



Perspective of Workers' Union Representatives on COVID-19 Measures in Turkish Workplaces in the First Year of the Pandemic

Defne Kalaycı¹, Abdulsamet Sandal², Mümine Yüksel³, Ali Naci Yıldız⁴

¹Clinic of Occupational Medicine, Samsun Training and Research Hospital, Samsun, Turkey

²Clinic of Occupational Diseases, Ankara Gazi Mustafa Kemal Occupational and Environmental Diseases Hospital, Ankara, Turkey

³Clinic of Occupational Medicine, Diyarbakır Gazi Yaşargil Training and Research Hospital, Diyarbakır, Turkey

⁴Department of Public Health, Hacettepe University Faculty of Medicine, Ankara, Turkey

Background: Severe acute respiratory syndrome coronavirus-2, the virus causing coronavirus disease-2019, is a biological hazard in workplaces. Thus, protective measures should be applied. Despite their potential role, the perspective of workplace representatives on coronavirus disease-2019 measures is rarely investigated.

Aims: To assess the perspective of workplace union representatives on coronavirus disease-2019 measures in their workplaces in the first year of the pandemic in Turkey.

Study Design: A descriptive observational study.

Methods: This national descriptive study included workplace chief representatives of 33 workers' unions. A 42-item electronic survey was used to collect data to evaluate the practice of job organization, social distancing and personal protective equipment use, sanitization, and occupational safety and health training.

Results: The study included 509 workplace chief representatives' responses. Results showed that several administrative measures, including suspending production or work, encouraging workers to take leave, implementing alternate work schedules, isolating any

coronavirus disease-2019 case from other workers in a designated room, and avoiding face-to-face meetings, were not available in more than half of the workplaces. The mean number of available measures was significantly high ($p < 0.001$) in the industrial sector and workplaces with 250 or more workers. Almost all union representatives (98.8%) reported at least one diagnosis of coronavirus disease-2019 among workers, and 12.6% reported a positive history of coronavirus disease-2019-related mortality. The regression model for any history of coronavirus disease-2019 mortality in workers demonstrated a significantly increased association with workplaces with 250 or more workers compared with workplaces with less than 250 workers (odds ratio =2.99, 95% confidence interval =1.65-5.44, $p < 0.001$).

Conclusion: The results indicate failure in administrative measures and the need for improvement in medium- and small-sized workplaces and the non-industrial sector. All local and national stakeholders need to pay special attention to address these issues. Future studies should evaluate on-site coronavirus disease-2019 workplace measures and their effectiveness.

INTRODUCTION

The coronavirus disease-2019 (COVID-19) pandemic declared by the World Health Organization is classified as a humanitarian crisis due to the extent of the outbreak and the level of preventive measures.¹ After lockdowns during the pandemic, concerns have been raised regarding infection transmission in workplaces while the government attempts to revive economies. The virus causing the disease, Severe acute respiratory syndrome coronavirus-2

(SARS-CoV-2), is a biological hazard requiring control through a comprehensive program, and measures should be taken per the hierarchy of control.² Maintaining physical distance, providing respiratory hygiene, using personal protective equipment (PPE), sanitization, appropriate ventilation, adjusting the working conditions, and decreasing human contact are among the measures taken to decrease workplace transmission and have been emphasized since the early phases of the pandemic.³ Upon availability,



Corresponding author: Defne Kalaycı, Clinic of Occupational Medicine, Samsun Training and Research Hospital, Samsun, Turkey
e-mail: tehnel@hotmail.com

Received: November 01, 2022 Accepted: January 13, 2023 Available Online Date: March 08, 2023 • DOI: 10.4274/balkanmedj.galenos.2023.2022-10-116

Available at www.balkanmedicaljournal.org

ORCID iDs of the authors: D.K. 0000-0003-0206-510X; A.S. 0000-0002-9718-7769; M.Y. 0000-0001-8120-3202; A.N.Y. 0000-0001-8148-4710.

Cite this article as:

Kalaycı D, Sandal A, Yüksel M, Yıldız AN. Perspective of Workers' Union Representatives on COVID-19 Measures in Turkish Workplaces in the First Year of the Pandemic. *Balkan Med J.*; 2023; 40(2):124-30.

Copyright@Author(s) - Available online at <http://balkanmedicaljournal.org/>

vaccination is a key multilevel approach for protection against infection, and the measures differ according to vaccination status.⁴

During the pandemic, various measures and interventions have been developed to prevent or diminish workers' exposure to SARS-CoV-2. Researchers also investigated the compliance and effectiveness of these workplace measures.⁵ A multinational study conducted by the G20 Occupational Safety and Health (OSH) Experts Network in partnership with the International Labour Organization (ILO) evaluated workplace measures against COVID-19 in 12 countries, including Turkey, and found the most common measures were remote working (82%) for administrative measures and use of PPE (82%) for other measures.⁶ A meta-analysis evaluating effective workplace measures and control applications against SARS-CoV-2 infection highlighted that these applications might provide workers with a safe return to work in terms of COVID-19 and future outbreaks.⁷ Wong et al.⁸ studied workers' perspective regarding the effect of workplace policies on the health-related quality of life during the COVID-19 pandemic and depicted that workplace policies are crucial to relieve the negative health results of the pandemic. Kawasumi et al.⁹ demonstrated a positive correlation between the number of workplace measures for infection control and the practice of personal behavior for infection prevention. A 12-month prospective study with full-time workers showed the protective role of workplace COVID-19 measures against psychological distress.¹⁰

The Bureau for Workers' Activities (ACTRAV) of the ILO implements the Employment and Decent Work for Peace and Resilience Recommendation (R205) as an effective tool in fighting COVID-19 for governments, employers, and workers' unions. R205 has a strong level of social dialog, appoints crucial duties to the employers and workers' unions, and calls unions to ensure the continuity of work and help support workers with education, recommendation, and supply of equipment.¹¹ The strong role of workers and unions in policy application and decision-making may contribute to combat the outbreak.¹² A study on the role of workers' unions during the COVID-19 pandemic in the United States predicted that a 10% increase in unionization could result in a 5% decrease in COVID-19 cases within 100 days. This forecast can be attained by increasing the transparency of the role of unions in regulating the relationship between workers and employees and adjusting workplace conditions with the power of collective voice. Thus, unions have essential responsibilities in guiding policies related to COVID-19 and applying recommended directives.¹³

Despite these findings and foresight on workers' unions and unionization in controlling COVID-19 in workplaces, a national study evaluating the perspective of workplace representatives of Turkish workers' unions is lacking. Thus, the current work aimed to assess the perspective of workplace union representatives on COVID-19 measures in their workplaces in Turkey.

MATERIALS AND METHODS

Study Design, Participants, and the Survey

This descriptive study involved 5,260 workplace chief representatives of 33 workers' unions of the Confederation

of Turkish Trade Unions (TURK-IS), the largest trade union confederation in Turkey according to the number of members. The study protocol was approved by the Ministry of Health Directorate General of Health Services and the Non-interventional Researches Ethical Board of Hacettepe University (decision number: 2021/06-48). The TURK-IS board gave permission for the study and sent the online survey link to all workplace chief representatives via e-mail on May 21, 2021. Three reminders were sent on the 5th, 10th, and 14th days, and data collection was terminated on June 21, 2021.

Data were collected via a 42-item online survey through Google Forms. Three national guidelines (i.e., The Ministry of Health's Guideline for the Management of COVID-19 Outbreak and Work, the Ministry of Industry and Technology's Hygiene, Prevention and Control of Infection Guideline for Industrial Organizations, and the Ministry of Family, Work, and Social Services' Guideline for Workplace Measures Against COVID-19) were used in preparing survey items.¹⁴⁻¹⁶ The survey included five subheadings: workplace features, job practice, social distancing and PPE use, sanitization, and OSH training on COVID-19. Participants were asked to choose among four options: always, partially, no idea, and no. In addition to measures, any diagnosis of COVID-19 among workers and any mortality related to COVID-19 were also questioned. The last open-ended item included any other issues to mention. The survey questions were adjusted after feedback from a pretest conducted in a factory in Ankara, Turkey, that is, the inclusion of 15 workers other than the workplace chief representatives of a union. The pretest results were not included in the study data.

Statistical Analysis

Descriptive statistics were presented as mean \pm standard deviation or median and interquartile range (IQR) for continuous variables and as number and percentage for categorical variables. The answer of "always" was accepted as the availability of the measure and compared with any other answers. The mean numbers of available measures under each subheading were compared according to workplace characteristics using Student's t-test. Categorical variables were compared using chi-square or Fisher's exact tests. Univariate and multiple logistic regression analyses were performed to evaluate the relationship between workplace characteristics and history of any COVID-19 infection and mortality due to COVID-19 in workers. For all comparisons, type 1 error (alpha) was accepted as 0.05. Statistical analyses were performed using IBM SPSS for Windows v.25.0 (IBM Corp., Armonk, NY).

RESULTS

This study included 509 workplace chief representatives (9.7% of the study universe). Most workplaces were private enterprises (62.3%) and from the industrial sector (66.6%). The OSH services were internal in 80.9%. The median number of workers was 235 (IQR: 100-649), and the number of workers was between 50 and 249 in 41.1%. The distribution of workplace characteristics is shown in Table 1.

Table 2 shows the distribution of workplace measures. The most frequent measures were visual and auditory warnings on COVID-19 measures (93.3%), training the workers on what to do in case of a history of risky contact (91.6%), measuring the body temperature of workers during the entry (91.4%), training the workers on what to do in case of COVID-19 symptoms (90.2%), and providing an adequate amount of hand sanitizers in easy-access areas (89.2%). Most measures were applied in more than half of the workplaces. The measures enacted in less than half of the workplaces were suspending production or work (27.5%), checking the workers' COVID-19 status using the HES-code provided by the Ministry of Health to allow sharing of COVID-19 status with third parties (36.9%), isolating any COVID-19 case from other workers in a designated room (44.4%), encouraging workers to take vacation leave, paid leave, or unpaid leave (44.8%), applying alternate working (46.8%), and avoiding face-to-face meetings (49.1%). The responses for short employment allowance and history of dismissal with Code-29 (i.e., a dismissal by the employer due to the worker's violation of the code of ethics and goodwill) between March 2020 and April 7, 2021 were 54.0% and 8.1%, respectively. The most frequent measures for workers' transportation services, social distancing at the entry and exit areas, cafeterias, break areas, and dressing rooms are presented in Supplementary Table 1.

The overall mean number of available measures was 19.52 ± 4.45 and was significantly high ($p < 0.001$) in the industrial sector and workplaces with 250 or more workers (Table 3). Similar findings were also observed in the subheadings of job practice, social distancing, and PPE use. Moreover, the industrial sector and workplace size ≥ 250 were related to a high mean number of available measures of sanitization ($p = 0.007$) and OSH training on COVID-19 ($p = 0.043$), respectively.

Almost all participants (98.8%) reported at least one diagnosis of COVID-19 among workers. Furthermore, 12.6% of union representatives reported a positive history of COVID-19-related mortality. The relationship between workplace characteristics and any history of COVID-19 infection and mortality among workers was evaluated using univariate and multiple logistic regression (Table 4). The multiple regression model for any COVID-19 case among workers did not reveal any significant association. The model for any history of mortality among workers due to COVID-19 showed a significant relationship with workplaces with 250 or more workers compared to workplaces with less than 250 workers (OR =2.99, 95% CI =1.65-5.44, $p < 0.001$).

DISCUSSION

The Ministry of Health and other related ministries have published guidance on COVID-19 precautions in workplaces since the early days of the pandemic;¹⁴⁻¹⁶ however, data related to workplace practices (e.g., availability or effectiveness of the measures) are scarce. This study aims to contribute knowledge about the availability of COVID-19 measures in a wide range of workplaces located in Turkey from the perspective of workplace chief representatives of unions, one of the critical stakeholders of OSH applications. Findings revealed that the measures, including visual and auditory warnings, training the workers on what to do in case of a history of risky contact or COVID-19 symptoms, and measuring the body temperature of workers on entry, were available in more than 90% of workplaces. By contrast, some administrative measures, including suspending production or work, encouraging workers to take leave, implementing alternate work schedules, isolating any COVID-19 case from other workers in a designated room, and avoiding face-to-face meetings, were

TABLE 1. Distribution According to Workplace Characteristics.

Characteristic	n	%	
Workplace status	Private enterprise	317	62.3
	Foreign capital enterprise	96	18.8
	Government business enterprise	82	16.1
	Enterprises with public-private partnership	14	2.8
Sector	Industry	339	66.6
	Service	132	25.9
	Agriculture	25	4.9
	Construction	13	2.6
OSH services	Internal OSH unit	412	80.9
	External OSH service	41	8.1
	Any combination of OSH service types	35	6.9
	An authorized unit of the Ministry of Health	21	4.1
Size	≥ 500	151	29.7
	250-499	98	19.2
	50-249	209	41.1
	10-49	51	10.0
Total	509	100.0	

OSH, occupational safety and health.

TABLE 2. Distribution of Available COVID-19 Measures in the Workplaces.

Measure	n	%
Job organization		
Applying flexible working models, including distant working or working from home, for the workers suggested a transition to flexible working by related guideline	369	72.5
Applying flexible working models, including distant working or working from home, for the workers other than those suggested a transition to flexible working by related guideline	271	53.2
Applying alternate working	238	46.8
Suspending the production or work	140	27.5
Changing work or shift hours to decrease the number of workers in the workplace at a particular time	276	54.2
Providing a time shift between entry and exit to avoid face-to-face contact	341	67.0
Encouraging workers to take vacation leave, paid leave, or unpaid leave	228	44.8
Decreasing work activities with distant assignment	361	70.9
Limiting the entry of providers or visitors to the workplace	406	79.8
Updating the risk evaluation in line with the COVID-19 measures	442	86.8
Updating the emergency plans in line with the COVID-19 measures	410	80.6
Measuring the body temperature of workers during the entry	465	91.4
Checking the workers' COVID-19 status using HES-codes	188	36.9
Checking the visitors' COVID-19 status using HES-codes	363	71.3
Evaluating workers with COVID-19 risky contact according to the guidelines	445	87.4
Isolating any COVID-19 case from other workers in a designated room	226	44.4
Social distancing and PPE use		
Avoiding face-to-face meetings	250	49.1
Adapting online methods for the meetings, conferences, or congresses	364	71.5
Providing adequate and appropriate PPEs to workers for protection against COVID-19	419	82.3
Sanitization		
Cleaning and disinfecting the surfaces, equipment, and workplace media regularly	371	72.9
Providing an adequate amount of hand sanitizers in easy-access areas	454	89.2
Providing adequate toilet and lavatory according to the number of workers	362	71.1
Placing adequate waste bins for paper towels, wet towels, gloves, and face masks in appropriate areas	397	78.0
Applying appropriate ventilation using external air ventilation or natural air circulation for the central ventilation systems	299	58.7
OSH training on COVID-19		
Training the workers on what to do in case of COVID-19 symptoms	459	90.2
Training the workers on what to do in case of a history of risky contact	466	91.6
Training the workers on hand hygiene	449	88.2
Placing visual and auditory warnings on COVID-19 measures	475	93.3
Total	-	100.0

COVID-19, coronavirus disease-2019; HES-code, the code provided by the Ministry of Health to allow sharing COVID-19 status with third parties; PPE, personal protective equipment; OSH, occupational safety and health.

not available in more than half of the workplaces. This variation related to the availability of some measures was observed in other studies. A research conducted at 103 Indonesian workplaces reported complete compliance with a number of measures, including education related to COVID-19, sanitation, body temperature measurements, and limitation of visitors, although most workplaces did not conduct a COVID-19 emergency response drill.¹⁷ The current study was conducted when the daily cases decreased in Turkey (average daily number of new cases: 6,724) after the third peak of COVID-19 cases (average daily number of

new cases: 50,114) in April 2021.^{18,19} The study period may affect the frequency of compliance with the measures because the number of workplace precautions may increase progressively during the course of the pandemic. However, Kawasumi et al.⁹ showed that less than half of the workplaces completed the infection control measures set by national guidelines in their e-survey conducted during the third peak of cases in Japan. These results emphasized the importance of active surveillance with regard to availability and compliance with each measure.

TABLE 3. Distribution of the Mean Number of Available Measures According to Workplace Characteristics.

Workplace characteristics	n	Job organization			Social distancing and PPE			Sanitization			OSH training			Total			
		Mean	±SD	p*	Mean ±SD	p*	Mean ±SD	p*	Mean ±SD	p*	Mean ±SD	p*	Mean ±SD	p*			
Workplace status	317	10.07	± 3.27	0.464	2.05	± 0.94	0.482	3.76	± 1.27	0.199	3.69	± 0.81	0.064	19.58	± 4.53	0.694	
Other†	192	10.29	± 3.26		1.99	± 0.82		3.60	± 1.43		3.53	± 1.03		19.42	± 4.33		
Sector	339	10.51	± 2.96	0.001	0.001	2.13	± 0.87	<0.001	3.82	± 1.24	0.007	3.68	± 0.82	0.092	20.15	± 4.05	<0.001
Other‡	170	9.44	± 3.71		1.82	± 0.92		3.46	± 1.48		3.53	± 1.04		18.25	± 4.93		
OSH services	412	10.21	± 3.22	0.406	2.06	± 0.90	0.171	3.71	± 1.30	0.824	3.63	± 0.90	0.839	19.60	± 4.37	0.360	
Other§	97	9.91	± 3.46		1.92	± 0.89		3.67	± 1.47		3.65	± 0.95		19.14	± 4.80		
Size	260	9.53	± 3.54	<0.001	<0.001	1.87	± 0.93	<0.001	3.60	± 1.35	0.086	3.55	± 1.04	0.043	18.55	± 4.71	<0.001
≥ 250	249	10.81	± 2.81		2.20	± 0.82		3.80	± 1.31		3.71	± 0.74		20.53	± 3.93		
Total	509	10.16	± 3.26		2.03	± 0.90		3.70	± 1.33		3.63	± 0.91		19.52	± 4.45		

* Student's t-test. Bold values indicate statistical significance.
 † Government business enterprise, foreign capital enterprise, and enterprises with public-private partnership.
 ‡ Service, construction, agriculture.
 § External, an authorized unit of the Ministry of Health, any combination of OSH service types.
 PPE, personal protective equipment; SD, standard deviation.

The mean number of available measures was also significantly low in small- and medium-sized workplaces with < 250 workers. Similarly, three Japanese studies conducted in different periods found few available COVID-19 measures in small companies.²⁰⁻²² A study with 60 Italian companies also demonstrated that the work organization involving COVID-19 measures was better in large enterprises than in small-sized workplaces.²³ ILO points out that the pandemic has economic and social impacts on all sectors and workplace types, but the effects are particularly devastating on workers in small- and medium-sized workplaces.²⁴ As highlighted by the pandemic, the potential economic problems in small- and medium-sized workplaces may limit the budget available for OSH services. A survey on the effects of the COVID-19 pandemic on Turkish enterprises documented that micro and small-sized enterprises experienced a significant impact.²⁵ In addition to financial issues, problems related to the insufficiency of inspections or sanctions lead to failure in embracing an OSH culture. Nagata et al.²⁶ documented the contribution of health culture to the practice of infection control measures in workplaces during the pandemic. As a component of OSH culture, corporate health culture in large enterprises may contribute to the availability of COVID-19 measures.

This study showed a higher mean number of COVID-19 measures in the industrial sector than in other sectors. A recent work demonstrated high compliance with infection control measures in manufacturing, construction, and mining fields.²⁷ Sectoral availability of workplace measures against COVID-19 may vary with time. In their initial study on this topic, Sasaki et al.²⁰ demonstrated that compared with those in manufacturing, the number of available measures was significantly higher in the information and technology sectors but lower in the retail, wholesale, and transportation industries. A subsequent 2-month follow-up report revealed that sectors including public services, finance/insurance/real estate, food/beverage, health and care, and hospitality were associated with an increased number of measures.²¹ Several other follow-up studies also revealed the change in available measures. For example, an 8-month follow-up research indicated that the mean number of available measures increased between March and May 2020, was unchanged between May and August 2020, and declined between August and November 2020.²⁸ These findings highlighted that the sustainability of the measures is as vital as the cross-sectional evaluation of their availability.

In this study, nearly all union representatives reported a COVID-19 diagnosis among workers, and more than 10% reported COVID-19-related mortality. Malekpour et al.²⁹ made a similar evaluation in Iran in March 2020 and demonstrated 32.6% frequency of COVID-19 report among workers. This discrepancy may be due to the present study being conducted in a later period. Despite the variability of cross-sectional studies, a surveillance program, including case and mortality data sourced from official data collected by the Ministry of Health and a detailed occupational and environmental evaluation, may be helpful to enlighten work-related risks for COVID-19 transmission.

TABLE 4. Univariate and Multiple Logistic Regression Analysis of the Relationship Between Workplace Characteristics and Workers' History of COVID-19 Diagnosis and Mortality.

COVID-19 diagnosis		n	%	OR (95% CI)	Univariate		Multiple	
Workplace characteristics					<i>p</i> *	OR (95% CI)	<i>p</i>	
Workplace status	Private	317	98.7	Reference		Reference		
	Other‡	192	99.0	1.21 (0.22-6.69)	1.000	1.67 (0.27-10.35)	0.582	
Sector	Other§	170	98.2	Reference		Reference		
	Industry	339	99.1	2.01 (0.40-10.08)	0.406	2.00 (0.36-11.18)	0.428	
OSH services	Other	97	96.9	Reference		Reference		
	Internal	412	99.3	4.35 (0.87-21.90)	0.086	4.17 (0.82-21.31)	0.086	
Size	< 250	260	97.7	Reference		-	-	
	≥ 250	249	100.0	-	0.031	-	-	
COVID-19 related mortality								
Workplace characteristics		n	%	OR (95% CI)	Univariate		Multiple	
					<i>p</i> †	OR (95% CI)	<i>p</i>	
Workplace status	Private	317	11.4		Reference		Reference	
	Other‡	192	14.6		1.33 (0.78-2.26)	0.287	1.50 (0.86-2.61)	0.156
Sector	Other§	170	11.8		Reference		Reference	
	Industry	339	13.0		1.12 (0.64-1.97)	0.697	1.10 (0.60-2.02)	0.767
OSH services	Other	97	10.3		Reference		Reference	
	Internal	412	13.1		1.31 (0.64-2.68)	0.455	1.06 (0.51-2.22)	0.876
Size	<250	260	7.3		Reference		Reference	
	≥250	249	18.1		2.80 (1.59-4.94)	<0.001	2.99 (1.64-5.44)	<0.001

* Fisher's exact test. Bold values indicate statistical significance.

† Chi-square test. Bold values indicate statistical significance.

‡ Government business enterprise, foreign capital enterprise, and enterprises with public-private partnership.

§ Service, construction, agriculture.

|| External, an authorized unit of the Ministry of Health, any combination of OSH service types.

CI, confidence interval; COVID-19, coronavirus disease 2019; OR, odds ratio; PPE, personal protective equipment.

To the best of our knowledge, this study was the first to assess a large number of workplaces and their characteristics in terms of COVID-19 measures. One of its strengths was obtaining data from active workplace representatives from the TURK-IS, the confederation with the representation power in national and international meetings and organizations due to its large number of members. However, our study has some limitations. First, the level of participation was relatively low possibly due to conditions related to an ongoing pandemic and the method of data collection (i.e., electronic survey). Although the participants were approached via a complete list of e-mail addresses provided by the TURK-IS, active use of these e-mail addresses, particularly during an ongoing pandemic, was not guaranteed and may affect participation. In addition, the study method had intrinsic limitations with regard to responses. Personal characteristics of workplace chief representatives (e.g., educational level or COVID-19 awareness) might affect the responses. Furthermore, the level of COVID-19 measures may be higher in unionized workplaces than in non-unionized workplaces; thus, our results should be interpreted with caution. As the COVID-19 measures at the workplaces have been gradually implemented during the

pandemic, the study period might be a determinant of the level of measures at the workplaces. Future research comparing the level of measures at unionized and non-unionized workplaces with follow-up components may accurately document the status and help determine the urgencies.

In conclusion, this study evaluated COVID-19 measures in workplaces in the first year of the pandemic from the perspective of workers' union representatives. Results demonstrated failure in administrative measures such as suspending production or work, encouraging workers to take leave, applying alternate working, isolating any COVID-19 case from other workers in a designated room, and avoiding face-to-face meetings. In addition, the mean number of available measures was lower in small- and medium-sized workplaces and other sectors than in large enterprises and the industrial sector, respectively. These results should guide all local and national stakeholders to address these issues. Future studies regarding on-site COVID-19 workplace measures and their effectiveness are warranted.

Acknowledgments: The authors thank the administrative board of the Confederation of Turkish Trade Unions (TURK-IS) for their collaboration and support.

Ethics Committee Approval: The study protocol was approved by the Ministry of Health Directorate General of Health Services and the Non-interventional Researches Ethical Board of Hacettepe University (decision number: 2021/06-48).

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Authorship Contributions: Concept- D.K., A.S., M.Y., A.N.Y.; Design- D.K., A.S., M.Y., A.N.Y.; Data Collection or Processing- D.K., A.S., M.Y., A.N.Y.; Analysis or Interpretation- D.K., A.S., M.Y., A.N.Y.; Literature Search- D.K., A.S., M.Y., A.N.Y.; Writing- D.K., A.S., M.Y., A.N.Y.

Conflict of Interest: No conflict of interest was declared by the authors.

Funding: The authors declared that this study received no financial support.

Supplementary: <http://balkanmedicaljournal.org/uploads/pdf/2022-10-116-supplementarymaterials.pdf>

REFERENCES

- Santos KOB, Fernandes RCP, Almeida MMC, Miranda SS, Mise YF, Lima MAG. Labor, health and vulnerability in the COVID-19 pandemic. *Cad Saude Publica*. 2020;36:e00178320. [CrossRef]
- Dehghani F, Omid F, Yousefinejad S, Taheri E. The hierarchy of preventive measures to protect workers against the COVID-19 pandemic: A review. *Work*. 2020;67:771-777. [CrossRef]
- International Labour Organization. An employers' guide on managing your workplace during COVID-19. Geneva: *International Labour Organization*; 2020. [CrossRef]
- United States Department of Labor. Occupational Safety and Health Administration. Protecting Workers: Guidance on Mitigating and Preventing the Spread of COVID-19 in the Workplace. 2021 (cited 2022 October 20). Available from: <https://www.osha.gov/coronavirus/safework> [CrossRef]
- Pizarro AB, Persad E, Durao S, et al. Workplace interventions to reduce the risk of SARS-CoV-2 infection outside of healthcare settings. *Cochrane Database Syst Rev*. 2022;5:CD015112. [CrossRef]
- International Labour Organization. Anticipate, prepare and respond to crises - Invest now in resilient OSH systems. Geneva: International Labour Organization; 2021. [CrossRef]
- Ingram C, Downey V, Roe M, et al. COVID-19 prevention and control measures in workplace settings: a rapid review and meta-analysis. *Int J Environ Res Public Health*. 2021;18:7847. [CrossRef]
- Wong EL, Ho KF, Wong SY, et al. Views on Workplace Policies and its Impact on Health-Related Quality of Life During Coronavirus Disease (COVID-19) Pandemic: Cross-Sectional Survey of Employees. *Int J Health Policy Manag*. 2022;11:344-353. [CrossRef]
- Kawasumi M, Nagata T, Ando H, et al. Association between preventive measures against workplace infection and preventive behavior against personal infection. *Ind Health*. 2022;60:420-428. [CrossRef]
- Asaoka H, Sasaki N, Imamura K, Kuroda R, Tsuno K, Kawakami N. Effects of workplace measures against COVID-19 on psychological distress of full-time employees: A 12-month prospective study in the COVID-19 pandemic. *Scand J Work Environ Health*. 2022;48:468-478. [CrossRef]
- International Labour Organization. COVID-19: what role for workers' organisations? Recommendation No. 205 on Employment and Decent Work for Peace and Resilience (R205). 2020 (cited 2022 October 20). Available from: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/publication/wcms_739546.pdf [CrossRef]
- International Labour Organization. COVID-19 and Recovery: The Role of Trade Unions in Building Forward Better. 2021 (cited 2022 October 20). Available from: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/publication/wcms_806895.pdf [CrossRef]
- Firouzi-Naeim P, Rahimzadeh G. The Role of Labor Unions in Response to Pandemics: The case of COVID-19. ARC Centre of Excellence in Population Ageing Research. 2020 (cited 2022 October 20). Available from: <https://cepar.edu.au/file/2752/download?token=N8MJHpe0> [CrossRef]
- Republic of Turkey Ministry of Health. [Guidelines for Outbreak Management and Work]. Ankara: Republic of Turkey Ministry of Health; 2020. [CrossRef]
- Republic of Turkey Ministry of Industry and Technology. [Guidelines for Hygiene, Infection Control and Prevention in the Industrial Facilities]. Ankara: Republic of Turkey Ministry of Industry and Technology; 2020. [CrossRef]
- Republic of Turkey Ministry of Family, Labor, and Social Services. [Guidelines for Workplace Measures for COVID-19]. Ankara: Republic of Turkey Ministry of Family, Labour, and Social Services; 2020. [CrossRef]
- Pratama MR, Supriyadi A, Sari N. Assessment of precautionary measures against COVID-19 in Indonesian workplaces. *International Journal of Public Health Science*. 2021;10:281-288. [CrossRef]
- Oztig LI. Policy styles and pandemic management: The case of Turkey. *European Policy Analysis*. 2022;8:261-276. [CrossRef]
- Republic of Turkey Ministry of Health. [General Table of Coronavirus]. 2022 (cited 2022 October 20). Available from: <https://covid19.saglik.gov.tr/TR-66935/genel-koronavirus-tablosu.html> [CrossRef]
- Sasaki N, Kuroda R, Tsuno K, Kawakami N. Workplace responses to COVID-19 and their association with company size and industry in an early stage of the epidemic in Japan. *Environ Occup Health Practice*. 2020;2:1-9. [CrossRef]
- Sasaki N, Imamura K, Kataoka M, et al. COVID-19 measurements at the workplace in various industries and company sizes: a 2-month follow-up cohort study of full-time employees in Japan. *Environ Occup Health Practice*. 2021;3:1-9. [CrossRef]
- Ishimaru T, Nagata M, Hino A, et al. CORoNaWork Project. Workplace measures against COVID-19 during the winter third wave in Japan: Company size-based differences. *J Occup Health*. 2021;63:e12224. [CrossRef]
- Garzillo EM, Monaco MGL, Spacone A, Inglese E, Lamberti M, Pompei D. SARS-CoV-2 emergency in the workplace: are companies ready to protect their workers? A cross-sectional survey. *Int J Occup Saf Ergon*. 2022;28:683-690. [CrossRef]
- International Labour Organization. Prevention And Mitigation Of Covid-19 At Work For Small And Medium-Sized Enterprises Action Checklist And Follow-Up. 2020 (cited 2022 October 20). Available from: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---lab_admin/documents/instructionalmaterial/wcms_753619.pdf [CrossRef]
- Business For Goals. [Effects of Covid-19 Crisis on Enterprises Report of Survey Results]. 2021 (cited 2022 October 20). Available from: https://www.business4goals.org/wp-content/uploads/2021/03/B4G_Covid-19-Q4-Anket-Raporu_TR.pdf [CrossRef]
- Nagata T, Odagami K, Nagata M, Mori K. Corporate health culture promotes infection control measures against COVID-19 in the workplace. *J Occup Health*. 2022;64:e12373. [CrossRef]
- Ikegami K, Ando H, Fujino Y, et al. Workplace infection prevention control measures and work engagement during the COVID-19 pandemic among Japanese workers: A prospective cohort study. *J Occup Health*. 2022;64:e12350. [CrossRef]
- Asaoka H, Sasaki N, Imamura K, Kuroda R, Tsuno K, Kawakami N. Changes in COVID-19 measures in the workplace: 8-month follow-up in a cohort study of full-time employees in Japan. *J Occup Health*. 2021;63:e12273. [CrossRef]
- Malekpour F, Ebrahimi H, Yarahmadi R, Mohammadin Y, Kharghani Moghadam SM, Soltanpour Z. Prevention measures and risk factors for COVID-19 in Iranian workplaces. *Work*. 2021;69:327-330. [CrossRef]