

CHAPTER 4

AGE-RELATED TRENDS IN WORKERS' SUBJECTIVE WELL-BEING AND PERCEIVED JOB QUALITY¹

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The aging of the labor force is a well-documented phenomenon in developed countries around the world. In the U.S., this trend is associated with two events: (1) the aging of the baby boomer cohort, and (2) the early 1990s reversal of the long-term decline in labor force participation rates for individuals over 55 (Mosisa & Hipple, 2006). In the period 2005–2020, the number of U.S. workers aged 55 years and older is expected to increase

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from just over 24 million to nearly 40 million. This represents an average annual growth rate of 4.2%, compared to virtually no growth (0.20%) for workers in the younger 25–54 year age group or the workforce overall (0.76%; Toosi, 2006).

Developed countries experiencing this type of worker demographic shift, including the U.S., have created new priorities in response to it. Especially in countries with little overall population growth, further attention will need to be given to ways to retain their older workforce members to sustain national economies. Additionally, there is a growing need to give greater attention to designing jobs that older persons can continue to safely and effectively perform. This is both a social imperative and a precondition for retaining older workers.

Efforts to control levels of job stress faced by older workers may be an important measure for addressing these priorities. A large body of research documents age-related declines in physical and psychological functioning, including decrements in strength and endurance; sensory and psychomotor function; and aspects of cognitive functioning like cognitive speed, memory, and novel problem solving (Wegman & McGee, 2004). These declines raise the possibility that demanding conditions in today's workplace—including long work hours, lean production technologies, and rapid technological change—may be especially stressful for older workers and even place them at higher risk for illness and injury (Barnes-Farrell, 2005; Griffiths, 2007; Kowalski-Trakofler, Steiner, & Schwerha, 2005; NRC, 2004). However, research addressing age differentials in sensitivity to workplace exposures is sparse, and one popular conjecture is that risks associated with declining function might be offset by older workers' accumulated skills and experiences, compensatory strategies, and improved coping styles (Barnes-Farrell, 2005; Griffiths, 2007; Kowalski-Trakofler et al., 2005; Robertson & Tracy, 1998; Wegman & McGee, 2004). A review of literature conducted by the National Research Council (NRC; Wegman & McGee, 2004) cites this offset hypothesis and found that, at least for performance outcomes, acquired experience may not fully compensate for effects of age-related declines.

In addition to the risks stress may pose to the health and safety of older workers, accumulating literature also points to an influence of stressful working conditions on older persons' early withdrawal from the workforce. Pioneering studies on "workability" by the Finnish National Institute of Occupational Health have looked broadly at workplace factors contributing to aging workers' declining capacities and ensuing disability retirements. Of interest, these studies found that conditions commonly recognized as risk or protective factors for job stress (esteem, recognition, and supervisory relationships) were strong predictors of work capacity (Tuomi et al., 1997; Tuomi, Ilmarinen, Martikainen, Aalto, & Klockars, 1997).

Results from other investigations in Scandinavia and Europe complement these findings. In a Finnish study of workers in the health and social services sector, high levels of job demands and low levels of job control were both separately and interactively predictive of early retirement thoughts (Elovainio, Forma, Kivimäki, Sinervo, Sutinen, & Laine, 2005). Similarly, an analysis of data from nearly 7,000 participants in the first round of the European Survey of Health, Aging and Retirement also found that that stressful working conditions (defined by low control and effort-reward imbalance) predicted early retirement intentions (Siegrist, Wahrendorf, von dem Knesebeck, Jürges, & Börsch-Supan, 2006). Other European work has linked stressful conditions with actual retirement, not just intentions to retire. Organizational restructuring and routine, unchallenging tasks were both associated with early retirement in a 1994 study of civil servants in the Netherlands (Hennekens & Tazelaar, 1994). Job dissatisfaction was predictive of retirement in the prospective study of British civil servants enrolled in the Whitehall II study (Mein, Martikainen, Stansfeld, Brunner, Fuhrer, & Marmot, 2000).

Assuming that stressful working conditions do pose a risk to the health and safety of older workers (whether or not the risks are elevated in comparison to younger workers' risks) and that such conditions lead to early withdrawal from the workforce, the question of interest becomes: *how stressful is the work situation for older workers?* Evidence from credible sources like the General Social Survey (GSS) suggest that today's workplaces, in general, are surprisingly stressful. Data from recent waves of the GSS reveal that nearly one third of all workers view their jobs as "often" or "always" stressful, though older workers do report somewhat lower frequencies of job stress than younger workers do (Davis, Smith, & Marsden, 2002).

The purpose of this chapter is to broadly examine the evidence on risks of job stress among older workers and better gauge risks to their health and workforce retention. An exhaustive review of the relevant literature is beyond the scope and intention of this chapter; rather, we try to provide a representative sampling of pertinent research, including studies of pivotal significance and a summary of recent National Institute for Occupational Safety and Health (NIOSH) investigations on this topic. We begin with an overview of research on comparative levels of reported job stress and other aspects of subjective well-being among workers of different ages as an indirect measure of stressful working conditions among older workers. We then turn to a smaller body of research on age differences in reported exposures to job quality factors that are associated with job stress as a more direct indicator of stressful working conditions among older workers.

AGE DIFFERENCES IN THE SUBJECTIVE WELL-BEING OF OLDER WORKERS

Age and reported levels of job stress are our primary focus, but mental health outcomes (mainly anxiety and depression) and job satisfaction are worth mentioning in order to broadly characterize workers' age-related affective changes potentially influenced by the quality of work. Research on this topic encompasses a range of occupation-specific studies and broader representative surveys employing both simple descriptive analyses and multivariable statistical strategies and also sometimes exploring possible higher-order age effects. Our review of this work begins with narrower studies and proceeds to the more complex investigations. Overall, it shows a rather positive picture emerging for older workers: The bulk of the evidence provides little or no indication that subjective well-being deteriorates with age. On the contrary, the studies more commonly suggest that older workers experience reduced levels of job stress and improved overall mental health and job satisfaction levels in comparison to younger workers.

Job Stress

Findings from both occupation-specific investigations and findings from large representative surveys suggest that job stress levels decline for older workers. However, these results are a bit uneven, and stronger evidence of this trend comes from studies in the U.S. than from European research. An occupation-specific study of work experiences of middle-aged (30–53 years) and preretirement-aged (54–72 years) white-collar workers in the U.S. by Remondet and Hansson (1991), for example, found that older workers report significantly less job tension/stress and reduced generalized stress than younger workers. Similarly, age-related reductions in reported stress are reported in an occupation-specific study of Scottish physicians (Swanson, Power, & Simpson, 1996).

Recent NIOSH analyses of data from more representative worker surveys further support these findings. We observed a trend toward reduced stress among older workers in analyses of data from the 2004 wave of the Health and Retirement Survey (HRS) conducted by the University of Michigan. The HRS is a biennial survey of 22,000 workers aged 50 and older (Sauter, Streit, & Hanseman, 2009). Agreement with the survey item "my job involves a lot of stress" declines across age strata in the sample, from 63% for workers aged 51–64 years, to 39% for workers aged 65–74 years, to 27% for workers older than 74. We also found a similar age gradient in reported job stress in analyses of data from the 2002 NIOSH Quality of Work Life Survey (QWL) (Sauter et al., 2009). The QWL is administered as a module of the

GSS and captures data on occupational health and job quality from nearly 1,800 working U.S. adults. Unlike the descriptive analyses dominating studies of age and stress, we employed hierarchical regression techniques in our analyses of the QWL data, controlling for a variety of demographic factors (gender, education, race, marital status) and job attributes (tenure, status, self-employment, home work, full- or part-time work, multiple job holding) when investigating associations of age with stress and other outcomes. Even after controlling for these, we still found a significant monotonic decline in the frequency ("always" to "never") with which workers aged 18–89 years reported work as stressful.

In contrast to the trend toward declining stress among older workers seen in both occupation-specific studies and the broader NIOSH investigations, the results of several large European surveys provide a more complex picture of the age-stress trend. Smith (2001), for example, observed an association between age and stress in over 4,000 workers sampled from the Bristol (UK) electoral register. In this case, the relationship appears to be curvilinear, not monotonic, in nature. Workers aged 41–50 years in this sample were the most likely (21%) to report feeling "very" or "extremely" stressed at work. In comparison, just 17% of workers 50 years or older reported such high levels of stress—a rate very close to the rate for high levels of stress for workers aged 18–32 years (16%). Also, in a recent expansive review of the literature on the health of aging workers, Griffiths, Knight, and Mohd Mahudin (2009) reported that a frequent finding in age and job stress research is that workers in their 40s and 50s are the age group to report the highest job-related stress levels.

Data from the British Labour Force Surveys further highlight these age-stress complexities and also bring to light the complications with defining "older workers." The British Labour Force Survey is a quarterly survey of 60,000 UK households and is the primary vehicle in the UK for gathering data on work-related illness and injury in the British workforce. Griffiths (2007) reported results from the 2004–2005 survey showing that stress, depression, and anxiety are among the most populated categories of work-related illness, and these conditions are more prevalent among older (aged 45 years to retirement) than younger workers (under 45 years). Conversely, when the Labour Force Surveys of 2004–2005 to 2007–2008 were assessed collectively, Griffiths et al. (2009) discovered a relatively flat, inverse u-shaped relationship between age and the three work-related illnesses. Here, workers aged 35–54 years had the highest self-reported levels of stress, depression, and anxiety, and workers aged 55 years and older had the lowest levels (with workers 34 years and younger in between). Further exploration of this relationship, however, discovered little difference between workers 34–60 years old but found a decrease in anxiety, depression, and stress in workers over 60.

Finally, no age–stress trend is found at all in data from the Third European Survey of Working Conditions, which captures data from nearly 16,000 workers from EU15 countries. Ilmarinen (2005) reported that analyses of health data from this survey fail to show EU15-wide differences in the prevalence of work-related “psychosomatic syndrome” (affirmative response to one or more items pertaining to stress and tension, general fatigue, sleeping disorders, anxiety, irritability, or mental trauma) between workers under and over 45 years of age. There are also no age differences in the prevalence of “stress syndrome” (affirmative response to one or more items denoting head- and stomachache, stress, general fatigue, or tension). However, it is worth considering whether or not the age split chosen for these analyses might be masking notable trends. To illustrate this possibility, it is plausible that age effects may also have been absent in the Smith (2001) study had the sample been split at age 45 because of the symmetrical downturn in stress for individuals both younger and older than 41–50 years.

Mental Health

In comparison to studies of age and stress outcomes, there is stronger concurrence among studies of age and mental health outcomes that increasing age is protective of subjective well-being among workers. The outcomes investigated in many of these studies are context-free measures of mental health, however. Therefore, attribution to the workplace may be less certain than for job stress and job satisfaction outcomes.

A study of 634 Hong Kong managers aged 20–72 years by Siu, Spector, Cooper, and Donald (2001), for instance, found that older workers exhibit improved mental well-being as it is measured on the Occupational Stress Indicator-2 (Williams & Cooper, 1996). Declines in depression and anxiety among older workers also appear in several additional studies. The older cohort (aged 54–72 years) in Remondet and Hansson’s (1991) study of white collar workers had significantly lower scores on the Center for Epidemiologic Studies Depression Scale (CES-D) than did the younger cohort (aged 30–53 years). Similarly, Frone, Russell, and Barnes (1996) reported significant negative correlations between age and CES-D scores among employed parents in two studies of work-family conflict using data from large random community samples.

Analyses of data from representative surveys of workers support the age trends in mental health seen in these narrower studies. Most recently, a study of more than 60,000 workers from large private and public organizations in Australia uncovered age-related declines in self-reported psychological distress as measured by the Kessler-6 component of the World Health Organization’s Health and Performance at Work Questionnaire (Hilton et al., 2008).

Additionally, data from the Canadian Community Health Survey were used to examine the age distribution in major depressive episodes from a weighted sample of nearly 750,000 Canadian workers (Blackmore et al., 2007). Analyses of these data showed the odds of depression for workers significantly declining across age strata, from 18–24 years to 35–44 years to 55+ years.

Our own analyses of HRS and QWL data also show age-related declines in mental health problems among workers (Sauter et al., 2009). Analyses of the 2004 HRS revealed a lower 12-month prevalence of two or more weeks of feeling sad, blue, or depressed among workers aged 65–74 years (7%) than those aged 51–64 years (22%). Unlike the continuing decline seen in reported stress among the oldest HRS cohort, however, the prevalence rate for these dysphoric states increases among workers older than 74 (17%). Additional examination of the age pattern in mental health using a question taken from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance Survey, which asked survey participants to report the number of days in the last 30 days their mental health (including stress, depression, and problems with emotions) was not good (CDC, 2000). Similar to the monotonic age trend we saw for the QWL job stress measure, we found a significant, age-related, linear decline for this mental health indicator.

Finally, similar to the curvilinear age–stress relationship reported by Smith (2001), analyses of data from two large British surveys found curvilinear relationships between age and mental health indicators. In a study of nearly 1,700 employed British adults, Warr (1992) found workers in early middle age have higher levels of anxiety and depression than either younger or older workers. Although these two curvilinear effects became nonsignificant when other possible explanatory or mediating variables were added to Warr's analyses, significant linear relationships remained, depicting decreases in depression and anxiety as age increased. Analysis of General Health Questionnaire scores from over 5,000 employed participants in the 1991 British Household Panel Study also revealed a curvilinear effect of age on mental health. In this study, middle-aged workers reported poorer context-free mental health than younger and older workers did (Clark, Oswald, & Warr, 1996). However, unlike suppression of the curvilinear trend in Warr's (1992) analyses when covariates were added to the analyses, the curvilinear trend remains significant after adjustments for 80 control variables.

Job Satisfaction

Similar to evidence of age-related reductions in job stress and improvements in mental health, studies also show that aging is a protective factor for workers' job satisfaction. Remondet and Hansson's (1991) survey

of white-collar workers, for example, found significantly higher levels of job satisfaction among older workers (54–72 years) than younger workers. More recently, the Conference Board (2007) reported a similar trend in a sample of 5,000 U.S. households. Nearly half of workers aged 55 years and older reported they are satisfied with their jobs—the largest satisfied proportion of any age group. Our analyses of 2004 HRS data extend this trend to very old workers in the U.S. (Sauter et al., 2009). We found 28% of workers aged 51–64 years strongly agree that they “really enjoy” going to work. This strong level of agreement increased to 34% of workers aged 65–74 years and 46% of workers older than 74 years.

This trend toward age-related improvements in job satisfaction is further sustained in several large U.S., UK, and multinational studies. These implement more extensive controls for possible confounding dispositional factors (e.g., positive/negative affectivity and general mental health, work values and rewards), and job-related factors (e.g., salary, firm size, occupation, tenure, salary, supervisory status, working hours, and job autonomy) that might otherwise explain the age effect. Analyzing data from a sample of nearly 11,000 participants in the International Social Survey, Clark (2005) found age-related improvements in job satisfaction. Rode (2004) reported a similar trend in a longitudinal study of nearly 900 workers in the University of Michigan Americans' Changing Lives Survey. Our analyses of 2002 QWL data also revealed a significant, positive, linear relationship between age and job satisfaction (Sauter et al., 2009). Finally, a positive correlation between age and job satisfaction was also found in the Siu et al. (2001) study of Hong Kong managers. This effect, however, became nonsignificant when work-related explanatory variables were incorporated into the analyses.

Similar to findings in some of the studies of stress and mental health outcomes already described, several additional studies observed curvilinear relationships between age and job satisfaction that favor both younger and older workers. Using data from nearly 1,400 individuals participating in the 1972–1973 U.S. Quality of Employment Survey, Kalleberg and Loscocco (1983) first found a significant linear trend toward increased satisfaction among older workers, but they then uncovered significant curvilinear trends depicting reduced satisfaction in middle age. Clark et al. (1996) also found support for quadratic and linear effects of age in their analysis of the data from the 1991 British Household Panel Study. Job satisfaction levels decrease into the thirties, after which they pick up again and continue to increase into old age. The curvilinear trends observed in the Kalleberg and Loscocco (1983) and Clark et al. (1996) studies hold even with controls for numerous covariates in each study. Finally, a u-shaped relationship between age and job satisfaction was reported by Hochwarter, Ferris, Perrewé, Witt and Kiewitz (2001) in a U.S. study of 2,200 university employees; here, sat

isfaction levels reached their lowest points for 40- to 49-year-old employees. This time, however, an additional linear trend was not found.

AGE DIFFERENCES IN JOB QUALITY

In comparison to the quantity of research on age and subjective well-being, studies of age differences in exposure to workplace risk factors for stress are relatively scarce. Of interest, findings from many of these studies are complementary to the results of investigations of age and subjective well-being and suggest improved job quality for older workers. Our own analyses of QWL data even provide evidence of higher-order effects of age, showing that aspects of the work environment are rated more positively by older and younger workers than by middle-aged workers. However, some studies are less encouraging, showing deterioration in various dimensions of job quality for older workers.

We begin with an overview of findings from the large European Survey of Working Conditions. Next, we draw comparisons of these findings with results from occupation-specific studies and other representative surveys of working populations. We then turn to results from our own analyses of the HRS and QWL. Finally, we report on QWL analyses that go beyond simple age-job quality associations to ask whether age moderates the relationship between job quality and subjective well being (i.e., the "differential sensitivity" effect raised in the introduction to this chapter).

Using data from the 2000 administration of the European Survey of Working Conditions, Ilmarinen (2005) and Molinié (2003) conducted comprehensive analyses of age differentials in the conditions of work. Results of these analyses suggest that age is generally protective with regard to exposure to stressful conditions. Workers over 45 years of age report greater opportunities to take breaks at will; increased control over their work tasks, work methods, and workloads; and stronger matches between their skills and job requirements. Additionally, these workers report reduced work pace, repetition of work, and shift work (although working hours were greater). One gender-specific effect worth noting is that older women report greater task complexity than younger women.

Several of the trends seen in the European Survey of Working Conditions, particularly between age and job control, replicate findings from earlier research. The Remondet and Hansson (1991) study of white-collar workers, for example, found that older workers reported fewer threats to job control, less disruption of performance, and greater job involvement levels. The study of Hong Kong managers by Siu et al. (2001) found older workers report a greater internal locus of work control and reduced total sources of stress than younger workers do. Similarly, data from Warr's

(1992) report on aging and well-being among British adults showed significant associations of age with job control (decision latitude) and demand. In view of the curvilinear functions seen in several studies of age and subjective well-being, it is interesting to note that only the quadratic form of the age term is significant in Warr's data. In this case, however, both control and demands are reduced for older (and younger) workers.

Evidence of age-related reductions in stressful working conditions measured in more general terms is also found in studies of aging and well-being in general populations. In a 1996 study of over 1,000 Boston males participating in the longitudinal Normative Aging Study (Aldwin, Sutton, Chiaro, & Spiro, 1996), the prevalence of "work problems" declines steadily and substantially from the cohort aged 45–54 years to the older cohorts. Also in an Australian community study of nearly 7,500 individuals found significant reductions in reported crises at work from age 40–44 to age 60–64. There is also a reduction in threats to job loss from the age 20–24 to the age 60–64 cohort (Jorm, Windsor, Dear, Anstey, Christensen, & Rodgers, 2005).

Still, evidence of age-related deterioration in the work environment does appear in some of the literature. Several studies converge to suggest poor supervisory interactions and reduced opportunities for development and growth among older workers. Data from the European Survey of Working Conditions, for example, show that older workers face reductions in training and learning opportunities and fewer proactive and problem-solving discussions with supervisors (Ilmarinen, 2005). Warr and Birdi (1999) similarly found participation in voluntary development activities declining among older workers when studying 1,800 employees of a UK vehicle manufacturing company. Additionally, in a large representative sample of the Swedish working population, Aronsson, Gustafsson, and Dallner (2000) found reductions in supervisory support and encouragement for workers aged 46–55 years and reduced learning and development opportunities for workers aged 56–65 years.

Our own recent analyses of HRS and QWL data lend mixed support to the foregoing findings (Sauter et al., 2009). Similar to the reductions in job demands reported by Warr (1992), steady reductions across age strata in the 2004 HRS are seen in agreement with the statement that "the job requires me to do more difficult things than it used to." There was 48% agreement with this statement among 51–64 year old workers, compared with only 27% agreement among workers aged 64–74 years and 16% agreement among workers aged >74 years. Also, corresponding somewhat to the increasing control over rest breaks for older workers in the European Survey of Working Conditions (Ilmarinen, 2005), HRS data show steady age-related increases in the proportion of workers reporting the ability to reduce their working hours, with 33% of workers aged 51–64 years, 54% of 64–74 years and 60% of >74 years able to reduce their hours.

Our analyses of QWL data found age trends for eight of 23 job quality measures. All of these trends are favorable for older workers but one, and some consistency with other findings is evident. We found less work overload among older workers, which is similar to the age-related reductions in work demands reported by Warr (1992) and the reduced job difficulty seen in our analyses of the HRS. Our QWL analysis results also replicate Ilmarinen's (2005) findings of less exposure to shift work among older workers. Further, our QWL analyses showed reduced promotional opportunities among older workers, complementing findings of reduced developmental opportunities observed in earlier studies (Aronsson et al., 2002; Ilmarinen, 2005; Warr & Birdi, 1998).

Our analyses failed, however, to substantiate the associations of age with control or skill use that are rather prominent in earlier studies (Ilmarinen, 2005; Molinié, 2003; Remondet & Hansson, 1991; Sui et al., 2001; Warr, 1992). Also, we found several associations not evident in prior studies. We found that older workers report fewer long work days, fewer conflicting demands, fewer staffing problems, improved organizational climate, and improved job security. Some of the inconsistencies between our findings and other results may stem from differences in statistical approaches. While we employed multivariable statistical models in examining age-exposure relationships, simple descriptive analyses dominate the earlier studies. In fact, when simple bivariate analyses of QWL data were conducted, we found significant associations of age with both autonomy and skill use, which is similar to the associations of age with control and skill-match reported by Ilmarinen (2005). However, neither of these effects were significant in our final multiple regression models.

Finally, it is worth noting that all but the promotion, climate, and shift work effects in the QWL data are curvilinear, and the trend is consistent with effects for subjective well-being in some of the studies described earlier. Similar to the improvements in well-being seen in older and younger workers over that of middle-aged workers, relative improvements in working conditions were also evident among older and younger workers in the QWL sample.

As a last step in our analyses of the QWL, we investigated possible age differences in the effects of job quality factors. Prior research of this nature is sparse. The NRC (Wegman & McGee, 2004) uncovered a few relevant studies, but the results were mixed and inconclusive. Using multivariable statistical models once again, we investigated the effects of the interaction of age with 23 different job quality factors on nine health and well-being outcomes. The results of this effort, however, were limited and clustered around just a few exposures. Advancing age is associated with progressive improvements in subjective well-being when the social environment is supportive (coworkers are helpful and express interest) and with progressive

decline in health outcomes when the environment is unsupportive. The same pattern of age-related divergence in health was seen for good and poor organizational climates—advancing age is associated with progressive improvements in subjective well-being when the climate is good and with progressive decline when the climate is poor. However, an opposite age effect occurred with variations in compensation (salary and benefit levels). Poor levels of compensation are associated with poorer health and subjective well-being for younger more so than older workers, and this age difference diminishes as compensation improves.

Some of these interactions might suggest that older workers have heightened sensitivity to variations in job quality. However, other interpretations are possible. Because our analyses cannot untangle the effects of age and exposure history, it is possible that some of these effects result instead from the influence of cumulative exposure. The more favorable outcome for older workers when the climate and social environment are positive, for example, could simply reflect the effects of older workers' longer exposure to positive work environments. Similarly, less favorable outcomes for older workers in the presence of a negative environment might reflect effects of longer exposure to these conditions for older workers.

DISCUSSION

Taken at face value, findings from research on the subjective well-being and job quality of older workers are encouraging. In general, the evidence points to reduced levels of job stress among older workers. There is also stronger evidence of improvements in the mental health and job satisfaction of older workers. Further, apart from findings of restricted developmental opportunities, exposures to job risk factors for stress appear to be no greater for older workers; in fact, they may even possibly be less than those for younger workers in some respects. There is some convergence of evidence suggesting, for example, that older workers experience improvements in job control, reductions in workload, and less exposure to shift work than their younger counterparts do. Finally, our recent analyses of QWL data provide little evidence that older workers are more vulnerable than younger workers to stressful workplace exposures.

Some of the age trends revealed in the present overview also show up in the results of a recent meta-analysis of 203 studies, where the relationship of age, occupational stressors, and outcomes was examined (Adams & Burn 2008). Consistent with the age trends in subjective well-being summarized in this overview, this meta-analysis found modest negative correlations of age with depression and job dissatisfaction. Also, similar to the increase in job complexity among women workers reported by Ilmarinen (2005) and

evidence of age-related reductions in demands and job difficulty in several studies (Ilmarinen, 2005; Warr, 1992; our HRS analyses), the Adams and Burns' meta-analysis found a modest positive correlation of age with job complexity and a negative association of age with role overload. In most cases, the confidence intervals for these correlations and other age effects uncovered in their meta-analysis crossed the zero point, suggesting a high degree of variability in the results of the examined studies and detracting from the significance of the observed relationships.

Various explanations have been offered for age-related improvements in the subjective well-being of workers, and many of these explanations apply as well to evidence of improved job quality among older workers, albeit more equivocally. Perhaps the most simple and straightforward explanation is that some of these trends may reflect the promotion or migration of older workers to better or higher-valued jobs and to positions that provide access to resources to better manage job demands (Warr, 1994; Wright & Hamilton, 1978). Curvilinear effects depicting a decline in well-being and job quality in the middle years in some study findings might result from the customary increases in occupational pressures in the midlife (Folkman, Lazarus, Pimley, & Novacek, 1987; Warr, 2007).

Other explanations focus on the contribution of psychological mechanisms to age trends in the subjective well-being of workers. Older or more senior workers may possess improved coping skills, improved emotional regulation, and better access to sources of support. Any or all of these potentially increase their capacities to deal with the pressures of work (Barnes-Farrell, 2005; Folkman et al., 1987; Hansson, Robson, & Limas, 2001; Warr, 1994). Along this line, changes in work-related aspirations and values of older workers, either as a coping mechanism or as a developmental process, may account in part for age differentials in the subjective well-being of workers. The salience of working conditions that are troublesome to younger workers may, for example, be reduced for older workers (Clark et al., 1996; Kalleberg & Loscocco, 1993; Warr, 2007). Some support for this viewpoint comes from a Finnish study comparing workers' ratings of workplace quality (mainly physical attributes) with the research team's independent ratings (Räsänen, Laitinen, & Rasa, 1997). The study found younger and older workers rate their work environments more satisfactorily than middle-aged workers do, but this trend is less evident in the researchers' ratings. The study concluded that "the younger workers' assessments were more realistic . . . whereas the other age groups seemed to be oversatisfied compared to the real situation" (Räsänen et al., 1997, p. 518).

Semmer and Schallenger (1996) bring these two lines of reasoning—focus on the job and focus on workers' skills, capacities, and psychological adjustment—together into a more integrative framework to help explain the improved subjective well-being among older workers. They suggest, for

example, that workers become more satisfied while growing older through a process of reciprocal adaptation, in which they personally develop in accordance with the demands of the job and concurrently mold the job to their own characteristics.

It is also possible that age-related improvements in the subjective well-being of workers originate in part from non-occupational experiences, namely, as a form of spillover from age-related improvements in context-free subjective well-being (Clark et al., 1996; Warr, 1997). Similar observations in occupational samples, numerous studies employing community samples (i.e., samples including non-workers) have demonstrated age-related reductions in depression and anxiety (e.g., Christensen et al., 1999; Jorm et al., 2005; Regier et al., 1993), improvements in general mental health (Clark et al., 1996; Warr, 1997), reductions in stress (Aldwin et al., 1996), improvements in happiness (Diener & Suh, 1998; Yang, 2005), and improvements in life satisfaction (Mroczek & Spiro, 2005). Supporting this spillover hypothesis, many of these studies show worsening well-being through the middle years with improvement thereafter. This is similar to the curvilinear trends in well-being we described for many of the studies in occupation-specific samples.

Finally, it is possible that the favorable age trends reported in this context are in whole or part artifacts resulting from "healthy worker" effects or cohort effects that go undetected in the cross-sectional studies predominating in the literature presented here. Although labor force participation rates for older workers have been increasing for two decades, these rates (2005 estimates) still fall dramatically as workers age—dropping from 80% for workers 25–54 years old, to 63% for workers 55–64 years old, and to 22% for workers 65–74 years old (Toosi, 2006). To the extent that declining health or low quality jobs contribute to early withdrawal from the labor force, it is possible that the favorable age trends described in this overview are biased by the presence of a surviving pool of workers who are uncharacteristically healthy or occupy uncharacteristically high-quality jobs. On the other hand, the u-shaped relationships between age and several of the quality measures found in our analyses of QWL data show improvement in job quality in midlife (ages 40–50 years) when labor force participation rates are still highly stable, suggesting that healthy worker effects alone are insufficient explanations for these trends.

It is also possible that age-related trends reported in cross-sectional studies reflect differences between generations of workers in terms of the underlying conditions responsible for their well-being and not the effect of chronological aging. Warr (2007) comments, however, that a cohort effect is less plausible in view of the curvilinear relationships commonly reported between age and well-being. It would require a change in the underlying conditions from the oldest cohort (with higher levels of well-being) to

middle-age cohort (with lower levels of well-being), with a change back for the youngest cohort (with higher levels of well-being). Also relevant to concerns about cohort effects, Yang (2008) directly investigated cohort effects in a study of age and happiness using GSS data from 1972 to 2004. Of interest, results of this study showed that even after controlling for cohort effects, a gradient reflecting age-related increases in happiness is still evident.

In sum, the weight of the evidence would seem to suggest that work experiences are no more stressful for older persons than they are for younger workers. Taken together, findings for indicators of subjective well-being suggest even greater contentment among older workers, although evidence of improved job quality is more equivocal. While this trend is encouraging from the standpoint of protecting the health and safety of older workers and preserving their participation in the workforce, the literature on stress outcomes and job quality is not as well-developed, as the research on mental health and job satisfaction and the findings are somewhat uneven. Further research would be useful to better characterize these trends and untangle the contributing factors, but it is unlikely that much progress can be made in the absence of longitudinal panel studies or surveillance systems that capture data on job exposures and worker well-being across stages of the working life. Notably, this is the number one recommendation of the NRC for research to better understand the health and safety needs of older workers (Wegman & McGee, 2004).

We caution readers against over-generalizing the findings and trends revealed in this overview. Our focus was limited to the domain of subjective well-being (affective states) and occupational exposures most commonly associated with these types of outcomes. It is plausible, even perhaps likely, that age effects for other types of occupational health outcomes and exposures differ from trends reported here. For example, QWL analyses by Grosch and Pransky (2009) found a slight decline in back pain among older workers, which is similar to the age-related improvements in subjective well-being we have described here. However, they also found that physically demanding work (repetitive lifting) increases the risk of back pain considerably more for older workers than it does for younger workers (i.e., evidence of the vulnerability effect). This finding is very unlike our analyses of QWL data, which provided little evidence that poor job quality affects the well-being of older and younger workers differently.

NOTE

1. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

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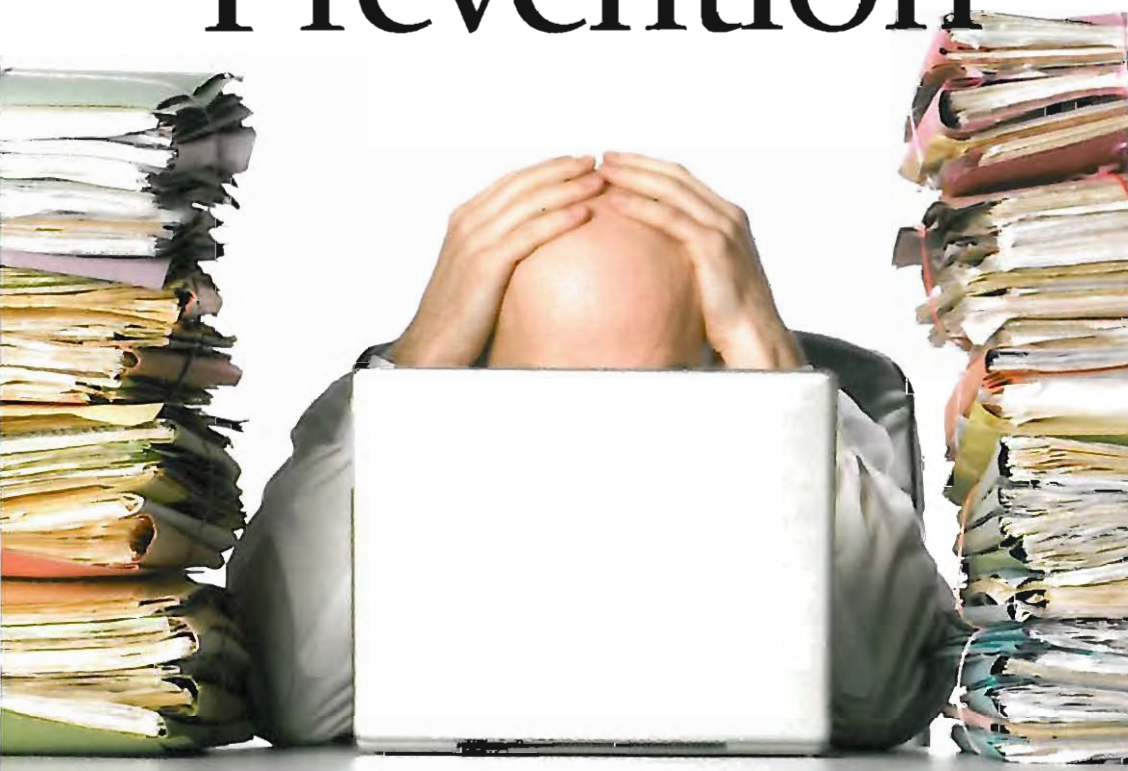
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