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Use of Integrity Tests May Reduce Workers' Compensation Losses

Celina Oliver
Oregon Health & Science University

Maggie Shafiro
Morehead Associates

Peter Bullard
American Tescor, Inc.

Jay C. Thomas
Pacific University

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Description

Purpose: The purpose of this study was to examine whether the use of integrity tests in personnel selection would reduce the cost of worker's compensation claims in organizations representing four different industries.

Design/Methodology/Approach: Four large samples representing different industries (total n = 33418) allowed a comparison of employees (total n = 10929) hired once the organization implemented an integrity test as part of the selection system with employees for whom the integrity test was not used (total n = 22489). Test scores of employees making workers compensation claims were compared with those not making claims. In addition, cost of claims was compared across groups.

Findings: In all four industries a higher proportion of the unscreened group of employees made worker's compensation claims than in the screened group and the dollar value per claim was higher in the unscreened group.

Implications: Introducing integrity testing into the selection process can result in fewer worker's compensation claims. Such claims as are made by members of the screened group are for less money than claims by unscreened group members.

Originality/Value: Using a research approach that goes beyond traditional validation methods, this study showed that integrity testing can result in substantial savings across multiple industries.

Disciplines

Mental and Social Health | Psychiatry and Psychology | Psychology

Comments

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Use of Integrity Tests May Reduce Workers' Compensation Losses

Celina Oliver, Ph.D.

Oregon Health & Science University, Portland, Oregon, USA

Maggie Shafiro, Ph.D.

Morehead Associates, Charlotte, North Carolina, USA

Peter Bullard, Ph.D.

American Tesco, Inc., Beaverton, Oregon, USA

Jay C. Thomas, Ph.D., ABPP

School of Professional Psychology, Pacific University, 190 SE 8th Avenue, Hillsboro, OR 97123, USA

Abstract

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Keywords: Integrity testing, Worker's compensation, Personnel selection, Safety

Introduction

Employee injuries in the U.S. are a sizeable problem costing employers billions of dollars annually, and the problem appears to be growing (Braunstein, 2003). According to Robert Hartwig, the chief economist at the Insurance Information Institute, the average cost of workers' compensation insurance rose 50% over a period of just 3 years (Treaster, 2003, June 23). Clearly, exploring ways to minimize workplace injuries can benefit employers by reducing compensation losses, and employees by helping to safeguard workers' health and productivity.

One way to reduce injuries in the workplace is through the use of integrity tests. Integrity tests are typically used to predict which applicants may be predisposed to engage in counterproductive behaviors such as theft, drug use, aggression, or violence. Early research results also suggest that employing integrity testing can help reduce the frequency and severity of worker's compensation claims (Jones & Wuebker, 1988), but this remains an under-researched topic, particularly in recent years. While a large number of studies have explored the relationship between integrity tests and counterproductive behaviors, there is currently limited research on the connection between these tests and workplace injuries that result in workers' compensation claims. The purpose of the present study is to provide research evidence supporting the utility of integrity tests such as the Tesco Survey in the reduction of workplace accidents and the costs associated with them.

Integrity Tests and Workplace Accidents

Integrity tests are typically used to screen out applicants who are predisposed to engage in counterproductive or unsafe behaviors in the workplace (Ones & Viswesvaran, 1998). There are two main categories of integrity tests: overt and covert. Overt tests ask directly for information about counterproductive behaviors. The more covert personality based measures assess personality traits linked to counterproductive behaviors (Sackett & Wanek, 1996). Overt integrity tests have been especially useful in the prediction of theft (e.g., Bernardin & Cooke, 1993), while personality based inventories measure traits linked to a variety of employee activities called "organizational delinquency." Both types of integrity tests have been shown to predict such behaviors as substance abuse, assault, absenteeism, grievances, and overall job performance (Ones, Viswesvaran, & Schmidt, 1993, 2003; Sackett & Wanek, 1996; Schmidt & Hunter, 1998).

Previous research suggests there is also a connection between the kinds of high-risk behaviors typically assessed by integrity tests and increased likelihood of workplace injuries. For example, Jones and Wuebker (1988) found that the PSI Honesty scale, which measures workers' tendency towards stealing, was related to safety attitudes. Similarly, in an unpublished study, Wuebker found that safety attitude scores were significantly correlated with measures of dishonesty, violence, and drug abuse potential. She also found that safety beliefs appear to be related to a more general counterproductivity factor. That is, employees who are more at risk for accidents also appear to be more likely to defy company policies, damage property, engage in on-the-job drug use, etc.

A general counterproductivity factor can be found in the literature on social maladjustment, characterized by sociopathic tendencies including aggressiveness, hostility, violence, impulsivity and various behavioral issues such as serious rule violations (e.g., law breaking), interpersonal difficulties, and problem drinking. Other research evidence suggests that when integrity tests screen out highly aggressive applicants, the likelihood of a violent episode occurring at work is reduced, allowing employers to avoid the occurrence of some of the most emotionally wrenching and financially costly injuries (Wolf, Corro, & Shyong, 2000).

More generally, integrity tests can help employers to avoid hiring individuals who possess personal characteristics that may predispose them to accident involvement, as some workers seem to consistently experience more accident-related health problems than others (e.g., McKenna 1983; McLeod, Stockwell, Rooney, Stevens, Phillips, & Jelinek, 2003; Visser, Pijl, Stolk, Neeleman, & Rosmalen 2007).

Although researchers have not reached a consensus regarding the underlying cause of “accident proneness”, two predictors of interest in this context have been identified: conscientiousness and social deviance. A lower incidence of workplace accidents has been observed among workers high on conscientiousness (Jones & Wuebker, 1988; Murphy & Lee, 1994) as well as a low-occurrence of risk-taking behaviors (Dahlback, 1991). In contrast, social deviance is characterized by behaviors such as substance abuse, vandalism, theft, and aggression (Dahlback, 1991; Donovan & Jessor, 1985; Frone, 1998; Meadows, Stradling, & Lawson, 1998; Zamboanga, Carlo, & Raffaelli, 2004). In a review describing the personality characteristics of “accident involved employees,” Hansen (1988) notes “many studies have shown that aggression appears to be part of a constellation of traits...that are consistently associated with accidents and injuries” (p. 352). He discusses findings from numerous studies linking social maladjustment with higher levels of workplace injuries. Hansen (1989) later developed and tested a causal model of the accident process. His results indicated that general social maladjustment directly influenced accident consistency (number of accidents during a specified period).

Finally, there is research evidence that another integrity factor, substance abuse, represents an especially pernicious influence in the workplace. The U. S. Drug Enforcement Administration (DEA 2006) reports that substance abusers are 60% more likely to be involved in a workers’ compensation claim than those who are not while the U.S. Department of Labor has estimated that on-the-job substance abuse costs American employers one hundred billion dollars (\$100,000,000,000) annually due to lost productivity, theft, accidents, and additional health-care costs (U. S. Bureau of Labor Statistics 2006). Similarly, several researchers outside the government have noted that substance abuse is predictive of workplace injuries (Frone, 1998; Leigh, 1996; Ragland et al., 2002). Integrity tests can be used as another screening tool to identify substance abuse among job applicants.

In sum, research evidence from several sources suggests that integrity tests can be a useful tool to assist employers in hiring individuals who are less inclined to engage in behaviors that are dangerous,

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aggressive, or generally counterproductive. Because integrity tests tap personality traits related to conscientiousness and socially deviant behavior patterns, they help to screen out applicants most likely to experience accidents that could have been avoided (Hogan & Brinkmeyer, 1997; Murphy, 2000; Ones & Viswesvaran, 1998, 2001).

Integrity Testing and Injuries: Previous Research

Jones and Wuebker (1988) review evidence from a number of criterion related validity studies examining the impact of an overt integrity test battery (the PSI-3) or one of its subscales (safety-control) on workplace injuries. The safety subscale discriminates between people who believe accidents are a result of factors beyond their control (i.e., those with an external locus of control) and individuals who believe accidents are preventable if you are careful (i.e., those with an internal locus of control). Jones and Wuebker describe findings from six studies showing a relationship between safety locus of control and accident-related criteria across samples drawn from a variety of populations and two studies examining the relationship between the full integrity test and workplace accidents.

Jones and Wuebker (1988) report that researchers have found the safety locus of control subscale predicted accident frequency among hospital and hotel workers, accident severity in college student and hotel employee samples, cost of injuries for hospital employees, previous accident involvement among hotel workers, grocery store employees, bus drivers, and previous convictions for unsafe driving among bus drivers. Most correlations were moderately strong, ranging from a multiple R of .38 for bus drivers involved in accidents resulting in fatalities to $\phi = .54$ for severity of accident histories among college students.

Jones and Wuebker also discuss two time-series analyses designed specifically to assess the impact of the full PSI integrity test on worker injuries. The first study, conducted by Jones and Steffy (1986), compared the average insurance losses paid to employees of a trucking firm during two time periods. They looked at losses in Phase A, a 23-month period before using the PSI-3S to screen job applicants, and in Phase B, an 18-month period during which over 300 applicants were PSI-3S screened. They did not indicate how many of the screened applicants were actually hired, but they report a significant reduction in paid losses in Period B. In the second study, Jones and Wuebker (1988) examined the injury records of 80 dairy employees who passed the PSI-3S before being hired in the first quarter of 1985. Then, the accident rates in 1983, 1984, 1985, and 1986 were compared. As expected, they found the lowest rate of injury occurred in 1986. The authors stated that no other safety initiative was implemented during these years and that the observed differences were attributable to the applicant screening.

The results of the studies reviewed by Jones and Wuebker (1988) highlight the utility of integrity testing to help reduce workplace injuries. However, these studies compared claim costs after implementation of the integrity test with claim costs in prior and subsequent years, rather than examining the difference in claims between "integrity" screened employees and unscreened employees working in the same time period. In contrast, a recent validation study of the Tesco Survey by Sturman and Sherwyn (2007) examined the financial value added by incorporating an integrity test into the hiring process at a hotel chain. As with the validation studies discussed above, the addition of an integrity test was the only change made in the hiring process. They examined the relative frequency and cost per claim for the screened and unscreened groups (i.e., newly hired employees vs. veteran employees) working at the same time. They found that unscreened employees filed proportionally

more claims (per 100 workers). Further, they noted that unscreened employees were more likely to incur claim costs in excess of \$2,000. Thus, existing evidence suggests that the simple implementation of an integrity test to the selection process can yield significant positive results for an organization.

Present Study

The present study contributes to the literature concerning the effects of integrity testing on compensation claims by examining the impact of using the Tesco Survey to screen applicants on accident claim cost and frequency across organizations from several different industries. It was hypothesized that people who scored in the low risk range on the Tesco Survey, an overt integrity test employing a behavioral risk assessment, would file fewer claims and incur lower average workers' compensation costs when compared to the average cost of claims from unscreened workers. Similar to the time-series studies described by Jones and Wuebker (1988), no analyses were conducted on the individual subscales. Based upon the evidence reviewed above, we hypothesized the following:

Hypothesis 1: Workers who have taken and passed the Tesco Survey will file proportionately fewer claims than unscreened workers.

Hypothesis 2: The average "per employee" claim cost (total cost of claims divided by total number of employees) will be lower for the screened group than for the unscreened group.

Hypothesis 3: Relative to unscreened workers, the average "per claimant" claim cost (total cost to claims divided by total number of claimants) will be lower among workers who have passed an integrity test prior to hire.

Method

Participants

Four large samples representing different industries were included in the present research. Each sample is separately described below. None of the participating organizations supplied demographic data for their employees. Consequently, the effects of age, sex, and race were not examined. The study period for each organization began with the introduction of the new integrity test. Study duration varied across organizations, ranging from 12 to 34 months, depending on the client's preferences. Data collection periods for each organization are listed below.

Sample 1: The first participating company, a state auto club, is one of the oldest and largest auto clubs in the U.S. They provided a total of 6,165 employees (4,685 unscreened and 1,480 screened) for the study. In addition to roadside assistance, this organization operates as a travel agency and financial services company, providing both credit cards and insurance to its more than six million members. Most of the jobs entail office work. In this sample, 328 of the unscreened employees (7%) filed claims, while 23 of the screened employees (1.55%) filed claims. The data was collected over a 1 year period beginning 5/1/02 and ending on 5/1/03.

Sample 2: This sample consisted of 7,108 employees (6,558 unscreened and 550 screened) from a Massachusetts based national nursing home chain. This organization owns and manages senior living communities. They offer levels of care ranging from structured living to independent living. The work is often physical and can involve everything from room cleaning to helping lift a senior citizen out of bed. Among the unscreened employees, 503 (7.67%) had claims, while 12 (2.18%) who were screened filed claims. Data was collected over a period of 20 months beginning on 10/1/02 and ending on 5/31/04.

Sample 3: This sample consisted of 11,659 employees (8,603 unscreened and 3,056 screened) from a food processing company. This company is one of the largest hog producers in the U.S., and operates hog slaughtering plants in several states. Among the unscreened employees, 497 (5.78%) had claims, while 73 (2.39%) among screened employees had claims. Data was collected over a 13 month period beginning 11/1/01 and ending 11/30/02.

Sample 4: The final sample included a total of 8,486 employees (2,643 unscreened and 5,843 screened) from a large U.S. multimedia company. This company reproduces music and movies for the home entertainment market. Workers assemble, pack, and ship products in a plant setting. Among the employees who were unscreened, 315 (11.92%) had claims, while 202 (3.46%) of the screened employees filed claims. Data was collected over a 33 month period beginning 9/1/01 and ending 5/31/04.

Measures

Integrity Test. The Tesco Survey (American Tesco, 1991) is an overt integrity test. It is comprised of 73 questions (60 substantive questions and 13 “filler” items exploring issues related to suitability for employment that are not part of the integrity test). The survey contains four subscales: theft, substance abuse, hostility, and faking. The 12-item theft subscale relies on applicant disclosures of illegal activity and inquires about the applicant’s experiences with and beliefs about these activities (e.g., “How often would you secretly take something from work if you felt underpaid?”) The 12-item substance abuse subscale also relies on applicant disclosures of illegal activity (e.g., “How often have you used recreational drugs (street drugs) in the past 3 weeks?”) The 18-item hostility subscale asks questions about an applicant’s attitudes and views about violent behavior (e.g., “Would you agree that people would take advantage of you if you were afraid to hit them?”). The 18-item faking subscale

contains questions about common human experiences (e.g., “Have you ever felt you were unfairly punished?”).

If an applicant displayed failing scores on any of the Tesco Assessment subscales, he or she was classified as high risk and not hired. The hostility and faking scales produce quantitative scores, where each multiple-choice answer is assigned a point value from zero to three. If applicants' point totals on those scales are insufficient to reach the low or moderate risk cutoffs, they are classified as high risk (i.e., they fail the test). Admissions of illegal drug use on the substance abuse scale or stealing on the theft scale would result in a failing score. The passing rate for the Tesco Survey nationally is 67% while the passing rate for each of the four samples were: auto club, 83%; nursing home 73%; meat packing company 67%; multi-media company, 67%.

Compensation Claims. All four companies provided information on the total number of workers' compensation claims and the costs associated with them for the screened and unscreened employees. These data were in the form of “loss runs” provided by the companies' insurance brokers. These loss runs provided worker identification numbers, the date of the accident, the date of the claim, and the total incurred cost of each claim. These injured claimants were matched to their screening status (i.e., Tesco screened vs. unscreened employees) based on the workers' employee identification number. No other information about individual workers was supplied. All identifying information about participants (e.g., employee identification numbers) was removed from the data files prior to conducting data analyses.

The Tesco Screened (Experimental) Group and the Unscreened (Control) Group. This was a field study with normal business operations continuing among the participating organizations. In each of the participating organizations, the Tesco Survey was administered immediately after the HR staff had reviewed the candidate's job application form and determined he/she was qualified for the position. Each of the candidates had to pass the Tesco Survey before proceeding any further in the hiring process (i.e., no applicant was hired if they failed the Tesco Survey). There were no other changes to the hiring processes in any of the four organizations and none of these companies used other background screening methods such as urinalysis or criminal history checks. The experimental group consisted of new hires who took and passed the Tesco Survey. The control group consisted of veteran employees who were not screened with the Tesco Survey. The workplace injuries of the two groups were compared.

The “Within Year” Research Design. To eliminate the occurrence of potential confounding factors such as the implementation of new safety training programs, modifications to standard operating procedures, or other organizational changes during the study periods, a ‘within year’ comparison as opposed to a “year over year” comparison was used. That is, claims incurred at the same work locations over the same period of time were compared for the screened versus unscreened groups rather than comparing groups working in different time periods (e.g., similar periods prior to, or subsequent to, the study period). This represents a conservative test of the effectiveness of the instrument as it involves comparing the injury rates of new hires, most of whom had worked for the

organization for less than a year, with veteran employees. New hires were considered riskier because they had less on-the-job experience and their supervisors had had fewer opportunities to observe and correct unsafe work behaviors.

Results

Results from all four samples supported Hypothesis 1. Specifically, in each sample, a much higher proportion of unscreened employees filed workers' compensation claims relative to screened employees. Fisher's Exact Test was used to test the difference between the proportions in each sample (StatXact 5; Cytel Software Corporation, 2001). In each case, the probability of obtaining such a substantial difference in the proportion of claims filed for the two groups if they were truly equivalent (i.e., if members of each group were equally likely to file claims) was less than .00009. More importantly, the odds ratios indicated that unscreened employees were considerably more likely to file claims. The smallest difference was seen among food processors where results showed that unscreened workers were 2.5 times more likely to file a claim than their Tesco screened counterparts. At the other end of the spectrum, unscreened auto club workers were 4.8 times more likely to file claims (see Table 1).

Table 1: Proportions (as a Percentage) and Odds Ratios for Employees Filing Claims

Sample	Percentage filing claims		Probability of difference (p-value)	Odds ratio	99% Confidence Interval for odds ratio
	Screened	Unscreened			
Auto club	1.6%	7.0%	<.001	4.77	3.11 – 7.66
Nursing home	2.2%	10.0%	<.001	3.72	2.09 – 7.30
Food processor	3.2%	6.6%	<.001	2.51	1.95 – 3.26
Multimedia company	3.6%	5.7%	<.001	3.78	3.13 – 4.56

Next, a series of independent samples t-tests examining the average per employee claim costs in the screened and unscreened groups were conducted. The results supported Hypothesis 2 as there were significant "between group" differences in all four samples with the unscreened group showing higher average per employee costs in each case. These findings are summarized in Table 2. Finally, we conducted permutation tests examining the average cost per claim for the screened unscreened groups. These results failed to support Hypothesis 3 as there were no significant differences.

Taken together, these results indicate that implementation of integrity testing significantly reduced overall costs of claims by decreasing injury frequency. However, our analyses did not provide evidence that employees who pass an integrity test tend to incur less expensive claims.

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Table 2 Comparison of Average Claim Costs

Organization	Screening status	Group N	No. claims filed	Total claim costs	Average cost per claim (SD) ^a	Average cost per employee ^b	Sig. tests for average cost per employee ^c
Auto club	Unscreened	4,685	328	\$1,511,796	\$4,609 (\$11,382)	\$323	$t(5756) = 5.40,$ $p < .01$
	Screened	1,480	23	\$ 74,512	\$3,239 (\$4,611)	\$ 50	
Nursing home	Unscreened	6,558	503	\$1,392,283	\$2,768 (\$ 8,358)	\$212	$t(6449) = 5.64,$ $p < .01$
	Screened	550	9	\$ 15,135	\$1,261 (\$1,756)	\$ 27	
Packing plant	Unscreened	8,603	497	\$1,773,411	\$3,568 (\$12,504)	\$206	$t(6222) = 2.19,$ $p = .03$
	Screened	3,056	73	\$ 237,034	\$3,247 (\$17,054)	\$ 77	
Multimedia co.	Unscreened	2,643	315	\$818,640	\$2,599 (\$14,500)	\$309	$t(2938) = 2.50,$ $p = .01$
	Screened	5,843	202	\$329,902	\$1,633 (\$662)	\$ 56	

^aMean Cost per Claim = Total Claim Costs/No. Claims Filed. No significant differences between screened and unscreened groups were found.

^bAverage Cost per Employee = Total Claim Costs/Group N

^cF-test evaluating equality of between group variances were significant for all samples. Therefore, Welch's t-test assuming unequal variances was employed. Degrees of freedom are rounded to the nearest integer value.

Discussion

Workplace injuries are traumatic for employees and very costly for employers. Although there is growing research examining a variety of factors that contribute to workplace injuries, we found only two predictive validity studies in the published literature that evaluated the impact of integrity tests on workplace injuries, one in the trucking industry and one in the dairy industry. The present research

examined the relationship between integrity tests and workplace injuries in four different industries: an auto club, a nursing home chain, a meat packing company, and a multimedia manufacturing company.

It was hypothesized that employees screened with the Tescor Survey would have fewer and less costly claims than unscreened employees. These hypotheses were partially supported in four samples, comprised of employees from different industries. That is, screened employees filed proportionately fewer claims, leading to a lower cost claim cost per employee in all four samples but average claim costs did not differ significantly between groups.

Our findings provide additional evidence that introducing integrity testing into the hiring process can help to enhance employee and organizational health by helping employers hire workers who are less likely to be involved in work-related accidents. However, in contrast with some of the findings summarized by Jones and Wuebker (1988) and results reported by Sturman and Sherwyn (2007), the evidence gathered in this study did not indicate that integrity test screening was associated with a decrease in claim severity. Currently, the reasons for these conflicting findings are not clear. Future research is needed to explore what conditions may moderate the relationship between integrity testing and severity of injuries. For example, Jones and Wuebker speculated that with the introduction of the PSI-3S, management may have communicated a strong commitment to improving workplace safety at the milk processing facilities. It is possible that emphasizing the importance of safety when introducing integrity tests may help to strengthen the safety climate and influence the socialization processes for new employees (Zohar, 1980).

The present research extends the findings from Jones and Steffy (1986) and Jones and Wuebker (1988) in two ways. First, by comparing screened workers (the experimental group) with unscreened workers (the control group) working at the same jobs, in the same place, at the same time (rather than using a “year over year” comparison) this study controlled for factors such as possible changes in company policies and the workplace environment. Second, the results are more generalizable because we were able to obtain large samples from four different industries. One notable finding from this study is that the unscreened workers, who consistently displayed higher rates of compensation claims and higher claim costs per worker, were veteran employees hired prior to the inception of the Tescor program whereas the screened workers were new hires. This runs contrary to what one might expect since veteran employees have been “field tested.” That is, incumbent employees have been on the job longer, providing employers with the opportunity to evaluate their performance and terminate those who demonstrated unsatisfactory work habits (e.g., troublemakers or individuals who are unwilling to follow procedures).

This is an important point as these may be the very people who are most likely to drive up workers' compensation costs. Further, veteran employees have had the opportunity to gain job skills and experience that may enhance their ability to avoid workplace accidents. Data from the U.S. Bureau of Labor Statistics (2003) supports this notion as employees with less than 1 year of service with their

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employer accounted for 42.1% of all workplace injuries or illnesses. After the first year, injury incidents appeared to decline. In short, the USBLS data indicates that an inexperienced new employee is at the greatest risk of injury. More recent reports display the same pattern of results (USBLS 2005, 2006). This may account for the lack of significant differences in average claim cost between the screened and unscreened groups as it is possible that the unscreened employees most likely to exhibit counterproductive behaviors leading to accidents have already left the organization.

Implications for Theory, Future Research, and Practice

The present findings contribute to at least two research areas. First, it adds to the growing body of research on the utility and validity of integrity tests in predicting job attitudes and behaviors. Second, based on the findings of the present study, the theoretical model of workplace injuries predictors (e.g., Frone, 1998) can be extended by adding integrity as a predictor. The utility and validity of integrity tests in predicting job performance and counterproductive behaviors are well established in the literature (e.g., Schmidt & Hunter, 1998; Ones & Viswesvaran, 1998). This study adds evidence that integrity tests provide value beyond predicting job performance and counterproductive behaviors. Practitioners may also benefit from using these instruments to reduce the number of workplace accidents and related costs.

Future research should investigate incremental validity of integrity tests over other predictors that have been examined in the past. Additional research is also needed to evaluate the effects of integrity tests on the frequency and severity of compensation claims over time. Finally, as mentioned previously, more research is needed to explore moderating influences on the relationship between integrity test screening and accident severity.

Limitations. There were some limitations in this study. First, no demographic information was collected due to the participating companies' restrictions. Future research should examine possible differences in the effectiveness of integrity testing for reducing injuries across different demographic groups. Second, data obtained for this study did not include information about claim status (i.e., open vs. closed). Given that final claim costs may differ from incurred costs at a given point in time, future research could examine open and closed claims separately or limit their analyses to closed claims only. Third, this is the first validation of the Tesco Survey submitted for publication in a peer reviewed journal. More studies are needed to investigate the validity and utility of this instrument. Finally, future research might examine the relationship between different subscales of Tesco Survey with the frequency and severity of compensation claims. Despite these limitations, the preliminary evidence here suggests that this type of screening can be useful in reducing overall workers' compensation losses. This has the potential to help in industry's efforts to improve their earnings by making the workplace a safer place.

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