

Effect of Covid-19 Pandemic on Absenteeism Rates in Carpet Manufacturing: A Case Study from Turkey

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Abstract

The COVID-19 pandemic has heavily affected all industries in all over the World. Although some factories stopped their production activities due to the precautions, the most of privately owned Turkish carpet manufacturers have continued their production continuously. We have arranged several meetings with two credible carpet manufactures to ask for absenteeism rates of blue-collar workers. We have collected the data and analyzed it by comparing prepandemic conditions. We have seen that absenteeism rates have significantly changed. In addition, we surveyed 1258 employees from 2 carpet manufacturer and found that %81.31 of them have at least 1-day sick absence during the pandemic due to a real Covid 19 or being a suspect of being Covid19 (has a contact with a Covid 19 positive person). It can be stated that at least for these two carpet manufacturers, absenteeism rates were relatively higher when compared to condition before pandemic. We have already seen some of the effects of absenteeism on the production quantities and some other effects are expected to be realized soon.

Key Words:

Absenteeism rate, Covid 19 pandemic, carpet industry

1. Introduction

The outbreak of the novel coronavirus (COVID-19) emerged at the end of 2019 and it was announced as a Public Health Emergency situation at the beginning of 2020 (Tendal et al. 2021). The outbreak of COVID-19 has influences on the health of tens of millions of people, and is expected to affect hundreds of millions in the future (Li et al. 2020). On the other hand, the pandemic has not been just a global health problem it has also created problems about labor market and the economy (Karmaker et al. 2021). Governments across the world have closed some of the industries (Habib et al. 2021), self-isolation has been a legal duty as a measure against the pandemic. Some businesses also did not survive or their continuity was threatened (Miyakawa et al. 2021). Some employees lost their jobs (Sjoquist and Wheeler 2020) and some were not able to go to work places due to self-isolation or contact to a person who is Covid positive. At the same time, it would not be wrong to expect a rise in the sickness absenteeism in the companies which did not seriously lose their market due to conditions of the pandemic. It has been shown that absences generally lead to innumerable personal, social, and economic losses (Lima et al. 2020). Furthermore, absenteeism causes considerable output losses (Block et al. 2014). Although the increasing absenteeism can be seen as indirect impact of the COVID-19 pandemic, we still don't know about its size and consequences.

Turkey has been the biggest exporter of machine made carpets in the World and Turkish carpet manufacturers export their products to more than 160 countries in the World (Öz 2004). According to the Turkey Statistical Institute, Turkish carpet industry made \$1 billion 770 million 886 worth exports between January and September of 2020 and approximately %70 of these exports were made by companies operating in Gaziantep (Turkish Statistics Institute 2020). Total amount of exports of the carpet manufacturing industry has increased 2.31% in the global pandemic period. The most of the carpet manufacturing companies worked non-stop during the coronavirus breakup. In this work, we will provide information about the absenteeism rates of two leading carpet manufacturers located in Gaziantep before and after the pandemic.

2. Literature Review

Absenteeism is an event that heavily affects work force utilization (Chatterji and Tilley 2002). Absenteeism as being an important component of the work efficiency is defined as the physical absence of the individual at his workplace (Lima et al. 2020).

There may be certain reasons of absenteeism. Sickness absenteeism (absence due to an illness) is known to be the most prominent reason among all of them (J and Ms 1997). The amount of sickness absenteeism varies according to population characteristics, industrial conditions (Gimeno et al. 2004) and job characteristics (Pousette and Hanse 2002). The effect of population characteristics can be seen in the study of (Gimeno et al. 2004). They conclude that sickness leaves in Southern European countries is much higher compared to Central and Northern European countries. Workplace mistreatment (Asfaw et al. 2014) and bullying (Nielsen et al. 2019) have also associations with the sickness absences.

On the other hand, sickness is expected to be objective while it is usually assessed by a physician, however, “go to work” or “stay home” decisions are quite subjective (Duff et al. 2015). These individual decisions are affected by socioeconomic and environmental conditions of the employees. For instance, sickness absenteeism rate is influenced by the gender and parenthood (Mastekaasa 2000). Sickness absence is known to be higher in women compared to men.

Remarkably, as the weather quality increases sickness absenteeism tends to rise (Shi and Skuterud 2015). Increases in unemployment rate decreases the level of sickness absenteeism (Scoppa and Vuri 2014; Grinza and Rycx 2018).

Empirical investigation is vital for understanding the sickness absenteeism (Treble and Barmby 2011) while a deeper understanding requires exploiting of large human resources data sets.

There are also some researches on the relationship between the epidemics and sickness absenteeism. It was shown that the average absenteeism is 11 days/year in an Italian hospital due to the influenza (Gianino et al. 2017). In another study, researchers declare that influenza epidemics significantly increase acute respiratory infections related sickness absence and that was specifically higher (57.7% increase) for health care workers of Hong Kong at the 2009 pandemic (Ip et al. 2015). (O'Reilly and Stevens 2002) predicts 10-12% of all sickness absence from work are influenza related. On the other hand, in Nottingham, the influenza epidemics of 1993-94 and 1996-97 made no impact on staff absence (Nguyen-Van-Tam et al. 1999). Results indicate that the H1N1 pandemic had also substantial impact on sickness absence data, with 20.99% rate that has been seen in November 2009 (Torá-Rocamora et al. 2012).

Chan (2007) presents that influenza vaccination of health care workers significantly decreases the sickness absenteeism. Findings in the literature confirm that immunization against influenza can prevent sick leaves significantly (Gianino et al. 2017).

3. Analysis

Absence reports of two leading carpet manufacturers have been taken into consideration for this analysis. We have divided our range of data into two period of time. The first period is August 2019 to March 2020 (8 months). We called this period as the pre-pandemic period. The second period is after pandemic period which is between April 2020 and November 2020 (8 months). The average absenteeism rates of the firms are as Table 1. We can see a 70.73% and 66.47% of increase of absenteeism rates for firm A and B. Standard deviations of the absenteeism rates has also risen. Especially, a significant change in the standard deviation is observed in Firm A. We have to state that both of the firms considered in this study pays for the output of employees, any kind of absenteeism means loss of certain amount of gain.

While there is a significant correlation between the absenteeism rate and the number of Covid19 positive employees for firm A (0.784 with $p=0.021$), there seems to be a weak correlation for firm B ($p>0.7$). It is remarkable to state that standard deviations have both increased in pandemic period. This can be interpreted as an increase in the unpredictability in absenteeism.

Table 1. Absenteeism rates in two carpet manufactures before and during Covid-19 outbreak

	Pre-pandemic Absenteeism Rate	Pandemic Absenteeism Rate	Rise in Absenteeism Rate
Firm A	3.28%	5.60%	70.73%
Firm B	6.65%	11.07%	66.47%
Std Firm A	0.47%	1.72%	268.22%
Std Firm B	2.82%	3.37%	19.64%

May, June and July have been the months with the highest rate of absenteeism for both of the firms. On the other hand, number of reported Covid-19 cases has been the highest in November 2020 in both of the firms. The correlation between the absenteeism rate and the reported positive cases is 0.784 for firm A and 0.007 for firm B ($p < 0.01$). The reason behind the uncorrelated values of these variables for Firm B, was also asked to authorities of the Firm B. It is understood that, although the number of positive cases is not too much, number of isolated employees increased enormously.

We have also used ANOVA (analysis of Variances) to check if the Covid19 is a significant factor on the absenteeism rates. Table 2 and Table 3 show the corresponding ANOVA results for Firm A and Firm B, respectively. Both of the p-values are small enough to conclude that we have sufficient evidence that not all the means are equal when alpha (the maximum acceptable level of risk for rejecting a true null hypothesis) is set as 0.05. If there was no real difference between the groups (pre-pandemic, pandemic), which is the null hypothesis, the result of the ANOVA's F-ratio statistic would be close to 1. On the other hand, difference in Firm A is much more significant when compared to Firm B.

Table 2. ANOVA for the absenteeism rates before and during Covid-19 outbreak for firm A

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Covid	1	0.002151	0.002151	11.83	0.004
Error	14	0.002546	0.000182		
Total	15	0.004697			

Table 3. ANOVA for the absenteeism rates before and during Covid-19 outbreak for firm B

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Covid	1	0.01008	0.010076	7.61	0.015
Error	14	0.01854	0.001324		
Total	15	0.02861			

In addition to data belonging to absenteeism, a collaborative survey was developed by authors of this paper and the Human Resources managers of Firm A and Firm B. A simple survey (univariate) was performed online to ask for the reason of absenteeism of the employees between April 2020 and November 2020 (8 months) targeting the opinions absent employees regarding the Covid 19 pandemic. Results of the survey is as summarized at Table 4 1258 employees from 2 carpet manufacturer were surveyed. 81.31% reported at least 1-day sick absence during the pandemic due to suspect of being Covid19 positive (80% of them reports self-assessment). 41.33% reported at least 14-day sick absence during the pandemic where 5.8% was officially Covid19 positive and 40% reported a self-isolation requirement. 99.8% of the 14-day sick absent employees reported they never had such along sick absence ever before. Gender and Firm variables were insignificant factors ($p > 0.1$) in the absence rates of employees.

Table 4. Survey variables and the corresponding percentages

Variable	n	%	P-Value
Employees	1258	100	
Firm A	542	43.08	
Firm B	716	56.91	
Male	1186	94.2	
Female	72	5.72	
At least one day sickness due to Covid 19	1023	81.31	<0.01
At least 14-day sickness due to Covid 19	520	41.33	<0.01

4. Conclusion

Absenteeism has been considerable problem of manufacturing companies which causes certain loss of work power as a resource of the firms. There is significant amount of research on this topic, focusing on the factors affecting the absenteeism rates. From the managerial point of view, the key issue has been the decreasing proportion of absenteeism that is avoidable (Vahtera et al. 2001). Currently, the world is under pressure of widely distributed pandemic and we can't estimate the real cost of it to the manufacturing industry. As it can be predicted, in this paper, we showed that the Covid 19 break-out has increased the absenteeism rates. Even we showed that the difference in the rate of absenteeism is statistically significant for the period after the pandemic, we can't prove that all of absenteeism is related to this pandemic. The correlation of the absenteeism with the number of positive cases can be significant as in case of Firm A or it can be insignificant as in Firm B. We are aware that Covid 19 test implementations were not wide at the beginning of the pandemic and some people were stayed as untested even they may have some of the symptoms. Therefore, we can't be sure of the numbers of the cases reported as positive. Therefore, the correlation between the positive cases and the increasing rate of absenteeism could be more than predicted. We have further surveyed employees to ask for the reason of their absence in order to check their reason for being absent during Covid 19 pandemic. 81.31% reported at least 1-day sick absence during the pandemic due to suspect of being Covid19 positive. 99.8% of the 14-day sick absent employees reported they never had such along sick absence before.

In addition, we know that some people who have a contact with a Covid 19 positive person were also not allowed to work and stay in isolation. 40% of all (209 employees) reported a self-isolation requirement among the 1258 employees. As a conclusion we can state that the absenteeism rates were higher and longer in duration during the Covid 19 pandemic.

In this study, we were not able to show either the psychological effects of Covid19 on the absenteeism rates since there is no registered proof. Willingness of the employees to work under strict conditions of the pandemic may be less when compared to normal conditions. On the other hand, we have to state that both of the firms considered in this study pays for the output of employees, any kind of absenteeism means loss of certain amount of gain. We also don't know this effect the individual decisions of the employees. We also know that team members seem to imitate each other's absence behavior (ten Brummelhuis et al. 2016). Consequently, the psychological effect of the pandemic cannot be estimated currently; however, a survey analysis in near future can clarify the situation.

There is another phenomenon that we should not forget here: Sickness presenteeism. It is the being present of an employee at the workplace even he/she feels ill (Bergström et al. 2009). We don't know if the fear about being COVID-19, positive has decreased the sickness presenteeism but we can estimate that the cost will be higher for a pandemic when compared to absenteeism.

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