Washington State Department of Labor & Industries

SHARP Safety & Health Assessment & Research for Prevention

Washington State Janitorial Workload Study

Progress report to the Legislature

June 2020

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Table of Contents

Executive Summary

Introduction

In 2018, the Washington State Legislature enacted a budget proviso requiring the Department of Labor & Industries (L&I) to conduct a new, four-year research project to address high injury rates among janitors in Washington by studying the impacts of janitorial workload. L&I's Safety and Health Assessment and Research for Prevention (SHARP) program began a study in 2018 with the goal of identifying janitorial workload issues that can be changed to reduce the risk of injury to janitors. The study is expected to be completed in 2022.

This progress report provides updated information to the legislature and the public about the Washington State Janitorial Workload Study. All components of the study are detailed in this report.

Completed research

The study began with formative research to identify and characterize the needs of the janitorial workforce. This formative research included:

- Conducting focus groups with janitors to discuss workplace health and safety needs, workload, and organization of work. Other topics discussed were job hazards, equipment, supervisor/manager relationships, wage/hour issues, and stress.
- Holding individual interviews to explore workplace mistreatment.
- Completing an economic scan of the janitorial cleaning industry, to provide context for this study and research results within economic realities for both workers and employers.

The formative research has been completed, and full details are provided in this report's appendices.

Ongoing research

The majority of the study is ongoing, and brief reports on the progress and status of all ongoing components are included in this report.

Ongoing components include:

- A statewide survey of janitors to gain understanding of their safety and health risks and learn more about their job tasks, hazards, exposures, and work issues.
- Worksite visits at participating janitorial firms. SHARP has completed several visits, and more are planned. During these worksite visits, staff collect detailed, job-specific data about biomechanical and physiological exposures, which is critical in

assessing typical Washington state janitorial workload. Several of these worksite visits had been planned for the spring and summer of 2020, but have not been done due to COVID-19 safety and health restrictions. Our workload data reflect cleaning demands in the pre-COVID-19 workplace. Given that controlling COVID-19 relies partly on cleaner building environments, workload demands may increase as a result of the pandemic. An overview of the progress to date of worker physical exposure assessments is provided in this report. We anticipate providing a final report in June 2022 with the data available to us to relate workload to injury risk.

- Individual interviews with injured workers who have filed workers' compensation claims. SHARP is conducting these interviews to obtain more information about the causes of injuries. This report includes a progress report of work done to date.

Summary of research and data to date

Since July 1, 2018, we have developed our study design, obtained institutional review board approval for all necessary study components, and have completed formative research including nine focus groups (46 participants), 18 individual mistreatment interviews, and an evaluation of the state and national economic landscape to better situate the study and recommendations.

Next steps

- Complete worksite visits.
- Restart individual interviews.
- Conduct a statewide survey of janitorial employers.
- Continue to develop multilingual and multimodal education and training resources.
- Develop and test a workload calculator.

Introduction

BACKGROUND & SCOPE

Janitorial work is labor-intensive, demanding, and often exposes workers to physical and psychosocial hazards that increase the risk of work-related injuries.[1]

The number of janitors and cleaners (excluding maids and housekeeping cleaners) employed in Washington increased by about 20 percent between 2013 and 2018.[2] Janitorial workload also increased. A study of union and non-union janitors found that reported work intensity increased 8.6 percent over a three-year period.[3] In Minnesota, surveys conducted to identify the relationship between workload and injury found that an increase in self-reported workload was correlated with occupational injury.[4]

In Washington, prior research suggests that janitors are at higher risk of injury than most other occupations;[5] however, more research was needed to better understand the workplace and hazards faced by janitors.

The Washington State Legislature provided the Department of Labor & Industries, Safety & Health Assessment & Research for Prevention (SHARP) Program funds in 2018 to conduct research to address the high injury rates of the janitorial workforce. The research must:

- Quantify the physical demands of common janitorial work tasks
- Assess the safety and health needs of janitorial workers
- Identify potential risk factors associated with increased risk of injury in the janitorial workforce
- Measure workload based on the strain that janitorial work tasks place on janitors' bodies

[1] Teran & vanDommelen-Gonzalez, 2017. Excessive Workload in the Janitorial Industry. Berkeley: Labor Occupational Health Program: University of California, Berkeley.

[2] BLS (Bureau of Labor Statistics) (2020). Occupational Employment Statistics. https://www.bls.gov/oes/tables.htm

[3] Seixas N, Domínguez C, Stover B, Simcox N. (2013, August). Janitors Workload and Health and Safety. Department of Environmental and Occupational Health Sciences, University of Washington.

[4] Green, D. R., Gerberich, S. G., Kim, H., Ryan, A. D., McGovern, P. M., Church, T. R., ... & Arauz, R. F. (2019). Janitor workload and occupational injuries. American Journal of Industrial Medicine. 62(3):222-232

[5] Smith and Anderson, 2017. Work-related injuries among commercial janitors in Washington State, comparisons by gender. Journal of Safety Research. 62:199-207

The department must conduct interviews with janitors and their employers to:

- Collect information on risk factors
- Identify the tools, technologies and methodologies used to complete work
- Understand the safety culture and climate of the industry
- Issue an initial report to the legislature by June 30, 2020, assessing the physical capacity of workers in the context of the industry's economic environment
- Ascertain usable support tools for employers and workers to decrease risk of injury

Cleaning workers in the public sector are generally called "custodians," and those in the private sector are called "janitors." This report generally refers to cleaning workers in the private and public sectors as "janitors."

JANITORIAL STUDY

Study goals

The primary goal of the Washington State Janitorial Workload Study is to quantify the physical workload of janitors so that janitorial workers' workload can be appropriately assigned. This goal will lead to our primary outcome, which is to reduce work-related injuries among janitors.

Understanding the physical workload of janitors will be achieved through:

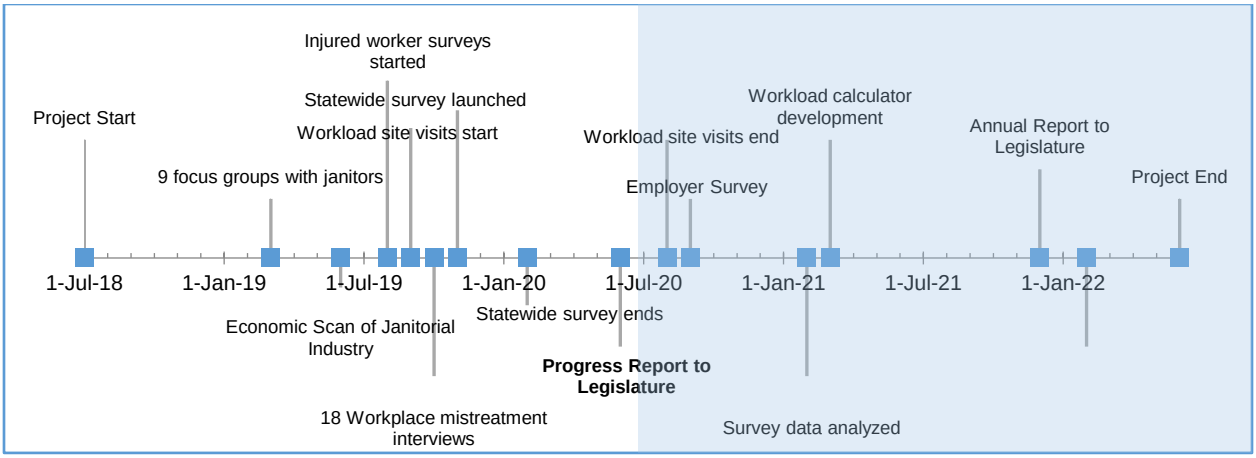
- Worksite visits, whereby janitorial task observations can be made to collect biomechanical and physiological workload estimates.
- Survey and interview data to assess psychosocial and safety climate perceptions.
- Injured worker interviews to collect more detailed data about the environmental and workplace characteristics in which the injury occurred.

All of the above workplace factors, together with exposure duration, determine the risk factors and exposures (workload) for individual workers. A worker's capacity (both physical and psychological) will determine whether the workload is too high for the individual worker. Too high a workload results in negative health outcomes.

Study components

To accomplish the complex task set forth by the legislature, SHARP designed a four-year study, which involves a multidisciplinary team of occupational health and safety researchers and includes multiple research phases and components. A timeline of study components is shown in Figure 1.

Figure 1: Timeline for the Washington State Janitorial Workload Study*



**Blue shaded area indicates future activities. Project end date is 06/30/2022.*

Preliminary or formative research was conducted to understand current issues facing janitors at work, including safety and health training; workload; work pace; equipment issues; and workplace mistreatment, bullying, and violence. In addition, preliminary research included an economic scan of the janitorial industry, both in Washington and nationally.

These formative research findings are included as final reports in Appendices A through C of this report. The data was valuable in developing the remainder of the study, including injured worker interview questions and employer surveys.

The formative research provides significant insights into the lives of janitors in Washington, and will help provide context for future study results within the economic, social, and physical circumstances in which janitors work and janitorial firms operate.

Progress reports for each research component

L&I has completed focus groups, workplace mistreatment interviews, and an economic scan of the janitorial industry. These activities are summarized in this section. More detailed information is included in Appendices A through C.

The Washington State Institutional Review Board reviewed the materials, methods and protocols of this study, and deemed it as exempt research.

FOCUS GROUPS

Janitors' own expert knowledge of their working conditions and needs was solicited to help determine priorities for the design and implementation of the study. L&I used focus groups to identify pressing health and safety needs of janitors in Washington, using their own words, expertise, and experiences.

Methods

From September 2018 to June 2019, L&I conducted nine exploratory focus groups involving 46 janitors. Five focus groups were conducted in Seattle and four in Spokane. Five were facilitated in Spanish and four were facilitated in English. All but one of the nine focus groups was composed of union-represented janitors. Almost half (48 percent) of the focus group participants were Latino. Participants were evenly split between men and women. Women were more likely to identify as Latina (73 percent) and men as white (67 percent).

Focus groups were audio recorded and transcribed by a professional transcription service; Spanish-language focus groups were transcribed first into Spanish, then into English. Focus group facilitators reviewed all transcripts for completeness and accuracy. In addition, each group had a researcher taking notes, to add to the transcribed records. No personally-identifiable information was collected, and participants were instructed not to use proper names in the meetings. All focus group participants were given a small token of appreciation ($25 gift card).

SHARP researchers created a general focus group guide that centered around three main themes:

- Top safety and health challenges at work
- Work organization, workload and pace
- Workplace policies, training and injury reporting

Clarifying questions were asked within each topic area, and participants were encouraged to bring up additional issues not addressed in the guide. Among the topics brought up by participants were:

- Lack of adequate supplies and working equipment
- Interpersonal issues with supervisors and coworkers
    - Harassment, bullying and discrimination
    - Claims suppression/intimidation; and how well these efforts work against immigrant janitors.
- Issues with pay, sick leave, and overtime

In addition to sharing concerns, focus group participants provided examples of how they cope and even thrive in their work, regardless of the challenges. These examples are described throughout this report.

Findings

Due to the complex nature of qualitative analyses and the timely need to present the results of our exploratory focus groups, this report focuses on major results and provides quotes from participants to tell their story of working in the janitorial sector in Washington.

Almost all of the 46 janitors who participated in these focus groups shared similar examples of being overworked, rushing to get the job done, and lack of sufficient supplies, as well as being forced to use broken equipment. All of these issues have resulted in a stressed, frustrated labor group that is often working while sick or injured.

Among the more common coping mechanisms mentioned were support from coworkers (helping each other out), as well as formally presenting complaints to the union for action. The union was described as very helpful in accessing information about worker rights, and presenting this information to non-English speaking janitors.

Overview of concerns

Focus group participants described the following concerns:

- Safety climate
- Lack of management commitment to safety
    - Lack of safety and health training
    - Lack of safe equipment, personal protective equipment (PPE), and supplies
    - Unsafe and unmanageable workload, fast pace, stress, and fatigue
    - Abusive supervision and discrimination
- Unlawful business practices, including wage and hour violations

Key recommendations

Focus group participants made the following recommendations for improving their working conditions:

- Hold periodic workplace safety inspections, and conduct routine checks of job sites to identify where extra help is needed to prevent workers from taking unsafe risks.
- Improve company policies and procedures for workplace safety and health.
- Provide training for supervisors and janitorial staff, including language-appropriate safety and health training for janitors.
- Provide equipment in good working order, and regularly maintain equipment.
- Provide personal protective equipment (PPE).
- Ensure adequate quantity of cleaning supplies.
- Evaluate and improve workload and how tasks are scheduled.
- Rotate task assignments to help prevent injuries caused by repetitive motion.
- Prevent and reduce abusive supervision and discrimination.
- Increase enforcement of labor standards.

The janitorial industry is very diverse. In our focus group recruitment efforts, we identified 25 different primary languages; however, time and resource constraints limited us to only English and Spanish-language focus groups. Consequently, there may be gaps in the information we received and the key issues identified, due to the lack of cultural and linguistic diversity among participants.

Conclusion

Janitors report being at a high risk of injury due to several factors, including the pace of work and the expectations of supervisors and company management. Additionally, janitors in our focus groups describe numerous incidents of harassment, bullying, and discrimination; and most felt helpless to prevent or report these incidents. Increased education on worker rights will help, but only if there are meaningful ways to uphold those rights and investigate these complaints. Immigrant and nonunion janitors appear to be especially vulnerable to abusive workplaces.

The most common issue raised in almost all of the focus groups was poor safety climate, including lack of management commitment to safety; lack of safety and health training; lack of adequate staff, equipment, PPE, and supplies; abusive supervision; and high workload. There were also multiple examples of additional workplace stressors contributing to unsafe workplaces, and a concerning violation of worker rights regarding wage and hour violations and discrimination.

The focus groups were just a small sample of janitors in Washington, but they presented a clear need for systematic evaluation of the work janitors do, the training they receive, and a call for increased oversight of the workplace. Addressing these issues is difficult, due in large part to the complex nature of janitorial worksites (for example, multiple layers of responsibility, which may include building owners, management companies, building

tenants, and janitorial employers – all of whom may play a role in determining worksite conditions). Responsibility for safe workplaces and how companies will ensure legal protections should be standardized and written into janitorial and tenant contracts.

WORKPLACE MISTREATMENT INTERVIEWS

This section presents findings from a qualitative interview study on janitor workplace mistreatment. L&I's field research and analysis of narrative data focused specifically on discriminatory harassment, sexual harassment, and the consequences of mistreatment for janitor safety and health.

Purpose and scope of the formative study

Stress in the workplace is related to increased risk for numerous physical and mental health conditions, including cardiovascular disease, depression, and anxiety. Documentation of the physiological pathways for the relationship between stress and these disease outcomes demonstrates that psychosocial work contexts affect health.[6]

A recent Stanford study found that job insecurity increased the odds of reporting poor health by about 50 percent; high job demands raised the odds of having a physician-diagnosed illness by 35 percent; and long work hours increased mortality by almost 20 percent. Mistreatment at work and related perceptions of injustice have been found to contribute to poor worker mental and physical health.[7] Therefore, it is imperative to account for health effects of workplace environments when designing policies to improve individual health outcomes.

Research objectives

L&I's research objectives for the formative study derive from an occupational health psychology perspective:

- Obtain background knowledge on janitors' perceptions of workplace mistreatment experiences, and work conditions that may contribute to mistreatment.
- Recommend to the legislature ways to respond to the study findings.

Overall objective

[6] Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health: A multidisciplinary review. Journal of Management. 39:1085–1122. http://dx.doi.org/10.1177/0149206313475815

[7] Robbins, J. M., Ford, M. T., & Tetrick, L. E. (2012). Perceived unfairness and employee health: A meta-analytic integration. Journal of Applied Psychology. 97:235–272. http://dx.doi.org/10.1037/a0025408

The study's overall objective is to understand questions related to:

- Janitors' experiences with mistreatment and harassment at work.
- The impact of mistreatment and harassment on workers' physical and mental health.
- Janitors' workplace psychosocial context and its meaning for marginalized workers.

Study design and method

L&I conducted in-person, semi-structured interviews on the topic of workplace mistreatment, including general harassment, sexual harassment, and violence. The Washington State Institutional Review Board (WSIRB) approved all research documents and procedures.

SHARP researchers used purposive sampling methods to recruit for and conduct individual interviews with janitors in Washington working to clean high-rise office buildings who have experienced workplace mistreatment. Participants (18) worked primarily in Seattle, Bellevue, Tacoma, and Spokane. They included 11 janitors, three janitor foremen, three union shop stewards, and one union representative for janitorial workers.

Fifty-six percent of participants reported an education level of elementary/middle school, and 44 percent reported a high school/some college education level. Participants' gender was 61 percent female, and average age was 47 years. All participants except one (94 percent) worked full-time, with an average of 40 hours per week; 64 percent worked a night shift. Participants' race included African American/black (17 percent), American Indian/Native Alaskan (six percent), Hispanic/Latinx (67 percent), and white (11 percent). Interviews were conducted in English (28 percent) and Spanish (72 percent).

Qualitative analysis

SHARP researchers used a method known as consensual qualitative research (CQR) to examine narrative data. This method is characterized by open-ended interview questions, small samples, a reliance on words over numbers, the importance of psychosocial context, an integration of multiple viewpoints, and consensus of the research team.[8] [9]

[8] Hill, C., Thompson, B., & Williams, E. (1997). A guide to conducting consensual qualitative research. The Counseling Psychologist. 25:517–572. http://dx.doi.org/10.1177/0011000097254001

[9] Hill, C. E., Knox, S., Thompson, B. J., Williams, E. N., & Hess, S. A. (2005). Consensual qualitative research: An update. Journal of Counseling Psychology. 52(2):196-205. http://dx.doi.org./10.1037/0022-0167.52.2.196

Quotes were selected to illustrate primary and secondary themes and are presented in everyday language, incorporating participants' own words, to describe the psychological event, experience, or phenomenon of interest. [10]

Findings

In the narrative data, janitors reported mistreatment primarily from company managers and supervisors, but also from coworkers and others working in the buildings they cleaned. The types of mistreatment included discriminatory harassment, sexual harassment, retaliation, wage and hour violations, and psychological and physical abuse.

- Discriminatory harassment was reported as racist behaviors or differential treatment based, for example, on participants' race/ethnicity compared to other workers whose race matched the race of the supervisor (often white).
- Sexual harassment was reported as inappropriate comments, touch, video imagery, and other behaviors from supervisors, coworkers, and in one case an on-site vendor.
- Retaliation was described as a company or supervisory response to worker complaints about their work tasks, worker union involvement, and worker formal reports of or efforts to seek outside union help with wage and hour violations and discriminatory and sexual harassment. Common company retaliation practices included increasing a janitor's workload following a complaint or request, and firing janitors from the job.
- Psychological harassment was the most commonly reported mistreatment behavior. This included humiliating the worker in front of others, verbal abuse, social exclusion, harmful rumors and gossip, denying worker requests, and ignoring health complaints, along with coercive insistence that janitors comply with supervisor demands for excessive work.
- Janitors reported wage and hour violations and delay or denial of benefits. These incidents were described as employers taking advantage of immigrant workers' lack of knowledge of standard U.S. business practices and worker rights. Language differences, communication difficulties, and limited job opportunities also contributed to workers' exposure to this type of mistreatment.

Janitors reported that mistreatment on the job affected their health and safety in various ways, including:

- Physical and mental health strains including injuries, anxiety, distress, and physical/mental fatigue or burnout. Strain was described as linked to a high-stress work environment with psychologically abusive treatment, sexual and discriminatory

[10] Denzin, N. K., & Lincoln, Y. S. (2011). The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (pp. 1-32). Thousand Oaks, CA: Sage.

harassment, and disregard for workers' needs and human rights that janitors reported as difficult to bear.
- The mental distress and depressed mood spilled over into janitors' family lives, affecting their ability to care for their children and fully engage with family, partners, and friends.
- Janitors participating in interviews exhibited resilience, courage, and strength alongside fear of and actual economic harm, dissuasion, and negative effects on physical and mental health. Over time, with limited resources and without adequate recourse to address their work problems, janitors reported fewer protections and greater harm. This was especially the case for immigrants with limited English proficiency and non-union workers with limited personal financial resources or knowledge of their worker rights.
- The primary source of social support was the union, if janitors could overcome their fear of job loss and retaliation to reach out for assistance. The union was often the only support reported as a source of information and instrumental assistance toward filing grievances, recovering lost wages, and reporting discrimination and sexual harassment.

The following recommendations to prevent and address workplace mistreatment derive from janitors' own recommendations and from L&I's narrative data analysis. They are specific to L&I's sample of janitors.

- Enforce labor standards - increase effectiveness of worker protections by strengthening L&I's wage/hour and worker rights enforcement.
- Revise sexual harassment policy to include protection related to abusive supervision (see CA AB 2053; Appendix C).
- Train both workers and employers on worker protections and rights related to wage and hour violations, discrimination, sexual harassment, psychological harassment, and retaliation.
- Provide social support to encourage resilience – strengthen social programs, labor policies, and union capacity for worker programs that support problem solving and education, and build resilience and health.
- Address janitors' requests to be treated with equality, humanity, dignity and respect (for example, include these concerns in employer/supervisory training).

Conclusion

This study contributes new knowledge regarding the mistreatment and harassment of janitorial workers. The study findings align with previous research on workplace mistreatment; participants also confirmed that mistreatment and harassment are strong social stressors in their workplaces. Findings suggest that janitors' health and well-being would benefit from interventions that not only reduce mistreatment and harassment, but also increase their knowledge of resources and social support.

Findings present participants' perceptions that their health, well-being and performance were harmed by mistreatment and harassment, primarily from managers and supervisors, but also from coworkers at their places of work. This research opens up an opportunity to address psychosocial exposures and health and safety impairments that janitors experience on the job.

Future research analyses from janitor survey quantitative data are needed to fully examine and potentially corroborate the findings from the qualitative research findings presented in this report.

ECONOMIC SCAN OF JANITORIAL INDUSTRY

L&I conducted an economic scan to characterize how economic pressures on janitorial services firms affect worker safety, and how safety performance may be improved.

Background

Employment

In 2016, Washington's janitorial industry had an annual payroll of over $400 million.[11] Almost 70 percent of these workers were employed in the King-Snohomish-Pierce county region. According to Washington State Employment Security Department (ESD) records, over 18,000 individuals worked in this industry in the second quarter of 2017.[12]

Services provided

The janitorial services industry in Washington specializes in providing commercial cleaning services primarily to office buildings, public facilities such as restaurants, and health care facilities. In addition, in some school districts, contractors classified in this industry conduct cleaning of elementary and secondary schools.

Contracting and vendors

Most commercial cleaning work is done by workers employed by specialized janitorial services firms. These firms contract either directly with clients, or with a building management firm that provides a range of building management services to clients.

[11] United States. (2016). County Business Patterns. U.S. Department of Commerce, Bureau of the Census, Data User Services Division.

[12] Washington State. (2017). Quarterly unemployment insurance database, 2nd quarter, 2017. WA Department of Employment Security

When a company needing janitorial services -- the “lead firm” -- contracts with a building management firm for services such as security, grounds-keeping, and cleaning services, the lead firm and the building management firm negotiate the details of the cleaning contract before soliciting bids. These details include frequency and scope of work, and performance standards. The building management firm then contracts with separate vendors to supply the needed services. These vendors may be independent, owner-operated janitorial services firms; or franchised outlets of a large, branded janitorial services company.[13]

Responsibilities of janitorial services firms

Whether an independent or franchised firm is used, only the janitorial services firm hires and manages the workforce. The lead firm, which controls the worksite and determines the scope of the work, has no contact with workers. The janitorial services firm is also responsible for complying with all applicable wage/hour, occupational safety and health, and environmental regulations.

Small janitorial services firms contracting with clients in a competitive market with low barriers to entry for new start-ups are under significant pressure to keep costs low. If they are franchisees, they must control costs while still following the franchisor’s required standards of performance and paying fees for royalties, management, and any interest payments on capital borrowed from the franchisor. Such constraints on their revenues may result in a focus on production, rather than on compliance with occupational safety and health standards and wage/hour rules.

The purpose of this economic scan is to assess whether such pressures on janitorial services firms affect safety performance of janitorial services contractors, and how such performance may be improved.

Economic scan methods

The economic scan uses a variety of existing data sources to characterize Washington’s janitorial industry. Descriptive demographic information was pulled from the American Community Survey of the U.S. Census Bureau. Industry and occupation classifications used throughout the scan were the Census Occupation code (4220), and the North American Industry Classification System (NAICS) code (56). Employment and earnings (including full-time equivalent positions (FTEs) and headcount employment, number of firms, and hourly earnings for firms) came from employers reporting hours in Washington Industrial Insurance

[13] When a franchised outlet is used, the right to provide cleaning services to the lead firm’s premises is sold to a franchisee in exchange for an account purchase fee, a set percentage of the sales (royalties), and fees for management services (including marketing and contracting).

Risk Class 6602-02 or 6602-03 and NAICS 561720. Where available, data were broken out geographically and reported for the following areas:

- Statewide
- Puget Sound (Pierce, King, Snohomish, Thurston, Kitsap, Island, San Juan, Skagit, Whatcom and Mason counties)
- Metro (King, Snohomish, Pierce, Clark and Spokane counties)
- Firms with out-of-state headquarters

Additional employment and earnings data sources included L&I's workers' compensation employer tables linked to earnings, and headcount data from the Washington State Employment Security Department Quarterly Unemployment Insurance tables. Additional supporting data on hourly wages were extracted from the Bureau of Labor Statistics Occupational Employment Statistics (OES) program. National data showing the shift of janitorial employment toward a concentration within the janitorial services industry came from OES tables for years 1997 through 2017.

Additional metrics examined were:

- Output per hour: The value of output of services produced by a janitorial worker in an hour of work, tracked by the Bureau of Labor Statistics Office of Productivity and Technology.
- Worker turnover: The percentage of a given firm's workforce that is replaced by new workers when comparing one year with the following year, using data from the Bureau of Labor Statistics' Job Openings and Labor Turnover Survey.
- Employer survival: The percentage of employers active in a baseline year who are still active in the following year, using data from L&I's industrial insurance databases for 2005 through 2018.
- Seattle-area commercial office space supply: Information on the amount of office space was condensed from market reports issued by a private commercial real estate brokerage for the Seattle regional market.

Results

The economic scan shows that janitorial work has become increasingly concentrated within the janitorial services industry over the past 30 years, as businesses across other industries shed in-house workers performing this function. One incentive for this strategy is that median hourly wages for janitorial workers working for janitorial firms (NAICS 561720) are lower than for janitorial workers employed by businesses in all other NAICS industries.

The janitorial workforce in Washington is diverse, with a high proportion of workers of Latinx background. Worker turnover is high at 50 percent per year, but similar to that of workers in other low-wage occupations. Turnover rates for janitorial services firms average 20-25 percent per year. Turnover is higher at small firms, which make up over 75 percent of firms in the industry.

Janitorial services is a technologically stable industry. Consequently, output per hour for janitorial services workers has not grown since 2002. Because of this, and because the industry is composed of many small, competitive firms, wage growth has merely kept pace with inflation. In King County, recent growth in office space area within the Seattle Central Business District is outpacing the growth in the area's supply of janitorial services workers.

Conclusions

Although janitorial work has always been low-wage, the outsourcing of janitorial work at firms across many industries has shifted most janitorial work to a large number of small, specialized janitorial contractors that compete to provide janitorial services to clients. This has led to a reduction in wages and benefits for workers. Janitors working in the Puget Metro region earn higher wages than in rural regions. In recent years, the expansion of commercial office space in the Seattle area has outstripped the growth of the janitorial workforce. This may exert pressure to increase output per hour.

STATEWIDE SURVEY

A professional survey research firm conducted a statewide survey of janitorial workers from November 2019 to February 2020 to gather detailed information about janitorial tasks, workload, work pace, and exposures. The aim was to survey a sample of the entire commercial janitorial population of Washington, capturing robust variation – union, non-union, injured, non-injured, various company sizes, various building types, across geographic areas, and of all demographic characteristics.

The information gathered from this survey will inform future study activities and guide the creation of injury/illness prevention materials, education/training materials, intervention activities, and outreach.

Methods

Identifying and recruiting participants

Surveying the janitorial workforce is difficult because there are no state licensing requirements, registry, certification, trade journals or associations, or easily accessible lists of all janitors with all the needed information. Additionally, some janitors are employed directly by large firms, or are self-employed or owners of cleaning businesses in which they are the only cleaner -- and are therefore not identifiable as an employee of a janitorial company.

Adding to the difficulty is that each data source had a limited number of needed data elements or had missing elements. For example, the Employment Security Department (ESD) has records of employees of janitorial companies within the specified North American Industry Classification System (NAICS) code, but no identifying risk class information, addresses, phone numbers, or personal information for the employees. ESD's data also does not have occupation information, meaning it can't differentiate between types of workers at a firm (for example, between janitorial staff and central office staff). If we can identify individual workers, the Department of Licensing (DOL) has drivers' licenses with some contact information; however, some of that information may be incomplete or outdated.

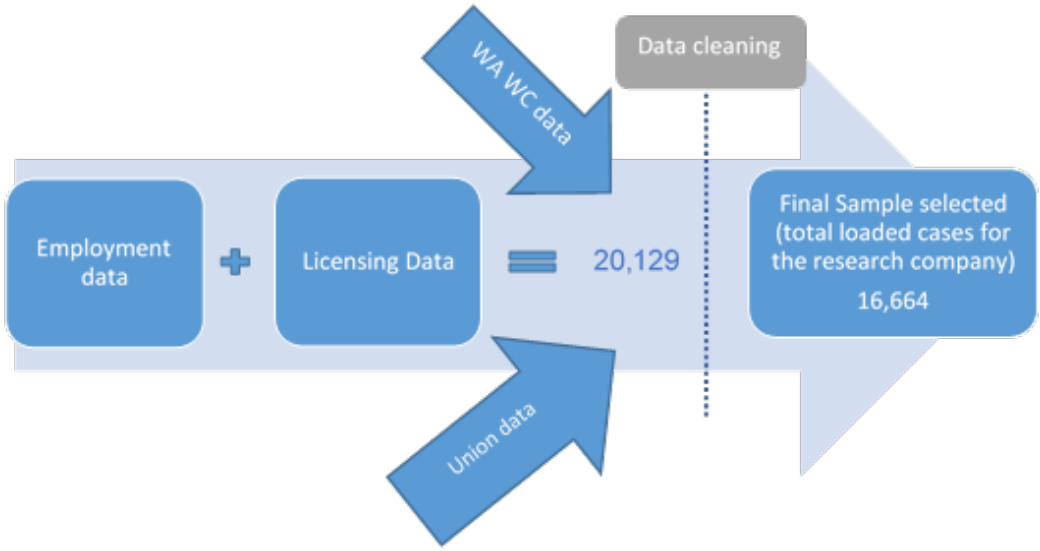
L&I also used contact and claim information for janitors who had filed workers' compensation claims, and membership rolls maintained by the union that represents janitors to identify the population to be surveyed.

All of these data sources had differing data security requirements. This required a complex web of data sharing agreements and data transfer protocols.

To resolve the data issues in order to identify the population, SHARP created a data linkage process, shown in Figure 2. The first step was to identify workers employed by janitorial services firms using ESD data. These firms were identified via hours reported by employers with the NAICS code 561720 Janitorial Services. To ensure privacy and remove bias, a final data linkage process was completed to ensure that the research team did not have access to personal identifiers. The linkage:

- Identified workers who were employed by janitorial services firms using ESD data.
- Matched the worker names to DOL drivers' license data.
- Added workers' compensation claims information for janitors (identified by risk class), then added union membership data. (The union sent their membership list to the survey research firm directly.)

Figure 2. Statewide survey data linkage process



The final sample size compiled through this process was 16,664. The survey research firm selected an initial sample of 12,847 workers to contact, then added 1,263 workers to increase the number of responses. The research company sent initial mailings to the initially selected sample on November 1, 2019.

Following the initial mailing of pre-notification and consent information, SHARP sent full survey packets explaining how to take the survey in multiple languages. Workers were provided a unique identifying pin number so that only workers who had been identified by the sampling process (verifiably janitors/custodians) were able to access the survey.

Participants had the choice of returning the questionnaire in an enclosed postage-paid envelope, filling it out online, or calling the provided phone numbers. The survey was available in: English, Spanish, Vietnamese, Somali, Chinese – Traditional, Chinese – Simplified, and Amharic; however, the mail version of the questionnaire (Appendix D) was in English only, due to the data's inability to predict which workers preferred other languages. The online version of the questionnaire was available in English and Spanish. Support for all other included languages was by phone only.

Additional janitors/custodians who found out about the survey and wanted to take it were able to do so by contacting the SHARP research team, where their name and employment information were verified. Confirmed janitorial workers were then assigned pins to enable survey access.

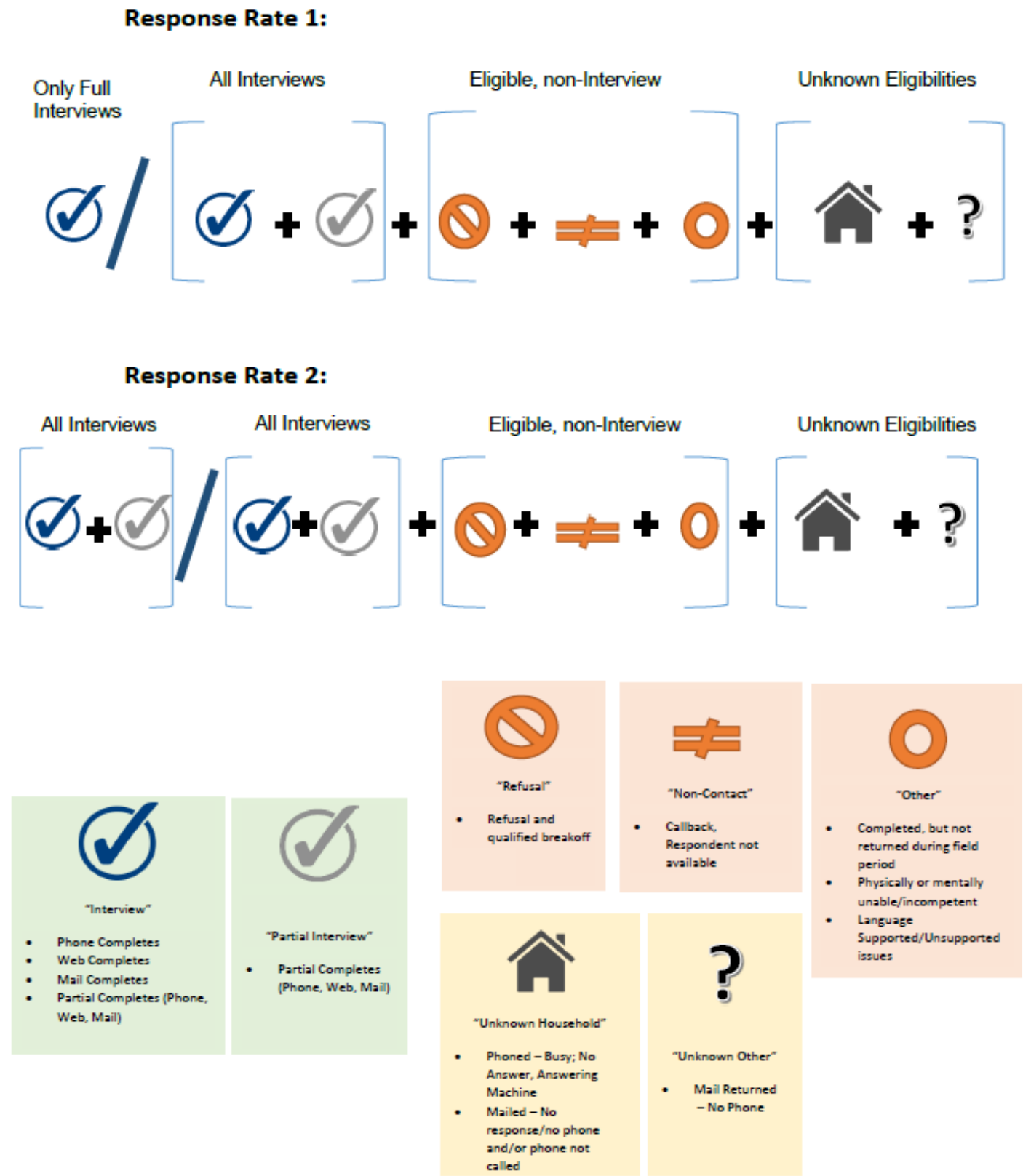
Response rates

Response rates for surveys are calculated to show the number of eligible participants in the sample that cooperate, and generally follow American Association of Public Opinion Research (AAPOR) standards. Response rates for all surveys have been declining.[14]

For this survey, two response rates and four cooperation rates were calculated. Responses are classified by eligibility and categorized for response rate calculation. Cooperation rates for this survey use the same classifications as described in Figure 3, but do not include those of unknown eligibility (who were not reached).

[14] American Association for Public Opinion Research (AAPOR). Response Rates, An Overview. https://www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Response-Rates-An-Overview.aspx

Figure 3. Response rates



Topics

The questionnaire covered an extensive range of topics. The full questionnaire in English is provided in Appendix D. Main topic areas included:

- Demographics – age, gender, race/ethnicity, income, marital status
- Work organization and tasks (workload, time, intensity), tenure, staffing, building type
- Other work information – supervisors, second jobs, extra tasks
- Occupational injury, health, and psychosocial information (workers' compensation claims/reporting, sleep, depression, body mass index, general health rating)
- Hazards, protective equipment, safety policies
- Discrimination and harassment

These topics were selected in consultation with L&I's entire team of multi-disciplinary researchers. The goal was to help identify primary hazards and physical outcomes, and help quantify workload/tasks to supplement data collected in-person during the study's workload assessment component.

The survey was pre- and pilot-tested on SHARP staff and on a selection of L&I janitors for clarity and timing. Interviewers from the survey research company also performed some pre-testing in multiple languages, and made suggestions for clarifications.

Summary of research activity to date

Active data collection took place from November 4, 2019 through February 4, 2020. Additional late returns by mail may still be received, and will be entered in the database separately.

This is the first large-scale telephone survey of janitors about their health and safety at work in Washington. As of the writing of this report, L&I has received 660 total responses to the survey, 621 of which were complete and 39 of which were incomplete. This is a total completion rate of 94 percent across all modes of completing the questionnaire.

Two response rates were calculated for this survey, as shown in Figure 3. Response rates are important to generalize survey results to all janitors. Both were in the four percent to 4.5 percent range. This low response rate was expected given the difficulty in obtaining a sample of janitors (for example, we had a very high number of "unknown households" and "unknown others," which were non-respondents of unknown eligibility who were not reached).

Four cooperation rates were calculated for this survey as well, which focus on respondents of known eligibility (those of unknown eligibility are not included in the calculations). These cooperation rates, which highlight those we were able to reach/had information for and

whether they chose to participate, were much higher than the response rates – ranging from 38 to 48 percent.

The average length of time to complete the survey was 61.9 minutes – 52.1 minutes by phone, and 77.5 minutes online. The survey research firm made 28,572 telephone calls, which includes calling unanswered phone numbers until they were able to reach a potential participant, and calling back at appointed times to conduct interviews. Figure 4 describes key characteristics of the 621 complete responses L&I received.

Figure 4: Unadjusted results from the Washington State Janitorial Workload Study statewide survey, complete response files, 2019-2020

	FREQUENCY	PERCENT
	621	100
SURVEY MODE		
Mail	389	62.6
Phone	142	22.9
Web	90	14.5
LANGUAGE ADMINISTERED		
English	533	85.8
Spanish	41	6.6
Vietnamese	32	5.2
Somali	9	1.5
Other languages	6	1.0
GENDER		
Female	349	56.2
Male	262	42.2
Prefer not to say	4	0.6
No answer	4	0.6
Transgender or Gender Nonconforming	2	0.3
MARITAL STATUS		
Married	253	40.8
Single	239	38.6
Divorced	69	11.1
Other	44	7.1
No answer	12	1.9

Refused	3	0.5
Missing	1	--
ARE/WERE YOU A UNION MEMBER?		
No	420	67.6
Yes	177	28.5
No Answer	19	3.1
Don't Know	5	0.8
WORK-RELATED INJURY/ILLNESS IN THE PAST 12 MONTHS? (DOCTOR/HEALTHCARE PROFESSIONAL DIAGNOSED)		
No	468	75.4
Yes	121	19.5
Don't Know	24	3.9
No Answer	6	1.0
Refused	2	0.3
CURRENT AGE (N=580)		
Mean years (range)	45.0	(18-80)

Next steps

L&I received data from the survey research company on February 26, 2020. This data is preliminary pending further data cleaning and analysis by the SHARP workload assessment team. The team will also analyze information from the survey on work tasks, organization, and work pace to complement the workload assessment data being gathered.

Further surveys of janitors are planned as issues are identified for follow-up through data analysis; surveys of employers will also be done to glean an understanding of their policies, issues, and needs.

In addition to technical and academic reports, L&I will develop prevention materials based on hazards/issues identified by janitors/custodians. Results and materials will be shared with the community stakeholders, L&I leadership and the legislature.

L&I will submit a final report to the legislature on the Janitorial Workload Study by June 30, 2022.

Conclusions

Overall, preliminary analyses of the survey data indicate that janitors/custodians have many work-related injuries, are exposed to a wide range of chemical and physical hazards, and have complex and demanding work tasks. Statewide survey data will be used to identify the leading hazards and sources of injury, and develop prevention and training materials accordingly.

WORKLOAD ASSESSMENT

The number of janitors and cleaners (excluding maids and housekeeping cleaners) employed in Washington increased by about 20 percent between 2013 and 2018.[15] Janitorial workload also increased. A study of union and non-union janitors found that reported work intensity increased 8.6 percent over a three-year period.[16]

Workload issues among janitors have been reported through various factors. In Minnesota, surveys conducted to identify the relationship between workload and injury found that an increase in self-reported workload was correlated with occupational injury.[17]

Many tasks that janitors perform require exertion of the muscular and cardiovascular systems.[18] [19] Major risk factors for injuries among janitorial workers include musculoskeletal loading such as high muscle or static muscle loading, repetitive motions, awkward postures, or cardiovascular loading such as fast work pace. The main factors that may influence these loadings are work procedures (tasks), the environment, tools/methods, individual factors, and organizational and psychosocial contexts.

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[15] BLS (Bureau of Labor Statistics) (2020). Occupational Employment Statistics. https://www.bls.gov/oes/tables.htm.

[16] Seixas N, Domínguez C, Stover B, Simcox N. (2013, August). Janitors Workload and Health and Safety. Department of Environmental and Occupational Health Sciences, University of Washington.

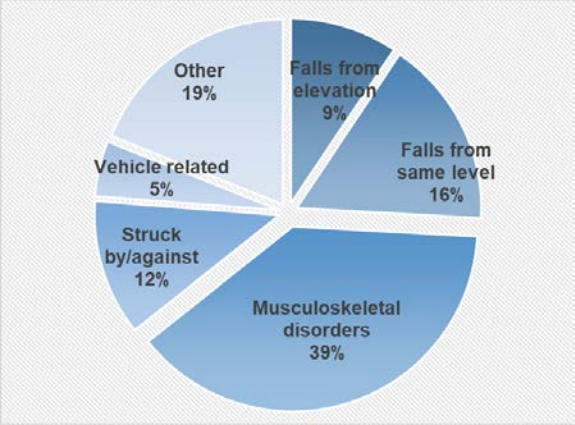
[17] Green, D. R., Gerberich, S. G., Kim, H., Ryan, A. D., McGovern, P. M., Church, T. R., ... & Arauz, R. F. (2019). Janitor workload and occupational injuries. American Journal of Industrial Medicine. 62(3):222-232

[18] Søgaard, K., Fallentin, N., & Nielsen, J. (1996). Work load during floor cleaning. The effect of cleaning methods and work technique. European Journal of Applied Physiology and Occupational Physiology. 73(1-2):73-81.

[19] Woods, V., & Buckle, P. (2005). An investigation into the design and use of workplace cleaning equipment. International Journal of Industrial Ergonomics. 35:247-266.

Figure 5 shows the most typical types of injuries among janitorial workers, with musculoskeletal injuries being the most common.

Figure 5: Most common injury types for janitorial workers, compensable workers' compensation claims, Washington State, 2003-2013



Summary of published literature on janitorial workload and injury rates

Different factors define janitorial workload, and several corresponding methods can be used to measure these factors.

To quantify cardiovascular and overall workload, Green et al.[17] used Fitbit trackers to measure steps taken, heart rate, calories burned, and sleep duration. Energy expenditure, the metabolic burden quantified by oxygen uptake, heart rate, and calories burned have also been used to estimate the cardiovascular workload of janitorial workers.

For the various musculoskeletal workload measures, a number of commonly used ergonomics job assessment methods are available. For example, observational tools (such as the Manual Tasks Risk Assessment (ManTRA), the Quick Exposure Check (QEC), the Rapid Upper Limb Assessment (RULA), Ovako Working Posture Analysis System and Rapid Entire Body Assessment (REBA)) have been used among janitors to study the

relationship between workload and injuries.[20] [21] [22] Muscle activity, measured by the use of surface electromyography (EMG), has also been used,[23] as well as biomechanical analyses.[24]

Current standards for janitorial work assignment

The janitorial service industry uses standard cleaning time data for bidding and work assignment planning. The International Sanitary Supply Association (ISSA) standard cleaning times are commonly used to determine production levels. The official ISSA 612 time and tasks standard [25] is one of the best resources for identifying the types of tasks assigned to janitorial workers. This standard accounts for non-primary cleaning tasks as well, such as travel time and bucket-filling time.

In the janitorial service industry, the ISSA times and task standards are commonly used in janitorial work loading, scheduling, and bidding software, such as Infoclean 2.0. Such software can calculate standard times needed for cleaning jobs with specific building attributes (for example, building size, number of floors, number and types of rooms per floor, and total square footage).

Gaps in workload quantification

No single definition of workload is widely accepted. In previous studies, workload has been defined using various terminologies, including work pace or work intensity and mental workload. Some studies used heart rate, work postures, and muscle loading as measurements of workload. In other survey studies, janitorial workers often self-report “too

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[20] Bell, A. F., & Steele, J. R. (2012). Risk of musculoskeletal injury among cleaners during vacuuming. Ergonomics. 55(2): 237-247.

[21] Kumar, R., Chaikumarn, M., & Lundberg, J. (2005). Participatory ergonomics and an evaluation of a low-cost improvement effect on cleaners' working posture. International Journal of Occupational Safety and Ergonomics. 11: 203-210.

[22] Schwartz, A., Gerberich, S. G., Kim, H., Ryan, A. D., Church, T. R., Albin, T. J., ... & Arauz, R. F. (2019). Janitor ergonomics and injuries in the safe workload ergonomic exposure project (SWEEP) study. Applied Ergonomics. 81: 102874.

[23] Bak, H., D'Souza, C., & Shin, G. (2019). Upper extremity muscular load during carpet vacuuming with household upright cleaners. Applied Ergonomics. 79:38-44.

[24] Wiker, S. F. (2013, July 4). Evaluation of musculoskeletal disorder risk in hotel housekeeping jobs. Retrieved from https://www.dir.ca.gov/dosh/doshreg/Hotel-Housekeeping.CH-and-LA-Final-Report.pdf

[25] Walker, B. (2014). The official ISSA 612 cleaning times & tasks. ISSA. Northbrook, IL. ISBN 0-9717810-3-6.

much work" or "not enough staff" to indicate high workload. There is a lack of understanding of the relationships between work pace and amount of work as quantified by the industry, self-reported high workload as indicated by the janitorial workers, and biomechanical and physiological workload measures as quantified by researchers.

Summary of research activity to date

L&I's research for the workload assessment focused on janitorial workers involved in office cleaning in large office buildings of more than 200,000 square feet. It excluded day porters (who perform a variety of daily services such as maintaining public areas during office work hours) and janitors involved in project work (who are normally not assigned to a specific location, but dispatched to different sites depending on project needs).

The goal of the workload assessment was to quantify the physical workload of janitors so that workload can be appropriately assigned. A tool for achieving this is worksite visits in which researchers observe janitorial tasks to collect cardiovascular and musculoskeletal workload estimates based on the conceptual model described below.

Methods

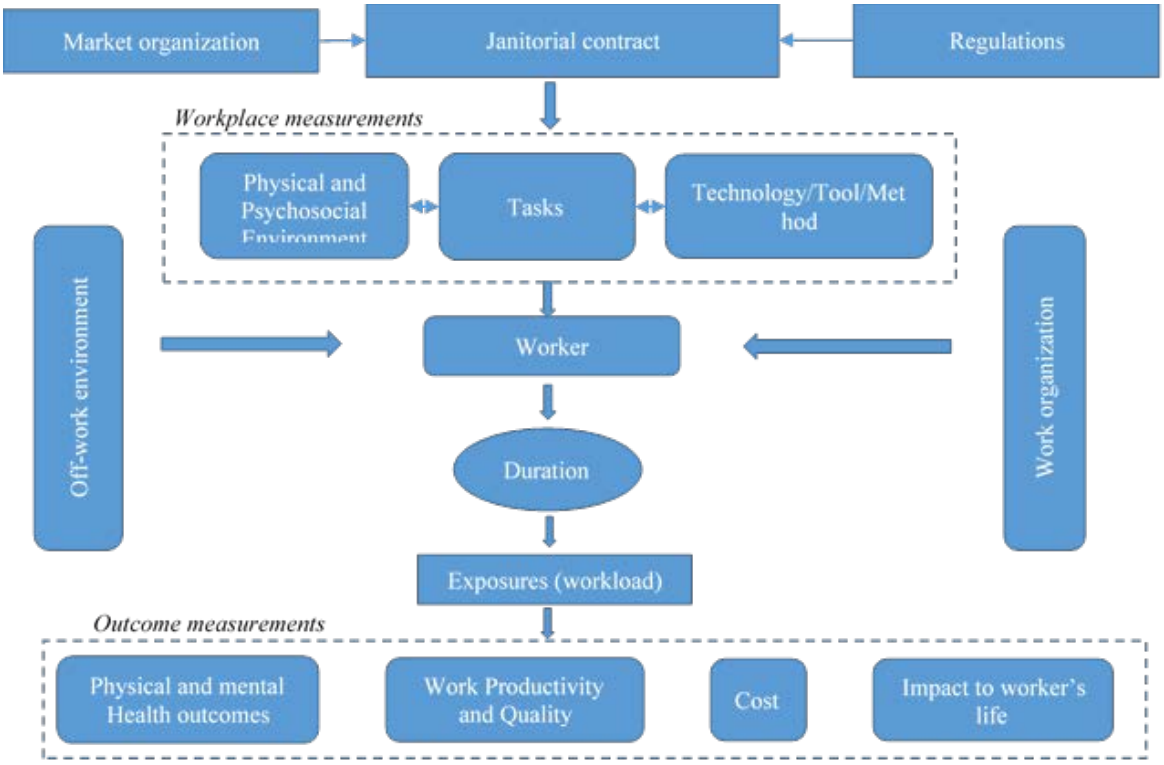
Conceptual model development

When a janitorial contract is signed, the total physical exposure (for the janitorial contract) is determined by:

- Environment: The environment includes the type of worksite, the density of occupants, office layout, and location of work area.
- Cleaning tasks: Tasks are associated with different risk factors. The existence of risk factors in a task can vary depending on "environmental factors" and "technology/tools/methods." The difficulty in performing the tasks can vary by schedules.
- Technology, tools and methods: Different technologies, tools and methods may be used to accomplish the cleaning tasks. These can include different equipment (such as vacuums or mops) and cleaning chemicals (such as "green" chemicals).

All workplace factors, combined with exposure duration, determine the risk factors and exposures (workload) for individual workers. A worker's capacity (both physical and psychological) will determine whether the workload is too high for the individual, resulting in negative outcomes. This conceptual model is illustrated in Figure 6.

Figure 6: Workload conceptual model



Janitorial task classification

Researchers reviewed multiple resources to identify and classify tasks janitors commonly perform in the office-building environment. One of these resources is the O*NET program, a primary source of hundreds of standardized and occupation-specific descriptors. Others include janitorial industry training videos, interviews with industry stakeholders, and previously published research. In addition, researchers referenced tasks listed in the Official ISSA 612 Cleaning Times & Tasks document.[25] Figure 7 lists the common tasks performed by janitorial workers. These tasks will be L&I's focus in the workload assessment.

Figure 7: Common janitorial tasks in offices

Restrooms cleaning	Sweeping	Carpet shampooing
Trashing	Damp mopping	Stripping/buffing/scrubbing
Dusting/Wiping	Wet mopping	Elevator cleaning
Glass door cleaning	Dust mopping	Escalator cleaning
Filling/Emptying bucket, equipment, sprayer, and clean-up	Vacuuming	
Cubicle/Private Office Cleaning		

Worksite measurement protocol and worksite visit logistics

L&I is conducting research activities during worksite visits to quantify the workload of office janitorial workers.

Detailed time study on routine tasks

To complete the time study, researchers follow janitorial workers while they perform their daily cleaning routines, observe their task activities, and create a detailed time diary of their tasks. Video recordings are also taken to provide details of task activities and are used in the subsequent laboratory analysis of musculoskeletal workload measures. Additionally, researchers determine the corresponding square footage cleaned in order to calculate work pace.

Quantification of musculoskeletal workload measures

Musculoskeletal workload, commonly known as biomechanical exposures, includes repetitive motions, awkward posture, forceful hand exertion, manual material handling (pushing, pulling, carrying) and vibration. These activities are measured and evaluated with a variety of ergonomics job evaluation tools. Based on the characteristics of janitorial tasks and the intended future users of the end product for this project, the following criteria were used to select ergonomics job evaluation tools:

- Addresses at least one work-related musculoskeletal disorder (WMSD) risk factor and/or determined risk level (for example, duration and frequency)
- Has been previously published
- Is popularly used by researchers and practitioners in the WMSD community
- Quantifies risks related to injuries of the low back, upper extremities, neck, and lower extremities

Based on these criteria, the following tools are used for musculoskeletal workload quantification in this project:

- Manual Tasks Risk Assessment, version 2.0 (ManTRA) – Addresses awkward postures and repetitive motion of the upper and lower extremities (except hand/wrist)
- Revised Strain Index (Strain Index) – Addresses repetitive motion, repetitive exertion, and awkward postures of the hand and wrist
- Rogers' Muscle Fatigue Analysis (Rogers' Muscle Fatigue) – Addresses awkward postures and repetitive motions of the neck
- Liberty Mutual Manual Material Handling Guidelines (Liberty Mutual) – Addresses push/pull/carry activities
- National Institute of Occupational Safety and Health (NIOSH) Lifting Equation (NIOSH) – Addresses heavy, awkward lifting
- European Union Vibration Directive: Whole Body Vibration (EU Directive, WBV) – Addresses whole body vibration issues
- European Union Vibration Directive: Hand/Arm Vibration (EU Directive, HAV) – Addresses hand-arm vibration issues
- 3D Static Strength Prediction Program (3DSSP) – Addresses complicated forceful exertion activities
- HandPAK, version 2.0 (HandPAK) – Addresses specific hand forceful exertions

Measurements with instrumentation

Two instruments are used to quantify cardiovascular workload as well as back posture measurement (biomechanical workload):

- Fitbit Zip pedometer -- Measures number of steps taken.
- Zephyr BioHarness™3 -- Records continuous heart rate and back postures during task performance

The number of steps taken by a janitorial worker, measured by the Fitbit Zip pedometer, is used to calculate total distance walked.

The heart rate and back postures are continuously recorded using a Zephyr BioHarness sensor worn on the chest of the janitorial worker. Using synchronized time-study data, heart rate and back posture, statistics are calculated for each of the tasks that the janitorial worker performed during the observation period. The overall workload will be quantified by maximal heart rate, percent heart rate ratio, heart rate index, and steps walked (steps/hour). The overall energy expenditure quantified by METs (metabolic equivalent of task or kcalories/kg/hour) for cleaning tasks will be calculated using the combination of heart rate and step data.

Soliciting janitorial firms' participation

Researchers identified janitorial companies providing services for office buildings in Washington. With the help of the union (SEIU6), the building owners' industry association (BOMA), the Janitorial Workload Study Advisory Committee, and a network of people familiar with the industry, L&I contacted representatives of potential janitorial firms to solicit their participation in this study. This often involved initial phone/email communication followed by an in-person meeting with company representatives to present the project and answer questions. Upon their agreement, details were determined regarding site selection, property management approval, tenant approval, potential information sessions with janitor participation, and worksite visit days.

Janitorial worker recruitment

Since the majority of janitorial work is done during the night shift, L&I's recruitment of participants in the study focused on night shift workers. The recruitment procedures and participant consent forms used are all approved by the Washington State Institutional Review Board (WSIRB).

Coordinating with janitorial site supervisors and company representatives, L&I arranged a recruitment meeting with janitors on site, normally in conjunction with their pre-shift meeting. Information flyers in several different languages were shared with potential participants, and signed consent for participation was requested. Participants had the opportunity to sign the consent form on site or at a later date.

Potential participants received contact information for the research team in case they had follow-up questions. Upon confirmation of voluntary participation, a worksite visit was scheduled, with the date of the visit dependent on the tasks participants performed. A single or multiple worksite visit might be needed, depending on the participant's work arrangement and schedule. The goal was to observe and measure all tasks performed by a participating janitorial worker. For each observation session, the participant was provided a monetary incentive for their time and assistance with the study.

Current progress

As of the writing of this report, all measurement protocols and data collection methods have been developed and tested. This ensures the accuracy, efficiency and practicality of the data collection processes on worksite visits and task workload quantification. A comprehensive database has been designed, developed, and tested. This database will be used to store collected data from the worksite visits, allow researchers to link various measurements to specific tasks, export data for data analysis, and generate reports.

To date, janitors from three different janitorial services providers have been recruited and observed in five different office buildings in the Seattle and Tumwater areas. Participants include three female and 10 male janitors. Different buildings from different janitorial services providers, together with different janitorial workers, will allow us to capture the

variations of task performances so that more realistic task workload profiles can be obtained.

So far, L&I researchers have completed 14 individual worksite visits. Data have been collected from 13 different janitors (three from private contractors and 10 from public sector contractors). The data includes approximately 60 hours of various cleaning tasks.

Worksite visits were scheduled to continue, but site visits have been put on hold due to Governor Inslee's Stay Home, Stay Safe initiative in response to the COVID-19 pandemic. We hope to restart visits when Washington is in Phase 4. Researchers hope to continue to observe and measure a greater variety of locations with their corresponding tasks and tools, which will ensure that the final workload profiles of the janitorial tasks reflect the realities of janitors in the Northwest region.

Roadblocks and challenges

The approval process to gain access to buildings and collect data from participating janitors is complicated and not an easy task. It requires multiple levels of approvals, including from:

- Janitorial companies
- Building owners/property managers
- Building tenants
- Janitors working at participating sites

In addition, participating janitors must work in areas where tenants have granted access to L&I researchers.

More than 250 emails, over 100 calls, and nearly 70 text messages to various industry stakeholders were required to gain access to buildings and recruit janitors. People contacted have included owners, property managers, union representatives, and janitorial contractors.

Despite significant efforts by the researchers and tremendous help from the union, the industry association, the study advisory committee members and our network colleagues, our success rate for obtaining eligible janitorial workers to the study is relatively low. To guarantee the quality and validity of our final product, we are committed to observing and quantifying the variations of the common janitorial tasks in a variety of locations with different tools and technology. We will continue our efforts to contact janitorial companies and building managements in order to recruit more janitorial participants into this study.

INJURED WORKER INTERVIEWS

The injured worker interview component of the Washington State Janitorial Workload Study identifies janitors who have filed existing workers' compensation claims, and interviews them about their injury and work experiences. These interviews yield information that is not

already in the administrative workers' compensation data – for example, workers can provide more detail surrounding the circumstances of the injury (safety climate, training, hazards present in their workplace) and what could have been done to prevent the injuries.

In-depth interviews are also valuable for workers to be able to describe their experiences in their own words. Many workers with occupational injuries find it helpful to talk about their experiences, and feel proud of sharing their stories to help prevent future injuries. The detailed information janitors share about their injuries, work organization, tasks, hazards, and health can be used to help generate and inform prevention materials.

Methods

Claims are extracted from Washington workers' compensation claim filings for the previous 30-60 days. For example, an August 28, 2019 extract identified 69 claims filed by workers in the selected Janitorial Risk Classes from July 1, 2019 through August 1, 2019 (with injury dates ranging from January-July 2019). The risk classes included were "6602-03 Janitorial Cleaning Services, NOC" and "6602-05 Janitors, NOC." This excludes subclasses devoted to contract window washing services (-02), residential janitorial workers (-04), pest control (-08), portable cleaning & washing (-10), and street/building decorating hanging of flags/buntings (-12).

Selection criteria includes all claims filed (whether rejected, accepted, or provisional), and those where further information is required to understand injury causes. Additionally, claims are selected for interviews if the research team believes there may be an opportunity to develop safety and health prevention materials based upon the circumstances of the injury. Exclusion of claims from interviews does occur if occupation (risk classification) is miscoded, and the worker is not a janitorial worker.

An average of 68 new claims filed met these criteria per month. Due to limited resources and the time required to call workers, the L&I team reviews the list of claims periodically and selects a number of these workers for potential interviews (not all are selected).

L&I sends letters to the selected workers describing who we are, what the study is about, and how we got their information. After about a week (to allow workers time to receive and read the letter), a bilingual staff member begins the process of calling workers to schedule or complete interviews. Currently, letters and calls are conducted in English and Spanish. A language interpretation line is also available for workers who prefer another language.

While injury description and claim information is used to inform prevention materials (by identifying a common hazard or exposure experience to focus on), personal identifiers are not used to protect worker privacy.

Summary of research activity to date

From August 2019 through January 2020, 407 claims were selected (for claims established from July 1, 2019 through December 31, 2019). Of these, 111 have been assigned for follow-up efforts so far.

As of February 1, 2020, 90 janitors were called; 26 individuals were reached, and seven interviews were completed (five in English, two in Spanish). Of the seven completed interviews, the injury event types included:

- Struck against stationary object
- Caught in or compressed by equipment or object
- Overexertion/repetitive motion
- Falls

Most of these injuries were strains, sprains, tears, or other injuries to muscles/tendons/joints; one was more serious (amputation).

Recommendations from the janitors themselves to prevent injuries like these from occurring included:

- Lighter backpack vacuums
- Fixing an uneven walking surface
- Not lifting heavy trash bags

Next steps

Janitors' own words and lived experiences are valuable to help identify issues and inform prevention and intervention efforts. The injured worker interview process is ongoing and will continue through at least 2021. Results will be analyzed on a rolling basis as interviews are completed. Injury descriptions and comments from janitors will be used to identify common hazards and issues faced by janitors in Washington, and to generate prevention materials and potential interventions. Efforts are being made to increase response rate.

Conclusions

With a specific charge from the Washington State Legislature, L&I's SHARP program has developed a multi-tiered, systems approach to understanding the workload and workplace physical and mental exposures that may put janitors at risk of a work-related injury.

SHARP is currently in the process of conducting workplace site visits and individual injured worker interviews, and developing and disseminating multi-modal educational information for janitors and employers.

Data cleaning and analyses of the statewide employee survey are beginning.

Overall, L&I is on track to complete this study and report final results by the July 1, 2022 project end date, barring unforeseen additional delays from the COVID-19 pandemic or other factors.

The final report will be submitted by June 30, 2022.