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The Effects of Sexual Harassment on Turnover in the Military: Time-Dependent Modeling

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Sexual harassment has consistently negative consequences for working women, including changes in job attitudes (e.g., lower satisfaction) and behaviors (e.g., increased work withdrawal). Cross-sectional evidence suggests that harassment influences turnover intentions. However, few studies have used actual turnover; rather, they rely on proxies. With a sample of 11,521 military servicewomen with turnover data spanning approximately 4 years, the authors used the appropriate method for longitudinal turnover data—Cox's regression—to investigate the impact of harassment on actual turnover. Experiences of harassment led to increased turnover, even after controlling for job satisfaction, organizational commitment, and marital status. Among officers, harassment also affected turnover over and above rank. Given turnover's relevance to organizational bottom lines, these findings have important implications not only for individual women but also for organizations.

Keywords: sexual harassment, turnover, attrition, job attitudes

Turnover (or attrition) is critically important to organizations, with costs of turnover including the recruitment and training of new hires, disruption of work flow, and in some cases, even litigation. Hence, theoretical and empirical work on this topic abounds. It is only recently, however, (see, e.g., Fitzgerald, Hulin, & Drasgow, 1995) that researchers have turned their attention to sexual harassment as an antecedent of turnover. Evidence indicates that harassment has an impact on turnover, although the most prominent theoretical model of harassment stipulates that the impact of harassment on turnover is fully mediated by job attitudes. Here, we suggest that harassment also has a direct impact. This article introduces researchers interested in turnover, and the effects of sexual harassment on turnover, to the appropriate method (Cox's regression) for answering two related, and equally interesting, questions—*whether* turnover occurs as a consequence of harassment and *when* it occurs (i.e., the length of time until turnover occurs). We suggest that the use of this method, which includes a longitudinal design and the measurement of actual turnover (as opposed to turnover intentions or other behaviors related to turnover) will resolve some of the conflicting results obtained by previous research in this area.

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Illinois Model of Sexual Harassment

Theoretical and empirical research on sexual harassment (Fitzgerald, Drasgow, Hulin, Gelfand, & Magley, 1997; Fitzgerald, Hulin, & Drasgow, 1995) has yielded an empirically supported model of the antecedents and consequences of sexual harassment. Consistent with Hulin, Fitzgerald, and Drasgow's (1996) rationale that harassment is one form of job stress, the model posits that the relationship between sexual harassment and voluntary job-related behaviors (such as voluntary organizational withdrawal) is fully mediated by job-related attitudes (such as job satisfaction and organizational commitment), as depicted in Figure 1, a modified representation of the model illustrating only the consequences of sexual harassment.

The Illinois model further explicates the harassment–attitudes relationship by distinguishing between two related classes of withdrawal behaviors: (a) work withdrawal, a cluster of behaviors reflecting attempts to avoid the work task (e.g., absenteeism, tardiness, pretending to look busy); and (b) job withdrawal, a combination of behaviors related to quitting and intentions to quit (e.g., updating one's resumé, looking for another job). This distinction has been supported by previous factor analytic research (e.g., Hanisch & Hulin, 1991). For both classes of behaviors, the effects of harassment are hypothesized to be mediated by job attitudes.

With regard to turnover in particular, the model incorporates and extends the body of data demonstrating that job satisfaction (e.g., Hulin, 1991; Staw, 1984) and organizational commitment (e.g., Lease, 1998) predict turnover. Further, with the exception of a tentative (and empirically untested) suggestion in its initial formulation (Fitzgerald, Hulin, & Drasgow, 1995), the Illinois model has consistently proposed that the relationship between sexual harass-

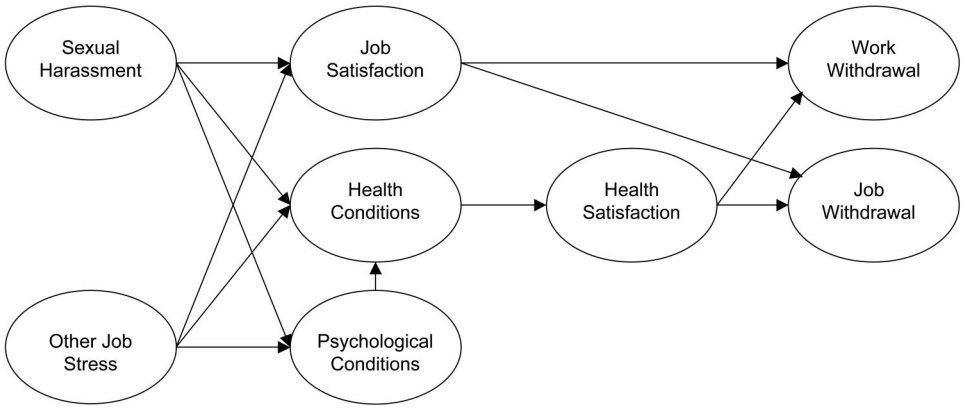

Figure 1. Illinois model of the consequences of sexual harassment. Adapted from "The Antecedents and Consequences of Sexual Harassment in Organizations: A Test of an Integrated Model," by L. F. Fitzgerald, F. Drasgow, F. L. Hulin, M. J. Gelfand, and V. J. Magley, 1997, *Journal of Applied Psychology*, *82*, p. 585. Copyright 1997 by the American Psychological Association.

ment, a job stressor, and job behaviors is fully mediated by job attitudes—a common aspect in models of the job stress–turnover relationship (Hom & Griffeth, 1995). However, this unequivocal formulation may warrant further examination in light of recent theoretical advances in the turnover literature (e.g., Lee, Mitchell, Holtom, McDaniel, & Hill, 1999) and in consideration of the available literature on harassment coping (e.g., Magley, 2002) and coping more generally (e.g., Chen & Spector, 1992). This issue is addressed after first examining available literature on the harassment–turnover relationship.

Tests of the Fitzgerald, Hulin, and Drasgow (1995) model, or portions thereof, have been generally supportive. In particular, several studies (Coles, 1986; Fitzgerald, Drasgow, et al., 1997; Gutek, 1985; O'Connell & Korabik, 2000; Rosen & Martin, 1998), including cross-cultural studies of women in China and the United States (Shaffer, Joplin, Bell, Lau, & Oguz, 2000) and women in Turkey (Wasti, Bergman, Glomb, & Drasgow, 2000), have provided evidence that sexual harassment does have an impact on turnover intentions.[1]

Despite this supportive evidence, previous research has also revealed some inconsistencies. For example, O'Connell and Korabik (2000) found that clerical women did not respond as negatively to supervisor harassment as did professional women, suggesting that the former may have considered the harassment to be normative behavior or may have attributed it to their lower status rather than to their gender.[2] Also, Rosen and Martin (1998) found that harassment was related to turnover intent for men but not for women. It is possible that such puzzling results represent not a failure of existing theory but rather artifacts of the methodological and statistical problems that plague much of the existing turnover research.

Empirical Harassment–Turnover Research and Its Shortcomings

One problem with turnover research in general is that the base rate of turnover is generally low within any short period of time (leading to a severely positively skewed statistical distribution of turnover). This makes it difficult to accurately predict turnover from general work attitudes (Hanisch, Hulin, & Roznowski, 1998). Hulin (1991) noted that most models of turnover have adopted the portion of Fishbein and Ajzen's theories of planned behavior and reasoned action that specifies "the role of behavioral intentions as the proximal cause of behavior rather than hypothesizing a relation between attitudes and behavior absent the formation of behavioral intentions" (p. 469). Thus, it is not particularly surprising that little of the existing sexual harassment research has utilized turnover per se, but rather behavioral intentions to quit, as well as, occasionally, behaviors related to turnover. To the best of our knowledge, only two studies (Coles, 1986; Gutek, 1985) have examined actual turnover.

Coles (1986) examined the case files of women who filed sexual harassment complaints with the California Fair Employment and Housing Department between 1979 and 1983. She found that 20 of the 88 women (approximately 23%) who had filed complaints reported that they had voluntarily quit their jobs due to fear and frustration. However, this finding is indirect, and the sample size was extremely small. In addition, because Coles examined complaint files, the self-reports may have been subject to demand effects and retrospective bias. Finally, women who filed complaints are likely to be on the extreme end of the sexual harassment experience continuum. In fact, the majority of these women re-

[1] One study of sexual harassment in the gambling industry (Stedham & Mitchell, 1998) found no relationship between sexual harassment and turnover intent; however, the authors' measurement of sexual harassment via a single labeling item is inadequate to capture the breadth of the construct of sexual harassment (see, e.g., Hanisch et al., 1998). Moreover, Magley, Hulin, Fitzgerald, and DeNardo (1999) have found that many women who have suffered the negative impact of sexual harassment nonetheless do not label themselves as having been harassed.

[2] Such attributions, though not consistent with typical formulations of turnover theory (e.g., Hom & Griffeth, 1995; Hulin, 1991), are consistent with sex role spillover theory, which suggests that women employed in traditionally female jobs have lower reported rates of sexual harassment because (a) they attribute inappropriate sex-related behavior to the nature of their job or (b) because of their compliance with gender role expectations (Gutek & Morasch, 1982).

ported experiencing sexual coercion in which job rewards or punishments were made contingent on sexual activity with the perpetrator; studies have found this to be the least common form of sexual harassment (e.g., Fitzgerald, Swan, & Fisher, 1995; Fitzgerald et al., 1988; U.S. Merit Systems Protection Board, 1988), and even a single incident is experienced as extremely negative (Langhout et al., 1999).

The study by Gutek (1985) involved a representative telephone survey of employed women and men in Los Angeles County, with women oversampled due to the general finding that they experience harassment much more frequently. Her final sample consisted of 827 women and 405 men. Of the women, 9.1% reported that they had quit a job because of sexual harassment; of the men, only 1% self-reported voluntary turnover as a result of harassment. Gutek's results indicate that a substantial proportion of women may leave their jobs as an escape from harassment. Again, however, these data may have been subject to demand effects and retrospective bias, as participants were asked whether they had ever quit their jobs because of sexual harassment after first responding to a series of questions asking them to recall their workplace harassment experiences.

The studies described above have one further limitation. Research on this topic has typically assessed all variables simultaneously in a cross-sectional design, raising concerns about both causality and the perseverance of effects. Concurrent validity (from a cross-sectional design) demonstrates correlation only, whereas predictive validity (from a longitudinal design) also demonstrates temporal order of predictor and criterion, an important step in the establishment of causation. Fortunately, some longitudinal research is available to better examine such questions (Munson, Hulin, & Drasgow, 2000).

With two time points 2 years apart, Munson et al. (2000) determined that women who had been harassed at Time 1 but not at Time 2 showed increased coworker and supervisor satisfaction, whereas those harassed at Time 2 but not at Time 1 showed decreases in these variables. Work withdrawal followed a similar pattern, although the pattern was not statistically significant, possibly because only a small sample was available for this analysis. Women whose harassment levels did not change over time (i.e., they were harassed at both Time 1 and Time 2 or not harassed at either time) reported consistent levels of coworker and supervisor satisfaction and work withdrawal across time.

In a further examination of this sample, Glomb, Munson, Hulin, Bergman, and Drasgow (1999) tested Fitzgerald, Hulin, and Drasgow's (1995) model using longitudinal structural equations modeling. They found that sexual harassment at Time 1 was related to decreased job satisfaction and increased psychological distress 2 years later. Taken together, these findings confirm that the negative effects of sexual harassment persevere over time. One implication of this perseverance is that the negative impact of harassment may influence behaviors (such as turnover) typically seen not as impulsive but, rather, as reasoned choices (Hulin, 1991).

A New Look at the Turnover Literature

The Illinois model is comfortably situated within the broader context of turnover literature, and evidence (such as the longitudinal evidence described above) suggests that it has potential to predict actual turnover behavior as well as behavioral turnover proxies. An examination of the recent literature on general turnover, however, reveals that the full mediation by job attitudes of the harassment–behavior relationship may need to be reexamined. Although mediation by job attitudes is the predominant formulation in the literature (e.g., Hom & Griffeth, 1995; Hulin, 1991), not all employees follow this path to turnover.

Even though the turnover research tradition of mediation is well established, it explains surprisingly little of the variance. Noting this gap in explanatory power, Lee and Mitchell and their colleagues presented a reconceptualization of the turnover process, the unfolding model (Lee & Mitchell, 1994; Lee et al., 1999; Lee, Mitchell, Wise, & Fireman, 1996). This model suggests four paths through which employees quit, and only two of these paths require mediation by job attitudes. They suggested that the experience of a stochastic shock may trigger a "quitting" script that results in an employee leaving the organization without a change in job attitudes or a search for alternative employment (Path 1). Alternately, the experience of a stochastic shock could result in an image violation (e.g., "Putting up with these types of experiences is not consistent with my values, goals, and/or behavioral strategies for goal attainment"), and the employee quits (Path 2); again, the impact of job attitudes is irrelevant. A third path is also precipitated by a shock that results in an image violation; however, here, job attitudes play their part, although even a relatively satisfied employee may leave if another job looks more appealing. A fourth path suggests that low satisfaction, rather than shock, is the precipitating factor for turnover; Path 4b includes a search and/or evaluation of alternatives as is suggested by traditional turnover models, whereas in Path 4a, no such search/evaluation procedure is followed. Empirical tests of the unfolding model reveal that substantial proportions of employees can follow these paths (e.g., up to 27% in Lee et al., 1996), although this seems to vary by the nature of the employment. Nevertheless, this stream of research suggests that a traditional approach requiring full mediation of the effects of events (shocks such as sexual harassment) by job attitudes is an oversimplification.

Further, whereas the generally accepted view of the relationship between job stress and turnover is one mediated by job attitudes, Hom and Griffeth (1995) noted that this has not actually been tested with actual turnover and thus awaits empirical verification. As sexual harassment is considered a stressor, examining whether the relationship is fully mediated does offer a test of this assumption.

The stress and coping literature suggests an independent reason for why sexual harassment may have direct effects on turnover rather than only fully mediated ones. The literature consistently shows that the most common strategy that women use to cope with sexual harassment is avoidance (e.g., Fitzgerald et al., 1988; Gutek, 1985; Magley, 2002), which is overwhelmingly preferred to more confrontational techniques with their attendant risks of retaliation (Bergman, Langhout, Palmieri, Cortina, & Fitzgerald, 2002). For a working woman, avoiding her harasser may be equivalent to avoiding the workplace or avoiding certain tasks or aspects of the work environment. From the perspective of an outside observer, this could easily appear to be simple work withdrawal. It may easily progress to something more permanent, however. To avoid the experience of harassment, a woman may, in effect, resort to avoiding the job altogether. Thus, turnover may

represent the most permanent and comprehensive manifestation of the most common coping technique.

Other empirical and theoretical work suggests that stressors may have a direct effect on turnover. Typically, three types of outcomes to stress are examined: physiological, psychological, and behavioral; clearly, turnover is an important instantiation of the behavioral response category (e.g., Schaufeli & Peeters, 2000). Moreover, turnover has been proposed as the obvious "flight" equivalent of the fight or flight reaction commonly observed as a coping response to stressors such as frustration (e.g., Chen & Spector, 1992; Mayes & Ganster, 1988). Logically, frustration should inhere in the experience of sexual harassment, conceptualized as an obstacle to effective job performance both in the psychological literature (Gutek & Dunwoody, 1987) and in more legal formulations (Fitzgerald, Swan, & Magley, 1997).

Bedeian and Armenakis (1981) proposed a model of stress that postulates a direct path from stressors (operationalized as role conflict and role ambiguity in their article) to propensity to leave, in addition to an indirect path mediated by job satisfaction. These direct paths have received mixed support (Kemery, Bedeian, Mossholder, & Touliatos, 1985; Netemeyer, Johnston, & Burton, 1990). We suggest the mixed findings for the Bedeian–Armenakis model are merely a reflection of these stressors' chronic nature, and investigations of more acute and traumatic stressors (such as harassment) will benefit from examination of these paths. As noted by Fitzgerald and Rounds (1994) in the context of work adjustment theory, satisfaction and satisfactoriness (e.g., work success) are woefully inadequate to explain turnover for women in the workforce, and experiences such as sexual harassment should play a pivotal role.

In sum, the unfolding model suggests one rationale for examining the effects of sexual harassment on turnover over and above that of job attitudes, and another is provided by the coping literature. In addition, the accepted theoretical stress–turnover relationships await empirical examination. Although this is desirable in theory, the difficulties caused by using actual turnover remain, and they must be overcome to provide an effective examination of the relationship. Further, it is important to use a longitudinal design, as this provides stronger causality evidence. A new statistical method must be used to solve these dilemmas, and that method is Cox's regression.

Cox's Regression

Because turnover is a dichotomous variable, several assumptions of multiple linear regression are inappropriate. For example, the assumption of linearity is not satisfied, because probabilities are bounded by 0 and 1. Likewise, the assumption that errors are identically distributed is also violated when a dichotomous dependent variable is used; for example, when examining variables with strong positive coefficients, a preponderance of negative residuals will appear at the upper end of the range, and a preponderance of positive residuals will appear at the lower end of the range. These violations are problematic because the application of multiple linear regression may result in incorrect conclusions: Nonsensical predictions may occur (i.e., individuals with low values on all predictors in an equation may have a predicted probability of occurrence of less than zero for the dependent variable), and parameter estimates may be biased. The solution to these problems is to use a model designed for dichotomous dependent variables, such as logistic regression. However, logistic regression is most appropriate when data are collected at only one time point. When longitudinal data are available, aggregation of turnover data over time (to apply logistic regression) represents a loss of information and therefore is not ideal.

The statistical methodology used here—Cox's regression—is appropriate for several reasons (Harrison, 2001). Cox's regression is designed to overcome statistical problems such as the positively skewed, low base-rate-related turnover distributions that compelled previous researchers to resort to proxies. Similar to logistic regression, Cox's regression is designed for dichotomous dependent variables. Moreover, Cox's regression is a member of a family of models that incorporate time, known as *event history* models. These models are more common in fields such as biomedics and sociology than they are in psychology but are appropriate for some of the questions commonly addressed in psychological research (such as turnover). Some event history models are designed for use when time is measured in discrete intervals, such as once a year, and are known as discrete-time models. Other models allow a more fine-grained examination of time and are known as continuous-time models. Cox's regression is a continuous-time model.

Cox's regression predicts not only the occurrence (vs. nonoccurrence) of turnover but also the rate of occurrence of turnover over time. Two concepts are important for an understanding of this model (as well as for event history models more generally). The first is the concept of the *risk set*: This is the group of individuals at risk for the occurrence of the event. In the case of turnover research, this encompasses the members of the sample who have not yet left the organization and who are consequently at risk for leaving. (The use of the term *risk* is more comprehensible in the field of biomedical research, where a risk set may encompass the members of a sample who have not yet died.) The second important concept is the *hazard rate*, which is the dependent variable in this analysis. For continuous-time models, the hazard rate is the risk that the event (here, turnover) will occur in the tiny interval between time t and an infinitesimally small interval beyond time t, given that the turnover event has not already occurred and that the individual is, consequently, still in the risk set.

In contrast to some commonly used continuous-time event history models such as the Weibull regression model and the Gompertz regression model, both of which stipulate monotonic hazard rates, Cox's regression does not constrain the shape of the hazard rate but rather allows it to change freely over time. This flexibility is useful, particularly in disciplines, such as psychology, that often do not incorporate time passage into theoretical conceptualizations of important organizational events (Hulin & Ilgen, 2000) and, consequently, need a flexible methodology for explanatory purposes.

To recap, Cox's regression offers several advantages: It is designed for use with variables that are dichotomous, and it also incorporates time measured continuously. Because the hazard rate is allowed to change over time, Cox's regression provides information not only about the occurrence of the event but also about the influence of time on that occurrence without prior specification of the influence of time on the hazard rate.

In summary, this research uses Cox's regression to examine whether turnover among military women is related to experiences

of sexual harassment. The impact of sexual harassment on turnover is examined over and above that of several other oft-researched predictors of turnover (e.g., job satisfaction and organizational commitment) as well as some demographic predictors suggested by previous research (Morita, Lee, & Mowday, 1993). This acknowledges the possibility that the turnover process is more complicated than what was proposed by the tests of the Fitzgerald, Hulin, and Drasgow (1995) model, in which job attitudes fully mediate the relationship between harassment and withdrawal behaviors, and examines assertions of the pivotal nature of the sexual harassment experience on working women (e.g., Fitzgerald & Rounds, 1994). On the basis of findings and theory in the turnover and coping literatures, we hypothesize that sexual harassment has a direct impact on turnover, even when controlling for job attitudes and demographic variables.

Method

Participants

In 1995, the U.S. Department of Defense conducted a survey of gender relations in the armed forces using nonproportional stratified random sampling that oversampled women and minority group members. Stratification variables also included service and pay grade. Usable surveys were received from 22,372 women and from 5,924 men. Hay and Elig (1999) reported that the resultant overall unweighted response rate was 58%. For further detail on the original 1995 Gender Issues survey sample and the sampling strategy, see Hay and Elig. The present study used a subsample of active-duty women for whom complete information was available on the variables of interest. Because of computational constraints on dataset size when testing the proportional hazards assumption, the original sample of 16,402 women was reduced to a 70% randomly selected sample consisting of 11,521 women.

Procedure

To maximize response rates in the 1995 survey, letters were sent to the identified sample to inform them of the survey and to solicit their participation. The questionnaire itself was sent approximately 6 weeks later, along with a letter reiterating the importance of the project. A reminder letter to the entire sample followed. Individuals who did not respond were sent a second and a third questionnaire after approximately 4 weeks and 8 weeks, respectively, again with letters stressing the importance of participation. As surveys were returned because of out-of-date addresses and other reasons, addresses were updated, and returned surveys were remailed during the period of data collection. Each returned questionnaire was imprinted with a case number to avoid the misuse of potentially sensitive identifying information (i.e., social security numbers). This number was then used to allow individuals to be tracked for survey return and followed longitudinally.

Measures

Sexual harassment. Sexual harassment was measured in the 1995 survey by means of the Sexual Experiences Questionnaire—Department of Defense (SEQ–DoD; described in Fitzgerald, Magley, Drasgow, & Waldo, 1999). This instrument consists of 23 items tapping occurrences of unwanted sex-related behaviors during the previous year. Therefore, although we do not have information pertaining to the exact date(s) of such behaviors within the preceding year, the available information is restricted to relatively recent occurrences. Four questions cover the content area of *sexist hostility*, or gender-based experiences that may be described as primarily discriminatory; eight address *sexual hostility*, or experiences that were more explicitly sexual in nature; six address *unwanted sexual attention*, or unwanted sexual overtures *not* tied to job contingencies; and five address *sexual coercion*, or sexual overtures tied to job contingencies. All items were rated on a 5-point scale ranging from 0 (*never*) to 4 (*very often*); higher scores indicate greater experiences of harassing behaviors.

The experience of one or more unwanted sex-related behaviors is common; for this sample, the overall frequency was 76.5%. This frequency reflects a frequency of occurrence of 77.5% for enlisted participants and 74.1% for officer participants. For a more fine-grained examination of the incidence and types of harassment in the military, we refer the interested reader to Fitzgerald, Magley, et al. (1999). To examine overall experience of sexual harassment, the items from all content areas are typically summed, as was done here. For this sample, $\alpha = .93$.[3]

Job satisfaction. Three facets of job satisfaction were measured: supervisor satisfaction (6 items), coworker satisfaction (3 items), and work satisfaction (15 items). All items were rated on 5-point scales ranging from 1 (*strongly disagree/not at all/very dissatisfied*) to 5 (*strongly agree/very large extent/very satisfied*); higher scores are indicative of greater satisfaction. Alphas were .88, .70, and .88, respectively.

Organizational commitment. Organizational commitment was assessed with 11 items specifically worded to measure commitment to, and favorable perceptions of, the military. Items were rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*); higher scores are indicative of a greater degree of commitment. Alpha for this scale was .87.

Marital status. Marital status was taken from a single self-report item on the survey and recoded as a dummy variable for never versus ever married such that never married was 0 and ever married had a value of 1. In the entire sample, approximately 72% were currently or formerly married, and roughly 28% had never been married. More specifically, 73.9% of enlisted participants had ever been married, whereas the remainder had never been married. For officers, the percentage who had ever been married was 67.8%, and the percentage who had never been married was 32.2%.

Pay grade/rank. Pay grade used a single self-report item on the survey; this variable ranged from 1 (E-1), the lowest enlisted category, to 16 (O-6 and above), the highest officer category. Although there were five categories of warrant officer, their total number was quite small ($N = 127$). Therefore, warrant officers were collapsed into one category. As the pay grade variable is only roughly linear, overall analyses were also accompanied by analyses that used enlisted participants only (the range in this case was from 1 [E-1] to 9 [E-9]; $N = 7,853$) and officer corps participants only (the range in this case was from 1 [O-1] to 6 [O-6 and above]; $N = 3,541$). These analyses therefore excluded warrant officers, an eclectic mix of relatively low-tenured helicopter pilots and high-tenured service members promoted from the ranks of the enlisted to the officer corps.

Turnover. Although this data set has been used in other inquiries, additional information on turnover was provided for the purpose of this study. Turnover was followed longitudinally by using administrative records from the date of the survey through September 1999, a period of roughly 4.5 years. The event of turnover was defined as an individual leaving the military for reasons other than retirement, death, transfer to an officer program, or conclusion of term of duty—thus, we used a very conservative estimate of turnover. Those who left at the conclusion of the

[3] This high alpha reflects differences in harassment experience of women, most likely based on differences in the workplace itself: Research has demonstrated that tolerance for sexual harassment is an organizational characteristic that predicts incidence of harassing experiences quite well (Glomb, Richman, Hulin, Drasgow, Schneider, & Fitzgerald, 1997). Women at different duty stations or working in different environments may experience differing levels of harassment as a result of differing tolerance for such behavior; as the SEQ is a good instrument, it is able to detect these differences.

duty term were considered censored (nonturnover) cases; individuals who left before the end of the observation period for whom there was no reason given for separation were considered instances of turnover.

For the entire sample, turnover was 13%. A more fine-grained examination revealed that turnover was higher among enlisted participants (15%) than it was among officers (8.5%).

Time was incorporated into the model as days until turnover or censoring, starting from the date that the individual completed the survey. This date varied over a period of roughly 6 months; the earliest was late March 1995, and the latest was early September 1995.

Standardization. To facilitate interpretation of Cox's regression coefficients, the attitude variables and the harassment measure were standardized prior to analysis.

Results

Descriptive statistics for all nondemographic variables are shown in Table 1. The satisfaction measures and organizational commitment were all positively correlated. As expected, sexual harassment experiences were negatively correlated with all of the attitude variables.

Several simple models were examined to assess the impact of attitude variables and sexual harassment on the hazard rate. Cox's regression assumes there are no Time × Predictor interaction effects on the hazard rate (Harrison, 2001); in other words, the hazard function does not differ for the levels of a variable. This assumption is known as the assumption of proportional hazards. A formal check of this assumption involves the inclusion of such interaction terms in the model; this type of model is known as an extended Cox regression model. The assumption holds, and standard Cox regression models apply, if these interaction terms are not significant (or, in a large sample such as this, if their effect sizes are nugatory).

Although there is no universally accepted fit statistic for Cox's regression, Harrison (2001) has noted that G^2 is often used; it compares the chi-square of a model with no predictors to the chi-square with all predictors included in the equation. To estimate separately the influence of sexual harassment as a predictor, the full model chi-square is compared with the reduced models' chi-squares created by omitting sexual harassment. The model coefficients are also examined; these are customarily exponentiated, transforming them into a hazard ratio.

The first three models estimated the impact of the three different facets of job satisfaction. The full models included sexual harassment and coworker, supervisor, and work satisfaction, respectively. All the Time × Predictor interaction terms for these models were meaningless in a practical sense; even when the effects were significant, the effect sizes were very small. Hence, standard Cox's regression models were examined. The G^2 value for each of these models was significant ($\alpha = .005$), indicating that the addition of the predictors was effective in improving model fit. The likelihood-ratio chi-squares for the models indicate that the inclusion of sexual harassment made an important contribution to each of the models. Results for these models, as well as other attitude and demographics variables models, are displayed in Table 2.

The coefficients for the model with coworker satisfaction indicated that, for every 1-standard-deviation increase in satisfaction, there is an effect size equivalent to a 10% lower risk of turnover (i.e., exp[b] was .90, which means service members 1 standard deviation above the mean had a chance of turnover that was .90 times as large as that of service members whose satisfaction was at the mean). For every 1 standard deviation increase in sexual harassment experience, there is an effect size equivalent to a 21% greater risk of turnover—despite controlling for the contribution of coworker satisfaction. The coefficients for the supervisor satisfaction model indicated that, for every standard deviation increase in this variable, the risk of turnover lowered 15%. For every standard deviation increase in sexual harassment, there is a 19% greater risk of turnover. Finally, examination of the coefficients for the work satisfaction model revealed that a standard deviation increase in work satisfaction reduced the turnover risk by 24%, and a similar increase in sexual harassment increased risk of turnover by 17%. These findings indicate that, at any point in time, each facet of job satisfaction is an important predictor of turnover but that sexual harassment nonetheless has an effect over and above these predictors.

The fourth model estimated the impact of organizational commitment and sexual harassment. Again, the proportional hazards assumption was upheld, and the standard model was examined. As expected, the G^2 value for this model was significant, indicating that the addition of the predictors was effective in improving model fit. The likelihood-ratio chi-squares for the model indicated that the inclusion of sexual harassment was valuable. Examination of the coefficients revealed that the effect of organizational commitment was quite powerful; for every standard deviation increase in this predictor, there was a 33% reduction in turnover risk. Even with the inclusion of this powerful variable, however, sexual harassment had an impressive effect size. For every standard deviation increase in harassment, turnover risk increased 13%.

The results for the demographics models also indicate the importance of these variables. Again, the proportional hazards assumption was upheld, and the standard model was used. The G^2 values for both the model including marital status and the model including pay grade were significant, indicating that the addition of

Table 1
Scale Intercorrelations and Descriptive Statistics

Variable	*M*	*SD*	α	1	2	3	4	5
1. Sexual harassment	0.38	0.51	.93	—				
2. Coworker satisfaction	3.67	0.81	.70	−0.31	—			
3. Supervisor satisfaction	3.53	0.96	.88	−0.31	0.53	—		
4. Work satisfaction	3.43	0.71	.88	−0.26	0.42	0.53	—	
5. Organizational commitment	3.47	0.71	.87	−0.27	0.41	0.53	0.68	—

Note. Means and standard deviations are presented on the metric of each scale's response scale.

Table 2
Cox Regression Prediction: Simple Models

Model and main effect terms	*b*	exp(*b*)	Likelihood-ratio test
Coworker satisfaction	−.11	0.90	17.30
Sexual harassment	.19	1.21	67.12
Supervisor satisfaction	−.16	0.85	35.97
Sexual harassment	.18	1.19	58.80
Work satisfaction	−.28	0.76	108.88
Sexual harassment	.16	1.17	47.78
Organizational commitment	−.40	0.67	232.30
Sexual harassment	.12	1.13	29.68
Paygrade/rank	−.14	0.87	301.83
Sexual harassment	.16	1.17	48.18
Marital status	−.24	0.79	18.84
Sexual harassment	.21	1.24	93.53
Effects for sexual harassment alone	.22	1.25	101.26

Note. All likelihood-ratio data are significant at the $\alpha = .01$ level.

these predictors was effective in predicting turnover. The likelihood-ratio chi-squares for both models again indicate that the inclusion of sexual harassment made important contributions.

The examination of coefficients indicates that, for the pay grade model, each one-unit increase in pay grade resulted in a 13% decrease in turnover risk. Thus, every promotion had an important effect. For every standard deviation increase in sexual harassment, the risk of turnover increased by 17%, indicating that sexual harassment experiences also had a practically important effect. When the model for pay grade was limited to enlisted participants, each one-unit increase in pay grade resulted in a 36% decrease in turnover risk. Thus, for enlisted service members, promotions were vitally important. For every standard deviation increase in sexual harassment, the risk of turnover increased by 11%, again an effect size of practical importance. When the model for pay grade was limited to officer corps participants only, each one-unit increase in pay grade resulted in a 33% decrease in turnover risk. Thus, promotions are quite important for officers as well. However, sexual harassment is also important: With every standard deviation increase in sexual harassment, the risk of turnover increased by 34%.

The coefficients for the marital status model indicated that never-married women were 21% more likely to quit than were women who had been or were currently married. The coefficient for harassment was quite high; for every standard deviation increase in sexual harassment experience, the risk of turnover increased by 24%.

A model including pay grade, marital status, organizational commitment, and sexual harassment was also examined. Organizational commitment was chosen as the measure of job attitudes because it had previously demonstrated the largest effect (the other attitude variables were excluded because of concerns about multicollinearity). A standard model was used, because the proportional hazards assumption was found to hold after examination of the extended model. The G^2 value for this model was significant, indicating an improvement in fit resulting from the predictors. To estimate separately the influence of each of the individual predictors, the full model chi-square was compared with the reduced models' chi-squares created by omitting each of the predictors in turn.

All the separate predictors made unique contributions. The exponentiated coefficient for sexual harassment indicated that even when the other three predictors were included, a 1-standard-deviation increase in harassment had an effect equivalent to a 9% increase in the risk of turnover. Table 3 shows the model statistics for the inclusive model; the cumulative hazard rate for the model, stratified by SEQ standard deviations, is shown in Figure 2. Typically, stratification by continuous variables is not used, and we do so here for illustrative purposes only. As the distribution of sexually harassing behaviors is extremely skewed, we did not divide the standard deviation groups equally; rather, we have a "lowest level" group whose experiences ranged from an absence of harassing behaviors to the mean amount of harassing behaviors, a "middle level" group whose experiences ranged from the mean amount of harassing behaviors up to 2 standard deviations above the mean; and a "highest level" group whose level of experience was 2 standard deviations or more above the mean. Stratification allows different groups to have different hazard rates. Overall, the hazard rate increased over time, indicating that the risk of turnover increased over time for those individuals still in the military at any particular time point. Examination of the figure shows that women who experienced more sexually harassing behaviors have the highest hazard rate and hence are most at risk for turnover at all points in time. Likewise, women who experienced the lowest levels of sexually harassing behaviors have the lowest hazard rate. The impact of harassment does not level off over time; rather, it continues to be felt. Whatever the mechanics of recovery from harassment, it appears that it is a time-consuming process.

The more comprehensive model, including pay grade, marital status, organizational commitment, and sexual harassment, was also examined with the sample restricted to enlisted participants only, and again with the sample restricted to members of the officer corps only. For both, a standard model was used, as the proportional hazards assumption was found to hold after examination of the extended models. The G^2 values for both models were significant, indicating an improvement in fit due to the predictors. As for the model with the entire sample, full model chi-squares were compared with the reduced models' chi-squares for both the enlisted sample and the officer corps sample.

When the model was examined with only the enlisted sample, sexual harassment no longer made a unique contribution. All other predictors did, however. The largest effect was found for the pay grade variable; for each one-unit increase in rank, there was a 37% decrease in turnover risk. When the model was examined with only the officer sample, marital status no longer made a unique contri-

Table 3
Cox Regression Prediction: Inclusive Model

Main effect terms	Coefficient *b*	exp(*b*)	Likelihood-ratio test
Paygrade rank	−.12	0.89	205.91
Marital status	−.16	0.86	7.73
Sexual harassment	.08	1.09	12.98
Organizational commitment	−.32	0.73	142.31

Note. All likelihood-ratio data are significant at the $\alpha = .01$ level. Overall statistics: null model deviance = 27,226.91; model deviance = 26,671.96; likelihood ratio = 554.95.

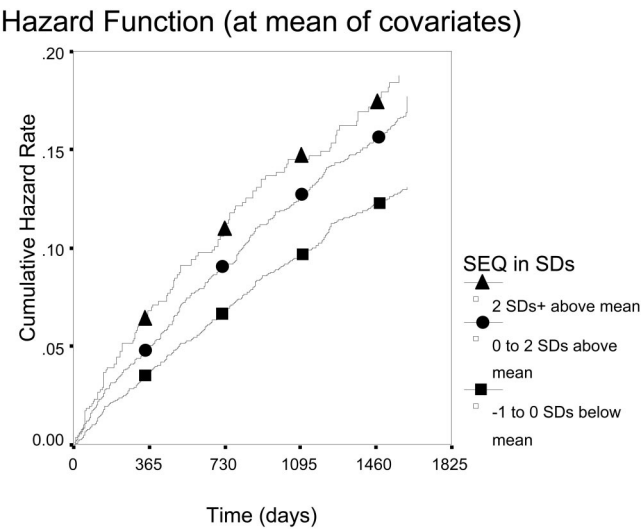

Figure 2. Hazard function for the inclusive model, stratified by Sexual Experiences Questionnaire score in standard deviations.

bution. All other predictors, including sexual harassment, did. As before, the largest effect size was for rank such that with every promotion, there was a 33% decrease in turnover risk. For officers, with each standard deviation increase in sexual harassment, there was a 24% increase in turnover risk. Tables 4 and 5 present the model statistics of both the simple pay grade and inclusive models for the enlisted sample and officer sample, respectively.

At the suggestion of our reviewers, we examined an additional model that contained a job attitudes composite. We originally planned to examine a model containing a job satisfaction composite, commitment, and sexual harassment. However, as the correlation between the satisfaction composite and commitment was .71 when uncorrected for attenuation (and hence multicollinearity was a risk), we decided to combine satisfaction and commitment into an overall job attitudes composite. For this analysis, demographic variables were excluded, as they were not theoretically interesting as mediators. A standard model was used, because the proportional hazards assumption was found to hold after examination of the extended model. The G^2 value for this model was significant, and the attitude composite and sexual harassment made unique contributions. The exponentiated coefficient for sexual harassment indicated that a one-deviation increase in harassment resulted in a 12% increase in the risk of turnover, although as would be expected, the attitude composite had a larger effect. After ascertaining that the proportional hazards assumption held for models of the enlisted and officer samples, similar proportional hazards models were run. The predictors also improved fit for these models, and likelihood-ratio chi-squares indicated the individual predictors made unique contributions. In the officer model, the effect of sexual harassment (32%) exceeded that of the attitude composite (18%), although the reverse was true for the enlisted model (8% and 28%, respectively). The results for these three models are displayed in Table 6.

Sexual harassment is itself a significant predictor of turnover. As is shown in Table 1, it is significantly related to all proposed attitude mediators. As the exponentiated effect of a model in which only sexual harassment is included is 25%, it may be seen that the

Table 4
Enlisted Only, Cox Regression Prediction, Simple and Inclusive Models

Model and main effect terms	*b*	exp(*b*)	Likelihood-ratio test
Simple model			
Paygrade	−.45	0.64	465.70*
Sexual harassment	.10	1.11	16.72*
Inclusive model			
Paygrade/rank	−.47	0.63	392.52*
Marital status	.24	1.27	12.27*
Sexual harassment	.05	1.05	3.37
Organizational commitment	−.30	0.74	100.87*

Note. Asterisks indicate that data are significant at the $\alpha = .01$ level. Overall statistics (inclusive model): null model deviance = 20,637.80; model deviance = 20,006.94; likelihood ratio = 630.86.

Table 5
Officers Only, Cox Regression Prediction, Simple and Inclusive Models

Model and main effect terms	*b*	exp(*b*)	Likelihood-ratio test
Simple model			
Paygrade	−.40	0.67	68.10*
SEQ	.30	1.34	22.12*
Inclusive model			
Paygrade/rank	−.41	0.67	66.99*
Marital status	.16	1.17	1.59
Sexual harassment	.21	1.24	11.69*
Organizational commitment	−.34	0.71	28.92*

Note. Asterisks indicate that data are significant at the $\alpha = .01$ level. Overall statistics (inclusive model): null model deviance = 4,777.60; model deviance = 4,648.49; likelihood ratio = 129.10. SEQ = sexual harassment.

Table 6
Cox Regression Prediction, Attitude Composite Models

Model and main effect terms	Coefficient *b*	exp(*b*)	Likelihood-ratio test
Full sample[a]			
Attitude composite	−.34	0.71	162.46
Sexual harassment	.12	1.12	25.32
Enlisted sample[b]			
Attitude composite	−.33	0.72	117.95
Sexual harassment	.08	1.08	10.53
Officer sample[c]			
Attitude composite	−.21	0.82	19.40
Sexual harassment	.27	1.32	9.20

Note. All likelihood-ratio data are significant at the $\alpha = .01$ level.
[a] Overall statistics: null model deviance = 27,226.91; model deviance = 26,963.19; likelihood ratio = 263.72. [b] Overall statistics: null model deviance = 20,637.80; model deviance = 20,467.03; likelihood ratio = 170.76. [c] Overall statistics: null model deviance = 4,777.60; model deviance = 4,738.57; likelihood ratio = 39.02.

inclusion of mediators does reduce, but not eliminate, its impact. Hence, full mediation does not occur. Moreover, across numerous analyses, harassment did in fact have effect magnitudes roughly comparable to those of other predictors, which included important job attitudes and demographic variables.

Discussion

The present study has important theoretical implications for both the turnover and harassment literatures. With respect to sexual harassment, our results support the widely held—but generally untested—belief that women who are harassed often leave their jobs to escape the situation. Although intuitively reasonable, support for this hypothesis has previously rested on the largely anecdotal evidence provided by court cases as well as the results of generally uncontrolled retrospective studies.

Fitzgerald and Rounds (1994) were the first to suggest theoretical underpinnings for the harassment–turnover relationship, locating their argument within the general framework of work adjustment theory (Dawis & Lofquist, 1984; Lofquist & Dawis, 1991). Work adjustment theory posits that tenure is the outcome of worker satisfaction and satisfactoriness (i.e., success). These authors argued that the conception of job requirements–worker abilities fit proposed to explain the satisfactoriness basis was too narrow, ignoring as it does variables critical to women's success or failure (i.e., sexual harassment). Likewise, they suggested that work values–work reinforcer complementarity was important but inadequate to explain job satisfaction, at least in the case of female employees. The present study is the first to provide direct support for their contentions.

Another perspective on the effects of sexual harassment on turnover (and, perhaps, related behaviors) is provided by the literature on stress and coping. Lazarus and Folkman (1984) presented an appraisal-centered transactional approach to stress and coping. They suggested that individuals cope with stress in individual ways and that this process must be considered in context. Two general types of strategies were suggested: emotion focused and problem focused, the latter referring to practical attempts to solve the stressor-induced situation.

These ideas were assimilated into the literature on harassment by Fitzgerald and her colleagues (Fitzgerald, 1990; Fitzgerald, Swan, & Fischer, 1995), who developed a classification of harassment coping strategies that parallels but particularizes the more general ideas of Lazarus and Folkman (1984). Fitzgerald and her colleagues' two dimensional system includes both the *internal* (i.e., emotion-focused) strategies of endurance, denial, detachment, reattribution, and illusory control as well as the *external* (i.e., problem-focused) strategies of avoidance, appeasement, assertion, seeking organizational relief, and seeking social support, thus giving theoretical grounding to what had previously been a largely descriptive endeavor. Of these, research indicates that avoidance is by far the most common method of coping with sexual harassment (e.g., Fitzgerald et al., 1988; Gutek, 1985; Magley, 2002). Within this framework, actual turnover can be seen as the most dramatic example of avoidance behavior, recognized in legal formulations as the construct of "constructive discharge." The U.S. Supreme Court is currently considering whether harassment-driven turnover (i.e., constructive discharge) constitutes a tangible employment action resulting in direct liability for the employer (see *Suders v. Easton*, 2003).

Finally, the confirmation of an unmediated effect of sexual harassment on turnover provides empirical support for more complex models of turnover, such as the unfolding framework developed by Lee, Mitchell, and their colleagues (Lee & Mitchell, 1994; Lee et al., 1999; Lee et al., 1996). It should be noted, however, that our findings do not provide unqualified support for the unfolding model, whose complexities are only approximated here. A thorough investigation of this framework would require intimate knowledge of the paths participants take to turnover. Although the military does record separation codes that index reasons for leaving, these are general categories that do not really reflect the individual particularities of the turnover process.

We suggest here several partial explanations of why sexual harassment should influence turnover (and possibly related behaviors) both directly and indirectly, each of which invokes the concept of time. First, the impact of stressors on turnover is most appropriately seen as a process. Affective events theory (Weiss & Cropanzano, 1996) suggests that negative events have effects on affect, and hence on turnover, but only as mediated by satisfaction. Affect also impacts more immediate and impulsive behaviors. But what if there were a slightly more direct path to turnover? Weiss and Cropanzano noted that affect initiates a coping response (as in Lazarus & Folkman, 1984) that can have implications for performance, via behaviors such as lateness and absenteeism. If withdrawal is conceptualized as a process over time, it is reasonable to see turnover as the endpoint (and most extreme example) of this process.

Over a period of time, long after initial affect fades, the effects of a major stressor manifest through negative mood and emotions, eventually affecting overall job satisfaction, which in turn affects turnover. Over the shorter term, on the other hand, affect initiates a coping response that includes multiple behaviors, the most common of which is avoidance. This coping response is a process in which unsuccessful strategies are successively replaced (or supplemented) by different ones on the basis of the particular context (Magley, 2002). This process is reminiscent of Hulin's (1991) description of withdrawal as an adaptive response—specifically, a progression model in which relatively minor avoidance behaviors may escalate (relatively) rapidly into turnover (see also Rosse & Miller, 2000, for a more recent discussion of this idea). This more spontaneous, shorter term process is also compatible with the unfolding model of turnover, which specifies that people who take the paths from shocking event to turnover without pausing for job attitudes to intervene will leave the organization sooner than will individuals who take mediated paths (Lee et al., 1999). Moreover, it is consistent with the conceptualization of turnover as frustration response (e.g., Chen & Spector, 1992). Future research in the relationship of stressors operationalized as negative events and turnover and related behaviors should be conducted with an eye to investigating and explicating the dynamics of the overall process.

Turning to our specific results, the majority of our predictors had an impact on turnover; however, a very intriguing finding in terms of the effects of sexual harassment was revealed when additional analyses were performed to address the incommensurability of the pay grade variable across enlisted and officer ranks. Advancement within the organization has an impact on whether a person will quit, as expected. When the two extended models were

examined with an enlisted-only and officer-only sample, the impact of sexual harassment on turnover was reduced to nonsignificance for the enlisted sample but remained an important predictor for the officer sample.

This reflects an important reality of military life: Enlisted service members have a specified term of service obligation and are less free to leave the organization than are employees of other organizations. Within the officer corps, however, only new officers have a term of service obligation; officers, therefore, have greater freedom to leave the military. Enlisted women may therefore feel obligated to endure greater hardships than do women in the officer corps, including hardships such as sexual harassment; it may simply be more practical for them to wait until their term of enlistment is complete. Nevertheless, it should be noted that the turnover rate is higher among enlisted woman than among officers. As discussed in greater detail in Fitzgerald, Magley, et al. (1999), enlisted women experience a greater frequency of most types of unwanted sex-related behaviors (the exception is sexist hostility, which is experienced more frequently by women in the officer corps). It is conceivable that sexual harassment is almost a normative experience for enlisted women rather than a shocking event. For women in the officer corps, somewhat less subject to harassment, who have fewer restrictions on turnover and, importantly, presumably greater potential for good jobs in the civilian labor market, sexual harassment experience is an important predictor of turnover. This explanation is compatible with extant theoretical work on turnover, which suggests that job opportunities are influential in the decision to turnover (e.g., see Hom & Griffeth, 1995; Hulin, 1991).

Although this study represents an important step in that it provides some idea of the harassment–turnover process over time, both as mediated by job attitudes and without mediation, other improvements may be warranted. For example, we investigated the effects of sexual harassment on turnover for women only; different results may be found for men. Prior research (Gutek, 1985) that investigated turnover due to harassment among men found a far lower rate than among women. However, at least for women, it seems likely that the relationship between sexual harassment and turnover may generalize to other organizational contexts, particularly those with a tradition of male dominance and a skewed gender ratio (as is the case with the military)—factors that have been identified as contributing to sexual harassment (Fitzgerald & Shullman, 1993).

Other mediators should be addressed in future research to confirm that the present findings are not caused merely by omitted variables. Though several of the most consistent and important predictors of turnover were examined, other important variables are suggested by the literature. For example, health conditions may mediate the relationship, as seen in the Illinois model itself (Fitzgerald, Drasgow, et al., 1997), although it should be noted that the direct relationship between sexual harassment and health conditions was not significant and was not retained in further examinations of the model (e.g., Fitzgerald, Drasgow, & Magley, 1999). Other mediators may be more promising. For example, although not specifically addressed in the present article, sexual harassment does demonstrate consistent effects on the mental health of harassment victims (e.g., Dansky & Kilpatrick, 1997). It seems likely that psychological distress would demonstrate some relationship with turnover and/or absenteeism.

In summary, turnover is a very expensive behavior. White, Nord, Mael, and Young (1993), for example, indicated that costs of attrition for the 1986 Army were, on average, $14,130 (for training) plus an additional amount between $3,270 and $16,758 (for recruitment). So the cost of attrition—encompassing only easy-to-calculate costs of training and recruitment and ignoring workplace disruption and other costs that challenge quantification—ranged from $17,400 to $30,888. In 2004 dollars, that represents approximately $29,998 to $53,251. As the military represents a special case organization funded by taxpayers, decreasing the organizational costs of attrition by decreasing the amount of sexual harassment would represent a significant savings to taxpayers as a by-product for something that they should do (and are attempting to do) anyway. Thus, to the moral imperative is added a practical one.

This study represents an important contribution to the literature and provides insights into the causes and nature of an important and expensive behavior. It uses actual turnover rather than a proxy withdrawal variable, and actual turnover has strong implications for organizational effectiveness in addition to its financial impact. Even given the numerous and complex influences on turnover, our analyses indicate that sexual harassment has a serious direct and indirect effect on employee retention, which may be seen as a measure of organizational well-being.

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