). Workers in secondary labour markets compare their lower outcomes to the higher outcomes received in primary labour markets. When these outcomes are compared, workers in secondary labour markets feel a sense of deprivation when desired outcomes are not received. By applying the dual economy model to contingent work, contingent workers compare their outcomes to permanent employees and experience deprivation when they receive lower outcomes (De Cuyper et al., 2008). Although contingent workers are not always members of secondary labour markets (Krausz & Stainvartz, 2005), they typically belong to secondary labour markets (Silla et al., 2005), while permanent employees reside in primary labour markets.

Likewise, it has been argued that permanent employees belong to the core of organizations and contingent workers are on the periphery (De Cuyper, De Witte, & Isaksson, 2005). However, this distinction is also somewhat problematic because contingent workers may perceive that they are core employees when they are involved in core tasks, their tenure with organizations is over an extended period of time, and they are valued as core employees. On the other hand, permanent employees may perceive that they are on the periphery when they are involved in peripheral tasks to organizations. Even though the distinction is somewhat problematic, when contingent workers perceive that they are not valued as core employees, they may experience unfavourable consequences (Guest et al., 2006). When contingent workers experience differential human resources practices, such as fewer benefits and less training, they may experience a sense of deprivation. Because of these differential practices, contingent workers do not perceive that they are valued workers (Guest et al., 2006). As a result, it is often expected that contingent workers will experience lower psychological outcomes (e.g., job satisfaction) than permanent employees.

Some researchers (e.g., Hulin & Glomb, 1999) have suggested that the referent other of contingent workers may be unemployed individuals, and outcomes such as income, may be evaluated more positively because the frame of reference is based on having no work. Likewise, the “referent other” for contingent workers may be that of contingent workers in their organizations, contingent workers in other organizations, and other types of contingent workers (e.g., comparing contractors with temporary
workers). Although it is possible that contingent workers compare their outcomes to other contingent workers, much theoretical and some empirical evidence (e.g., Sloboda, 1999) suggests that contingent workers choose permanent employees as their referent group. Thus, as workers on the periphery of organizations in secondary labour markets, contingent workers experience a sense of deprivation when they receive differential outcomes.

Another stream of research that has been used to explain differences in work attitudes is volition. Voluntary workers choose contingent work because they desire outcomes such as freedom, variation, flexibility (Ellingson, Gruys, & Sackett, 1998), growth opportunities, social variety (Krausz, Brandwein, & Fox, 1995), and increased balance with other activities (Guest & Clinton, 2006). On the other hand, involuntary workers perform contingent workers because they lack other employment alternatives (Ellingson et al., 1998). Hence, it is expected that voluntary contingent workers will experience favourable outcomes (e.g., higher job satisfaction) compared to involuntary contingent workers (e.g., lower job satisfaction) (De Cuyper et al., 2008). Indeed, empirical findings on contingent work (e.g., Ellingson et al., 1998; Feldman, Doerpinghaus, & Turnley, 1994; Krausz et al., 1995) indicate that voluntary workers report higher job satisfaction than involuntary workers. However, findings also suggest that voluntary permanent employees experience higher levels of job satisfaction than involuntary permanent employees (De Cuyper & De Witte, 2007). Thus, the influence of contract type (i.e., permanent or contingent) on job satisfaction cannot be explained by volition (De Cuyper & De Witte, 2007). In other words, while it is evident that voluntary workers are more satisfied than involuntary workers, because employees, irregardless of their employment status, experience different levels of volition, the concept of volition does not explain why contingent workers may experience lower job satisfaction than their permanent counterparts.

Even though certain theories have been used to predict that contingent workers will experience lower job satisfaction than permanent employees, other theories have been used to explain surprising findings that contingent workers are equally satisfied or more satisfied than permanent employees. Specifically, expectancy theory has been used to explain higher levels of contingent workers’ job satisfaction. Expectancy theory refers to individuals’ behaviours that are, in part, based on the expected level of satisfaction from outcomes (i.e., valence) (Vroom, 1995). When workers are neutral towards receiving outcomes (e.g., benefits), then it is said that outcomes have little valence to motivate workers’ behaviours (Miner, 2005). On the other hand, outcomes that are desired by workers are considered as positive valence, whereas negative valence occurs when workers prefer not to have outcomes (Miner, 2005).

What is important here is that contingent workers and permanent employees may desire different outcomes. That is to say, “contingent workers who do not expect, or assign importance to, certain outcomes are not dissatisfied when their jobs fail to provide these outcomes” (Hulin & Glomb, 1999, p. 103). In other words, outcomes have little valence in terms of motivating behaviours because they are not expected or assigned importance. In contrast, permanent employees may experience job dissatisfaction when desired outcomes are not provided. Permanent employees therefore may have higher expectations than contingent workers and may be more easily dissatisfied when outcomes fall short of these higher expectations.

Expected outcomes closely tie in with the notion of psychological contracts. Psychological contracts are “beliefs in reciprocal and promised obligations between employee[s] and employer[s]…” (Robinson & Rousseau, 1994, p. 245). The construct of psychological contracts stems from social exchange theory (Cullinane & Dundon, 2006). Social exchange theory refers to unspoken social exchanges or voluntary actions among individuals who expect that actions will be reciprocated (Blau, 1964). Similarly, psychological contracts are implicit understandings between two parties (Argyris, 1960), hence they are often unwritten commitments (Rousseau, 1996) that operate at all times (Schein, 1980). It has been suggested that some contingent workers (e.g., temporary agency workers) may have transactional contracts, which are characterized by an economic focus, specific and close-ended time
frames, narrow scopes, stable tendencies, and observable natures (Rousseau, 1990). On the other hand, permanent employees may have more relational psychological contracts, which tend to have a socio-emotional focus, indefinite and open-ended time frames, pervasive scopes, dynamic tendencies, and subjective natures (Rousseau, 1990).

Indeed, some research (e.g., Galup et al., 2008) has found that contingent work is more transactional because it is narrowly defined and short-term in focus, although other research (e.g., McDonald & Makin, 2000) did not find a difference in transactional and relational psychological contracts between permanent employees and contingent workers. It may be that permanent employees have broader psychological contracts that are more sensitive to breaches (Guest & Clinton, 2006). On the other hand, contingent workers’ psychological contracts are limited in their potential to be breached (De Cuyper et al., 2008). If permanent employees experience more violations to their psychological contracts, they may report lower job satisfaction than contingent workers because violations in psychological contracts predict lower job satisfaction (Robinson & Rousseau, 1994). For instance, permanent employees are more likely to experience violations to their psychological contracts when they experience job insecurity, however job insecurity is not typically part of contingent workers’ psychological contracts (De Cuyper et al., 2005; De Witte & Naswall, 2003). Thus, when contingent workers experience job insecurity, they do not perceive violations to their psychological contracts, and hence, they do not experience job dissatisfaction. In contrast, when permanent employees experience job insecurity, they may feel that their psychological contracts have been violated, and thus, experience job dissatisfaction.

Hypotheses

After thoroughly reviewing the extant literature, it is hypothesized that permanent employees will experience higher levels of job satisfaction than contingent workers based on social comparison theory. Theoretical and empirical evidence generally support the notion that permanent employees are the referent other for contingent workers. Even though some contingent workers may not expect certain outcomes (e.g., job security), because contingent workers typically receive lower outcomes (e.g., fewer benefits) than permanent employees (De Cuyper et al., 2008), they do not perceive that they are valued workers (Guest et al., 2006). As a result, contingent workers experience less favourable psychological outcomes than permanent employees. It is therefore hypothesized that permanent employees will experience higher job satisfaction than contingent workers.

H1: Permanent employees will report higher job satisfaction than contingent workers.

However, because the extant research on differences between contingent workers and permanent employees’ job satisfaction has been inconsistent, there are likely moderators that explain substantive differences in job satisfaction. Even though it is important to check for main effect differences between employment status (i.e., contingent or permanent) and psychological outcomes (i.e., job satisfaction) to determine whether artifactual variance explains differences in outcomes, it is important to recognize that “contingent workers are not a homogeneous group” (Connelly and Gallagher, 2004, p. 960). Indeed, there are four types of contingent workers according to Connelly and Gallagher’s (2004) typology of contingent work. The first type of contingent work is characterized by intermediated or triangular relationships between temporary staffing firms, client firms, and temporary workers. The second type of contingent work is comprised of independent contractors, contract workers, and self-employed individuals “who sell their services to client organizations on a fixed-term or a project basis” (p. 961). The third type of contingent work eliminates the role of temporary staffing agencies because employers directly hire temporary workers (i.e., direct hire workers). The final type of contingent work is the employment of seasonal contractors for a short-term duration (Connelly & Gallagher, 2004). Because contingent work is heterogeneous, contingent workers likely have different attitudinal and behavioural outcomes based on
their category of contingent work. For example, contractors and self-employed workers typical receive higher wages than their permanent counterparts, whereas temporary agency workers are often paid relatively poorly (Kalleberg, 2000). Because contractors and self-employed workers receive much higher outcomes than permanent employees, based on social comparison theory, they may experience higher levels of job satisfaction. On the other hand, because temporary agency workers are often paid much less than their permanent employee counterparts, they likely experience lower job satisfaction. It is therefore hypothesized that the mean difference between permanent employees and temporary agency workers will be greater than the mean difference between permanent employees and independent contractors.

H2: In comparison to permanent employees, temporary agency workers will report lower job satisfaction than contractors and self-employed workers.

Contractors and temporary agency workers are not the only groups that may experience different attitudinal outcomes. Temporary agency and direct-hire workers likely experience different levels of job satisfaction due to different employment relationships. Temporary staffing firms legally employ workers and assign them to client firms on an “as-needed” basis (Kalleberg, 2000). They are responsible for many HR functions of the traditional employment relationship (e.g. compensation), however work obligations are performed for client firms. On the other hand, direct-hire workers are directly employed by firms who perform traditional HR functions. Because direct-hire workers are employed by firms, these “insiders” may be exposed to fewer differential HR practices in comparison to “outsiders” (i.e., temporary agency workers). Indeed, findings have suggested that the outcomes for direct-hire workers are influenced by the work systems in place for their permanent counterparts (Lautsch, 2003). For example, direct-hire workers are more likely to receive fringe benefits (e.g., health care) when benefits are provided to permanent employees (Lautsch, 2003). In doing so, there is greater equalization in received outcomes between direct-hire workers and permanent employees. Using the lens of social comparison theory, direct-hire workers do not feel a sense of deprivation because desired outcomes are received. Conversely, because temporary agency workers do not receive these desired outcomes, they experience much lower levels of job satisfaction. It is therefore hypothesized that mean differences between permanent employees and temporary agency workers will be greater than mean differences between permanent employees and direct-hire workers.

H3: In comparison to permanent employees, temporary agency workers will report lower job satisfaction than direct-hire workers.

Whether or not effect sizes differ based on publication type (e.g., published or unpublished) will also be investigated. Published sources (e.g., journal articles) are more likely to report results that are statistically significant. This difference stems from publication bias whereby reported studies typically differ from other studies. To obtain statistically significant results, there have to be large enough mean differences in psychological outcomes. In addition to exploring any potential publication bias, studies that measure job satisfaction differently will be compared. In particular, the effect sizes in studies with one-item job satisfaction measures will compared with the effect sizes in studies with scale measures of job satisfaction. Previous research (e.g., Wanous, Reichers, & Hudy, 1997) suggests that single-item job satisfaction measures may be appropriate substitutes for scale measures, however it is possible that studies that use one-item measures of job satisfaction, rather than scale measures, may report different findings. It is therefore important to explore potential publication and measurement biases.
Method

Search for Primary Data

To identify studies that examined contingent workers and permanent employees’ job satisfaction, the following keywords were used “job satisfaction” or “satisfaction,” and “contingent,” “temporary,” “permanent,” “temporary agency,” “contractor,” “seasonal,” “direct-hire,” “fixed-term,” and “precarious” in Business Source Complete and Internet search engines. References sections were culled and articles that cited primary studies were searched to identify additional studies. Unpublished dissertations were searched using ProQuest dissertations and theses. This search engine uncovered three relevant unpublished theses. A fourth unpublished thesis was found cited in a research report and after contacting the author, necessary information for inclusion in the meta-analysis was provided. Authors of the primary studies were contacted to provide additional information (e.g., means, standard deviations) that was omitted from the findings. The search for primary data uncovered a total of 130 primary studies.

Decision Rules

To be included in the meta-analysis, several criteria must have been met. The first criterion for inclusion is that studies needed to report overall job satisfaction means for both contingent workers and permanent employees. Overall job satisfaction was the criterion of interest, and not facet measures of job satisfaction, for several reasons. Overall job satisfaction has received a high level of attention from researchers and hence, the accumulated literature is large enough to meta-analyze the findings. Furthermore, using a global measure provides a more comprehensive picture of workers’ job satisfaction. Even though particular facets of job satisfaction (e.g., satisfaction with pay) are useful, individual facets do not reflect workers’ aggregate evaluations of their job experiences. Moreover, certain facets (e.g., promotion satisfaction) are not relevant for contingent workers’ evaluation of their jobs (Hulin & Glomb, 1999). Overall job satisfaction is therefore the chosen measure for workers’ job evaluations. Because means needed to be reported, qualitative studies were excluded from the meta-analysis. The second criterion for inclusion is that studies needed to explore at least one type of contingent worker, in accordance to Connelly and Gallagher’s (2004) typology of contingent work. The third criterion necessitates that studies from the same datasets could only be included once to obtain independence of samples, however, multiple studies from the same publication were treated as independent studies. Applying these criteria yielded 60 primary studies that surveyed 226,687 workers.

Analysis

Schmidt & Hunter’s (2003) meta-analytical method was used because this method accounts for statistical and measurement artifacts. This method corrects for measurement error because of the systematic downward bias on effect sizes and the creation of artifactual variance across studies (Schmidt & Hunter, 2003). Before correcting for measurement unreliability, effect sizes for each study were calculated by using standardized mean differences. It is important to use standardized mean differences when different measures are used among samples in order to meaningfully compare results across studies (Lipsey & Wilson, 2001). All of the primary studies measured overall job satisfaction, however, the measures used different levels (e.g., 5-point versus 7-point Likert scales). In order to compare the results between studies, the standardized mean difference was determined by taking the difference between contingent workers and permanent employees’ job satisfaction, and dividing this number by the pooled standard deviation. Initial effect sizes (i.e., mean observed $d$) for each study are shown in Table 1.

Standardized mean differences were then corrected for measurement unreliability. It is important to correct for measurement reliability because effect sizes contain different amounts of reliable
information, with some effect sizes providing more reliable information than others (Lipsey & Wilson, 2001). Further, as noted above, because measurement error downwardly biases mean observed $d$s, it is important to make these corrections. Initial effect sizes were corrected for measurement unreliability according to,

$$ES' = \frac{ES}{\sqrt{r_{xx}} \sqrt{r_{yy}}},$$  \hspace{1cm} (1.1)

where $ES'$ = mean corrected $d$, $ES$ = mean observed $d$, $r_{xx} =$ measurement reliability for permanent employees, and $r_{yy} =$ measurement reliability for contingent workers. Only an overall reliability measure of job satisfaction was provided by the primary studies, thus, this measure was used for both $r_{xx}$ and $r_{yy}$.

After correcting for unreliability, the effect sizes were then weighted in order to give extra weight to studies with larger sample sizes and to take into account measurement reliability. First, weights were calculated using,

$$w = \frac{1}{SE^2},$$  \hspace{1cm} (1.2)

where $w$ = weight and $SE$ = standard error. Then weights were corrected to account for measurement unreliability according to the following,

$$w' = w(r_{xx})(r_{yy}),$$  \hspace{1cm} (1.3)

where $w'$ = corrected weight, $r_{xx} =$ measurement reliability for permanent employees, and $r_{yy} =$ measurement reliability for contingent workers. As noted above, only an overall reliability measure of job satisfaction was provided and this measure was used for both $r_{xx}$ and $r_{yy}$.

Using the corrected weight, the overall weighted mean difference effect size was computed using,

$$\overline{ES} = \frac{\sum (w' \times ES')}{\sum w'},$$  \hspace{1cm} (1.4)

where $\overline{ES}$ = overall weighted mean difference effect size, $w'$ = corrected weight, and $ES'$ = mean corrected $d$. The overall weighted mean difference effect size provides a conclusive answer as to potential differences in job satisfaction between contingent workers and their permanent counterparts.

Differences between groups must be interpreted in light of influential studies. To examine the impact of studies with large sample sizes, analyses were run to identify potential outliers. Identifying outliers in meta-analyses is a complicated and problematic process (Hunter & Schmidt, 2004). To determine how studies with large sample sizes influenced the results, studies with 10,000 or more participants (approximately five percent of the total sample size) were analyzed. Four studies in particular (Kaiser, 2002, $k = 12, 14, 17, 18$) produced extremely large amounts when the corrected weights were multiplied by mean corrected $d$s (i.e., $w' \times ES'$). Results were run with and without these exceptionally influential primary studies.
Because the extant literature reports inconsistent and inconclusive findings, moderator analyses were run to account for substantive differences among groups. The $Q$ statistic was calculated to test for homogeneity. The $Q$ statistic tests whether we can reasonably assume that all of the effect sizes are estimating the same population mean. The $Q$ statistic is calculated according to the following,

$$Q = \sum \left( w' \times ES' \right)^2 - \frac{\left[ \sum \left( w' \times ES' \right)^2 \right]^2}{\sum w'},$$

(1.5)

where $Q =$ test for homogeneity, $w' =$ corrected weight, and $ES' =$ mean corrected $d$. If the $Q$ statistic suggests that the groups are heterogeneous, moderation analysis may be run by either dividing the primary studies into subsets or correlating characteristics of the primary studies with effect sizes. The subset method will be used because it is suggested over the correlation method (Hunter & Schmidt, 2004).

**Results**

The results indicate that the overall weighted mean difference effect size is $\overline{ES} = 0.20$. The direction of the effect size is in support of hypothesis one. Hypothesis one predicted that permanent employees will have higher job satisfaction than contingent workers. Hence, hypothesis one is supported because contingent workers are more satisfied than permanent employees. In terms of the magnitude of effects sizes, mean differences of .20 are considered to be small (Lipsey & Wilson, 2001). Thus, there is a small mean difference in job satisfaction between contingent workers and permanent employees.

To test if the effect size was significant, a confidence interval was computed at $\alpha = .05$. The upper and lower bounds of the confidence interval were calculated according to,

$$CI = \overline{ES} \pm z \times SE,$$

(1.6)

where $CI =$ confidence interval, $\overline{ES} =$ overall weighted mean difference effect size, $z =$ z-score for the confidence interval of interest, and $SE =$ standard error. There is a 95% certainty that the population mean is between 0.19 and 0.22. Because the interval excludes zero, the effect size is significant at $p < .05$.

After testing the significance of the effect size, the $Q$ statistic was calculated to test for homogeneity. The calculated statistic was $Q = 3571.55 \ (df = 59, \ p < .001)$. Because the statistic is statistically significant, the effect sizes are heterogeneous. Due to an excessively large $Q$ statistic, the data were analyzed to account for any studies that were unduly influencing the results. Several studies, Kaiser (2002, $k = 12, 14, 17, 18$) had particularly large sample sizes and mean differences, in comparison to the other studies, and were weighted much higher. To determine if the effect sizes of these studies differed from the rest of the primary studies, all studies were categorized into two groups to analyze excess between-study variability. Table 2 reports the effect sizes and $Q$ statistic of each group. As shown in Table 2, the effect sizes between the two groups are quite different. The magnitude of the effects size for the influential group may be considered medium according to Cohen’s criteria, whereas the difference in effect size for the remaining studies is significant but not hugely substantive. Hence, there is still support for hypothesis one, however by excluding influential studies, the mean difference between contingent workers and their permanent counterparts is particularly small. When the influential studies are separated from the remaining primary studies, there is a reduction in variance within the subsets, as indicated by lower $Q$ statistics. However, the $Q$ statistic is still significant ($p < .001$) which shows that the subset of remaining primary studies is not homogeneous. Because there is a large degree of variability among the remaining primary studies, there are other potential moderators present.
### Table 1

**Meta-Analysis of Permanent Employees and Contingent Workers’ Job Satisfaction**

<table>
<thead>
<tr>
<th>$k$</th>
<th>Citation (Year)</th>
<th>$N$</th>
<th>Permanent $N$</th>
<th>Mean (SD)</th>
<th>Contingent $N$</th>
<th>Mean (SD)</th>
<th>$\alpha$</th>
<th>Mean Observed $d$</th>
<th>Mean Corrected $d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Allan &amp; Sienko (1997)</td>
<td>197</td>
<td>149</td>
<td>4.90 (1.09)</td>
<td>48</td>
<td>5.00 (1.09)</td>
<td>0.82</td>
<td>-0.09</td>
<td>-0.11</td>
</tr>
<tr>
<td>2</td>
<td>Feather &amp; Rauter (2004)</td>
<td>154</td>
<td>101</td>
<td>4.84 (1.21)</td>
<td>53</td>
<td>5.10 (0.92)</td>
<td>0.76</td>
<td>-0.24</td>
<td>-0.32</td>
</tr>
<tr>
<td>3</td>
<td>Galup et al. (1997)</td>
<td>99</td>
<td>85</td>
<td>4.59 (1.20)</td>
<td>14</td>
<td>5.20 (0.93)</td>
<td>0.82</td>
<td>-0.52</td>
<td>-0.64</td>
</tr>
<tr>
<td>4</td>
<td>de Graaf-Zijl (2005)</td>
<td></td>
<td>25883</td>
<td>4.76 (0.87)</td>
<td>2428</td>
<td>4.69 (0.95)</td>
<td>0.80</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>5</td>
<td>Guest &amp; Clinton (2006)</td>
<td>642</td>
<td>482</td>
<td>3.56 (1.02)</td>
<td>160</td>
<td>3.80 (0.97)</td>
<td>0.83</td>
<td>-0.24</td>
<td>-0.29</td>
</tr>
<tr>
<td>6</td>
<td>Kaiser (2002) - Austria</td>
<td>10019</td>
<td>5009</td>
<td>4.97 (1.02)</td>
<td>5009</td>
<td>4.99 (0.95)</td>
<td>0.80</td>
<td>-0.02</td>
<td>-0.03</td>
</tr>
<tr>
<td>7</td>
<td>Kaiser (2002) - Belgium</td>
<td>10019</td>
<td>5009</td>
<td>4.76 (1.02)</td>
<td>5009</td>
<td>4.62 (0.95)</td>
<td>0.80</td>
<td>-0.05</td>
<td>-0.07</td>
</tr>
<tr>
<td>8</td>
<td>Kaiser (2002) - Denmark</td>
<td>10019</td>
<td>5009</td>
<td>4.57 (1.02)</td>
<td>5009</td>
<td>4.36 (0.95)</td>
<td>0.80</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>9</td>
<td>Kaiser (2002) - Finland</td>
<td>10019</td>
<td>5009</td>
<td>4.43 (1.02)</td>
<td>5009</td>
<td>4.32 (0.95)</td>
<td>0.80</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>10</td>
<td>Kaiser (2002) - France</td>
<td>10019</td>
<td>5009</td>
<td>4.39 (1.02)</td>
<td>5009</td>
<td>4.32 (0.95)</td>
<td>0.80</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>11</td>
<td>Kaiser (2002) - Germany</td>
<td>10019</td>
<td>5009</td>
<td>4.11 (1.02)</td>
<td>5009</td>
<td>3.24 (0.95)</td>
<td>0.80</td>
<td>0.88</td>
<td>1.10</td>
</tr>
<tr>
<td>12</td>
<td>Kaiser (2002) - Greece</td>
<td>10019</td>
<td>5009</td>
<td>4.65 (1.02)</td>
<td>5009</td>
<td>4.41 (0.95)</td>
<td>0.80</td>
<td>0.24</td>
<td>0.30</td>
</tr>
<tr>
<td>13</td>
<td>Kaiser (2002) - Ireland</td>
<td>10019</td>
<td>5009</td>
<td>4.06 (1.02)</td>
<td>5009</td>
<td>3.32 (0.95)</td>
<td>0.80</td>
<td>0.75</td>
<td>0.94</td>
</tr>
<tr>
<td>14</td>
<td>Kaiser (2002) - Italy</td>
<td>10019</td>
<td>5009</td>
<td>4.76 (1.02)</td>
<td>5009</td>
<td>4.99 (0.95)</td>
<td>0.80</td>
<td>-0.23</td>
<td>-0.29</td>
</tr>
<tr>
<td>15</td>
<td>Kaiser (2002) - Luxembourg</td>
<td>10019</td>
<td>5009</td>
<td>4.82 (1.02)</td>
<td>5009</td>
<td>4.72 (0.95)</td>
<td>0.80</td>
<td>0.10</td>
<td>0.13</td>
</tr>
<tr>
<td>16</td>
<td>Kaiser (2002) - Netherlands</td>
<td>10019</td>
<td>5009</td>
<td>3.98 (1.02)</td>
<td>5009</td>
<td>3.63 (0.95)</td>
<td>0.80</td>
<td>0.35</td>
<td>0.44</td>
</tr>
<tr>
<td>17</td>
<td>Kaiser (2002) - Portugal</td>
<td>10019</td>
<td>5009</td>
<td>4.48 (1.02)</td>
<td>5009</td>
<td>4.07 (0.95)</td>
<td>0.80</td>
<td>0.42</td>
<td>0.52</td>
</tr>
<tr>
<td>18</td>
<td>Kaiser (2002) - Spain</td>
<td>10019</td>
<td>5009</td>
<td>4.31 (1.02)</td>
<td>5009</td>
<td>4.26 (0.95)</td>
<td>0.80</td>
<td>0.05</td>
<td>0.06</td>
</tr>
<tr>
<td>19</td>
<td>Krausz et al. (1995)</td>
<td>220</td>
<td>134</td>
<td>3.30 (1.03)</td>
<td>86</td>
<td>3.97 (0.83)</td>
<td>0.86</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>21</td>
<td>Maynard et al. (2006)</td>
<td>227</td>
<td>178</td>
<td>4.09 (1.47)</td>
<td>49</td>
<td>3.62 (1.27)</td>
<td>0.73</td>
<td>0.46</td>
<td>0.62</td>
</tr>
<tr>
<td>22</td>
<td>McDonald &amp; Makin (2000)</td>
<td>145</td>
<td>102</td>
<td>4.27 (1.42)</td>
<td>43</td>
<td>5.84 (1.25)</td>
<td>0.86</td>
<td>-1.14</td>
<td>-1.33</td>
</tr>
<tr>
<td>23</td>
<td>Origo &amp; Pagani (2008) - Denmark</td>
<td>1000</td>
<td>913</td>
<td>5.58 (1.02)</td>
<td>87</td>
<td>5.48 (0.95)</td>
<td>0.80</td>
<td>0.10</td>
<td>0.12</td>
</tr>
<tr>
<td>24</td>
<td>Origo &amp; Pagani (2008) - Finland</td>
<td>1000</td>
<td>904</td>
<td>5.21 (1.02)</td>
<td>96</td>
<td>4.87 (0.95)</td>
<td>0.80</td>
<td>0.34</td>
<td>0.42</td>
</tr>
<tr>
<td>25</td>
<td>Origo &amp; Pagani (2008) - Sweden</td>
<td>1000</td>
<td>916</td>
<td>5.37 (1.02)</td>
<td>84</td>
<td>5.01 (0.95)</td>
<td>0.80</td>
<td>0.36</td>
<td>0.44</td>
</tr>
<tr>
<td>26</td>
<td>Origo &amp; Pagani (2008) - Netherlands</td>
<td>1000</td>
<td>906</td>
<td>5.67 (1.02)</td>
<td>94</td>
<td>5.24 (0.95)</td>
<td>0.80</td>
<td>0.43</td>
<td>0.54</td>
</tr>
<tr>
<td>27</td>
<td>Origo &amp; Pagani (2008) - Austria</td>
<td>1000</td>
<td>956</td>
<td>5.23 (1.02)</td>
<td>44</td>
<td>4.88 (0.95)</td>
<td>0.80</td>
<td>0.34</td>
<td>0.43</td>
</tr>
<tr>
<td>28</td>
<td>Origo &amp; Pagani (2008) - Belgium/Luxembourg</td>
<td>1600</td>
<td>1453</td>
<td>5.27 (1.02)</td>
<td>147</td>
<td>5.06 (0.95)</td>
<td>0.80</td>
<td>0.20</td>
<td>0.25</td>
</tr>
<tr>
<td>29</td>
<td>Origo &amp; Pagani (2008) - France</td>
<td>1000</td>
<td>863</td>
<td>4.77 (1.02)</td>
<td>137</td>
<td>4.29 (0.95)</td>
<td>0.80</td>
<td>0.47</td>
<td>0.59</td>
</tr>
<tr>
<td>30</td>
<td>Origo &amp; Pagani (2008) - Germany</td>
<td>2000</td>
<td>1858</td>
<td>5.28 (1.02)</td>
<td>142</td>
<td>4.68 (0.95)</td>
<td>0.80</td>
<td>0.58</td>
<td>0.73</td>
</tr>
<tr>
<td>31</td>
<td>Origo &amp; Pagani (2008) - Greece</td>
<td>1000</td>
<td>836</td>
<td>4.83 (1.02)</td>
<td>164</td>
<td>4.27 (0.95)</td>
<td>0.80</td>
<td>0.61</td>
<td>0.76</td>
</tr>
<tr>
<td>32</td>
<td>Origo &amp; Pagani (2008) - Italy</td>
<td>1000</td>
<td>896</td>
<td>4.78 (1.02)</td>
<td>104</td>
<td>4.57 (0.95)</td>
<td>0.80</td>
<td>0.21</td>
<td>0.26</td>
</tr>
<tr>
<td>33</td>
<td>Origo &amp; Pagani (2008) - Portugal</td>
<td>1000</td>
<td>821</td>
<td>4.88 (1.02)</td>
<td>179</td>
<td>4.43 (0.95)</td>
<td>0.80</td>
<td>0.45</td>
<td>0.56</td>
</tr>
<tr>
<td>$k$</td>
<td>Citation (Year)</td>
<td>$N$</td>
<td>Permanent $N$</td>
<td>Mean (SD)</td>
<td>Contingent $N$</td>
<td>Mean (SD)</td>
<td>$\alpha$</td>
<td>Mean Observed $d$</td>
<td>Mean Corrected $d$</td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
<td>-----</td>
<td>--------------</td>
<td>-----------</td>
<td>--------------</td>
<td>-----------</td>
<td>--------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>34</td>
<td>Origo &amp; Pagani (2008)-Spain$^{gm}$</td>
<td>1000</td>
<td>795</td>
<td>4.90 (1.02)</td>
<td>205</td>
<td>4.30 (0.95)</td>
<td>0.80</td>
<td>0.59</td>
<td>0.74</td>
</tr>
<tr>
<td>35</td>
<td>Origo &amp; Pagani (2008)-Ireland$^{gm}$</td>
<td>300</td>
<td>261</td>
<td>5.00 (1.02)</td>
<td>39</td>
<td>4.67 (0.95)</td>
<td>0.80</td>
<td>0.33</td>
<td>0.41</td>
</tr>
<tr>
<td>36</td>
<td>Origo &amp; Pagani (2008)-UK$^{gm}$</td>
<td>1300</td>
<td>1152</td>
<td>5.16 (1.02)</td>
<td>148</td>
<td>4.24 (0.95)</td>
<td>0.80</td>
<td>0.90</td>
<td>1.13</td>
</tr>
<tr>
<td>37</td>
<td>VandenHeuvel &amp; Wooden (1997)$^{gs}$</td>
<td>1171</td>
<td>967</td>
<td>3.20 (1.02)</td>
<td>204</td>
<td>3.39 (0.95)</td>
<td>0.80</td>
<td>-0.19</td>
<td>-0.23</td>
</tr>
<tr>
<td>38</td>
<td>Sias et al. (1997)</td>
<td>78</td>
<td>36</td>
<td>4.16 (0.74)</td>
<td>42</td>
<td>4.44 (0.66)</td>
<td>0.81</td>
<td>-0.40</td>
<td>-0.50</td>
</tr>
<tr>
<td>39</td>
<td>Tak &amp; Lim (2008)$^{pl}$</td>
<td>302</td>
<td>161</td>
<td>3.09 (0.72)</td>
<td>141</td>
<td>2.60 (0.72)</td>
<td>0.82</td>
<td>0.68</td>
<td>0.83</td>
</tr>
<tr>
<td>40</td>
<td>Wooden &amp; Warren (2004)$^{gr}$</td>
<td>13159</td>
<td>8698</td>
<td>7.59 (2.09)</td>
<td>4421</td>
<td>7.54 (1.80)</td>
<td>0.80</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>41</td>
<td>Ford (2001)$^{b}$</td>
<td>333</td>
<td>259</td>
<td>3.04 (0.69)</td>
<td>74</td>
<td>3.17 (0.65)</td>
<td>0.80</td>
<td>-0.19</td>
<td>-0.24</td>
</tr>
<tr>
<td>42</td>
<td>McLaren &amp; Dupuis (2006)$^{gs}$</td>
<td>362</td>
<td>340</td>
<td>4.60 (1.02)</td>
<td>22</td>
<td>4.82 (0.95)</td>
<td>0.80</td>
<td>-0.22</td>
<td>-0.27</td>
</tr>
<tr>
<td>43</td>
<td>De Cuyper &amp; De Witte (2005)</td>
<td>656</td>
<td>444</td>
<td>3.92 (0.68)</td>
<td>212</td>
<td>4.12 (0.64)</td>
<td>0.82</td>
<td>-0.30</td>
<td>-0.37</td>
</tr>
<tr>
<td>44</td>
<td>Moshavi &amp; Terborg (2002)</td>
<td>136</td>
<td>60</td>
<td>3.47 (0.58)</td>
<td>76</td>
<td>3.69 (0.54)</td>
<td>0.78</td>
<td>-0.39</td>
<td>-0.51</td>
</tr>
<tr>
<td>45</td>
<td>De Cuyper &amp; De Witte (2006a)$^{iu}$</td>
<td>544</td>
<td>391</td>
<td>4.04 (0.64)</td>
<td>148</td>
<td>4.04 (0.66)</td>
<td>0.84</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>46</td>
<td>Werthebach et al. (2000)$^{k}$</td>
<td>133</td>
<td>85</td>
<td>5.4 (1.83)</td>
<td>48</td>
<td>6.30 (1.83)</td>
<td>0.77</td>
<td>-0.49</td>
<td>-0.64</td>
</tr>
<tr>
<td>47</td>
<td>De Cuyper &amp; De Witte (2006a)$^{k}$</td>
<td>560</td>
<td>371</td>
<td>3.91 (0.69)</td>
<td>189</td>
<td>4.14 (0.64)</td>
<td>0.83</td>
<td>-0.34</td>
<td>-0.41</td>
</tr>
<tr>
<td>48</td>
<td>De Cuyper &amp; De Witte (2008)$^{j}$</td>
<td>623</td>
<td>352</td>
<td>3.93 (0.71)</td>
<td>271</td>
<td>4.12 (0.77)</td>
<td>0.82</td>
<td>-0.26</td>
<td>-0.31</td>
</tr>
<tr>
<td>49</td>
<td>Mauno et al. (2005)</td>
<td>725</td>
<td>578</td>
<td>4.30 (0.87)</td>
<td>147</td>
<td>4.55 (0.73)</td>
<td>0.91</td>
<td>-0.30</td>
<td>-0.33</td>
</tr>
<tr>
<td>50</td>
<td>De Witte &amp; Naswall (2003)-Belgium$^{gt}$</td>
<td>1120</td>
<td>1042</td>
<td>3.85 (0.94)</td>
<td>67</td>
<td>3.82 (1.01)</td>
<td>0.80</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>51</td>
<td>De Witte &amp; Naswall (2003)-Netherlands$^{gt}$</td>
<td>799</td>
<td>547</td>
<td>3.83 (0.81)</td>
<td>64</td>
<td>3.98 (0.72)</td>
<td>0.80</td>
<td>-0.19</td>
<td>-0.24</td>
</tr>
<tr>
<td>52</td>
<td>De Witte &amp; Naswall (2003)-Italy$^{gt}$</td>
<td>476</td>
<td>367</td>
<td>3.49 (1.19)</td>
<td>45</td>
<td>3.91 (1.10)</td>
<td>0.80</td>
<td>-0.35</td>
<td>-0.44</td>
</tr>
<tr>
<td>53</td>
<td>De Witte &amp; Naswall (2003)-Sweden$^{gt}$</td>
<td>1501</td>
<td>1210</td>
<td>3.82 (1.05)</td>
<td>257</td>
<td>3.75 (1.04)</td>
<td>0.80</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>54</td>
<td>Conn (1997)$^{b}$</td>
<td>133</td>
<td>103</td>
<td>4.26 (0.88)</td>
<td>30</td>
<td>4.38 (0.55)</td>
<td>0.88</td>
<td>-0.15</td>
<td>-0.17</td>
</tr>
<tr>
<td>55</td>
<td>Warner (2001)$^{pv}$</td>
<td>374</td>
<td>248</td>
<td>4.75 (0.74)</td>
<td>126</td>
<td>4.63 (0.78)</td>
<td>0.80</td>
<td>0.16</td>
<td>0.20</td>
</tr>
<tr>
<td>56</td>
<td>Chambel &amp; Castanheira (2007)$^{lw}$</td>
<td>438</td>
<td>204</td>
<td>4.28 (0.87)</td>
<td>234</td>
<td>3.93 (1.07)</td>
<td>0.90</td>
<td>0.36</td>
<td>0.40</td>
</tr>
<tr>
<td>57</td>
<td>Benach et al. (2002)$^{gox}$</td>
<td>18505</td>
<td>14028</td>
<td>4.46 (1.02)</td>
<td>4477</td>
<td>4.22 (0.95)</td>
<td>0.80</td>
<td>0.23</td>
<td>0.29</td>
</tr>
<tr>
<td>58</td>
<td>Guest et al. (2006)$^{l}$</td>
<td>1143</td>
<td>1020</td>
<td>3.85 (0.82)</td>
<td>123</td>
<td>3.79 (0.95)</td>
<td>0.88</td>
<td>0.07</td>
<td>0.08</td>
</tr>
<tr>
<td>59</td>
<td>Biggs &amp; Swailes (2005)$^{gr}$</td>
<td>157</td>
<td>126</td>
<td>4.39 (1.48)</td>
<td>31</td>
<td>4.07 (1.19)</td>
<td>0.84</td>
<td>0.22</td>
<td>0.26</td>
</tr>
<tr>
<td>60</td>
<td>Biggs (2003)$^{gr}$</td>
<td>232</td>
<td>136</td>
<td>4.24 (1.38)</td>
<td>96</td>
<td>4.32 (1.35)</td>
<td>0.80</td>
<td>-0.06</td>
<td>-0.07</td>
</tr>
</tbody>
</table>

**Note:** *Extremely influential studies. $k$ = number of primary studies, $N$ = total number of participants, SD = standard deviation, $\alpha$ = reliability, observed mean $d$ = observed effect size, and corrected mean $d$ = corrected effect size.*
a Reliability for job satisfaction was not provided, so it was estimated from $k = 3$ because the same scale (i.e., Hackman & Oldman, 1980) was used.
b Mean scores and SDs were given as sums. To make these numbers comparable to the other studies, each number was divided by the number of scale items.
c Weighted mean and SD of agency, fixed term, and on-call workers based on sample size.
d Study reports standard errors, however when converted to SD, number is not logical (e.g., 46.80). It seems SDs were provided.
$e$ Reliability was not reported, so it was estimated at $\alpha = 0.80$ based on Wanous et al. (1997).
f Studies $k = 6-19$ are different datasets from one article. Only the overall N was provided, which was divided by the number of studies (i.e., $140260/14=10019$).
g SDs were not provided in the study, so mean SDs for each group of worker was computed based on the SDs reported in the other studies.
h Unweighted mean for contingent workers (fixed-term and self-employed without employees).
i Weighted mean and SDs for contingent workers by volition (i.e., voluntary and non-voluntary contingent workers).
j Three different facets of satisfaction were combined (i.e., pay, promotion, and benefits) for an overall measure of job satisfaction.
k Study did not provide overall alpha and only alphas for job satisfaction facets. To be conservative, the lowest alpha provided (i.e., .73) was used.
l SDs provided by author of primary study.
m Weighted means for permanent employees (regular permanent and permanent-at-risk) and contingent workers (insecure temp and flexicure).
$n$ Job satisfaction results were given as frequencies. These frequencies were used as weights. Scale items were assigned numbers: very satisfied = 5, satisfied=3, neutral or dissatisfied= 1. To obtain a weighted mean for job satisfaction, the numbered scale items were multiplied by the weights, the results were summed, and this number was divided by one.
o Mean for contingent workers excludes category of “other self employed workers.”
p The data set reported means adjusted for main effects.
$q$ Overall SD including both groups was used for the SD for permanent employees and contingent workers because separate SDs were not provided.
r Weighted mean for contingent workers (fixed-term and casual workers).
s Job satisfaction results were given as frequencies, which were used as weights. Scale items were assigned numbers: satisfied = 5, neither=3, dissatisfied= 1. To obtain a weighted mean for job satisfaction, numbered scale items were multiplied by weights, results were summed, and this number was divided by $N$ of group.
t Means and SDs provided by author of primary study.
u Due to missing data of unidentified workers, the sum of the $N$ for permanent employees and contingent workers is not equal to the total $N$.
w Mean for permanent workers is comprised of hospital nurses and anesthesiologists.
x Job satisfaction results were given as percentages, which were used as weights. Scale items were assigned numbers: satisfied = 5 and dissatisfied= 1. To obtain a weighted mean for job satisfaction, numbered scale items were multiplied by weights and the results were summed.
y Mean for permanent workers is comprised of workers who work with temporary agency workers and those who do not.
Table 2

Moderator Analysis for Between-Group Variability of Outliers

<table>
<thead>
<tr>
<th></th>
<th>$\overline{ES}$</th>
<th>95% Confidence Interval</th>
<th>$Q$ Statistic</th>
<th>$df$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influential studies</td>
<td>0.74</td>
<td>0.71 - 0.76</td>
<td>445.36</td>
<td>3</td>
</tr>
<tr>
<td>Remaining primary studies</td>
<td>0.07</td>
<td>0.06 - 0.08</td>
<td>928.59</td>
<td>55</td>
</tr>
</tbody>
</table>

Note: $\overline{ES} =$ effect size, $df =$ degrees of freedom. Influential studies = Kaiser (2002, $k = 12, 14, 17, 18$).

To test for a moderation effect, data were first divided into subsets. If there is an influential moderator, there should be a reduction in variance and a difference in mean effect sizes between the subsets (Hunter & Schmidt, 2004). Hypothesis two predicted that, in comparison to permanent employees, temporary agency workers will experience lower job satisfaction than contractors and self-employed workers. To test hypothesis two, the primary studies were divided into subsets based on the type of worker analyzed (i.e., either temporary agency worker or contractors/self-employed workers). To be included in the analysis, primary studies either needed to investigate only one type of worker in comparison to permanent employees, or if more than one type of worker was studied, relevant information (e.g., means, standard deviations, number of participants) needed to be provided for each type of worker. The results are shown in Table 3. As predicted by hypothesis two, in comparison to permanent employees, temporary agency workers reported lower job satisfaction ($\overline{ES} = 0.31$) than contractors and self-employed workers ($\overline{ES} = 0.21$). In other words, there was a greater mean difference for temporary agency workers and permanent employees, than for contractors/self-employed workers and permanent employees. However, as indicated by the confidence intervals in Table 3, the mean difference between groups was not significant because of overlapping confidence intervals. Hence, hypothesis two is not supported.

Table 3

Moderator Analysis for Between-Group Variability based on Type of Worker

<table>
<thead>
<tr>
<th>Type of Worker</th>
<th>$k$</th>
<th>$\overline{ES}$</th>
<th>95% Confidence Interval</th>
<th>$Q$ Statistic</th>
<th>$df$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary agency</td>
<td>6</td>
<td>0.31</td>
<td>0.24 - 0.38</td>
<td>36.26</td>
<td>5</td>
</tr>
<tr>
<td>Contractors and self-employed</td>
<td>3</td>
<td>0.21</td>
<td>0.16 - 0.25</td>
<td>28.19</td>
<td>2</td>
</tr>
<tr>
<td>Direct-hire</td>
<td>9</td>
<td>0.07</td>
<td>0.05 - 0.10</td>
<td>122.64</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: $k =$ number of studies, $\overline{ES} =$ effect size, $df =$ degrees of freedom.

Hypothesis three proposed that in comparison to permanent employees, temporary agency workers will experience lower job satisfaction than direct-hire workers. As shown by Table 3, the mean difference between temporary agency workers and permanent employees ($\overline{ES} = 0.31$) is greater than for direct-hire workers and permanent employees ($\overline{ES} = 0.07$). Because the confidence intervals between temporary agency and direct-hire workers do not overlap, the difference between the groups is significant. This significant difference provides support for hypothesis three.

Other characteristics of the primary studies were also investigated to test for potential publication and measurement biases. More specifically, it was tested whether or not effect sizes differed based on the type of publication (e.g., published or unpublished) or the type of measurement (e.g., single-item or scale measures). Results suggest that effect sizes were consistent across various types of publications with
different measures of job satisfaction. Hence, potential publication and measurement biases did not create artifactual variation across studies.

Discussion

The purpose of this meta-analysis was to quantitatively summarize potential mean differences in job satisfaction between contingent workers and permanent employees. Based on social comparison theory, it was hypothesized that contingent workers’ job satisfaction would be lower than permanent employees’ job satisfaction. The results indicate that contingent workers were slightly less satisfied with their jobs than permanent employees, however when outlying primary studies were removed, the mean difference was particularly small. Permanent employees are therefore only slightly more satisfied than contingent workers. Even though the difference in job satisfaction between the groups is particularly small, the results are important because findings have been inconsistent and inconclusive until now. The results suggest that it cannot be widely assumed that contingent work leads to drastically different psychological outcomes than permanent work arrangements. Instead, some outcomes for permanent employees may only be slightly better than contingent workers.

The results also indicate that the type of worker may influence job satisfaction outcomes. Indeed, the mean difference between temporary agency workers and permanent employees was much greater than for direct-hire workers and permanent employees. In other words, when comparing permanent employees, temporary agency workers reported lower job satisfaction than direct-hire workers. The reason for this finding may be that because direct-hire workers are employed directly by firms, they may have access to the work systems in place for their permanent counterparts. As noted above, direct-hire workers are more likely to receive fringe benefits when benefits are provided to permanent employees (Lautsch, 2003). What this suggests is that extending HR practices to contingent workers may positively affect their attitudinal outcomes. In other words, when HR practices are extended to contingent workers, they likely experience higher job satisfaction. This finding is important because as mentioned previously, differences in work attitudes may influence performance outcomes (Broschak et al., 2008), citizenship behaviours (Chambel & Castanheira, 2007), and turnover (Galup et al., 2008). It is therefore in the interest of organizations to treat contingent workers in a fair and equitable manner in order to affect productivity, increase citizenship behaviours, and decrease turnover.

Although temporary agency workers reported lower job satisfaction than direct-hire workers, in comparison to permanent employees, the results were not consistent when their job satisfaction was compared with the job satisfaction of contractors/self-employed workers. Results from moderator analyses indicate that even though temporary agency workers typically receive lower compensation than permanent employees, while contractors/self-employed workers are more highly compensated, mean differences in job satisfaction are small and statistically insignificant. However, the results must be interpreted in light of the small numbers of studies for each group. For example, only three studies reported the necessary information to compare permanent employees and contractors/self-employed workers. Hence, larger sample sizes may be more able to significantly detect small mean differences. Herein lies opportunities for future research to further explore differing outcomes (e.g., job satisfaction) between various types of contingent workers.

Despite the meaningful contribution that permanent employees are only slightly more satisfied with their jobs than contingent workers, the meta-analysis is not without limitations. As a quantitative analysis, qualitative data and narrative reviews were excluded. Some data were missing and needed to be estimated (e.g., sample sizes, reliabilities, standard deviations), however many authors of primary studies were contacted and the needed information was provided. In every meta-analysis, there is always the “file-drawer problem,” where studies are conducted but not published. However, the results of four
unpublished PhD dissertations were included in the meta-analysis. Potential moderators were analyzed, however, because the primary studies investigated a wide range of topics (e.g., job characteristics, organizational commitment, job insecurity), other potential moderators could not be explored because few primary studies measured these variables.

**Conclusion**

As expected, the findings indicate that contingent workers are slightly more satisfied with their jobs than permanent employees. This finding makes an important contribution because it is in support of what has been suggested by social comparison theory. The results further advance our knowledge about job attitudes by demonstrating that permanent employees are only slightly more satisfied than contingent workers. The difference is particularly small and not likely robust given that there is much unexplained variance within which moderators may operate. Moderator analyses suggest that contingent workers are not a homogeneous group; certain types of workers (e.g., temporary agency workers) experience more unfavourable psychological outcomes than other contingent workers (e.g., direct-hire workers), when compared to permanent employees. Practical implications of this finding suggest that temporary staffing firms and other organizations may positively affect workers’ job attitudes by extending HR practices (e.g., benefits) to contingent workers. Even though there are additional costs to be borne through such activities, these costs are far outweighed by the positive impact on productivity, turnover, and citizenship behaviours. Thus, it is in an organization’s best interest to make the outcomes between permanent employees and contingent workers more comparable.

**References**


*Studies included in meta-analysis
META-ANALYSIS OF JOB SATISFACTION: ARE PERMANENT EMPLOYEES MORE SATISFIED THAN CONTINGENT WORKERS?¹

Concerns remain that contingent workers experience greater adverse psychological outcomes than permanent employees, however findings remain inconclusive until now. Contingent work is defined as “any job in which an individual does not have an explicit or implicit contract for long-term employment or one in which the minimum hours worked can vary in a nonsystematic manner” (Polivka & Nardone, 1989, p.11). The extant literature has widely assumed that contingent work arrangements are more unfavourable than permanent work arrangements (Wooden & Warren, 2004). Persistent concerns remain that contingent workers may experience more adverse psychological outcomes than permanent employees (De Cuyper et al., 2008). These unfavourable psychological outcomes stem from contingent workers’ sense of deprivation for not receiving similar outcomes to permanent employees (De Cuyper et al., 2008). More specifically, contingent workers often receive lower pay and fewer benefits (Kalleberg, 2000), infrequently participate in career planning and training (Virtanen, Kivimaki, Virtanen, Elovainio, & Vahtera, 2003), typically hold lower ranks in their workplaces (Rogers & Henson, 1997), and are often targets of unjust treatment (Boyce, Ryan, Imus, & Morgeson, 2007). Theories (e.g., social comparison theory) have been used to explain why contingent workers may experience unfavourable psychological outcomes (e.g., lower job satisfaction).

However, the research on contingent workers and permanent employees’ job satisfaction reveals mixed findings (Connelly & Gallagher, 2004). Specifically, some studies suggest that contingent workers experience higher levels of job satisfaction than permanent employees (e.g., McDonald & Makin, 2000). Various theories (e.g., expectancy theory, psychological contracts) have been used to explain the findings that contingent workers are more satisfied than permanent employees with their jobs (e.g., De Cuyper et al., 2008; Hulin & Glomb, 1999). Nonetheless, other empirical findings have indicated that there is no difference in job satisfaction between contingent workers and permanent employees (e.g., Feather & Rauter, 2004). The mixed findings indicate that there may be moderators present. Hence, it is important to test for main effect differences between these two groups to determine if the variance is mainly attributable to measurement and statistical artifacts or substantive differences between the groups.

Meta-analytic results of group differences in job satisfaction from 60 primary studies (N = 226,687) suggest that contingent workers experience slightly lower satisfaction. The results indicate that the overall weighted mean difference effect size is $\bar{ES} = 0.20$, however when influential studies are excluded, the effect size is $\bar{ES} = 0.07$. Moderator analyses indicate that the type of worker may influence job satisfaction outcomes. In particular, when comparing permanent employees, temporary agency workers reported lower job satisfaction than direct-hire workers. This finding suggests that it may be in the best interest of organizations extend HR practices to contingent workers, so as to influence their job attitudes, and ultimately affect productivity, increase citizenship behaviours, and decrease turnover. Herein lies opportunities for future research to further explore differing outcomes (e.g., job satisfaction) between various types of contingent workers.

¹ The author would like to thank Dr. C.E. Connelly for her helpful guidance, Dr. R. Hackett for his comments on an earlier draft, and the authors of the primary studies who kindly provided additional requested information.