From Illness to Attendance: A Mediation analysis of workplace factors influencing Presenteeism in India

Dr.Harilal.A[1*], Dr.Santhosh V A[2]

[1*]Assistant Professor (Selection grade), PSG Institute of Management, PSG College of Technology, Coimbatore
drhlapillai@gmail.com
[2]Director, TKM Institute of Management (TIM) ,Kollam Kerala, drsanthoshva@gmail.com

Abstract

This study aims to identify why an unhealthy employee going to work while ill. Hence, this paper exploring the relationship between health problems and presenteeism and identify the mediation effect of job security, teamwork, stress and perceived justice in between health problems and presenteeism. Data collected from a sample of 395 employees in public sector manufacturing organisations. Correlation approaches 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 methodology used to conduct the mediation analysis is Baron and Kenny's (1986) three-step mediation analysis, its results are confirmed using Sobel's (1982), Aroian's (1944), and Goodman's (1960) tests. AMOS is also utilised to model structural equation model. This research provides evidence that health problems and presenteeism show a significant relationship. The results indicate that job security is working as a mediator variable in between health problems and presenteeism. Results also indicates that teamwork, stress and perceived justice not working as a mediator in between health problems and presenteeism. Hence study shows that job security is the reason why unhealthy employee is going to work while ill.

Key words: Presenteeism, Health problems, Job security, Teamwork, Stress , Perceived justice

Introduction

In today's business world, it's all about getting more done with fewer resources. 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 acquire a competitive advantage. A variety of direct and indirect factors influence employee productivity. Absenteeism is a widely recognised health problem that is mostly responsible for lost productivity among employees. 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 "Presenteeism" that shows itself as an unobserved event in every firm arose in front of researcher 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 cost of absenteeism is easy to assess, but the cost of presenteeism is more complex. 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 as a result of changes 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 survey 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. To the best of the researcher's knowledge, this is the first major study on presenteeism in India. Based on a research gap, this study investigates the relationship between health problems and presenteeism, as well as the mediating variables in the relationship between health problems and presenteeism. Testable hypotheses were developed based on the objectives and theoretical framework of presenteeism, as well as a conceptual framework for these hypotheses. Data from the field survey were 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), but there has been less research on employee performance and presenteeism. A wide range of health issues has a greater impact on poor work 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. Table no: 1 contains physical and mental health conditions most associated with presenteeism across numerous published studies.

The standard errors were included. 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: Influenza-related behaviour, Socio-demographic factors, Employment characteristics, and Health (Webster et al., 2019).

Table No: 1 Occurrence of Health Conditions Associated with Presenteeism from Multiple Sources and Occupations

Health Condition	Prevalence (%)	SE	Source
Arthritis	15.2	1.8	Goetzel, 2004
Back or neck pain	25.1	0.9	Goetzel, 2004
Other musculoskeletal disorder	33.5	1.8	Goetzel, 2004
Migraines, severe/frequent headaches	17.7	0.7	Goetzel, 2004
Chronic pain	23.6	NA*	Canadian, 2006
Hypertension	14.9	0.7	Wang, 2003
Heart disease	11.9	NA*	Collins, 2005
High cholesterol	20.0	0.5	Kessler, 2008
Stomach or intestinal ulcers	1.9	NA*	Collins, 2005
Other gastrointestinal problems	8.1	0.3	Kessler, 2008
Allergies	31.2	1.8	Goetzel, 2004
Asthma	10.2	0.5	Goetzel, 2004
Other respiratory or lung problem	1.3	NA*	Collins, 2005
Diabetes	3.8	0.4	Collins, 2005
Obesity	5.9	0.3	Kessler, 2004

Sleep problem	8.6	0.3	Kessler, 2008
Chronic fatigue/low energy	6.4	0.3	Kessler, 2008
Cancer	1.7	0.2	Wang, 2003
Anxiety	5.6	0.3	Kessler, 2008
Depression	9.4	0.6	Goetzel, 2004

Source: Warren, Carol L., "Cost Burden of the 'Presenteeism' Health Outcome in a Diverse Nurse and Pharmacist Workforce: Practice Models and Health Policy Implications" (2009). Theses and Dissertations (ETD). Paper 295. http://dx.doi.org/10.21007/etd.cghs.2009.0345.

Presenteeism and organizational factors

According to the research review, job expectations and burnout (Demerouti, Le Blanc, Bakker, Schaufeli, Hox 2009) as well as job security (Macgregor, Cunningham and Caverely 2008, Paton 2010) influence presenteeism. Employees who are unable to take sick leave because they are afraid of reprisal at work are demonstrating presenteeism (Athey 2009, Grinyer and Singleton 2000). Employees' negative opinions of the workplace, workplace interpersonal conflict, employee job unhappiness (Pillette 2005), and the organization's poor health-care plan (Athey 2009) are also factors that contribute to presenteeism. Furthermore, fear of being unable to work due to illness may jeopardise advancement (Grinyer and Singleton 2000, Mc Kevitt, Morgan, Dundas, Holland 1998), concern about change, downsizing/Job insecurity (Mac Gregor, Cunningham, and Caverley 2008), time commitment (Hudson 2004), deadlines (Athey 2009), job satisfaction (Caverley, Cunningham, & MacGregor 2007; Dew, Keefe, & Small, 2005), and teamwork (Johns, 2010) contribute to presenteeism. When employees are under time constraints (Hansen& Andersen, 2008) or fear of job instability, they make the decision to go to work without considering their health (Aronsson & Gustafsson, 2005; Aronsson, et al., 2000). Job instability is a mediating issue that has an impact on presenteeism and absenteeism (Hansen and Anderson, 2008). Support from co-workers is another mediating factor that influences presenteeism and absenteeism (Leineweber et al., 2012).

Presenteeism and personal factors

According to a review of the literature on the association between personal factors and presenteeism, stress (Elstad and Vabo 2008), overcommitment (Stewart, Ricci, Chee Hahn and Morganstein 2003), and personality features (Aronsson& Gustafsson, 2005) are all associated with presenteeism. Perceived organisational justice is negatively linked to presenteeism (Miraglia and Johns, 2015). A negative effect of sickness presenteeism is a drop-in work attitude (Ybema et al., 2010, Karnika-Murray et al., 2018), and those with an internal health locus of control had lower sickness presenteeism (Johns,2011).

Presenteeism has been linked to stress, smoking, and alcohol use (Boles, Pelletier, & Lynch, 2004; Pelletier, Boles, & Lynch, 2004). People's decisions to go to work while sick, according to Hansen and Anderson (2008), are influenced more by work-related considerations than by personal factors. Employees' internal stress experiences (Darr& Johns, 2008; Leiter & Maslach, 2004) operate as a mediating component in presenteeism. Employees' attitudes on presenteeism during health impairments are influenced by their perceptions of justice (Aronsson& Gustafsson, 2005; Caverley, et al., 2007; Johns, 2010).

John's model

John's model is a well-proven and widely recognised presenteeism paradigm. Context factor, personal factor, and health factor are the variables in the Johns model. Employees are totally engaged at first, according to the Johns model of presenteeism, but are then interrupted by health concerns. The nature of one's health problems determines whether or not one should report to work. Furthermore, organisational and personal variables influence the decision to return to work or take a leave of absence (Johns, 2010). Job demand, job security, reward system, absence policy, absence or presence culture, teamwork, ease of replacement and adjustment latitude are among the context elements incorporated in the model. Work attitude, personality, perceived justice, stress, perceived absence legitimacy, inclination for the ill role, health locus of control, and gender are among the personal determinants. Johns developed a model for presenteeism and that was shown in figure no: 1

**Figure No: 1 A dynamic model of presenteeism and absenteeism**
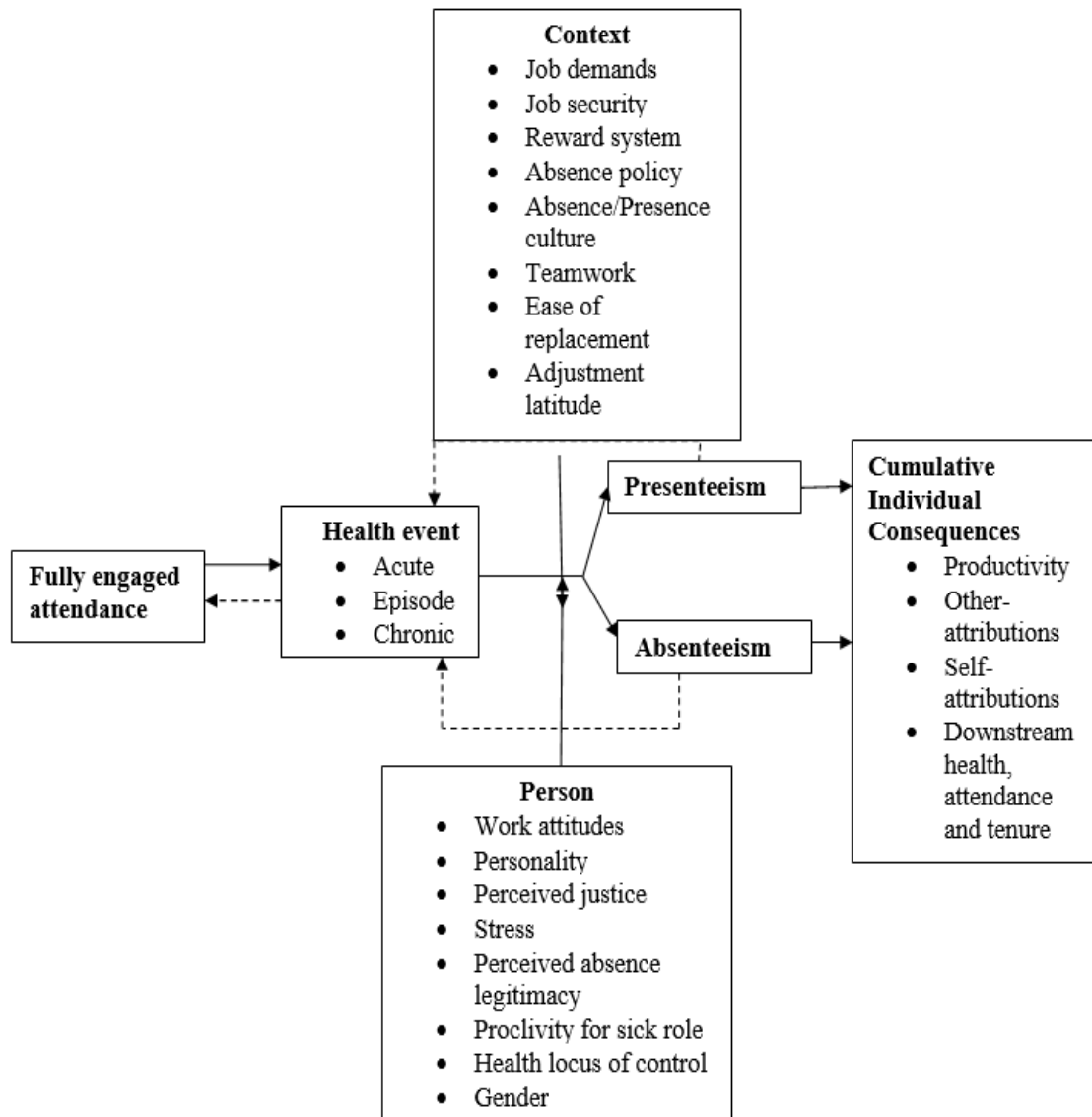
Source: Johns, G. (2010), Presenteeism in the workplace: A review and research agenda. J. Organiz. Behav., 31: 519-542. https://doi.org/10.1002/job.630

Methodology

The association between health problems (independent variable) and presenteeism was investigated using a descriptive research method in this study (dependent variable). All of the variables in this study were measured using the Likert scale, 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. John's model, which is a well-proven and widely accepted presenteeism paradigm, was used to select the variables. The factors in the Johns model are the context factor/organizational factors, personal factor and health factor. After using the expert opinion approach, two variables were chosen from among organizational factors: job security & teamwork and two from personal factors: stress & perceived justice. From a variety of sources, expert panels selected 21 health issues or diseases as health variables. The research examined how organisational factors and personal factors linked between health problems and presenteeism. The "presenteeism model" is the conceptual model used in this investigation. The concepts of Johns' presenteeism model were used to develop this model. This framework served as the foundation for this study. The model is depicted in Figure No: 2.

Figure no:2   Conceptual framework
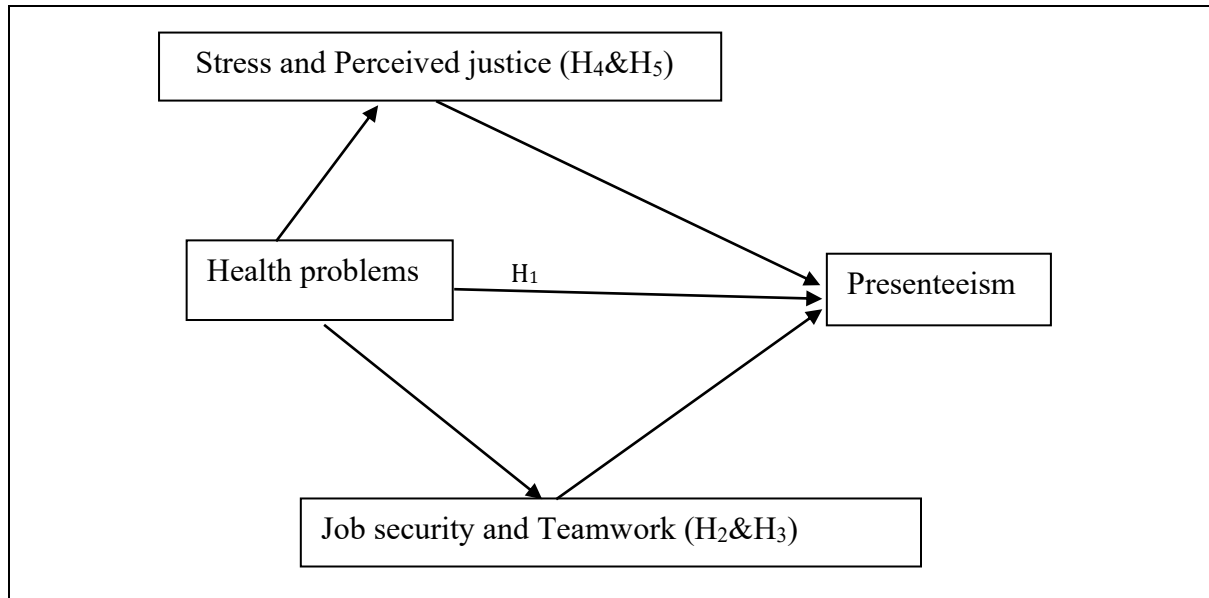
Data from the Department of Industries and Commerce, as well as the CAG report on public sector undertakings in Kerala for 2015-16, were used to build the sample frame. The first criteria evaluated for sample frame creation were manufacturing public sector enterprises within the Kerala Government's Department 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 security, teamwork, stress and perceived justice 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 questionnaires 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). An expert panel was assembled from a group of academics and industry experts. The surveys comprised the questions with the highest number of expert approvals. According to Ospina et al., (2015) Stanford presenteeism scale (SPS-6) has an 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 rest 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. Cronbach's alpha for Job security questionnaire is .742, Teamwork is .888, Stress is .737 and Perceived justice is .831 and validity of four questionnaires are also quite high. Percentage analysis, t-tests, ANOVAs, regression, and correlation tests were among the methods used to evaluate the data in SPSS. The methodologies used to conduct the mediation analysis is Baron and Kenny's (1986) three-step mediation analysis and its result is confirmed using Sobel's (1982), Aroian's (1944), and Goodman's (1960) tests. AMOS was also utilised to model structural equation model.

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.2.

Table No: 2 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_01: There is no relationship between health problems and presenteeism

H_11: There is a relationship between health problems and presenteeism

The relationship between health problems and presenteeism was analysed and Table No: 3 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: 3 Correlation between Health problems and Presenteeism

Variables	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: 4. 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: 4 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: 4 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 x 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: 4

Model Summary					
Model	R	R Square	Adjusted	Std. Error of	Change Statistics

			R Square	the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.114a	.013	.010	4.604	.013	4.899	1	373	.027

ANOVA

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

Coefficient

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

b. Predictors: (Constant), Health problems

Health problems and its relationship with Presenteeism through mediation analysis

The mediation analysis test investigates impact of mediator on relationship between independent and dependent variable. The mediation analysis is used to enumerate and examine the direct and indirect corridor through which independent variable X spread its effect on dependent variable Y through one or more mediator variables (Hayes, 2018). In this research the mediation effect of two mediating variables job security, teamwork, stress and perceived justice in between independent variable health problems and dependent variable presenteeism.

Mediation effect of job security

$H_1{}^2$: Job security significantly mediates the relationship between health problems and presenteeism.

Mediation of job security based on Baron and Kenny's method

The mediation analysis was done by taking job security as mediator, health as independent variable and presenteeism as dependent variable. The condition for mediation by Baron and Kenny's was analysed step by step.

1. Independent variable show significant relationship with dependent variable without mediator

The regression analysis shows that the independent variable health problems and dependent variable presenteeism shows significant relationship (p=.027).That means regression model predict dependent variable significantly well. The R square value shows that variation of dependent variable was small (.013). The standardised coeficient was .114 and unstandardised coefficient was .073. The p-value (.027) value shows that model significantly fit the data (Table No: 4).

2. Independent variable show significant relationship with mediator variable

The independent variable was health problems and mediator was job security. In this analysis health problems works as independent variable and job security as dependent variable. The regression analysis in table no:5 shows that the independent variable health problems and dependent variable job security shows significant relationship (p=.001).That means regression model predict dependent variable significantly well. The R square value shows that variation of dependent variable was small (.030). The standardised coefficient was .174 and unstandardised coefficient was .134. The p-value (.001) values shows that model significantly fit the data. So the independent variable health problems show significant relationship with mediator variable job security.

Table No: 5

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	.174a	.030	.028	5.491	.030	11.690	1	373	.001

ANOVA of health problems and mediator job security

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	352.426	1	352.426	11.690	.001^b
	Residual	11245.243	373	30.148		
	Total	11597.669	374			

Coefficients of health problems and mediator job security

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.283	1.175		26.629	.000
	Health problems	.134	.039	.174	3.419	.001

a.   Dependent Variable: Job security
b.   Predictors: (Constant), Health problems

3.   The mediator show significant relationship with dependent variable and relationship between dependent and independent variable diminish when adding mediator to model.

The independent variable health problems, dependent variable presenteeism and mediating variable job security was analysed. The regression analysis in table no :6 shows that the independent variable health problems and dependent variable presenteeism shows non-significant relationship (p=.182).The independent variable health problems and job security (p=.000) and mediator variable job security and dependent variable (p=.000) shows significant relationship. When mediator job security was added the relationship between health problems and presenteeism diminished. The results show that the job security worked as a mediator in analysis. The R square value shows that variation of dependent variable was small (.082). The standardised coefficient of job security was .267 and unstandardised coefficient was .222. The p-value (.000) of ANOVA shows that independent variables predict the dependent variable. After conducting Baron and Kenny's (1986) three step mediation analysis, interpreting that job security worked as mediator in between independent variable health problems and dependent variable presenteeism

Table No: 6

Model Summary of mediation analysis of job security in between health problems and presenteeism								
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	.286^a	.082	.077	4.446	.082	16.584	2	372	.000

ANOVA^a of mediation analysis with job security in between health problems and presenteeism						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	655.706	2	327.853	16.584	.000^b
	Residual	7354.124	372	19.769		
	Total	8009.829	374			

Coefficients of mediation analysis with job security in between health problems and presenteeism						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.933	1.620		7.364	.000
	Health problems	.043	.032	.067	1.336	.182
	Job security	.222	.042	.267	5.283	.000

a.   Dependent Variable: Presenteeism
b.   Predictors: (Constant), Job security, Health problems

Mediation of job security in between health problems and presenteeism based on Sobel's, Aroian's test and Goodman's test

The mediation effect was confirmed through Sobel's, Aroian's test and Goodman's test in table no 7. The p value and z-value of Sobel's test (.004,2.870), Aroian test (.004,2.834) and Goodman test (.003,2.908) confirmed the mediation effect of job security between health problems and presenteeism.

Table No: 7 Sobel's, Aroian's test and Goodman's test of job security as mediator in between health problems and presenteeism

Test	Test statistics	p-value
Sobel test	2.87056765	0.00409736
Aroian test	2.83454061	0.00458916
Goodman test	2.90800427	0.00363743

Mediation effect of Teamwork

The mediation effect of teamwork on relationship between health problems and presenteeism was analysed. $H_1{}^3$: Teamwork significantly mediates the relationship between health problems and presenteeism.

Mediation of teamwork based on Baron and Kenny's method

The mediation analysis was done by taking team work as mediator, health as independent variable and presenteeism as dependent variable. The condition for mediation by Baron and Kenny's method was analysed step by step.

1.   Independent variable show significant relationship with dependent variable without mediator

The regression analysis shows that the independent variable health problems and dependent variable presenteeism shows significant relationship (p=.027).That means regression model predict dependent variable significantly well. The R square value shows that variation of dependent variable was small (.013). The standardised coefficient was .114 and unstandardised coefficient was .073. The p-value (.027) value shows that model significantly fit the data (Table No: 4).

2.   Independent variable show significant relationship with mediator variable

The independent variable was health problems and mediator was teamwork. In this analysis health problems works as independent variable and teamwork as dependent variable. The regression analysis in table no: 8 shows that the independent variable health problems and dependent variable teamwork shows significant relationship (p=.000).That means regression model predict dependent variable significantly well. The R square value shows that variation of dependent variable was small (.042). The standardised coefficient was .204 and unstandardised coefficient was .244. The p-value (.000) values shows that model significantly fit the data. So the independent variable health problems show significant relationship with mediator variable teamwork.

Table No: 8

Model Summary of health problems and teamwork									
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	.204a	.042	.039	8.474	.042	16.277	1	373	.000
a. Predictors: (Constant), Health problems									

ANOVAa health problems and teamwork					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1168.797	1	1168.797	16.277	.000b
Residual	26784.440	373	71.808		
Total	27953.237	374			

Coefficientsa health problems and teamwork					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	29.251	1.813		16.133	.000
	Health problems	.244	.060	.204	4.034	.000

a.   Dependent Variable: Teamwork
b.   Predictors: (Constant), Health problems

3.   The mediator show significant relationship with dependent variable and relationship between dependent and independent variable diminish when adding mediator to model.

The independent variable health problems, dependent variable presenteeism and mediating variable teamwork were analysed in table no 9. The regression analysis shows that the independent variable health problems and dependent variable presenteeism shows non-significant relationship (p=.065).The mediator variable teamwork and dependent variable presenteeism (p=.118) shows non-significant relationship. When mediator team work was added the relationship between health problems and presenteeism diminished and at the same time the teamwork not shown relationship with dependent variable presenteeism. According to this finding, teamwork did not work as a mediator. The R square value shows that variation of dependent variable was small (.019). The standardised coefficient of teamwork was .082 and unstandardised coefficient was .044. The p-value (.00) of ANOVA shows that independent variables predict the dependent variable. After conducting Baron and Kenny's (1986) three-step mediation analysis, it was concluded that teamwork did not work as a mediator in between independent variable health problems and presenteeism.

Table No: 9

Model Summary of teamwork as mediator in between health problems and presenteeism.

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	.139a	.019	.014	4.595	.019	3.689	2	372	.026

ANOVAa of teamwork as mediator in between health problems and presenteeism.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	155.779	2	77.889	3.689	.026b
	Residual	7854.051	372	21.113		
	Total	8009.829	374			

Coefficientsa of teamwork as mediator in between health problems and presenteeism.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.575	1.281		13.720	.000
	Health problems	.062	.033	.097	1.850	.065
	Teamwork	.044	.028	.082	1.568	.118

a.   Dependent Variable: Presenteeism
b.   Predictors: (Constant), Teamwork, Health problems

Mediation of team work in between health problems and presenteeism based on Sobel's, Aroian's test and Goodman's test

The mediation effect was confirmed through Sobel's, Aroian's test and Goodman's test in table no: 10. The p value of Sobel's test (.143), Aroian test (.154) and Goodman test (.133) interpret that mediation effect of teamwork not confirmed. So team work is not a mediator in between health problems and presenteeism.

Table No: 10 Sobel's, Aroian's test and Goodman's test of teamwork as mediator

Test	Test statistics	p-value
Sobel test	1.46147849	0.14388417
Aroian test	1.42396338	0.15445707

Goodman test	1.502124	0.13306509

According to the results of Baron and Kenny's (1986) three step mediation analysis while also Sobel's, Aroian's test and Goodman's test teamwork not worked as a mediator in between health problems and presenteeism.

Mediation effect of Stress

The mediation effect of stress on the relationship between health problems and presenteeism was analysed.

$H_1{}^2$: Stress significantly mediates the relationship between health problems and presenteeism.

Mediation of Stress based on Baron and Kenny's method

The mediation analysis was performed by taking stress as a mediator, health as an independent variable and presenteeism as a dependent variable. The condition for mediation by Baron and Kenny's was analysed step by step.

1. Independent variables show a significant relationship with dependent variables without mediators The regression analysis shows that the independent variable health problems and dependent variable presenteeism show a significant relationship (p=.027). This means that the regression modelpredicts the dependent variable significantly well. The R square value shows that thevariation in the dependent variable was small

(.013). The standardized coefficient was.114, and the unstandardised coefficient was.073. The p-value (.027) shows that the model significantly fit the data (Table No: 4).

2. Independent variables show a significant relationship with mediator variables

The independent variable was health problems, and the mediator was stress. In this analysis, health problems served as the independent variable, and stress served as the dependent variable. The regression analysis shows that the independent variable health problems and dependent variable stress show no significant relationship (p=.624). This means that the regression model does not predict the dependent variable significantly well. The R square value shows that the variation in the dependent variable was very small (.001). The standardised coefficient was.025, and the unstandardised coefficient was.027. The p-value (.624) shows that the model does not significantly fit the data. The above-mentioned values are illustrated in table no: 11. Therefore, the independent variable health problems show no significant relationship with the mediator variable stress. Therefore, mediation was not possible with stress in the relationship between the independent variable health problems and the dependent variable presenteeism.

Table No: 11

Model Summary of health problems and stress								
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	.025ᵃ	.001	-.002	7.646	.001	.240	1	373	.624

ANOVAᵃ of health problems and stress						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.039	1	14.039	.240	.624ᵇ
	Residual	21803.257	373	58.454		
	Total	21817.296	374			

Coefficientsᵃ of health problems and stress						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	35.110	1.636		21.463	.000
	Health problems	.027	.054	.025	.490	.624

a.   Dependent Variable: Stress
b.   Predictors: (Constant), Health problems

3.The mediator shows a significant relationship with the dependent variable, andthe relationship between the dependent and independent variables diminishes when adding the mediator to the model.

The independent variable health problems, dependent variable presenteeism and mediating variable stress were analysed and its values are illustrated in table no.12. The regression analysis shows that the independent variable health

problems and dependent variable presenteeism show a significant relationship (p=.030). The mediator variable stress and dependent variable presenteeism (p=.082) show a significant relationship. When mediator stress was added, the relationship between health problems and presenteeism still existed. However, the results show that stress was not a mediator in the analysis because the mediator did not show a relationship with the independent variable health problems during mediation analysis. The R square value

shows that the variation in the dependent variable was small (.021). The standardised coefficient of stress was.090, and the unstandardised coefficient was.054. The pvalue (.019) of ANOVA shows that independent variables predict the dependent variable. After conducting Baron and Kenny's (1986) three-step mediation analysis, stress did not operate as a mediator between independent variable health problems and dependent variable presenteeism.

Table No: 12

Model Summary of stress as mediator in between health problems and presenteeism									
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	.145ª	.021	.016	4.591	.021	3.985	2	372	.019

ANOVAª of stress as mediator in between health problems and presenteeism						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	168.024	2	84.012	3.985	.019ᵇ
	Residual	7841.805	372	21.080		
	Total	8009.829	374			

Coefficientsª of stress as mediator in between health problems and presenteeism						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.958	1.469		11.547	.000
	Health problems	.071	.033	.112	2.175	.030
	Stress	.054	.031	.090	1.745	.082

a.   Dependent Variable: Presenteeism
b.   Predictors: (Constant), Stress, Health problems

Mediation of stress between health problems and presenteeism based on Sobel's test, Aroian's test and Goodman's test

The mediation effect was confirmed through Sobel's test, Aroian's test and Goodman's test. The p value of

Sobel's test (.637), Aroian test (.679) and Goodman test (.571) values in table no.13 indicate that the mediation effect of stress was not confirmed. Therefore, stress was not a mediator between health problems and presenteeism.

Table No: 13 Sobel's test, Aroian's test and Goodman's test of stress as mediators between health problems and presenteeism

Test	Test statistics	pvalue
Sobel test	0.47175397	0.63710241
Aroian test	0.41305679	0.67956501
Goodman test	0.56563533	0.57164171

After conducting Baron and Kenny's (1986) three-step mediation analysis and Sobel's, Aroian's test and Goodman's test, stress did not operate as a mediator between health problems and presenteeism..

Mediation effect of perceived justice

The mediation effect of perceived justice on the relationship between health problems and presenteeism was analysed**.**

H_13: Perceived justice significantly mediates the relationship between health problems and presenteeism.

Mediation of perceived justice based on Baron and Kenny's method

The mediation analysis was performed by taking perceived justice as a mediator, health as an independent variable and presenteeism as a dependent variable. The condition for mediation by Baron and Kenny's was analysed step by step.

1. Independent variables show a significant relationship with dependent variables without mediators The regression analysis shows that the independent variable health problems and dependent variable presenteeism show a significant relationship (p=.027). This means that the regression model predicts the dependent variable significantly well. The R square value shows that the variation in the dependent variable was small (.013). The standardized coefficient was.114, and the unstandardised coefficient was.073. The pvalue (.027) shows that the model significantly fit the data (Table No: 4).

2. Independent variables show a significant relationship with mediator variables
The independent variable was health problems, and the mediator was perceived justice. In this analysis,

health problems works as an independent variable, and perceived justice works as a dependent variable. The regression analysis in table no.14 shows that the independent variable health problems and dependent variable perceived justice show no significant relationship (p=.332). This means that the regression model does not predict the dependent variable significantly well. The R square value shows that the variation in the dependent variable was very small (.002). The standardised coefficient was.044, and the unstandardised coefficient was.079. The pvalue (.397) shows that the model doesnot significantly fit the data. Therefore, the independent variable health problems show no significant relationship with themediator variable perceived justice.

Table No: 14

Model Summary of health problems and perceived justice									
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	.044a	.002	-.001	13.012	.002	.719	1	373	.397

ANOVAa of health problems and perceived justice						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	121.674	1	121.674	.719	.397b
	Residual	63154.059	373	169.314		
	Total	63275.733	374			

Coefficientsa of health problems and perceived justice						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	52.536	2.784		18.871	.000
	Health problems	.079	.093	.044	.848	.397
a.	Dependent Variable: Perceived justice					
b.	Predictors: (Constant), Health problems					

3.The mediator shows a significant relationship with the dependent variable, and the relationship between the dependent and independent variables diminishes when adding the mediator to the model.
The independent variable health problems, dependent variable presenteeism and mediating variable perceived justice were analysed and its vlues are illustrated in table no.15. The regression analysis shows that the independent variable health problems and dependent variable presenteeism show a significant relationship (p=.037). The mediator variable perceived justice and dependent variable presenteeism (p=.001) shows a significant relationship. When mediator perceived justice was added, the relationship between health problems and presenteeism still existed. However, the results

show that perceived justice did not function as a mediator in the analysis because the mediator did not show a relationship withthe independent variable health problems during mediation analysis. The R square value shows thatthe variation in the dependent variable was small (.039). The standardised coefficient of perceived justice was.163, and the unstandardised coefficient was.058. The pvalue (.001) of ANOVA shows that independent variables predict the dependent variable. After conducting Baron and Kenny's (1986) three-step mediation analysis, it was interpreted that perceived justice did not function as amediator between the independent variable health problems and the dependent variable presenteeism.

Table No: 15

Model Summary of perceived justice as mediator in between health problems and presenteeism				
Mode	R	R	Adjusted R	Std. Error of	Change Statistics

l		Square	Square	the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.199ᵃ	.039	.034	4.548	.039	7.639	2	372	.001

ANOVAᵃ of perceived justice as mediator in between health problems and presenteeism

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	315.979	2	157.990	7.639	.001ᵇ
	Residual	7693.850	372	20.682		
	Total	8009.829	374			

Coefficientsᵃ of perceived justice as mediator in between health problems and presenteeism

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.818	1.360		11.627	.000
	Health problems	.068	.032	.107	2.098	.037
	Perceived justice	.058	.018	.163	3.203	.001

a.   Dependent Variable: Presenteeism
b.   Predictors: (Constant), Perceived justice, Health problems

Mediation of perceived justice between health problems and presenteeism based on Sobel's test, Aroian's test and Goodman's test

The mediation effect was confirmed through Sobel's test, Aroian's test and Goodman's test. The p values of Sobel's test (.412), the Aroian test (.432) and the Goodman test (.389) in table no. 16 indicate that the mediation effect of perceived justice was not confirmed. Perceived justice was not a mediator between health problems and presenteeism.

Table No: 16 Sobel's test, Aroian's test and Goodman's test of perceived justice as a mediator between health problems and presenteeism

Test	Test statistics	pvalue
Sobel test	0.81975672	0.41235481
Aroian test	0.78479271	0.43257512
Goodman test	0.85985304	0.38987006

According to the results of Baron and Kenny's (1986) three-step mediation analysis and Sobel's, Aroian's test and Goodman's test, perceived justice did not work as a mediator between health problems and presenteeism.

Structural model

A structural equation model is multivariate statistical techniques that estimate the relationship between multiple variables. The reliability and validity of the measurement model were measured and proved the quality of the survey instrument. The goodness of the measurement model or CFA was also measured and it shows the goodness of fit. The next step is to form a path diagram based on the theoretical framework. The path diagram is a graphical representation of a mathematical equation (Byrne, 2010). Path diagram is a structured manner showing the interrelation of independent, dependent and mediating variables. The one-way arrow and two-way arrows are used to identify the relationship between different variables and the level of impact is interpreted through standardized regression weight, unstandardised estimate and correlation. There were 23 measured variables and

6 latent variables that need to relate to this path model. Each measured variable has an error term which is denoted from e1 to e23. The structural model is the final model showing the relationship between different variables formed during the initial stage of the research. It determines whether a hypothesis formed during the initial stage of research is accepted or rejected. Three types of fit indices measure the structural model goodness of fit similar to in CFA. Three types of fit indices are Absolute fit indices, Incremental fit indices and Parsimonious fit indices. The maximum likelihood estimation method was used for the evaluation of the model. For model evaluation Garson (2009) recommend three goodness of fit measures; Chi-square, Root mean square error of appropriation (RMSEA) and NFI/RFI/IFI/TLI/CFI. Garver and Mentzer (1999) recommend NNFI/TLI, CFI and RMSEA as Goodness of fit measures for model evaluation. The measures RMSEA, NNFI/TLI and CFI are sensitive to model misspecification rather than the sample size, so they should be considered for model evaluation (Fan, Thompson and Wang, 1999). The SEM is modified using modification indices and error terms are correlated. The SEM analysis was

done with AMOS (Analysis of moment structures)   and the results are depicted below.

Table No: 17 Goodness of fit indices of the structural model

Types of Indices	Fit Measures	Recommended acceptable level	Analysed value
Absolute fit indices	χ 2/df	<3	1.883
	RMSEA	< 0.1	.049
	GFI	≥ .90	.931
	AGFI	≥ .90	.908
	RMR	< 0.1	.060
Incremental fit indices	NFI	≥ .90	.930
	IFI	≥ .90	.966
	CFI	≥ .90	.965
	TLI	≥ .90	.958
Parsimonious fit indices	PGFI	≥0.5	.696
	PNFI	≥0.5	.772
	PCFI	≥0.5	.802

Based on Garver and Mentzer (1999) suggestion NNFI/TLI, CFI and RMSEA are recommended as Goodness of fit measures for model evaluation. In this model, these three measures TLI (.958), CFI (.965), RMSEA (.049) are in acceptable level and the structural model showing the goodness of fit indices. The measures RMSEA, NNFI/TLI and CFI are sensitive to model misspecification rather than the sample size, so they should be considered for model evaluation (Fan, Thompson and Wang, 1999). The values of three indices, absolute fit indices, incremental fit indices and Parsimonious fit indices of the structural model were above the recommended acceptance level. The values of different measures of absolute fit indices CMIN (1.883), RMSEA (.049), GFI (.931), AGFI (.908), RMR (.060), incremental fit indices NFI (.930),IFI (.966),CFI (.965),TLI (.958) and Parsimonious fit indices PGFI (.696), PNFI (.772), PCFI (.802) stating fitness of indices. The structural model of this research shows the goodness of fit.

Figure No: 3 Structural model
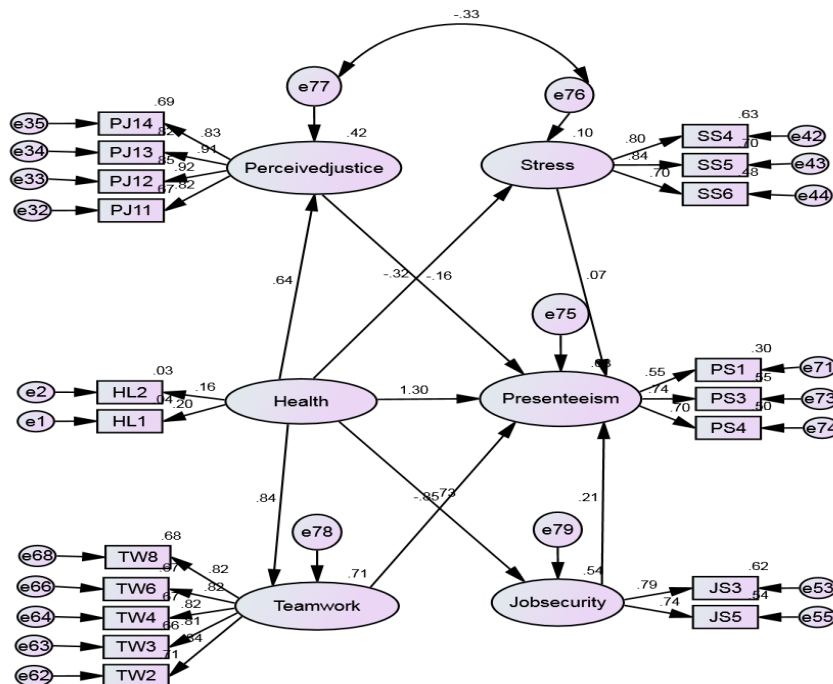
Conclusion

Employers are becoming increasingly interested in the concept of presenteeism as a result of the increased health-related costs associated with it. This research aimed to determine the causes of presenteeism and/or provide an explanation for why a sick individual goes to work.The role of different variables related to presenteeism is in under researched area. This study was an attempt to define the role of different variables related to 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 answer why an unhealthy employee showing presenteeism. The researches show that presenteeism is influencing productivity and employee performance much bigger than absenteeism. Employee performance and factors influencing employee performance is a major area of research among academicians and industrialist due to its importance in the organisation. The companies are focusing on productivity or employee performance or outcome of an organisation. The profit situation of a company is determined based on employee performance and productivity. So organisations are focusing on how can increase the outcome of the organisation and what are the hurdles for achieving the best result. Presenteeism is a factor that reduces productivity and employee performance. This shows the importance of this research because research tried to study the concept of presenteeism and factors influencing presenteeism. The primary goal of the study was to determine whether or not presenteeism exists in the Indian context, as well as the elements that influence presenteeism. The study was conducted among the employees working in public sector manufacturing organisations. Presenteeism is a concept in which employees will come to work without showing absenteeism due to various consensus factors. 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. From secondary research, the researcher found that job security and teamwork have a relationship with presenteeism. Based on this, the researcher chooses these variables as mediating variable to answer why an unhealthy person is going to work. This research contributing to existing literature on presenteeism based on the findings. The relationship analysis between health problems and presenteeism shows that they were related statistically. When job security was selected as a mediating variable during the relationship analysis between health problems and presenteeism, it shows a relationship. This study confirms the mediating role of job security in between health problems and presenteeism. Teamwork was not working as the mediating variable in between health problems and presenteeism. The conceptual framework formed during the beginning of the research was tested through the structural equation model. The structural equation modelling shows that the measurement model and structural model were statistically fit. So the conceptual framework formed for this research was statistically proved. The study selected factors influencing presenteeism from John's model of presenteeism and that were calculated. More work need to done on other factors in Johns model and that are left to future researchers in the OB/HRM area.

Reference

1. Aroian, L. A. (1944/1947). The probability function of the product of two normally distributed variables. Annals of Mathematical Statistics, 18, 265-271.
2. Aronsson, G., Gustafsson, K., & Dallner, M. (2000). Sick but yet at work: An empirical study of sickness presenteeism. Journal of Epidemiology and Community Health,54, 502-509. DOI: 10.1136/jech.54.7.502.
3. 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
4. Athey, J. (2009, May 1). Absenteeism, presenteeism, and keeping the workplace and workers healthy. Retrieved September 1, 2009, from http://www.hrhero.com/hl/050109-tip-presenteeism.html?ELP.
5. Baron, R. M., Kenny, D. A., (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. Journal

of Personality and Social Psychology, 51, 1173-1182.

6. Boles, M., Pelletier, B., & Lynch, W. (2004). Relationship Between Health Risks and Work Productivity. Journal of Occupational and Environmental Medicine, 46(7), 737-745.

7. 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.

8. 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.

9. 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.

10. 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.

11. Byrne, B. M. (2010). Multivariate applications series.Structural equation modeling with AMOS: Basic concepts, applications, and programming (2nd ed.). Routledge/Taylor & Francis Group.

12. 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.

13. Caverley, N., Cunningham, J. B., & MacGregor, J. N. (2007). Sickness presenteeism, sickness absenteeism, and health following restructuring in a public service organization. Journal of Management Studies, 44(2), 304-319.

14. 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.

15. 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.

16. Darr, W., & Johns, G. (2008). Work Strain, Health, and Absenteeism: A Meta-Analysis.
Journal of Occupational Health Psychology, 13(4), 293-318. doi: 10.1037/a0012639

17. Demerouti, E., Le Blanc, P. M., Bakker, A. B., Schaufeli, W. B., & Hox, J. (2009).Present but sick: A three-wave study on job demands, presenteeism and burnout.Career Development International, 14(1), 50-68.

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

19. Dew, K., Keefe, V., & Small, K. (2005). Choosing to work when sick: Workplace presenteeism. Social Science & Medicine, 60(10), 2273-2282. DOI: 10.1016/j.socscimed.2004.10.022

20. Elstad, J.I. and Vabo, M. (2008), "Job stress, sickness absence and sickness presenteeism in Nordic elderly care", Scandinavian Journal of Public Health, Vol. 36 No. 5, pp. 467-474.

21. Fan, Xitao & Thompson, Bruce & Wang, Lin. (1999). Effects of Sample Size, Estimation Methods, and Model Specification on Structural Equation Modeling Fit Indexes. Structural Equation Modeling: A Multidisciplinary Journal. 6. 56-83. 10.1080/10705519909540119.

22. Garson, G.D. (2009) "Factor Analysis" from Statnotes: Topics in Multivariate Analysis.http://faculty.chass.ncsu.edu/garson/pa765/statnote.htm.

23. Garver, M.S. and Mentzer, J.T. (1999) Logistics Research Methods: Employing Structural Equation Modelling to Test for Construct Validity. Journal of Business Logistics, 20, 33-57.

24. 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.

25. Goodman, L. A. (1960). On the exact variance of products. Journal of the American Statistical Association, 55, 708-713.

26. Grinyer, A., & Singleton, V. (2000). Sickness absence as risk-taking behaviour: A study of organizational and cultural factors in the public sector. Health, Risk & Society,2(1), 7-21.

27. Hansen, C. D., & Andersen, J. H. (2008). Going ill to work – what personal

28. 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.

29. Hayes, A. F. (2018). Introduction to mediation, moderation, and conditional process analysis:

A regression-based approach (2nd edition). New York: The Guilford Press.

30. Hudson, J. (2004, March 8). Vast majority of employees work while sick, according to Com Psych survey [Press release]. Retrieved September 1, 2009,fromhttp://www.compsych.com/jsp/en_US/content/pressRelease/2004/employeesWorkWhileSickAccordingToComPsychSurvey.jsp.

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

32. Johns, G. (2011). Attendance dynamics at work: The antecedents and correlates of presenteeism, absenteeism, and productivity loss. Journal of Occupational Health Psychology, 16(4), 483-500.

33. Karanika-Murray, M, Cooper, C (2018) Presenteeism: An introduction to a prevailing global phenomenon. In: Lu, L, Cooper, CL (eds) The Cambridge Companion to Presenteeism at Work. Cambridge: Cambridge University Press.

34. Kessler, R. C., Ames, M., Hymel, P. A., Loeppke, R., McKenas, D. K., Richling, D. E., Stang, P. E., & Ustun, T. B. (2004). Using the World Health Organization Health and Work Performance Questionnaire (HPQ) to evaluate the indirect workplace costs of illness. Journal of occupational and environmental medicine, 46(6 Suppl), S23–S37. https://doi.org/10.1097/01.jom.0000126683.75201.c5

35. 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

36. Leineweber, C., Westerlund, H., Hagberg, J., Svedberg, P., & Alexanderson, K. (2012). Sickness presenteeism is more than an alternative to sickness absence: Results from the population-based SLOSH study. International Archives of Occupational and Environmental Health, 85(8), 905-914.

37. Leiter, M. P., & Maslach, C. (2004). Areas Of Work Life: A Structured Approach To Organisational Predictors Of Job Burnout. In P. L. Perrewe & D. C. Ganster (Eds.), Emotional And Physiological Processes And Positive Intervention Strategies (Research In Occupational Stress And Well-Being) (pp. 91-134): Emerald Group Publishing Limited.

38. 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.

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

40. 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.

41. MacGregor, J. N., Cunningham, J. B., & Caverley, N. (2008). Factors in absenteeism and presenteeism: Life events and health events. Management Research News, 31(8),607-615. DOI: 10.1108/01409170810892163.

42. McKevitt, C., Morgan, M., Dundas, D. and Holland, W.W. (1998). Sickness absence and working through illness: A comparison of two professional groups. Journal of Public Health Medicine, 19(3), 295-300.

43. Miraglia, M., & Johns, G. (2015). Going to Work Ill: A Meta-analysis of the Correlates of Presenteeism and a Dual-path Model. Journal of Occupational Health Psychology.

44. 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.

45. 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.

46. Paton, N. (2010). Prevention is better than cure. Occupational Health, 62(6), 20-20-22.Retrievedfrom http://search.proquest.com/docview/518824428?accountid=27965

47. Pelletier, B., Boles, M., & Lynch, W. (2004). Change in health risks and work productivity over time. Journal of Occupational and Environmental Medicine, 46(7), 746-754. doi: 10.1097/01.jom.0000131920.74668.e1

48. Pilette, P. C. (2005). Presenteeism in nursing: a clear and present danger to productivity.Journal of Nursing Administration, 35(6), 300-303.

49. 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.

50. 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

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

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

53. 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.

54. Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), Sociological methodology 1982 (pp.290-312). San Francisco: Jossey-Bass.

55. 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.

56. 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

57. 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.

58. Warren, Carol L. , "Cost Burden of the 'Presenteeism' Health Outcome in a Diverse Nurse and Pharmacist Workforce: Practice Models and Health Policy Implications" (2009). Theses and Dissertations (ETD). Paper 295. http://dx.doi.org/10.21007/etd.cghs.2009.0345.

59. 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

60. Ybema JF, Smulders PGW, Bongers PM (2010). Antecedents and consequences of employee absenteeism: a longitudinal perspective on the role of job satisfaction and burnout. European Journal of Work and Organisational Psychology; 19:102–24.