Moderation effect of Socio-demographic factors in between health problems and presenteeism among Indian Employees

Dr.Harilal.A (Corresponding Author)

Dr.Santhosh V A
Professor & Dean
TKM Institute of Management (TIM), Kollam, Kerala.

Dr. Rupali Rajesh
Associate Professor
VES Business School, Mumbai- 74.

Abstract

This study aims to identify moderation effect of socio-demographic factors in between health problems and presenteeism and relationship between health problems and presenteeism among Indian employees. Data were collected from 375 employees working in public sector manufacturing organisation. The researcher chooses socio demographic variables age,experience, gender, marital status, family income level and education qualification as moderating variable. Correlation approach is employed in this study to discover relationships and regression method is used for determining the link between variables and the model's statistical fitness.The moderation analysis is conducted through Andrew F Hayes' processv3.5 in SPSS. This study confirms that health problems and presenteeism are significantly related. The results show that gender, marital status and family income level working as moderating variable in between health problems and presenteeism. Furthermore, the study results show that age, experience and education qualification not working as moderating variable in between health problems and presenteeism.

Key words

Presenteeism, health problems, socio-demographic factors, moderation

Introduction

Employee performance and productivity are important terms to use when describing a company's performance. The success of a firm is usually defined by its performance, which is decided by its employees' productivity. Better productivity can help businesses to acquire a competitive advantage. A variety of direct and indirect factors influence employee productivity. Employee productivity loss is primarily caused by absenteeism, a generally recognised health issue. Absenteeism is defined as an employee's failure to report to work because of a convincing reason such as illness or a lack of motivation (Sadri & Lewis 1995).Firms have a long history of dealing with absenteeism to reduce and control productivity losses. A hidden component that shows itself as an unobserved event in every firm arose in front of researcher "Presenteeism" at some time during this period. Cary Cooper, a psychologist specialising in organisational management, created the term presenteeism in 1994. Presenteeism is the practise of lowering employee productivity at work as a result of mental, emotional, or physical issues (Burton, Conti, Chen, Schultz, Edington 1999). When employees are sick, they are still present on the job, but they are not totally productive. The expense of presenteeism is more difficult to calculate than the cost of absenteeism. Due to the high cost category, presenteeism has been taken into consideration by companies in recent decades (Lerner, Amick, Roger, Malspeiz, Bungay and Cynn 2001). The study of presenteeism has lately expanded as a result of several studies demonstrating that the cost of presenteeism when paired with absenteeism is greater than absenteeism. Problems with health are a common occurrence in people's lives. The majority of companies throughout the world provide sick leave to employees who are dealing with health problems, as well as medical insurance, reimbursement, medical leave, and other benefits to employees who are dealing with health problems.Because of work pressure or other situations in the organization's working environment, employees may go to work when they are sick. This tendency will have an impact on employee performance, and the cause for their presence is frequently unknown, which was taken into consideration in this study. As a result, a complete measure of presenteeism that includes information on presenteeism determinants is urgently needed. Because extensive studies in the area of presenteeism are not conducted in countries like India, an all-encompassing measure of presenteeism is useful. Furthermore, presenteeism terminology must be agreed upon, and the factors of presenteeism remain understudied. This study was done among public sector manufacturing organisations in the state of Kerala in India. Public sector undertakings are

founded, managed, and controlled by the Government of India or state governments as government-owned businesses. Government-owned businesses have a huge impact on India's economy. These government-owned businesses were established with the purpose of reducing poverty and underdevelopment by entering the major industrial sector. As a result, the new problem or phenomenon centred on government-owned businesses. This is the first significant investigation into presenteeism in India, to the best of the researcher's understanding. Based on a research gap, this study investigates the relationship between health problems and presenteeism, as well as the moderating variables working in between health problems and presenteeism.Testable hypotheses were developed and data from the field survey where analysed to test these hypotheses. The majority of earlier presenteeism studies used samples from the United States and Europe (Lin and Lu, 2013). Samples are being collected from a varied population with a wide range of socio-cultural backgrounds for this investigation. This study fills a gap in the literature on presenteeism by including empirical data from a diverse population in India. Furthermore, this study fills a research gap on the variables of presenteeism and adds to the presenteeism literature.

Presenteeism and Health

Various studies on the link between health and absenteeism have been done (Chatterji, Tilley 2002, Burton et al 2004, Stewart et al 2003), however, there hasn't been as much study on presenteeism and employee performance. Numerous health conditions have a greater effect on subpar job performance. (Schwart et al 1997, Stewart et al 2003). The biggest reason of presenteeism-related productivity loss is health concerns (Johns, 2010). Several studies are being conducted in this field to establish which health conditions have an impact on presenteeism. Arthritis (Goetz et al 2004), back or neck discomfort, musculoskeletal problems, migraines, many frequent headaches, allergies, asthma, and depression were some of the health conditions affecting employee performance (Goetz et al 2004).It highlights the importance of treating presenteeism as a health issue. Other health-related disorders, such as chronic pain (Canadian 2006), hypertension (Wang et al., 2003), and cardiac diseases, have a negative impact on

employee performance. Respiratory or lung diseases, diabetes (Collins et al 2005), high cholesterol, obesity, sleep issues, chronic fatigue / low energy, and anxiety all have an impact on employee performance (Kessler et al., 2008). Allergies, asthma, depression (Goetz et al 2004), cancer (Wang et al 2003), stress (Pandey, 2020), drug/alcohol use (Thorrisen et al 2019), and

sinusitis (Burton et al 2001) are all factors that affect job performance.The majority of studies focus on presenteeism caused by chronic conditions (Schultz and Edington 2007). Presenteeism has no link to health hazards, according to certain studies. According to Bracewell and Campbell (2010), self-reported health concerns had no bearing on presenteeism. According to de Perio and Wiegand's (2014) high-quality study, chronic disorders like asthma or diabetes have no link to presenteeism. The bulk of the risk factors linked to presenteeism lacked sufficient data to draw any conclusions, and there are four statistical risk factors linked to presenteeism: 1.Influenza-related behaviour, 2.Socio-demographic factors, 3.Employment characteristics, and 4.Health (Webster et al., 2019).The relationship between health issues and presenteeism and socio-demographic factors and presenteeism is not well understood due to a lack of study..

Presenteeism and Socio-demographic factors

Gender influences presenteeism, according to previous study (Aronsson& Gustafsson, 2005), which is part of Johns' presenteeism model's personal variables area. Age (Bellaby, 1999; Aronsson& Gustafsson, 2005), income and education (Sturm and Gresenz 2002), marital status (Flor, Turk, Rudy 1989), and family status (Bellaby, 1999; Aronsson& Gustafsson, 2005) are some of the socio-demographic factors that influence presenteeism behaviour (Hansen & Andersen, 2008). The study also discovered that more experienced employees are unaffected by presenteeism, implying that experience moderates the relationship between presenteeism and performance (Martinez and Ferreira, 2012).Three high-quality studies (Bracewell et al., 2010) revealed no link between age and presenteeism, however three additional studies found a link between younger age and presenteeism (Chambers et al., 2017). These findings emphasis the need of looking into the link between age and absenteeism in a distinct cohort. Two studies on gender and presenteeism (Bracewell et al, 2010) discovered a link between female gender and presenteeism, while three studies showed no link (Chambers et al., 2017). However, there is a relationship between presenteeism and financial worries (Chiu et al., 2017).

Methodology

The association between health problems (independent variable) and presenteeism was investigated using a descriptive research method in this study (dependent variable). Likert scale was used to measure various factors in this research., making it a quantitative descriptive research method. According to Saunders, et al. (2003), descriptive survey research studies the occurrence of the moment with great precision and then properly depicts what the researcher observes. As a result, the survey research method is used in this study. From a variety of sources, expert panels selected 21 health issues or diseases as health variables. As moderating variables, six socio demographic variables were chosen.

H_0^1: There is no relationship between health problems and presenteeism

H_1^1: There is relationship between health problems and presenteeism

H_1^2: The relationship of health problems and presenteeism is moderated by age

H_1^3: The relationship of health problems and presenteeism is moderated by gender

H_1^4: The relationship of health problems and presenteeism is moderated by marital status

H_1^5: The relationship of health problems and presenteeism is moderated by qualification

H_1^6: The relationship of health problems and presenteeism is moderated by experience

H_1^7: The relationship of health problems and presenteeism is moderated by family income level

Information from the Department of Industries and Commerce, as well as the CAG report on public sector undertakings in Kerala for 2015-16, were used to build the sample frame. The first criteria evaluated for sample frame creation were manufacturing public sector enterprises within the Kerala Government's Department of Industries and Commerce, which are also defined as manufacturing in the CAG report on public sector undertakings in Kerala during 2015-16. Organizations with at least ten years of financial results submitted for CAG audits were also considered. Public-sector manufacturing organisations have at least one manufacturing unit as the second criteria.The third requirement was that the organisation be active or operational, as opposed to closed, inactive, liquidated, or non-operational. Based on the three criteria outlined here, twenty-two manufacturing public sector organisations were chosen as the sampling frame. These 22 organisations represent the chemical, electrical, ceramics and refractories, electronics, engineering, textiles, and wood/agricultural sectors. As a result, the research's sampling frame, or working population, includes 22 organisations and their 9851 employees, giving the investigation enough scope. The census method was used to choose public-sector manufacturing units from the sampling frame. The type of sampling method utilised to select a sample from each organisation is simple random sampling. The sample size for each organisation is calculated in the same proportion they occur in the population.The desired sample size from each organisation was determined using lottery approach in the simple random sampling. As a result, all of the approaches used in this study ensured that the sampling error was kept to a minimum, resulting in a precise conclusion.Here a subset of the population, which means sample, as per calculation got as 370 at a confidence level of 95% and margin of error 5%.The sample size was increased 10% to recoup for probable non responses (Martinez-meza et al., 2014). The sample

size was then increased to 410 and after dropping the invalid and incomplete responses the final sample size of 375 reached at a response rate of 91%.The sample size was calculated with the help of the survey monkey platform. This sample size was confirmed through two other online platforms Raosoft calculator and open epi (Version 3.01).In this research, the researcher used both primary and secondary source for data collection. The primary data was collected with the help of different data collection instruments and secondary data was collected through books, journals, thesis and websites.A method called a self-administered structured questionnaire was used to collect the primary data in this investigation.Stanford presenteeism scale and as well as questionnaires on health, job securityand teamwork were employed in this study.The questionnaires were closed-ended and used a five-point Likert scale to assess responses.Based on the available literature stanford presenteeism scale was found as the best acceptable questionnaire among a series of questionnaires for measuring the dependent variable presenteeism,The additional questionnaire were created with the use of literature study, an expert opinion process, and validity and reliability testing. Expert review is a relatively quick and cost-effective method of evaluating questionnaires (Presser et al., 1994).The surveys comprised the questions with the highest number of expert approvals.According to Ospina et al., (2015) Stanford presenteeism scale (SPS-6) has a acceptable level of proof for the mainstream measurement domains including internal consistency, content validity, convergent validity, construct validity and responsiveness.The Cronbach's alpha (.83) of the scale indicates adequate reliability and factor analysis shows a valid result (.98). Validity of the questionnaires was approved by the expert opinion method and the reliability of the questionnaires was measured with Cronbach's alpha. Cronbach's alpha for health problems questionnaire is .787 and the validity of the health questionnaire was approved by an expert panel of Doctors. Percentage analysis, ANOVAs, regression, and correlation tests were among the methods used to evaluate the data in SPSS.The moderation analysis was done withthe processv3.5 by Andrew F Hayes through SPSS.

Analysis and Interpretation

Demographic Statistics

In this section the statistical analysis of basic demographic factors were interpreted. The basic demographic factors like age, gender, marital status, highest qualification, experience, family monthly income and residence were analysed. The percentage analysis was done for above explained demographic factors. In this study 5.6% respondents were in age up to 30, 41.6% in between 31-40, 30.7% in between 41-50 and 22.1 % in between 51-60.The highest number of respondents were lying in between the age category of 31-40 and lowest from age up to 30.The major respondents were from male category consists of 76.3% and female category consists of the least with 23.7%.This statistics shows major employees working in public sector manufacturing organisation were from male segment. The marital status of respondents consists of 7.7% single, 88.5% are married and 3.7% were divorced. Majority of respondents participated in this study are married one.About highest qualification of respondents 12.5% had highest qualification SSLC,28.3% ITI qualification,22.1% Diploma/Plus two qualification,22.9% degree qualification and 14.1 % respondents highest qualification was post graduation. Statistics shows that majority of employees qualification were ITI and Diploma/plus two. The technical qualified employees were occupying majority in public sector manufacturing organisations. About experience of respondent 16.5% had experience up to 5, 23.7% respondent in experience range of 6-10, 36.5 % in experience range of 11-20, 19.5% in 21-30 and 3.7 % respondents had experience above 30.The majority of employees experience lying in between 6-20 years. Analysis shows 7.2% employees participated in the study had income up to 15000 Indian rupee monthly,57.9% in between monthly income 15001-30000,25.9% in between 30001-45000 ,5.1% in between income rage of 45001-60000 and 4% respondent had monthly income in Indian rupee above 60000.Majority of employees monthly income lying in between 15001-30000 Indian rupees. Majority of respondents participated in this study were from urban area i.e. 54.4% and 45.6% respondents from rural area.The demographic profiles of the respondents are depicted in Table No.1.

Table No: 1

Demographic profile

Demographic category	Count	Percent
Age		
Up to 30	21	5.6
31-40	156	41.6
41-50	115	30.7
51-60	83	22.1
Total	375	100.0
Gender		
Male	286	76.3
Female	89	23.7
Total	375	100.0
Marital Status		
Single	29	7.7
Married	332	88.5
Divorced	14	3.7
Total	375	100.0
Qualification		
SSLC	47	12.5
ITI	106	28.3
Diploma/Plus two	83	22.1
Degree	86	22.9
PG	53	14.1
Total	375	100.0
Experience		
Up to 5	62	16.5
6-10	89	23.7
11-20	137	36.5
21-30	73	19.5
Above 30	14	3.7
Total	375	100.0
Family Income level		
Up to 15000	27	7.2
15001-30000	217	57.9
30001-45000	97	25.9
45001-60000	19	5.1
Above 60000	15	4.0
Total	375	100.0

Health problems and Presenteeism

The primary objective of this research was to identify the relationship between health problems and presenteeism. Correlation analysis was conducted to examine the relationship between independent variable health problems and dependent variable presenteeism and regression analysis was used to find model fit.

H_0^1: There is no relationship between health problems and presenteeism
H_1^1: There is a relationship between health problems and presenteeism

The relationship between health problems and presenteeism was analysed and Table No: 2 illustrate the results of the analysis .The mean value of presenteeism is 20.98 and health problems is 29.14.The standard deviation of presenteeism is 4.628 and health problems is 7.257. The relationship between health problems and presenteeism shows a correlation value of .114 and p=.027.The significant value shows that there is a relationship between health problems and presenteeism. As a result, the null hypothesis was rejected and the alternate hypothesis accepted. According to the findings, health problems and presenteeism have a significant relationship with positive correlation value.

Table No: 2
Health problems and Presenteeism descriptive

	Mean	Std. Deviation	N	Pearson Correlation	Sig. (2-tailed)
Presenteeism	20.98	4.628	375	.114*	.027
Health	29.14	7.257	375		

The regression analysis between health problems and presenteeism shows an R value of .144,R squared value of .013 in table no: 3. R^2 value is the percentage of variance in the dependent variable by independent variable.Hence, 1.3 percentage of variance in presenteeism is explained by health problems. The ANOVA analysis in table no: 3 shows an F value of 4.899 and sig vale of .027.Hence,null hypothesis is rejected and infer that health problem is a significant predicator of presenteeism. The coefficient analysis in table no: 3 shows t value of 2.213 and the sig value .029. The unstandardised beta, y-intercept value 18.863 and slope of the regression line b_1 .073 are used to estimate the regression equation. The estimated equation is $Y=2.213+ .073 \times X_1 +e$. An increase in one unit of independent variable (X1) increase the dependent variable

presenteeism by 7.3%. The significant value shows model applied statistically predict the dependent variable presenteeism

Table No: 3
Health problems and presenteeism model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.114[a]	.013	.010	4.604	.013	4.899	1	373	.027

a. Predictors: (Constant), Health problems

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.845	1	103.845	4.899	.027[b]
	Residual	7905.984	373	21.196		
	Total	8009.829	374			

a. Dependent Variable: Presenteeism

b. Predictors: (Constant), Health problems

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.863	.985		19.149	.000
	Health problems	.073	.033	.114	2.213	.027

a. Dependent Variable: Presenteeism

Health problems and its relationship with Presenteeism with moderating variables

The moderation take place when the relationship between X and Y differ depending on some other variable for example W. This interaction is called as moderation and W is the moderator in relationship between X and Y (Hayes, 2005).The motive for choosing Hayes macro process for moderation analysis is to assess the conditional effect of X on Y at the sample mean of the moderator. The restricted effect of the independent variable on the dependent variable at value of the moderator is also called the simple slopes (Aiken and West, 1991). Moderation effect of age,

experience, gender, qualification, family income level and marital status in between health problems and presenteeism was analysed and results are depicting below. For these moderation analyses 5000 samples were bootstrapped with 95% of confidence interval. The widely accepted Johnson-Neyman technique and dominant method -1SD, Mean, +1SD was used when probing interaction in linear model. The moderating analysis was conducted using Hayes process in SPSS.

Health problems and its relationship with presenteeism is moderated by age

Moderation effect of age in between health problems and presenteeism was analyzed and results are depicted below.

H_1^2: The relationship of health problems and presenteeism is moderated by age

The model summary recommends that health problems and interaction of age mutually explains 6.07% variance in presenteeism. The p-value=.0000 of the model shows that model is statistically significant. The moderating analysis with age shows a p-value of .5317 (P>.05) and LLCI (-.0964) and ULCI (.0499) values. These values indicate age not working as a moderator in between health problems and presenteeism. (Table No: 4).

Table No: 4
Health problems and presenteeism is moderated by age

Model : 1						
Y : PST						
X : HLT						
W : Age						
SampleSize: 375						
OUTCOME VARIABLE: PST						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.2463	.0607	20.2801	7.9865	3.0000	371.0000	.0000
Model						
coeff	se	t	p	LLCI	ULCI	
constant	21.0104	.2380	88.2742	.0000	20.5424	21.4784
HLT	.0464	.0335	1.3855	.1667	-.0195	.1123
Age	1.1841	.2731	4.3356	.0000	.6471	1.7212
Int_1	-.0233	.0372	-.6260	.5317	-.0964	.0499

Product terms key:					
Int_1 : HLT x Age					
Test(s) of highest order unconditional interaction(s):					
	R2-chng	F	df1	df2	p
X*W	.0010	.3918	1.0000	371.0000	.5317

Health problems and its relationship with presenteeism is moderated by gender

Moderation effect of gender in between health problems and presenteeism was analyzed and results are depicted below.

H_1^3: The relationship of health problems and presenteeism is moderated by gender

The model summary recommends that health problems and interaction of gender mutually explains 5.26% variance in presenteeism. The p-value=.0002 of the model shows that model is statistically significant. The moderating analysis with gender shows a p-value of .0003 (P<.05) and LLCI (-.3754) and ULCI (-.1109) values. These values indicate gender working as a moderator in between health problems and presenteeism. The analysis shows in conditional effects first condition is significant (P value=.0000) and second condition (p=.2427) is not significant among the values of the moderator. The moderator gender has a significant conditional effect on relationship between health problems and presenteeism (Table No: 5) and the graphical plot depicting conditional effects are generated (Graph No:1).

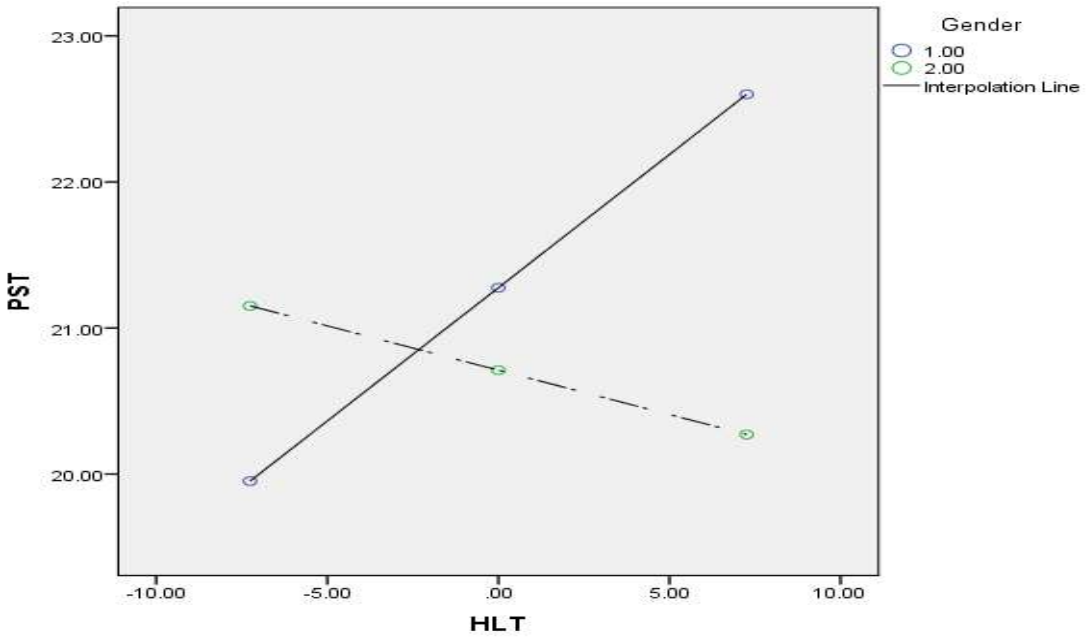
Table No: 5
Health problems and presenteeism is moderated by gender

Model : 1						
Y : PST						
X : HLT						
W : Gender						
Sample Size: 375						
OUTCOME VARIABLE: PST						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.2296	.0527	20.4521	6.8797	3.0000	371.0000	.0002
Model ofpresenteeism is moderated by gender						
coeff	se	t	p	LLCI	ULCI	
constant	21.8409	.7369	29.6387	.0000	20.3919	23.2900
HLT	.4256	.1001	4.2519	.0000	.2288	.6225
Gender	-.5650	.5694	-.9922	.3218	-1.6847	.5547

Int_1	-.2432	.0673	-3.6156	.0003	-.3754	-.1109
Product terms key:						
Int_1 :	HLT	x	Gender			
Test(s) of highest order unconditional interaction(s):						
	R2-chng	F	df1	df2	p	
X*W	.0334	13.0724	1.0000	371.0000	.0003	
Focal predict: HLT (X)						
Mod var: Gender (W)						
Conditional effects of the focal predictor at values of the moderator(s):						
Gender	Effect	se	t	p	LLCI	ULCI
1.0000	.1825	.0428	4.2624	.0000	.0983	.2666
2.0000	-.0607	.0519	-1.1702	.2427	-.1627	.0413
HLT	Gender	PST	.			
BEGIN DATA.						
-7.2567	1.0000	19.9518				
.0000	1.0000	21.2759				
7.2567	1.0000	22.6000				
-7.2567	2.0000	21.1515				
.0000	2.0000	20.7110				
7.2567	2.0000	20.2705				
END DATA.						

Graph No: 1

Moderating effect of gender on relationship between health problems and presenteeism



Health problems and its relationship with presenteeism is moderated by marital status

Moderation effect of marital staus in between health problems and presenteeism was analyzed and results are depicted below.

H_1^4: The relationship of health problems and presenteeism is moderated by marital status

The model summary recommends that health problems and interaction of marital status mutually explains 3.38% variance in presenteeism. The p-value=.0049 of the model shows that model is statistically significant. The moderating analysis with marital status shows a p-value of .0104 (P<.05), LLCI (-.4567) and ULCI (-.0613) values. These values indicate marital status working as a moderator in between health problems and presenteeism. The analysis shows that conditional effects is significant for low (P =.0012) and not significant for high (P=.8222). The moderator marital status has a significant conditional effect on relationship between health problems and presenteeism (Table No: 6) and the graphical plot depicting conditional effects of marital status are generated (Graph No: 2).

Table No: 6
Health problems and presenteeism is moderated by marital status

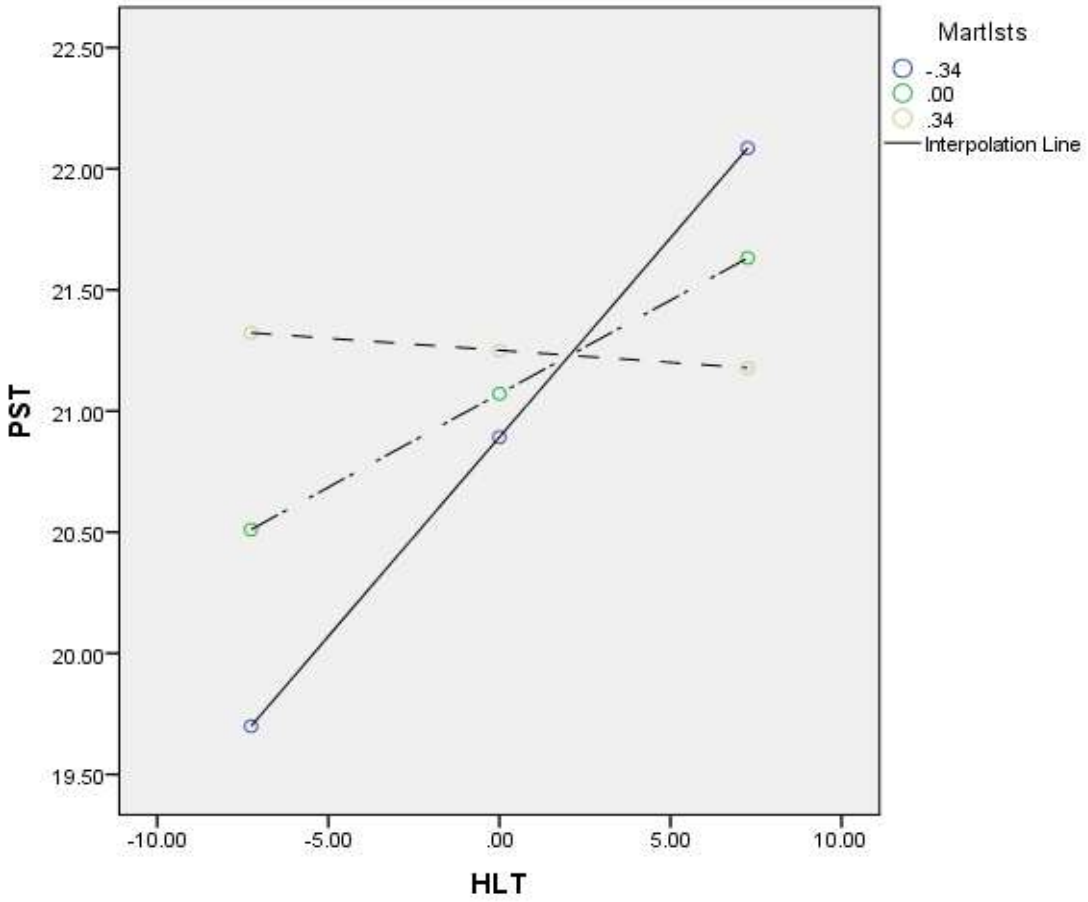
Model : 1						
Y : PST						
X : HLT						
W :Martlsts						
Sample Size: 375						
OUTCOME VARIABLE: PST						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.1848	.0341	20.8528	4.3707	3.0000	371.0000	.0049
Model						
coeff	se	t	p	LLCI	ULCI	
constant	21.0713	.2385	88.3358	.0000	20.6022	21.5403
HLT	.0772	.0331	2.3300	.0203	.0121	.1424
Martlsts	.5324	.7207	.7386	.4606	-.8849	1.9496
Int_1	-.2590	.1005	-2.5766	.0104	-.4567	-.0613
Product terms key:						
Int_1 :	HLT	x	Martlsts			
Test(s) of highest order unconditional interaction(s):						
R2-chng	F	df1	df2	p		

X*W	.0173	6.6387	1.0000	371.0000	.0104	
Focal predict: HLT (X)						
Mod var: Martlsts (W)						
Conditional effects of the focal predictor at values of the moderator(s):						
Martlsts	Effect	se	t	p	LLCI	ULCI
-.3367	.1644	.0502	3.2753	.0012	.0657	.2632
.0000	.0772	.0331	2.3300	.0203	.0121	.1424
.3367	-.0100	.0444	-.2249	.8222	-.0972	.0773
Moderator value(s) defining Johnson-Neyman significance region(s):						
Value	% below	% above				
.0484	96.2667	3.7333				
Conditional effect of focal predictor at values of the moderator:						
Martlsts	Effect	se	t	p	LLCI	ULCI
-.9600	.3259	.1058	3.0793	.0022	.1178	.5340
-.8600	.3000	.0963	3.1143	.0020	.1106	.4894
-.7600	.2741	.0869	3.1524	.0018	.1031	.4450
-.6600	.2482	.0777	3.1927	.0015	.0953	.4010
-.5600	.2223	.0688	3.2329	.0013	.0871	.3575
-.4600	.1964	.0601	3.2664	.0012	.0782	.3146
-.3600	.1705	.0520	3.2785	.0011	.0682	.2727
-.2600	.1446	.0447	3.2366	.0013	.0567	.2324
-.1600	.1187	.0386	3.0757	.0023	.0428	.1945
-.0600	.0928	.0344	2.6958	.0073	.0251	.1604
.0400	.0669	.0329	2.0329	.0428	.0022	.1316
.0484	.0647	.0329	1.9664	.0500	.0000	.1294
.1400	.0410	.0344	1.1918	.2341	-.0266	.1086
.2400	.0151	.0385	.3913	.6958	-.0607	.0908
.3400	-.0108	.0446	-.2429	.8082	-.0985	.0768
.4400	-.0367	.0519	-.7077	.4796	-.1388	.0653
.5400	-.0626	.0600	-1.0435	.2974	-.1807	.0554
.6400	-.0885	.0686	-1.2897	.1980	-.2235	.0465
.7400	-.1144	.0776	-1.4743	.1413	-.2671	.0382
.8400	-.1403	.0868	-1.6162	.1069	-.3111	.0304
.9400	-.1662	.0962	-1.7278	.0848	-.3554	.0229
1.0400	-.1921	.1057	-1.8175	.0699	-.4000	.0157
HLT	Martlsts	PST	.			
BEGIN DATA.						
-7.2567	-.3367	19.6987				
.0000	-.3367	20.8920				
7.2567	-.3367	22.0853				

-7.2567	.0000	20.5108
.0000	.0000	21.0713
7.2567	.0000	21.6317
-7.2567	.3367	21.3229
.0000	.3367	21.2505
7.2567	.3367	21.1781
END DATA.		

Graph No: 2

Moderating effect of marital status on relationship between health problems and presenteeism



Health problems and its relationship with presenteeism is moderated by qualification

Moderation effect of qualification in between health problems and presenteeism was analyzed and results are depicted below.

H_1^5: The relationship of health problems and presenteeism is moderated by qualification

The model summary recommends that health problems and interaction of qualification mutually explains 1.94 % variance in presenteeism. The p-value=.0638 of the model shows that model is not statistically significant. The moderating analysis with qualification shows a p-value of .1363 (P>.05), LLCI (-.0120) and ULCI (.0873) values. These values indicate qualification not working as a moderator in between health problems and presenteeism. (Table No: 7).

Table No: 7
Health problems and presenteeism is moderated by qualification

Model : 1						
Y : PST						
X : HLT						
W :Qualific						
Sample Size: 375						
OUTCOME VARIABLE: PST						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.1397	.0195	21.1684	2.4623	3.0000	371.0000	.0623
Model						
coeff	se	t	p	LLCI	ULCI	
constant	20.9758	.2376	88.2831	.0000	20.5086	21.4430
HLT	.0710	.0328	2.1647	.0310	.0065	.1355
Qualific	-.1171	.1897	-.6171	.5375	-.4901	.2560
Int_1	.0377	.0253	1.4930	.1363	-.0120	.0873
Product terms key:						
Int_1 :	HLT	x	Qualific			
Test(s) of highest order unconditional interaction(s):						
R2-chng	F	df1	df2	p		
X*W	.0059	2.2290	1.0000	371.0000	.1363	
Focal predict: HLT	(X)					
Mod var: Qualific (W)						
Data for visualizing the conditional effect of the focal predictor:						
Paste text below into a SPSS syntax window and execute to produce plot.						
HLT	Qualific	PST	.			
BEGIN DATA.						
-7.2567	-1.2579	20.9519				
.0000	-1.2579	21.1231				
7.2567	-1.2579	21.2943				
-7.2567	.0000	20.4605				
.0000	.0000	20.9758				
7.2567	.0000	21.4912				

-7.2567	1.2579	19.9691
.0000	1.2579	20.8286
7.2567	1.2579	21.6880

Health problems and its relationship with presenteeism is moderated by experience

Moderation effect of experience in between health problems and presenteeism was analyzed and results are depicted below.

H_1^6: The relationship of health problems and presenteeism is moderated by experience

The model summary recommends that health problems and interaction of experience mutually explains 8.99 % variance in presenteeism. The p-value=.0000 of the model shows that model is statistically significant. The moderating analysis with experience shows a p-value of .8806 (P>.05) and LLCI (-.0553) and ULCI (.0645) values. These values indicate experience not working as a moderator in between health problems and presenteeism. (Table No: 8).

Table No: 8
Health problems and presenteeism is moderated by experience

Model : 1						
Y : PST						
X : HLT						
W : Exp						
Sample Size: 375						
OUTCOME VARIABLE: PST						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.3001	.0901	19.6450	12.2427	3.0000	371.0000	.0000
Model						
coeff	se	t	p	LLCI	ULCI	
constant	20.9716	.2337	89.7296	.0000	20.5120	21.4311
HLT	.0356	.0329	1.0802	.2808	-.0292	.1003
Exp	1.2173	.2178	5.5888	.0000	.7890	1.6456
Int_1	.0046	.0305	.1503	.8806	-.0553	.0645
Product terms key:						
Int_1 :	HLT	x	Exp			
Test(s) of highest order unconditional interaction(s):						
R2-chng	F	df1	df2	p		

X*W .0001 .0226 1.0000 371.0000 .8806
Focal predict: HLT (X)
Mod var: Exp (W)
HLT Exp PST .
BEGIN DATA.
-7.2567 -1.0754 19.4401
.0000 -1.0754 19.6624
7.2567 -1.0754 19.8847
-7.2567 .0000 20.7136
.0000 .0000 20.9716
7.2567 .0000 21.2296
-7.2567 1.0754 21.9870
.0000 1.0754 22.2807
7.2567 1.0754 22.5744
END DATA.

Health problems and its relationship with presenteeism is moderated by family income

Moderation effect of family income in between health problems and presenteeism was analyzed and results are depicted below.

H_1^7: The relationship of health problems and presenteeism is moderated by family income level

The model summary recommends that health problems and interaction of family income level mutually explains 2.93% variance in presenteeism. The p-value=.0112 of the model shows that model is statistically significant. The moderating analysis with family income level shows a p-value of .0192 (P<.05) and LLCI (.0124) and ULCI (.1388) values. These values indicate family income level working as a moderator in between health problems and presenteeism. The analysis shows that conditional effects is not significant for low (P =.9798) and significant for high (P=.0022). The moderator family income level has a significant conditional effect on relationship between health problems and presenteeism (Table No: 9) and the graphical plot depicting conditional effects of family income level are generated (Graph No: 3).

Table No: 9

Health problems and presenteeism is moderated by family income

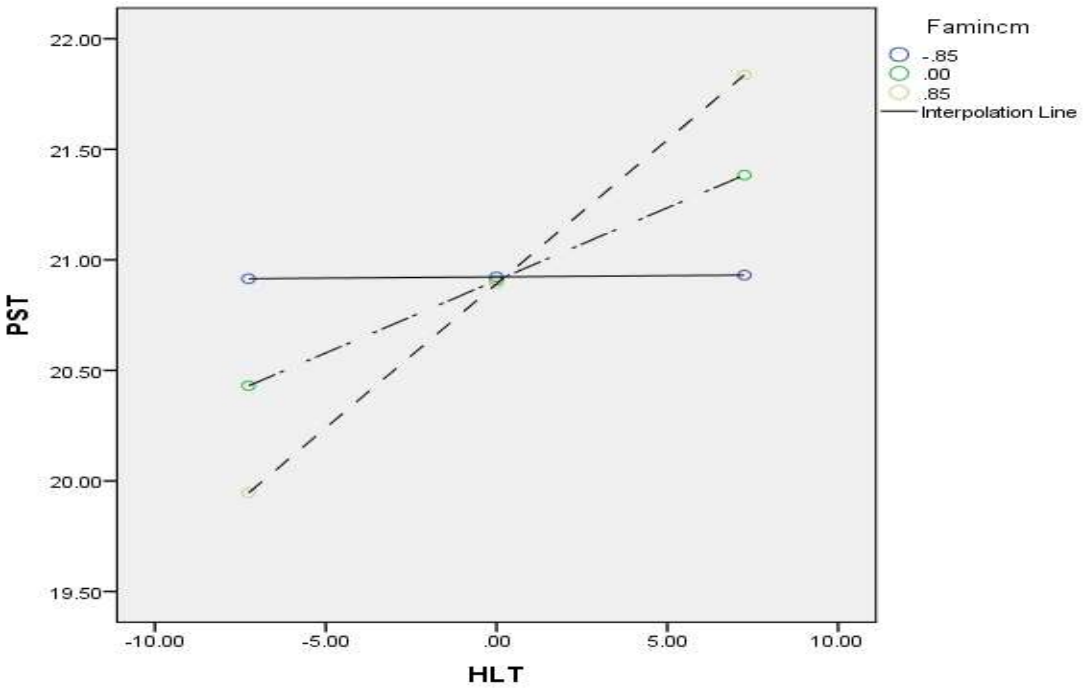
Model : 1						
Y : PST						
X : HLT						
W : Family income						
Sample Size: 375						
OUTCOME VARIABLE: PST						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.1716	.0295	20.9540	3.7528	3.0000	371.0000	.0112
Model						
coeff	se	t	p	LLCI	ULCI	
constant	20.9069	.2383	87.7178	.0000	20.4382	21.3756
HLT	.0657	.0330	1.9883	.0475	.0007	.1306
Famincm	-.0184	.3022	-.0609	.9515	-.6127	.5759
Int_1	.0756	.0321	2.3526	.0192	.0124	.1388
Product terms key:						
Int_1 :	HLT	x	Family income			
Test(s) of highest order unconditional interaction(s):						
R2-chng	F	df1	df2	p		
X*W	.0145	5.5349	1.0000	371.0000	.0192	

Focal predict: HLT (X)						
Mod var: Family income (W)						
Conditional effects of the focal predictor at values of the moderator(s):						
Faminc	Effect	se	t	p	LLCI	ULCI
-.8537	.0011	.0436	.0254	.9798	-.0847	.0869
.0000	.0657	.0330	1.9883	.0475	.0007	.1306
.8537	.1302	.0423	3.0820	.0022	.0471	.2133
Moderator value(s) defining Johnson-Neyman significance region(s):						
Value	% below	% above				
-.0093	65.0667	34.9333				
Conditional effect of focal predictor at values of the moderator:						
Family income	Effect	se	t	p	LLCI	ULCI
-1.4080	-.0408	.0569	-.7175	.4735	-.1527	.0710
-1.2080	-.0257	.0518	-.4961	.6201	-.1275	.0761
-1.0080	-.0106	.0470	-.2247	.8223	-.1030	.0819
-.8080	.0046	.0427	.1069	.9149	-.0793	.0885

-.6080	.0197	.0389	.5059	.6132	-.0568	.0962
-.4080	.0348	.0359	.9690	.3332	-.0358	.1055
-.2080	.0499	.0339	1.4727	.1417	-.0167	.1166
-.0093	.0650	.0330	1.9664	.0500	.0000	.1299
-.0080	.0651	.0330	1.9694	.0497	.0001	.1300
.1920	.0802	.0334	2.4006	.0169	.0145	.1459
.3920	.0953	.0350	2.7257	.0067	.0266	.1641
.5920	.1104	.0376	2.9386	.0035	.0365	.1843
.7920	.1256	.0410	3.0591	.0024	.0449	.2063
.9920	.1407	.0452	3.1151	.0020	.0519	.2295
1.1920	.1558	.0498	3.1305	.0019	.0579	.2537
1.3920	.1709	.0547	3.1221	.0019	.0633	.2786
1.5920	.1861	.0600	3.1008	.0021	.0681	.3040
1.7920	.2012	.0655	3.0730	.0023	.0724	.3299
1.9920	.2163	.0711	3.0426	.0025	.0765	.3561
2.1920	.2314	.0768	3.0117	.0028	.0803	.3825
2.3920	.2466	.0827	2.9814	.0031	.0839	.4092
2.5920	.2617	.0886	2.9526	.0034	.0874	.4360
HLT	Family income	PST				
BEGIN DATA.						
-7.2567	-.8537	20.9146				
.0000	-.8537	20.9226				
7.2567	-.8537	20.9307				
-7.2567	.0000	20.4304				
.0000	.0000	20.9069				
7.2567	.0000	21.3834				
-7.2567	.8537	19.9462				
.0000	.8537	20.8912				
7.2567	.8537	21.8362				
END DATA.						

Graph No: 3

Moderating effect of family income on relationship between health problems and presenteeism



Conclusion

Presenteeism is a concept in which employees will come to work without showing absenteeism due to various consensus factors. Due to the rising expenditures of health care connected with presenteeism, employers are becoming progressively more involved in the issue. This research aimed to determine the causes of presenteeism and/or provide an explanation for mediating variables working in between health problem and presenteeism. The study expands the literature on presenteeism in such a way that, it gives insights into, health problems as the basic reason for presenteeism and mediating variable working in between them. The study was conducted among the employees working in public sector manufacturing organisations. The mainstream researches show that presenteeism is coming to work while ill. So in this research, the researcher tried to find out whether there is any relationship between health problems and presenteeism. The researcher chooses age, gender, experience, marital status, qualification and family income level as moderating variables. Based on the results, this study is adding to the body of knowledge

already available on presenteeism. The relationship analysis between health problems and presenteeism shows that they were related statistically. According to the research gender, marital status and family income level works as a moderator in between health problems and presenteeism.The age, qualification and experience were not working as a moderating variable in between health problems and presenteeism.

Author Statement

We declare that we have no relevant or material financial interests that relate to the research described in this paper. All authors have seen and approved the final version of the manuscript being submitted.

Funding Acknowledgement

The authors received no financial support for the research, authorship, and/or publication of this article.

Conflicts of interest statement

Competing interest/Conflict of interest is not applicable in this article.We declare that we have no relevant or material financial interests that relate to the research described in this paper. The authors received no financial support for the research, authorship, and/or publication of this article.

Statement of Ethics

Ethics approval is not required in this study. This study did not collect the personal details and researcher collected data after explaining the purpose of study and participants who are agreed with the purpose of study are used for data collection.

Reference

Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Sage Publications, Inc.

Aronsson, G., & Gustafsson, K. (2005). Sickness presenteeism: Prevalence, attendance-pressure factors, and an outline of a model for research. Journal of Occupational and Environmental Medicine, 47, 958 – 966. doi:10.1097/01.jom.0000177219.75677.17

Bellaby, P. (1999) Sick from Work: the body in employment. Aldershot: Ashgate.

Bracewell LM, Campbell DI, Faure PR, Giblin ER, Morris TA, Satterthwaite LB, et al (2010). Sickness presenteeism in a New Zealand hospital. N Z Med J. 123(1314):31–42.

Burton, W. N., Conti, D. J., Chen, C. Y., Schultz, A. B., & Edington, D. W. (1999). The role of health risk factors and disease on worker productivity. Journal of Occupational & Environmental Medicine, 41(10), 863-877.

Burton, Wayne & Chen, Chin-Yu & Schultz, Alyssa & Edington, Dee. (2001). The Impact of Allergies and Allergy Treatment on Worker Productivity. Journal of Occupational and Environmental Medicine. 43. 64-71. 10.1097/00043764-200101000-00013.

Burton, W. N., Plansky, G., Conti, D. J., Chen, C. Y., Edington, D. W. (2004). The association of medical conditions and presenteeism. Journal of Occupational and Environmental Medicine, 46(6S), S38-S45.

Canadian Institute for Health Information (2006). Findings from the 2005 national survey of the work and health of nurses. Retrieved May 3, 2007, from http://secure.cihi.ca/cihiweb/products/NHSRep06_ENG.pdf.

Chambers C, Frampton C, Barclay M (2017). Presenteeism in the New Zealand senior medical workforce-a mixed-methods analysis. N Z Med J. 130(1449):10–21

Chatterji, M., & Tilley, C. J. (2002). Sickness, absenteeism, presenteeism, and sick pay. Oxford Economic Papers, 54(4), 669-687. Retrieved February 28, 2009, from ABI/INFORM Global database.

Chiu S, Black CL, Yue X, Greby SM, Laney AS, Campbell AP, et al (2017). Working with influenza-like illness: Presenteeism among US health care personnel during the 2014-2015 influenza season. Am J Infect Control. 45(11):1254–8.

Collins, J. J., Baase, C. M., Sharda, C. E., Ozminkowski, R. J., Nicholson, S., Billotti, G.M., et al. (2005). The assessment of chronic health conditions on work performance, absence, and total economic impact for employers. Journal of Occupational & Environmental Medicine, 47(6), 547-557.

de Perio MA, Wiegand DM, Brueck SE (2014). Influenza-like illness and presenteeism among school employees. Am J Infect Control. 42(4):450–2.

Flor H1, Turk DC, Rudy TE (1989). Relationship of pain impact and significant other reinforcement of pain behaviours: the mediating role of gender, marital status and marital satisfaction. Jul; 38(1):45-50.

Goetzel, R. Z., Long, S. R., Ozminkowski, R. J., Hawkins, K., Wang, S., Lynch, W., et al. (2004). Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. Journal of Occupational & Environmental Medicine, 46(4), 398-412.

Hansen, C. D., & Andersen, J. H. (2008). Going ill to work – what personal circumstances, attitudes and work-related factors are associated with sickness presenteeism? Social Science & Medicine, 67(6), 956-964. DOI:10.1016/j.socscimed.2008.05.022.

Hayes, A. F. (2005). Statistical methods for communication science. New York, NY: Routledge.

Hayes, A. F. (2018). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (2nd edition). New York: The Guilford Press.

Johns, G. (2010): Presenteeism in the Workplace: A review and research agenda. Journal of Organizational Behavior, 31, 519-542.

Kessler, R.C., Heeringa, S., Lakoma, M.D., Petukhova, M., Rupp, A.E., Schoenbaum, M., Wang, P.S., Zaslavsky, A.M. (2008). The individual-level and societal-level effects of mental disorders on earnings in the United States: Results from the National Comorbidity Survey Replication. American Journal of Psychiatry, 165(6), 703-711

Lerner, D., Amick, B. C. III, Rogers, W. H., Malspeis, S., Bungay, K., &Cynn, D. (2001). The Work Limitations Questionnaire. Medical Care, 39(1), 72–85. https://doi.org/10.1097/00005650-200101000-00009.

Lin, H. Y., and Lu, L. (2013). Presenteeism in workplace: constructing a cross-cultural framework. J. Hum. Resour. Manag. 13, 29–55.

Martinez, L. F., & Ferreira, A. I. (2012). Sick at work: presenteeism among nurses in a Portuguese public hospital. Stress and Health, 28(4), 297-304.

Martínez-Mesa J, González-Chica DA, Bastos JL, Bonamigo RR, Duquia RP (2014). Sample size: how many participants do I need in my research?. An Bras Dermatol. 89(4):609-615. doi:10.1590/abd1806-4841.20143705.

Ospina, Maria & Dennett, Liz &Waye, Arianna & Jacobs, Phillip & Thompson, Angus. (2015). A Systematic Review of Measurement Properties of Instruments Assessing Presenteeism. The American journal of managed care. 21(2). e171-85.

Pandey, Dhrubalal. (2020). Work stress and employee performance: an assessment of impact of work stress.International Research Journal of Human Resource and Social Sciences. 7. 124-135.

Presser, S., & Blair, J. (1994). Survey pretesting: Do different methods produce different results?. In P.V. Marsden (Ed.), Sociological Methodology, 24, 73-104. https://doi.org/10.2307/270979.

Sadri, G. and Lewis, M. (1995), "Combatting Absenteeism in the Workplace", Management Research News, Vol. 18 No. 1/2, pp. 24-30. https://doi.org/10.1108/eb028397

Saunders, M., Lewis, P., & Thornhill, A. (2003) Research method for business students, 3rd edition. New York: Prentice Hall.

Schultz AB, Edington DW. (2007) Employee health and presenteeism: a systematic review. J OccupRehabil. 17(3):547–79.

Schwartz, B. S., Stewart, W. K., & Lipton, R.B. (1997). Lost workdays and decreased work effectiveness associated with headache in the workplace. Journal of Occupational and Environmental Medicine, 39:320–327.

Stewart, W. F., Ricci, J. A., Chee, E., Hahn, S., &Morganstein, D. AAOHN JOURNAL· VOL. 59, NO.2, 2011 (2003). Cost of lost productive work time among U.S. workers with depression. Journal of the American Medical Association, 289(23), 3135-3144.

Sturm R, Gresenz CR (2002). Relations of income inequality and family income to chronic medical conditions and mental health disorders: a national survey. BMJ. 2002; 324(7328): 20-3.

Thorrisen, M. M., Bonsaksen, T., Hashemi, N., Kjeken, I., van Mechelen, W., &Aas, R. W. (2019). Association between alcohol consumption and impaired work performance (presenteeism): a systematic review. BMJ Open, 9(7), [029184]. https://doi.org/10.1136/bmjopen-2019-029184

Wang, P. S., Beck, A., Berglund, P., Leutzinger, J. A., Pronk, N., Richling, D., et al. (2003). Chronic medical conditions and work performance in the health and work performance questionnaire calibration surveys. Journal of Occupational & Environmental Medicine, 45(12), 1303-1311.

Webster, R.K., Liu, R., Karimullina, K. et al (2019). A systematic review of infectious illness Presenteeism: prevalence, reasons and risk factors. BMC Public Health 19, 799 (2019). https://doi.org/10.1186/s12889-019-7138-x