Psychosocial health and activities during the COVID-19 pandemic

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Abstract.

BACKGROUND: The COVID-19 pandemic has become a major cause of stress at work.

OBJECTIVE: To examine the effect of self-management and self-control skills on perceived stress of employees in the COVID-19 period.

METHODS: The study's self-administered survey included demographics and the Perceived Stress Scale (PSS) and Self-Control and Self-Management Scale (SCMS). Associations with PSS were determined using a multiple variable linear regression analysis.

RESULTS: Scores for stress (28.45 ± 7.82) and self-management (55.73 ± 12.15) were moderate for employees. Of the 181 employees, 41.43% had a mild, 52.48% had moderate, and 6.07% had severe stress levels. Stress was significantly associated with lower self-management level. A negative relation was found between SCMS and PSS ($p = 0.000$, $r = -0.320$). Employees with high self-management skills had low stress levels. Employees also reported negative changes to physical activity, income and sleep. Gender, occupation, income category, compliance with COVID-related rules and self-management were associated with levels of stress ($p < 0.05$). The regression model explained 24.8% of the variance in stress perception ($R^2 = 0.248$, $F = 11.452$, $p = 0.000$). Multiple linear regression analysis showed gender ($\beta = 5.089$, 95% CI: 2.820 to 7.358, $p = 0.000$) compliance with COVID-related rules ($\beta = 2.274$, CI: 0.066 to 4.483, $p = 0.044$), a decrease in income ($\beta = 2.051$, CI: –0.64 to 4.166, $p = 0.057$) and self-management ($\beta = -0.173$, CI: –0.258 to –0.087, $p = 0.000$) were significantly associated with lower scores in the stress perception.

CONCLUSION: Self-control and self-management were associated with a decline in mental health. Health-promotion strategies directed at adopting or maintaining positive self-control and self-management-related behaviors should be utilized to address increases in psychological distress during the COVID-19 pandemic.

Keywords: COVID-19, distress, regression model, self-control

1. Introduction

Currently, the importance of social isolation in preventing the spread of COVID-19 infection is becoming increasingly important. In the measures taken on a daily basis, the closure of sports cen-ters and other mass participation events, as well as changes in business practices, have significantly increased. In addition, many people have started to live by socially isolating themselves at home to prevent getting infected [1–3]. Due to isolation, the life of societies and the world economy have been significantly affected [4–6].

As a result of the sudden decline in business areas, termination of employment contracts or unpaid leave, as well as remote work and a flexible working sys-

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tem have been implemented. Outside of governments and businesses, in the key industries and services (hospitals, essential product supply, pharmacies, food sales, etc.), flexible working from home or remotely has been introduced [3, 7]. Situations such as loss of time management and rearrangement of processes to provide maximum output with a minimum number of personnel, resulted in psychological stress situations [8]. People have experienced traumas, phobic reactions, depression, panic, excessive emotionality, aggression, fear of losing their job, and inability to manage financial processes. As a result of these situations, the pressure situations caused by psychological stress show that the pandemic also created psychosocial problems [4–6, 8–11]. Stress is defined as an internal experience that happens in response to a situation that causes a change in the daily life routine and is difficult to overcome [1, 2, 12, 13]. Since stress is a multifaceted concept, it is often difficult to notice and try to control the emotions that arise when encountering stressful situations. Recognizing stress, learning to manage emotions with an appropriate method, and exhibiting behavior towards it are very important in coping with stress personally [14, 15]. Therefore, individuals need to learn to live with stress and know how to manage it to minimize its negative effects. Effective stress management helps maintain a person's physical and mental balance while increasing their ability to solve problems and make decisions, as well as increase their efficiency in everyday life [16]. In addition, because stress plays an important role in the occurrence of many diseases, the most important goal of health professionals is to identify stress-causing factors and reduce stress in general society [14]. As a result of the research conducted, it was revealed that uncontrollable stress can result in serious problems for both the person and his/her environment [8, 17, 18]. Self-control and self-management skills to solve the perception of stress are one of people's most important assets. When emotions are forming, it is important to understand the reasons for this and be able to control that emotion. The perception of control plays an important role in maintaining physical and mental health [8, 14, 19]. The ability to effectively organize, prioritize and manage one's actions is vital for the workplace and life. However, most people do not have sufficient awareness of the importance of self-management skills. It is important that an individual can adapt their feelings, thoughts, and behavior to changing conditions and be flexible in situations that require struggle and change. Harmonious people can cope

with many demands without losing focus or energy and are not distracted by the inevitable uncertainties of public life. To be able to manage emotions is to calm oneself, get rid of intense anxieties, pessimism, and touchiness, get to the source of restlessness and evaluate them, and be able to cope better with negativity. While people whose ability on this is weak are in a constant state of restlessness, people whose ability on this is strong recover more easily as a result of negative experiences [17, 20, 21]. They direct and motivate themselves to do their duties and jobs [22, 23].

Given work-related behaviors, it is known that people perceive that they are in control while doing work and that having the opportunity to self-manage will reduce the perception of stress [17]. With the synergy formed by these components, the individual gains control of their own behavior and management skills. Therefore, self-control and self-management skills are also a matter of will and can be a driving force in reducing the perception of stress, as it is the ability to manage oneself effectively [24]. Measures are being taken to neutralize the harmful effects of stress that begin in the body and continue psychologically by taking measures to neutralize it. Therefore, it can be stated that individuals with high self-management and self-control skills can also strengthen their beliefs about managing stress in the COVID-19 period by recognizing themselves and what they can do and having successful experiences. People clarify their goals through high self-control, organize everyday life [21], and experience well-being and success [2]. Thanks to self-control, individuals are able to cope with procrastination and contribute to their happiness as a result of reducing the stress and pressure caused by the accumulation of work. During COVID-19, employees felt restricted in many ways. The level of stress perception also increases in individuals with increased workload and difficult working conditions [3, 16, 25]. The excess workload and stress negatively affect the employees' ability to cope with difficulties, but they will be in psychological well-being when it comes to using their self-management skills to deal with negative effects on employees. The fact that an individual performs their job with pleasure, participates in decision-making processes related to their job, is productive, and actively uses their skills and knowledge will increase the self-control of the individual. As a result, the perception of stress will decrease [17, 25].

By developing small changes in our cognitive and emotional outlook, we can identify strategies to get

over or better manage the stress experience. Replacing the reduced activities in daily routines with new areas of activity that give pleasure and satisfaction will give rise to a supportive structure [26]. During the COVID-19 pandemic, positive associations between physical activity and physical health were found, and a negative relationship was found between sedentary behaviors and physical and mental health outcomes in the literature [26]. Physical exercise, activity, healthy eating, relaxation, and regular sleep patterns help reduce mental and physical tensions caused by stress and further facilitate recovery. It has been determined that there are not enough studies in the literature on how to develop self-management skills in order to recognize stress symptoms and manage stress in terms of psychological well-being and stress perception [3, 8] during the COVID-19 period. A study revealing the relationship between these concepts has not been found, which shows that the research is unique. In this way, it is expected that the current study will expand the literature as a result of revealing the relationship between these concepts.

The main aim of the current research is to investigate the relationships between stress perception, self-management, and the change of these variables according to socio-demographic characteristics of people working during the pandemic period. In addition to the physical threat posed by the COVID-19 pandemic to people all over the world, an understanding of its social, psychological, and economic impacts is needed. It is thought that the findings to be obtained as a result of this research will provide additional information about the possible effects of the COVID-19 pandemic and practical data to the literature on employee health and safety.

2. Methods

2.1. Study design

The study was conducted in Ankara between May and June 2020 with adults over the age of 18 who use social media. The local ethics committee approved the study. Participation in the research was on a voluntary basis. Access to the questionnaire database was kept open for two weeks. Individuals over the age of 18, who volunteered to participate in the study and who accepted the consent form, were enrolled. The study was conducted using Google Forms. The poll link was shared via social media

such as Facebook, Instagram and WhatsApp. Participants were asked to share the study link to reach as many potential participants as possible across the country using the method known as snowball sampling.

2.2. Sampling of the study

A total of 181 individuals were reached online, and they participated in the study by filling out an informed consent form. The number of samples were determined as $p = 0.3$ and $q = 0.07$ according to the sampling error of 0.05, which was taken as the degree of significance.

The inclusion criteria were [27]: 1) being an employee, 2) being between 18 and 65 years old, and 3) working at the time of the survey.

2.3. Data collection tools

2.3.1. Sociodemographic information
Demographic characteristics included age, gender, marital status, educational attainment, employment, income status, chronic disease status, physical and health behaviors such as physical activity, activities at home, sleep, and following the rules.

2.3.2. Perceived Stress Scale (PSS)
The scale was developed by Cohen et al. in 1983 to measure the psychological stress levels of participants, and it was adapted to Turkish, and a reliability and validity analysis was conducted by Eskin et al. in 2013 [21]. The scale has three different forms, each consisting of four, ten and 14 questions. In this study, the 14-item scale was used, and seven positive items (items 4, 5, 6, 7, 9, 10, 13) were reverse scored. The responses of the 5-point Likert-scale were classified as "never, almost never, sometimes, often and very often". The perceived stress level of the participants was assessed by adding the scores of the items, and a high score indicated a high level of perceived stress. The internal consistency alpha coefficient was 0.84, and the test-retest reliability coefficient was 0.85 after two measurements performed two days apart. In addition to the 14-item form, PSS has two more forms with ten and four items. The internal consistency coefficients of the Turkish PSS-14, PSS-10, and PSS-4 were 0.84, 0.82, and 0.66, and test-retest reliability coefficients were 0.87, 0.88 and 0.72, respectively. The total score that can be obtained from PSS-14 is between 0-56 [21]. The Likert scale ranged from

"Never (0)" to "Very often (4)". The high score indicates the excessive perception of stress [21].

2.3.3. Self-Control and Self-Management Scale (SCMS)

The SCMS is easy to apply and evaluate and is used to determine self-control and self-management skills. A reliability and validity study was conducted by Xue and Sun in 2011 and by Ercoşkun in 2014. [22]. In order to reveal the factor structure of this scale, explanatory factor analysis (EFA) has been used. The scale consists of three sub-dimensions, namely "self-reinforcing" (SR), "self-evaluating" (SE) and "self-monitoring" (SM). SCMS is a 16-item scale, with a 6-point scoring system. The total score that can be obtained from the scale and the Likert scale (0-5) varies between 0-80. Higher total score indicates high skill for self-control and self-management. The reliability coefficient for the "general score" was $r = 0.92$. The test-retest reliability coefficient was $r = 0.82$, 0.73, and 0.74 for SR, SE and SM, respectively, which were all sufficient values.

2.4. Statistical analysis of data

The conformity of the scale scores to the normal distribution was examined using the Shapiro-Wilk test. In normally distributed data, independent samples t test (Student's t test) was used to compare the scale scores with two-group independent variables (gender, marital status, occupation, industry, observance of rules, decrease in income, sleep and physical activity). The Mann-Whitney U test was used to compare the scale scores that did not fit the normal distribution with the two-group independent variables.

One-way analysis of variance (ANOVA) was used for normally distributed data to compare the scale scores with more than two-group independent variables (educational status, industry, working style).

Kruskal-Wallis one-way analysis of variance was used to compare the data that did not fit the normal distribution between groups. The correlation between the scale scores and age was analyzed using the Spearman correlation coefficient (since age is a continuous type of data, the relationship between the scale scores were examined using the correlation coefficient).

Multivariate linear regression analysis was used to examine which variables were effective in explaining the PSS scores of the participants (variables affecting PSS scores were modeled together and analyzed

Table 1
Characteristics of the participants

Age (year)	Mean±SS Median (Min-Max) 33.13 ± 12.64 30 (18-68)	
	n	%
Gender		
Male	52	28.7
Female	129	71.3
Marital status		
Single	115	63.5
Married	66	36.5
Educational attainment		
Primary school	24	13.3
Upper secondary school	12	6.6
University-Bachelors	145	80.1
Type of industry		
Special	93	51.4
Public	88	48.6
Occupational group		
Health employee	47	26
Non-healthcare worker	134	74
Working sector		
Education	30	16.6
Health	75	41.4
Service	76	42
Working year		
1-5 year	88	48.6
6-10 year	26	14.4
11-15 year	13	7.2
16-20 year	13	7.2
>20 year	41	22.7
Way of working		
Dismissed	55	30.4
Remote work	46	25.4
Normal work	18	9.9
Flexible work	62	34.3
Income decreased		
Yes	65	35.9
No	116	64.1
Sleep reduction		
Yes	125	69.1
No	56	30.9
Decreased physical activity		
Yes	153	84.5
No	28	15.5

using linear regression analysis).

3. Results

3.1. Sociodemographic variables

The sociodemographic characteristics of the study sample are presented in Table 1. A total of 181 participants (52 male and 129 female) with a mean age of 33.13 ± 12.64 years were included in the study. The total score of the SCMS is 55.73 ± 12.15. It was found in the moderate level.

The average score for stress perception (PSS) was 28.45 ± 7.82. Stress perception was found in the moderate level of the majority (Table 1). According to the scores of PSS, 75 (41.43%) participants had mild, 95 (52.48%) moderate, and 11 (6.07%) had a high score for perceived stress level. The total stress perception level of women was higher than the total stress perception level of men and the difference was statistically significant ($p < 0.001$) (Table 1).

A difference was found between the PSS scores of women and men ($p < 0.001$). Women's PSS scores were higher than men's. There was no significant difference between the female and male participants in terms of SR, SE and SM scores and the SCSM scores (Table 2).

A negative correlation was found between the age of the participants and their PSS scores (Table 3). There was a low negative correlation between the age, SM, SE, SCMS scores and PSS scores [($r = -0.279$, $p < 0.001$; $r = -0.363$, $p < 0.001$; $r = -0.276$, $p < 0.001$; $r = -0.320$, $p < 0.001$, respectively)] of the participants. Participants with high self-management skills had lower stress levels (Table 3).

3.2. Regression results

Variables found to be significant as a result of univariate analysis for PSS scores were included in the Multivariate Linear Regression analysis. The regression model explained 24.8% of the variance in stress perception ($R^2 = 0.248$, $F = 11.452$, $p = 0.000$).

As a result of the one-variable analysis for PSS scores, the variables that were found to be significant were included in the multivariate linear regression analysis.

Dependent variable PSS total score: In the regression model, in which the independent variables are age, gender, occupation, a decrease in income and compliance with the rules and total self-management scores was seen. Determining factors for PSS total scores: Gender, decrease in income, obeying the rules, and self-management total scores were determined ($R^2 = 0.248$, $F = 11.452$, $p = 0.000$).

The female gender leads to a 5.089-point increase in the total PSS score, being healthy leads to a -2.026-point decrease, and a decrease in income leads to a 2.051-point increase in the total PSS score ($p < 0.05$). Compliance with the rules leads to a 2.274-point increase in the total PSS score ($p < 0.05$). An increase of one point in self-government scores leads to a decrease in the total PSS score of –0.173 points.

4. Discussion

There was a moderate level of stress perception in almost all individuals and their skills in using self-management strategies were moderate. It was determined that stress perception negatively affects self-management control skills, and there is a relationship between stress perception and self-management control skills. This shows that participants are not very good at using strategies that help them manage their behavior to suddenly reduce discrepancies in externally established standards. In addition, the moderate level of self-management and self-control skills indicates that they do not know themselves and what they can do very well.

One of the study's findings is that women's risk perception levels are also higher than men's. Within the scope of the current research, the perception of stress has been examined in terms of gender, and it has been concluded that the perception of stress was higher in women than in men during the COVID-19 period. This finding is consistent with studies showing that women have higher levels of risk perception [8, 11]. The fact that women's anxiety rate is higher than men's supports the conclusion that women feel the negative threat perception of COVID-19 more than men. Although there are studies showing that women have higher levels of risk perception [8, 11], some studies contradict these results [28, 29]. The fact that the women are more anxious than men supports the conclusion that women feel the negative threat perception of COVID-19 more than men. In the current study, we did not find any difference among the participants in terms of self-control and self-management skills. In addition, having high levels of self-management and self-control skills shows that the person has a high level of self-awareness and knows what he/she is capable of. This demonstrates that the person can successfully set a course that provides benefit. Contrary to the findings, in the study by Ercoşkun, according to the gender variable, there was a significant difference in favor of female teacher candidates in the sub-dimensions of self-regulation, self-evaluation, self-reinforcement and total score [22].

When examining according to educational status, it was found that the perception of stress and the perception of control during the COVID-19 pandemic were not affected by the level of education. In contrast to our study, another study conducted by Ekiz et al. found that individuals who graduated from primary education have a high perception of control [19]. The

Table 2
Comparison of participants' characteristics and scale scores

	PSS	SM	SE	SR	SCMS
	Mean±SD	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)
Gender					
Male	24.46 ± 7.22	24 (0-30)	18 (5-25)	18 (0-25)	59.5 (21-78)
Female	30.06 ± 7.49	22 (6-30)	17 (3-25)	18 (4-25)	57 (23-80)
Test	t=-4.600	U=2947.5	U=3347.5	U=3229.5	U=3239.0
p value	0.000*	0.201	0.984	0.755	0.779
Years of education					
Primary	31.33 ± 6.22	21.5(5-30)	16.5(7-25)	17(4-25)	53(25-78)
High school	29.33 ± 5.33	22 (10-30)	18 (3-25)	19(5-25)	55.5 (36-75)
University	27.91 ± 8.15	23 (0-30)	18 (5-25)	18 (0-25)	58 (21-80)
Test	F=2.074	$X^2 = 0.387$	$X^2 = 1.009$	$X^2 = 3.131$	$X^2 = 1.890$
p value	0.129	0.824	0.604	0.209	0.389
p value	0.208	0.164	0.512	0.104	0.192
Occupational group					
Health worker	30.80 ± 7.98	22 (0-29)	17 (10-25)	18 (3-25	55.5 (22-75)
Non-healthcare worker	27.63 ± 7.63	23(2-30)	18 (3-25)	18 (0-25)	57 (21-80)
Test	t=2.425	$X^2 = 3.665$	$X^2 = 0.187$	$X^2 = 0.000$	$X^2 = 1.263$
p value	0.016*	0.056	0.665	0.992	0.261
Type of industry					
Special	29.17 ± 8.28	22 (0-30)	17 (7-25)	18 (0-25)	56 (21-80)
Public	27.70 ± 7.27	23(2-30)	18 (3-25)	18 (4-25)	58 (23-79)
Test	t=1.263	$X^2 = 1.933$	$X^2 = 0.430$	$X^2 = 2.645$	$X^2 = 1.702$
Working sector					
Education	29.23 ± 8.13	22.5(2-30)	19 (3-25)	19(6-25)	60(28-78)
Health	29.18 ± 7.51	23 (0-30)	17 (10-25)	18 (3-25)	57 (22-80)
Finance	27.43 ± 7.98	23 (5-30)	17 (5-25)	17(0-25)	57(21-79)
Test	F=1.124	$X^2 = 0.011$	$X^2 = 0.00$	$X^2 = 0.484$	$X^2 = 0.001$
p value	0.327	0.918	0.988	0.487	0.976
Way of working					
Dismissed	30.38 ± 7.59	22 (0-27)	17 (3-25)	18 (3-25	55 (22-75)
Remote work	26.65 ± 6.88	24(10-30)	19.5 (6-25)	19 (7-25)	60.5(36-79)
Normal	27.72 ± 10.02	23(6-30)	17 (10-25)	15 (5-25)	51.5 (31-80)
Flexible	28.30 ± 7.78	22.5 (2-30)	17 (5-25)	18 (0-25)	57 (21-80)
Test	F=2.019	$X^2 = 4.321$	$X^2 = 2.347$	$X^2 = 4.663$	$X^2 = 5.690$
p value	0.113	0.115	0.309	0.097	0.058
Income decreased					
No	27.61 ± 7.90	23(6-30)	17 (3-25)	18 (0-25)	58 (21-80)
Yes	29.96 ± 7.50	22 (0-30)	18 (7-25)	18(3-25)	56 (22-77)
Test	t = -1.988	$X^2 = 0.19$	$X^2 = 0.042$	$X^2 = 0.931$	$X^2 = 0.669$
p value	0.049**	40.659	0.837	0.335	0.413
Compliance with COVID-related rules					
No	27.18 ± 7.53	23 (2-30)	18 (3-25)	19 (4-25)	58 (23-80)
Yes	31.03 ± 7.81	22 (0-30)	17 (6-25)	17 (0-25)	52.5 (21-79)
Test	t=-3.196	$X^2 = 1.015$	$X^2 = 1.395$	$X^2 = 8.732$	$X^2 = 66.29$
p value	0.002*	0.314	0.238	0.003*	0.010*
Decreased sleep					
No	28.73 ± 7.81	23 (2-30)	18.5 (9-25)	19 (6-25)	58 (28-80)
Yes	28.33 ± 7.85	23 (0-30)	17 (3-25)	18 (0-25)	56 (21-79)
Test	t=0.314	$X^2 = 0.064$	$X^2 = 0.305$	$X^2 = 2.719$	$X^2 = 1.835$
p value	0.754	0.801	0.581	0.099	0.176
Physical activity decreased					
No	27.14 ± 8.64	23 (10-30)	17 (5-25)	19 (4-25)	59 (25-75)
Yes	28.69 ± 7.67	22 (0-30)	17 (3-25)	18 (0-25)	57 (21-80)
Test	t=-0.967	$X^2 = 1.064$	$X^2 = 0.334$	$X^2 = 1.520$	$X^2 = 0.412$
p value	0.335	0.302	0.563	0.218	0.521

Perceived Stress Perception Scale: PSS; Self-Control and Self-Management Scale: SCMS; Self-Monitoring: SM; Self-Evaluating: SE; Self-Reinforcing: SR. * significant difference between categories; ^ p value * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 3
Correlation between PSS scores and age and self-management scores

	PSS	
	r*	p
Age	−0.279	0.000*
SM	−0.363	0.000*
SE	−0.276	0.000*
SR	−0.128	0.088
SCSMS	−0.320	0.000*

*Spearman's correlation coefficient. Perceived Stress Perception Scale: PSS; Self-Control and Self-Management Scale: SCSMS; Self-Monitoring: SM; Self-Evaluating: SE; Self-Reinforcing: SR.

difference in the studies is that the increased level of consciousness along with the level of education has differentiated the perspectives and expectations of individuals about pandemic control practices.

Healthcare is a profession where employees may experience the anxiety of losing both their health and their job at the same time and where the risk of being infected is higher in the workplace [28, 30]. It has been noted that increased anxiety in employees, and in some cases even panic, can spread COVID-19 even faster than the virus. In the study conducted by Zhang et al. it was investigated whether healthcare workers had psychosocial problems during the COVID-19 pandemic and it was observed that anxiety, depression, and obsessive-compulsive symptoms were higher, especially in workers who had one-on-one contact with patients [28]. Similarly, current study found that the professions with high stress levels were health workers. The results of our study are parallel with the knowledge in the literature. In addition, it has been stated that transparent communication will be more important than ever, especially in order to minimize the negative effects of uncertainty on employees, and businesses that act with real consideration of their employees through actions and measures will increase their value even more in this process [31, 32].

Considering the type of sector, there was no difference between the stress level and self-management and self-control skills of individuals working in the private and public sectors. Due to adverse conditions,

many sectors are very can take major injuries [32]. When the stress level of the individuals participating in the study was examined, it was seen that more than half of them had a moderate level, close to 6%, and had a serious perception of stress. Similar to the situation in Turkey, studies have shown that individuals have an increased perception of social risk after COVID-19 [3, 11, 34, 35]. It has been stated in the literature that pandemics will have negative effects on working individuals and society [3, 36]. In general, perceptions of inadequacy in self-control and uncertainty were associated with psychological distress during the pandemic [37]. The high stress levels can be attributed to uncertainty about the future, especially job losses and economic anxiety [8]. Due to the COVID-19 pandemic, employees have been dismissed or sent on leave by their employers [38, 40–42]. It has been shown that people who expect to lose their jobs have increased levels of stress [38]. Therefore, the COVID-19 outbreak is worrisome for employees. A recent study has demonstrated that self-control reduces emotional job insecurity in those who were dismissed. Similar to the results of the above-mentioned study, we did not find any difference between the dismissed people and employees in terms of stress perception and self-control and self-management skills. This may be because the dismissed people may have reduced their negative emotions through their self-control skills. The negative consequences of COVID-19 have made businesses vulnerable [44].

Considering the working sector, during this period, the activities of most enterprises were temporarily stopped, and only enterprises providing basic services were allowed to continue their activities [43]. Similarly, in our study, individuals work in the health, education, and service sectors. There was no difference in the perception of stress and self-management and self-control skills of the employees in this sector. We can attribute this to the fact that COVID-19 affects all sectors.

Another change in working conditions has been flexible working hours. 34.3% of employees have

Table 4
Multivariate regression results for participants' PSS scores

Parameter	Beta (β)	SE	95% CI		t	p value
Gender (female)	5.089	1.150	2.820	7.358	4.426	0.000
Occupational group (health worker)	−2.026	1.189	−4.373	0.321	−1.704	0.090
Decreased income	2.051	1.072	−0.64	4.166	1.914	0.057
Obeying the rules	2.274	1.119	0.066	4.483	2.033	0.044
Total self-management and self-control	−0.173	0.043	−0.258	−0.087	−3.995	0.000

flexible working hours, and 25.4% have remote working hours. In the efforts made within the organization, the process of working from home was experienced. In our study, the employees' working hours were found to be a maximum of 6 hours. In contrast to our study in the literature, it has also been observed that remote work is mismanaged in some companies and causes more workload for the employee at home [45, 46]. In the study by Ekpanyasku and Padungtod, family and work balance could not be maintained at home due to irregular working hours [3]. According to the report created by Randstad in accordance with the data collected from many countries, 83% of employees have adapted to the new working environment they have due to the COVID-19 pandemic [39]. While 75% of those who can adjust their working hours while maintaining family and work balance at home, almost all working group members have been able to adjust their working hours. In the current study, no differences were found in terms of stress perception and self-management and self-control skills according to the way individuals work. It has been observed that those who can set their working hours at home can complete their work at home in a shorter time and that employees fulfill their individual responsibilities. They have guided and motivated themselves to do their duty and their job.

In the current study, the proportion of those with reduced material income was 35.9%. In the current study, a difference in the perception of stress was found between people with decimated income and people who work. The stress perception of those with reduced income was found to be high [43]. The decrease in income has emerged as the COVID-19 pandemic has caused deterioration in the economic activities of all businesses.

The current study found weak and negative correlations between perceived stress level and self-management and self-control ability. This situation shows that as the level of stress perceived by the person increases, self-adjustment and self-assessment will decrease, and there will be problems in interpreting the internal balance of the person. As a person strengthens and controls himself, the stress he perceives will decrease. As a result of our research, it has been determined that stress level negatively affects the perception of COVID-19 pandemic control. As individuals' stress levels increases, their perceptions of controlling the pandemic decreases. Self-assessment decreases and problems may arise in interpreting a person's internal balance. As a person strengthens and controls themselves, the stress

they perceive decreases. Since stress causes high levels of anxiety and fear in individuals, it is likely that protectionist attitudes will develop in individuals. Therefore, our study determined that individuals did not have difficulty complying with the rules related to COVID-19. This shows that these people comply with the rules pertaining to personal protective equipment while working at work and at home. It has been found that people who follow the rules have a high perception of stress and low self-management control skills. Contrary to the current study, in the study conducted by Wang in China, it was observed that taking individual precautions (e.g., following COVID-19 rules such as hand hygiene and wearing a mask) reduced the stress level [11]. A study conducted by Mayer et al. found that there is an association between compliance with the rules for COVID-19 and stress perception [8]. In addition to taking individual measures to control the level of stress perception in society, it is important to implement control measures applied nationwide and individually. It will be easier for individuals who fully understand the importance and content of the measures taken to demonstrate behavior related to compliance with the rules related to COVID-19. Thus, the level of risk perception of individuals will decrease.

The current study reported that 69.1% of individuals had a decrease in sleep quality since the beginning of the COVID-19 pandemic. In the studies conducted, it was reported that there were negative changes in 40.7% and 56% of individuals [3, 47, 48]. These rates are not surprising, given the psychological state created by the COVID-19 pandemic. In the current study, when individuals were examined for decreased sleep quality, there was no difference in stress perception and self-management and self-control skills. During a global pandemic, it is natural for there to be a negative change in sleep quality due to economic distress, changes in exercise behaviors, and concerns about employment and relationships. To improve the quality of sleep during COVID-19, it is recommended to adhere to a number of recommendations, some of which include maintaining a regular sleep routine, limiting listening to news about COVID-19, and regular exercise during daylight hours [3, 47, 48].

When the size of the activities done at home during the COVID-19 pandemic is examined, it was determined that the most common activities were working at work, daily living activities, self-care activities, cleaning, cooking, watching television, reading books and listening to music, watching home cinema, religious activity, playing online computer

games, respectively. Since the beginning of COVID-19, various events had to be held at home due to the closure of exercise and sports facilities and the inability to participate in cultural events. The current study's overall decrease in physical activity is probably due to social distancing, travel restrictions, and the closure of regular exercise venues. In the study by Ekpanyasku and Padungtod, it was determined that physical activity decreased due to COVID-19 disruption of work-life balance [3]. The study findings support each other. Considering the psychological benefits of physical activity on mental health [49–51], additional strategies are needed to increase physical activity. It has been emphasized that increasing physical activity is a valuable strategy for improving mental health and preventing the risk of developing stress [14]. In the current study, no difference was found when the individuals' physical activity was examined in terms of stress perception, self-management and self-control skills of the individuals whose physical activity decreased. This may be due to the cultural characteristics of the group that made up the sample.

As a result of the one-variable analysis for PSS scores, the variables that were found to be significant were included in the multivariate linear regression analysis. Dependent variable PSS total score: In the regression model, in which the independent variables are gender, occupation, a decrease in income and compliance with the rules and total self-management scores was seen. Determining factors for PSS total scores: Gender, decrease in income, obeying the rules, and self-management total scores were determined ($R^2 = 0.248$, $F = 11.452$, $p = 0.000$). Since R^2 was 0.248, we determined that the tools mentioned above explain the perception of stress by 24.8%. A recent study determined that COVID-19 stress has a significant effect on adjustment to business life ($p < 0.001$). In this case, one-unit change in the stress variable causes an increase of 1.14 units in adjustment to business-life. Since R^2 was reported as 0.38, it has been determined that the stress can explain business-life adjustment by 38% [52]. In this aspect, the studies are similar to each other.

5. Conclusion

Our data showed that the participants had a moderate level of stress. Using moderate self-control strategy was one of the factors affecting perceived stress. We demonstrated that the participants were under stress during this difficult period and could not cope with the process in a controlled manner. The current study found negative correlations between perceived stress level and self-management and self-control ability. This shows that, as the level of stress perceived by the person increases, self-adjustment and self-assessment will decrease, and there will be problems in interpreting the internal balance of the person. As a person strengthens and controls himself, the stress he perceives will decrease. As a result of our research, it has been determined that stress level negatively affects the perception of COVID-19 pandemic control. During this period, while preparing programs for coping with stress, it may be beneficial to include social support and help the development of self-control and self-management skills. Based on the results, it can be said that organizational support practices for employees during COVID-19 should be developed. It has been determined that organizational support has important effects on increasing the employee's self-management and self-control and decreasing stress. For this reason, it has been determined that the level of organizational support, which seems to have a significant impact on their psychological status, can be increased by increasing support for employees and reducing work stress perception during COVID-19. Reducing job demands and workload, increasing job control and rewarding can help keep employees motivated and protected. Concrete reward systems to be implemented within the scope of perceived organizational support will help to meet the expectations of employees who have difficulties in meeting their socio-emotional needs. At this point, keeping employees happy, giving importance to their happiness, supporting self-control and self-management rights have a key role that can produce positive results for both the organization and employees. Because the support from leaders or organizational practices can be a source of inspiration for employees to use their own knowledge for different problems or purposes.

In line with the data obtained from the study, we would like to make some suggestions. First, considering that women have a higher perception of stress than men, it is necessary to support women in terms of improving self-management and self-control skills against stress. Second, since the levels of stress perception of healthcare professionals are higher than the levels of non-healthcare professionals, the number of protective and preventive measures should be increased in the working areas. Third, it is important to emphasize the necessity of education and train-

ings that inform the society and employees about the importance of complying with the rules related to pandemic in home and working life. By taking into account that income status and compliance with the rules are effective in managing the perception of stress, we suggest that the governments should take measures against these stress-inducing factors by providing the necessary economic support to the unemployed or low-income employees. Fourth, since the beginning of pandemic, various activities had to be conducted at home due to the closure of exercise and sports facilities and the inability to participate in cultural events, which decreased physical activity. Because of the positive impact of physical activity on mental health, activities and programs that promote physical activity can be planned. Lastly, it is recommended to investigate whether the perceived stress in the normalization process in the post-pandemic period has permanent effects on the psychosocial state of employees.

This study is not without limitations. The fact that the research is conducted in a certain period creates a common constraint for such studies with different features. The perception and psychosocial situations of individuals change over time with the changing situation, precautions, and practical applications throughout the country.

Ethical approval

The study was approved by the Scientific Research Ethics Committee of Ankara University (decision no. İ4-233-20, date 29.04.2020).

Informed consent

Informed consent form was obtained from all participants prior to the study.

Conflict of interest

The authors declare that there is no conflict of interest associated with this work.

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