

Private sector service workers' well-being before and during the COVID-19 pandemic

Maijaliisa Erkkola (✉ maijaliisa.erkkola@helsinki.fi)

University of Helsinki <https://orcid.org/0000-0002-6966-1523>

Hanna M Walsh

University of Helsinki <https://orcid.org/0000-0002-4923-2991>

Tiina Saari

Tampere University <https://orcid.org/0000-0002-2716-3630>

Elviira Lehto

University of Helsinki <https://orcid.org/0000-0002-1577-6683>

Ossi Rahkonen

University of Helsinki <https://orcid.org/0000-0002-7202-3274>

Jaakko Nevalainen

Tampere University <https://orcid.org/0000-0001-6295-0245>

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Abstract

Background

Workers attending to the essential functions of society have been most affected by COVID-19, but the well-being of workers outside the health care sector has scarcely been documented. We describe well-being profiles of Finnish blue-collar workers in private sector services and changes in their well-being during the COVID-19 pandemic.

Methods

Altogether 6345 members of the Service Union United provided cross-sectional pre-COVID data in 2019, and 2702 provided follow-up data on health-related indicators in November 2020. Job industry-specific profiles (retail, hospitality, and property maintenance) and change patterns were analysed. Regression models appropriate for different response types with a random intercept and time component were used.

Results

Before COVID-19, the well-being profile – food security, body mass index, alcohol use, smoking, and self-perceived health and adequacy of income – was worse among service workers than the population average and it varied by industry sector. During the first year of COVID-19 self-perceived health deteriorated (OR 0.78, 95% CI 0.70–0.87). The proportion of severely food insecure fell from a third to a quarter (OR for improvement 2.66, 95% CI 2.37–2.99). Slight improvements were observed in heavy episodic drinking, smoking, and self-perceived adequacy of income. Employees in property maintenance were the most vulnerable regarding well-being profile and COVID-19-related changes.

Conclusion

COVID-19 caused divergent changes, including improved food security and deteriorated self-perceived health. Workers with the lowest socioeconomic profile and those facing job uncertainty were the most vulnerable to adverse outcomes. Provision of support to these groups is essential in welfare policy considerations.

Introduction

During the COVID-19 pandemic, in line with health care work, some blue-collar jobs, such as those in retail and property services, were classified as essential work (1). Most essential workers have not been able to enjoy the benefits of remote working (2). Thus, most service workers continued to work on site and with a higher risk of COVID-19 infection. At the same time, millions of people in the hospitality sector worldwide lost their jobs and fell into poverty, while others were experiencing extreme job insecurity (3).

Socioeconomic differences have been linked to possibilities to work remotely (2, 4): only one in 20 individuals in the lowest income group has had the opportunity to work remotely in Europe (2). Similarly, the positive effects of the new remote work style during the pandemic on subjective well-being have been observed only in societally advantaged employees (5, 6). This has contributed to social inequality in subjective well-being, which has been exacerbated by the COVID-19 pandemic (4, 7).

There is a call for more evidence on the impact of COVID-19 among essential workers, including a diverse range of employees (8). Our study focuses on workers in private sector services that belong to group 5 “Service and sales workers” in the International Standard Classification of Occupations (ISCO-08) (9). In this study, private service sector work covers the retail (ISCO-08 522), hospitality (512, 513), security (5414), and property maintenance (including cleaning) sectors (515) as well as some smaller industries (514). Finnish service sector workers have rarely worked remotely during the pandemic; compared with 90% of upper white-collar and 48% of lower white-collar employees, only 4% of blue-collar workers worked remotely (10).

Earlier, we found widespread severe food insecurity among Finnish private sector service workers (11). In this study, we took a more multidimensional look at the well-being of these essential workers before and during the COVID-19 pandemic covering food security, body mass index (BMI), substance use, and self-perceived health and adequacy of income. The concern was that the prevalence of food insecurity would have increased during the COVID-19 pandemic, particularly among economically vulnerable households and people who had lost income (12–15). In a recent scoping review of 12 studies, inconsistent changes in BMI due to COVID-19 were found (16). Regarding alcohol, previous studies were somewhat contradictory; the patterns of change varied according to age, gender, and past-year substance use (17–19).

Thus, we aimed to i) describe well-being profiles of Finnish private sector service workers and ii) identify changes in their well-being during the first wave of the COVID-19 pandemic. Our hypothesis was that the COVID-19 pandemic worsened the levels of well-being factors among this vulnerable group of low-paid service workers.

Methods

Study design and participants

The respondents were contacted through the Finnish Service Union United (PAM), which represents approximately 200 000 workers in the private service sector, thus, all respondents were union members. In Finland, about 60% of all salary earners and the unemployed have union membership (20). The union membership rates vary by industry, being lowest in property maintenance (~ 55%), highest in hospitality (~ 70%), and somewhere in between (~ 65%) in the retail sector (21). In April–May 2019, an invitation to the ‘The life and work of the PAM workers’ (PAMEL) study with a link to an online study form was sent to 111 850 PAM members. All Finnish-speaking employed, unemployed, and retired members, excluding

student members, with a valid email address available in the PAM member register were contacted. The cross-sectional PAMEL study survey included questions on health behaviours and background characteristics. After this, in May–June 2019, an annual work-related PAM member survey was sent to 110 833 PAM members via email. Participants were asked for permission to link their PAM member survey answers to the PAMEL study survey and to the national register data provided by Statistics Finland for the years 2018–2019. Details of the recruitment are presented in a flow chart (Supplementary Fig. 1).

A year and a half later, in November 2020, the online annual PAM member survey with five follow-up questions on well-being was sent via email to those who responded to either of the surveys in 2019. The respondents were asked for permission to link their 2020 survey answers to the 2019 surveys.

Sociodemographic characteristics

Variables obtained from the PAMEL study survey (see Table 1 for response categories) included the highest obtained education level, marital status, household size, number of children in the household, self-perceived adequacy of income, and employment status. Self-perceived adequacy of income was derived with the question: “How well can household cover expenses with income?”. The industry of employment (retail, hospitality, property maintenance, other) was obtained from the PAM member survey. Variables obtained from national register data provided by Statistics Finland included gender, year of birth, from which age was later categorized into four age groups, individual earned income in state taxation, and received income transfers in 2018. Besides annual individual income, household disposable income was calculated (22).

Health-related indicators

Health-related indicators obtained from the PAMEL study survey in 2019 included self-perceived health, self-reported height and weight (used to calculate BMI, kg/m²), alcohol consumption frequency, and daily smoking (Table 2). Alcohol consumption was derived with the question ‘How often do you drink alcoholic beverages in a way that you can really feel its effects?’ used in the Finnish Drinking Habit Survey (23) and categorized from ‘Never’ to ‘At least once a week’.

Table 2
Changes in well-being factors from pre-COVID-19 era to COVID-19 era.

		2019 (pre- COVID- 19) n = 6435	2020 (during COVID-19) n = 2702	Change*	Model-based estimates of change [95% CI]**
Self-perceived health	Good	1892 (29%)	700 (26%)	559 (21%) improved	OR for improvement 0.75 [0.68, 0.84] 0.78 [0.70, 0.87]
	Quite good	2517 (39%)	1021 (38%)	1463 (54%) unchanged	
	Average	1540 (24%)	707 (26%)	678 (25%) worsened	
	Quite poor	414 (6%)	42 (2%)		
	Poor	72 (1%)			
BMI (kg/m²)	Median	26.8	27.5	0.0	+ 1.2 [0.9, 1.4] %
	Interquartile range	(23.7, 31.1)	(24.2, 31.7)	(-0.4, 1.2)	+ 1.1 [0.9, 1.4] %
Alcohol consumption	At least once a week	494 (8%)	212 (8%)	666 (25%) reduced	OR for reduction 1.34 [1.20, 1.49] 1.33 [1.19, 1.48]
	1–3 times a month	1269 (20%)	450 (17%)	1573 (58%) unchanged	
	At most once in two months	1430 (22%)	534 (20%)	957 (35%)	
	At most twice a year	1948 (30%)	545 (20%)	459 (17%) increased	
	Never	1294 (20%)			
Smoking daily	No	4975 (77%)	2107 (78%)	97 (4%) quit	OR for quitting 1.31 [1.05, 1.64] 1.30 [1.04, 1.62]
	Yes	1460 (23%)	592 (22%)	2550 (94%) unchanged	
				52 (2%) started	

*) Crude estimates based on those for whom data available in both 2019 and 2020.

***) First estimate derived from the primary model, and second estimate derived from the extended model.

****) Derived with the question: "How well can household cover expenses with income?"

		2019 (pre- COVID- 19) n = 6435	2020 (during COVID-19) n = 2702	Change*	Model-based estimates of change [95% CI]**
Food (in)security	Food secure	2280 (35%)	1404 (52%)	348 (13%) worsened	OR for improved food security
	Mildly food insecure	743 (12%)	263 (10%)	1446 (54%)	2.75 [2.45, 3.09]
	Moderately food insecure	1113 (17%)	378 (14%) 646 (24%)	unchanged	2.66 [2.37, 2.99]
	Severely food insecure	2299 (36%)		897 (33%) improved	
Self-perceived adequacy of income***	With great difficulties	387 (6%)	159 (6%)	645 (24%) worsened	OR for improvement
		784 (12%)	298 (11%)		1.22 [1.10, 1.35]
	With difficulties	1837 (29%)	746 (28%)	1260 (47%)	1.22 [1.10, 1.35]
			774 (29%)	unchanged	
	With small difficulties	1820 (28%)	464 (17%)	784 (29%) improved	
	Quite easily		248 (9%)		
	No difficulties	1130 (18%)			
	Very easily	477 (7%)			
*) Crude estimates based on those for whom data available in both 2019 and 2020.					
**) First estimate derived from the primary model, and second estimate derived from the extended model.					
***) Derived with the question: "How well can household cover expenses with income?"					

Food insecurity was measured with an adjusted Household Food Insecurity Access Scale (HFIAS) tool (24). The changes to the tool have been described by Walsh et al. (11) and included translation into Finnish and adjustment to ask for individual, rather than household, food insecurity experience. This change ensured comparable data with previous Finnish studies (25) and was motivated by findings of unequal distribution of resources and differing experiences of food insecurity even within the same household (26). Based on the answers to the nine HFIAS questions, participants were categorized as food secure or as mildly, moderately, or severely food insecure, as described by Coates et al. (24).

In 2020, follow-up well-being data were obtained for self-perceived health, height, weight, alcohol consumption, smoking, food insecurity, and self-perceived adequacy of income similarly as described above.

Statistical analysis

In the follow-up survey, we considered a participant as a respondent if at least one of the questions on well-being was answered. A total of 3432 of the invited 7956 participants (43%) responded. To reduce the bias that might result from follow-up non-response, we used generalized linear mixed models to analyse the data. We fitted a linear model (for body mass index), a logistic regression model (for smoking), and a proportional odds model (for ordinal outcome variables) with a random intercept for each participant and time (2019 or 2020) as a fixed effect. These models, hereafter called **primary models**, are valid when the participation probability on the follow-up question depended only on the previous measurement of the outcome (i.e. missing at random mechanism) (27). The categories in the ordinal outcome variables were arranged such that the odds ratios reflect the likelihood of an improvement over time. We also analysed job industry-specific change patterns. For the proportional odds model, no meaningful deviations from the proportionality assumption were found.

The adjustment (conditioning) is a recommended procedure to correct for systematic missingness when baseline variables have been observed completely or nearly so (28). As selective missingness could persist even after this correction, our **extended model** was conditioned on baseline variables predictive of missingness on follow-up. Among all the variables studied, we identified the following five variables most obviously predictive of missingness ($p < 0.01$): 1) job industry: only 35% of those in 'Other' or unknown industries participated; 2) age (in tens of years): 37% of those < 30 years of age participated; 3) BMI: those with higher initial BMI were more likely to participate; 4) gender: 48% of men and 54% of women participated; 5) those who responded to both baseline surveys were more likely to participate (50%) than those who responded to only one (29%). Results of the extended model included the adjustment for these variables in addition to those included in the primary model.

Results

Sociodemographic characteristics (Table 1) suggest that participating private sector service workers were mostly women, less educated than the general population on average (29), mainly middle-aged employees with a lower than median annual income (30), and mostly living in a two-adult household. The majority (70%) of the participants were employed, and almost half (47%) reported some difficulties in covering their usual household expenses. Job industry-specific results are presented for a subset of the three most frequent industry sectors ($n = 2308$). The property maintenance sector stood out with the largest proportion (13%) of the least educated (obligatory education or less) and with the lowest median annual salary and household disposable income. The hospitality sector was characterized by the highest prevalence of women (87%), the youngest age group (18%), and the most single persons (27%).

Well-being factors and changes from the pre-COVID era to the COVID era

At the pre-COVID baseline (Table 2), a considerable proportion (65%) of participants reported some level of food insecurity, the average BMI indicated overweight, one in four was a smoker, 28% consumed alcohol at least once a month, and 7% reported rather poor or poor health.

Changes in well-being factors from pre-COVID to COVID era showed both improvements and deterioration (Table 2). A model-based assessment of the change showed a decrease in overall self-perceived health (OR for improvement 0.78, 95% CI 0.70–0.87). This was manifested as the proportion of those with quite poor or poor health increasing from 7–11%, along with a quarter of participants reporting worsening of health. An improvement was most notable for food security; the proportion of the severely food insecure fell from a third to a quarter (OR 2.66, 2.37–2.99). Positive changes occurred also in the consumption of alcohol (OR for reduction 1.33, 1.19–1.48) and in smoking (OR for quitting 1.30, 1.04–1.62). The proportion of those with clinically significant weight gain ($\geq 5\%$) was 24% and weight loss 13%. The change in BMI was, however, not statistically significant.

Well-being factors by job industry are shown in Supplementary table 1. Among different job industry sectors, retail workers had the most favourable well-being factors both before and during COVID, while property maintenance workers tended to have the worst. During COVID self-perceived health deteriorated the most in property maintenance ($p = 0.028$ for differential changes between sectors). At baseline, severe food insecurity was most common among employees in hospitality (37%), while in 2020 it was most common among employees in property maintenance (27%). Deteriorated self-perceived adequacy of income was reported in hospitality, with other job industry sectors showing a slight improvement.

Discussion

Our follow-up analyses among the Finnish private sector service workers, the essential workers during the COVID-19 pandemic, demonstrated that the effects of the first pandemic year on their well-being indicators were bidirectional; both improvements and deterioration were seen. Overall, self-perceived health deteriorated from the pre-COVID year 2019 to the end of 2020 among service workers, whereas food security improved. Slight improvements were also observed in heavy episodic drinking, smoking, and self-perceived adequacy of income. The sociodemographic characteristics, the well-being profile, and the impact of COVID-19 on well-being varied by industry. The socioeconomic profile (education and income) was the lowest in the property maintenance sector. Also, food security remained at worst level in property maintenance. Weakened self-perceived adequacy of income was reported only in the hospitality sector, which was most affected by the first pandemic wave. In contrast to our prior assumption of the solely negative impact of the COVID-19 crisis on service workers' well-being, our data showed also some positive changes that varied in magnitude in different industry sectors.

The overall well-being profile of service workers is worse than the population average. Compared with the nationally representative FinHealth 2017 survey (31), a lower proportion of respondents perceived their income as sufficient (53% among service workers vs. men 65%/women 59% in the FinHealth study). In addition, heavy episodic drinking (8% vs. men 6%/women 3%) and smoking (23% vs. men 16%/women 11%) were more common among service workers than in the adult Finnish population. The median BMI exceeded the normal weight limit ($BMI \geq 25$), as in the entire Finnish population (32). The proportion of those who perceived their health as average or worse corresponded to that of the general Finnish adult population during COVID-19 in the National FinSote survey 2020 (32).

Our results on changes in health-related indicators are in line with studies in other Western employees (5–7) and in the general Finnish adult population (19), among whom the differential impact of the COVID-19 pandemic on self-perceived health (5–7) and health behaviour (19) was observed. Large disparities in COVID-19 outcomes may arise partly from disparate working conditions and from socioeconomic differences between employees. A French study revealed that an unexpected rise in self-perceived health and well-being during the COVID-19 lockdown was not consistent across French society, as the level of self-reported health of blue-collar workers declined over the lockdown period (7). Similar changes were reported in a Swiss and German study (5); mandatory short-term workers and those who lost their job felt the negative COVID-19 impact the most. The adverse COVID-19 outcomes are partly related to higher risk exposure and higher COVID-19 incidence among blue-collar workers.

Finnish service sector workers rarely worked remotely during the pandemic. Overall, in Finland, the remote workers rated their health as better during the pandemic than those who continued working on site (10). Self-perceived health has been demonstrated to be a comprehensive measure of health status, also reflecting the condition of people beyond clinical diagnoses (33). Negative disposition and the poorer expected development of own health, recognized components in the evaluation of self-perceived health, could have been highlighted during COVID-19 and the lockdown measures. No significant changes in BMI were observed in our participants, whereas COVID-19-related weight gain has been observed in younger Finnish women and men with low education, groups known to be vulnerable for weight gain (34). As weight gain may develop over a long period of time, a longer follow-up is needed to address the long-term effects of COVID-19.

Overall, food insecurity improved from 2019 to 2020 among the service workers surveyed. This contrasts with reports from NGOs in Finland of increased need for food aid. Furthermore, studies in high-income countries have shown an increase in food insecurity since the COVID-19 pandemic (12–14). However, Lamarche et al. (15) described the prevalence of food insecurity to decrease from 3.8–1.0% during the early lockdown in Quebec, Canada. They also reported a slight improvement in diet quality, while Carroll et al. (35) noted that parents spent more time cooking meals from scratch during early lockdown. Lockdown, social distancing, and staying at home may have led to reductions in the frequency of eating out, which may have led to a better dietary quality (15). However, the prevalence of food insecurity was still alarming in 2020, with one-quarter of respondents being severely food insecure.

Multiple studies have shown that COVID-19-related job or income disruption was associated with increased severe food insecurity (e.g. 12,14,36). In 2020, the greatest proportion of employees in the hospitality sector was affected by the reduction in wages and salaries during the pandemic as layoffs and redundancies hit the sector globally (37). This was reflected in our data, where the deterioration of self-perceived adequacy of income was reported mostly in the hospitality sector, while in other industries income adequacy (relative to expenses) had improved slightly. Hence, they did not experience income loss or, if they did, their expenses diminished in parallel. If people were able to maintain their jobs and income, but possibilities to eat out, travel, and spend on shopping and hobbies were limited, it may have left more money and time to spend on food and other necessities, as well as food preparation. As speculated by Lamarche et al. (15) and Carroll et al. (36), this could have improved food insecurity. Furthermore, there are multiple reports of hospitality workers transferring to retail work, which has been associated with a smaller likelihood of food insecurity (11).

Welfare state and trade union support measures for workers might have mitigated some of the adverse effects of the COVID-19 crisis. Most unemployed and laid-off PAM union members have been on earnings-related daily allowances rather than on basic social security. According to PAM (A. Veirto 12/2022, personal communication), about 12% of PAM's members received unemployment benefits from the PAM Unemployment Fund in 2020. It is important to note that the most vulnerable sections of the population are less likely to participate in surveys (38) or even be members of a trade union (20, 21). Furthermore, the timing of the follow-up survey in autumn 2020 may mean we were unable to capture the initial drastic effects of the COVID-19 pandemic on income sufficiency and food insecurity.

Among the service sector workers, most substance users reported no changes in their alcohol and tobacco use. However, significant likelihoods for decreasing alcohol consumption and quitting smoking were observed. This may be linked to limited possibilities to drink and eat outside the home during lockdown measures. Our observation is in line with an observed decreasing trend of alcohol and tobacco use in Finland and Europe (19, 39). It is, however, noteworthy that the share of individuals with weekly heavy episodic drinking exceeds the Finnish population average and this relatively high prevalence persisted. Despite COVID-19, a disease that particularly strains the lungs, the prevalence of smoking remained the same; about one-fifth of employees were still smokers. The results highlight the growing health inequality gap when factoring in the health consequences of alcohol and tobacco use.

Strengths and limitations

The novelty of our research lies in the seldomly studied target group of essential workers facing the COVID-19 pandemic. The follow-up data supplemented with register data enabled assessment of the effects of the first COVID-19 outbreak year on a vulnerable employee group characterized by low salaries, part-time and temporary work contracts, and physically demanding shift work. However, the low response rate raises questions about the representativeness of our sample. Based on statistics provided by PAM (21), at the end of 2019, 76% of PAM members were women, compared with 80% among the respondents in our study. Both ends of the age distribution, the youngest (less than 30 years) and the oldest (over 60

years), were under-represented in our study. Among respondents for whom employment industry category was available, the shares of those working in retail and hospitality were very similar to PAM statistics (21), but those in property maintenance were under-represented. Therefore, our sample cannot be considered fully representative of all PAM members at the time, but it does provide a means to study the well-being and coping ability of workers with limited resources during an uncertain period. Trade union membership is lower among young people, men, migrants, the unemployed, and those in part-time or fixed-term contracts (20, 21), indicating that some of most vulnerable groups were not reached since the recruitment was based on union membership. The COVID-19 pandemic has highlighted the precarious position of migrant workers who endure worse working conditions or lower pay than those protected by trade unions (40). Another validity issue concerns the extent to which people adapt to their circumstances, and the implications of adaptation for interpreting subjective well-being measures. Extreme events can result in “recalibration” of the scale (41), rather than true adaptation.

Conclusion

By utilizing our versatile monitoring data on Service Union United members, we demonstrated the impact of the COVID-19 crisis on service workers' well-being in 2020. Diverging changes included improved food security and deteriorated self-perceived health. Workers with the lowest socioeconomic profile and those facing job uncertainty were the most vulnerable to adverse outcomes. Further follow-up studies are needed to assess the long-term effects of COVID-19 on well-being of service sector employees. Suitable working conditions, secure working hours, and basic income that adequately covers the cost of living are the best protection against future crises and would safeguard better resilience and more equal well-being of employees regardless of the differences in the job industries.

Abbreviations

BMI Body Mass index

CI Confidence Interval

COVID-19 Coronavirus Disease 2019

HFIAS Household Food Insecurity Access Scale

ISCO-08 The International Standard Classification of Occupations, version 08

OR Odds Ratio

PAM The Finnish Service Union United

PAMEL The life and work of the PAM workers -study

Declarations

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Authors contributions

ME and JN were involved in the data collection, conceived the study, and had primary responsibility for the content. HMW formed the food security variables. JN was responsible for the design and conduct of the statistical analyses. ME set up the initial draft of the manuscript where all authors produced text from their own areas of expertise. All authors participated in commenting and critically revising the first draft of the manuscript and read and approved the final version.

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Availability of data and material: The data underlying this article cannot be shared publicly for the privacy of individuals that participated in the study.

Ethical approval and informed consent

The PAMEL study was conducted according to the guidelines laid down in the Declaration of Helsinki and was approved by the University of Helsinki Ethics Review Board in Humanities and Social and Behavioural Sciences (Statement 11/2019). Each participant provided an informed consent electronically. PAM pseudonymized the study participants' data before transferring these to the research group.

Consent for publication

Not applicable.

Competing interests

None declared.

Authors' information

ME, HMW, and EL: Department of Food and Nutrition, University of Helsinki, Helsinki, Finland; TS: Work Research Centre, Faculty of Social Sciences, Tampere University, Tampere, Finland; OR: Department of Public Health, University of Helsinki, Helsinki, Finland; JN: Health Sciences, Faculty of Social Sciences, Tampere University, Tampere, Finland

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Tables

Table 1 is available in the Supplementary Files section.

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