

SURVEY ANALYSIS OF COMMON FOOT PROBLEMS AMONG HOTEL EMPLOYEES IN DELHI-NCR

***RISHI RAJ**

Student, Bachelor of Law (LLB), Campus Law Centre, Faculty of Law, University of Delhi
rishiraj.raj64@gmail.com

ABSTRACT

Background: Importance of proper foot care in general should be a concern for people as foot problems causes hindrances in their day to day activities. The problem actually becomes a major concern when it does not allow a person to function at their workplace. For decades people have had to suffer from many foot problems that occur due to the fact that they have to either be in constant standing position or in constant motion at their workplace. **Objectives:** The study identified the different types of foot and health problems seen in hotel employees and its relation with footwear. **Methodology:** This study falls within a quantitative research approach. To determine the foot problems in hotel employees, data collection was done at four different hotels. The variables responsible for causing foot problems were listed in a questionnaire and were analyzed in relation to the workplace using a cause and effect correlational quantitative design. The sample size taken was 32. Sampling technique used was a random probability sampling method. Of the total participants 62.5% were male and the rest 37.5% were female. The participants were in the age bracket of 19-48 years. The locale for data collection was Five Star Hotels in Delhi NCR region. The results were analyzed on the basis of footwear and department employee worked in. **Results:** In this study it was found that 87.5% of the participants had to stand for more than 6 hours at their workplace. Blisters with 41.4% and Corn with 34.5% were found to be the most common foot problem faced by Hotel Employees. Swelling, Back Pain and Muscle Fatigue were the most common Health Related issues found among Hotel Employees with existing Foot Problems. **Conclusion:** Every organization needs to assess the footwear used by their employees and make them wear footwear which is comfortable, better fitting, have soft mattress. Also the organization needs to ensure that while working an employee practices good amount of ergonomic principles, incorporate breaks during his shift and follow better gait practices.

Key Words: Foot Problems, Hotel Employees, Hospitality Industry, Health Issues

INTRODUCTION

It has never been surprising when a hotelier would say that he has to stand for countless number of hours at his workplace, the person would even say that it is very normal to have blisters or corns. Today, the employers have become so ignorant about something so important that hoteliers today believe that a painful foot is a part of their job. Restaurant work tends to be fast-paced, stressful, repetitive, and physically taxing. Working extra hours is common, but overtime often goes unpaid, the employee has to stand for long hours or constantly move. (Woolever, 2012) So, we need to take certain steps to reduce some of the foot ailments in order to lead a better professional life. It was the American Podiatric Medical Association's survey in 2014 which showed that almost 8 in 10 Americans have experienced a foot problem. The survey also suggested that those with regular foot pain tend to have a host of other health issues, APMA, 2014). In India there was still little data of prevalence of Foot problems. However, there was a proportionate increase of Diabetic Foot Problems in India in 2008. In India people had Foot Problems because of walking barefoot, poor hygiene and wearing wrong footwear (Harrison et al., 2017).

In the last decade the number of foot problems has increased significantly among the general population. There have been many underlying factors behind it; the most significant was the Diabetic Foot Diseases. It was suggested that Diabetes Type II can increase the number of foot problems in a person. APMA's (2014) data later showed that the percentage of people having foot problems increased from 77% to 83%. In India it was suggested in 2017 that 15% of the total adult population was diagnosed with foot problems. Also around 50% of the total adult population suffers from Diabetes (Indian Podiatry Association). In the Hotel Industry, the conditions favor the causes of Foot Problems among the employees as working hours can be from 9-12 hours a day. An employee has to usually stand or move constantly at his work place. Long hours of standing and wrong use of footwear are the major cause of issues such as Corns, Calluses and Cracked Heels.

The study done by Garcia et al., (2015) showed that regular stretching and incorporation of breaks and work rotation can help prevent posture instability and alleviate effects of prolonged standing.

Seid and Tsige (2015) found in their study that knowledge and practice of foot care are still substandard. Poor communication between patients and health care providers due to lack of knowledge, and inconveniency for work were commonly cited barriers of foot care.

Emmanouil and Rousanoglou (2018) examined the effects of high heel shoes and found high heel shoes induce COP (Centre of Pressure) path which indicate a worsening of postural control with a directional sensitivity in the leaning stance. The most ideal heel size should be 3-5 cm to avoid harmful fatigue, plantar pressure and for optimal foot functionality.

Hansen et al., (1998) did an experiment to study the significance of mat and shoe softness and concluded that using soft shoes instead of clogs can eliminate many of the above mentioned issues. It was recommended to shift between postures during the working hours to improve job exposures.

McRitchie et al., (2018) did a very significant study to establish whether footwear purchased by patients has an association with foot pain and what choices determined a purchase decision. It was found that a high prevalence of structural foot pathology for those over 61 years who preferred slip on shoes. This group also wore shoes that were significantly narrower than their feet with width difference correlating to the presence of Hallux Abductovarus (HAV). In addition, results indicate that individual footwear advice is more important than previously thought, as it is clear that choice of footwear worn to podiatry appointments are not always worn on a daily basis. This study emphasizes that the width of the shoe is an important part of fit, highlighting the need for patient specific footwear assessment and education for behavior changes.

Marr and Quine (1991) studied the problems of Safety Shoes Wearers (SFW) by self-report and observation by a podiatrist. It was found that there is an urgent need for SFW manufacturers, employers and safety staff to discuss the design of SFW. Reduce the proportion of foot problems associated with the wearing of poorly designed SFW, and increase worker safety and protection.

Messing and Kilbom (2000) did a study to determine the Plantar Pain Pressure Threshold (PPPT) among people who worked standing as compared to the ones who worked sitting or had a combination of both. It was found that greater PPPT changes and more discomfort are among workers who spent more time standing. This study was done on restaurant workers and research workers. Hence it acts as an important finding for Hotel employees.

Halim and Omar (2011) did a study on Health Effects Associated with prolonged standing in the industrial workplaces. This study gave the following result; in ergonomics discipline, engineering controls and administrative controls were found to be effective methods to reduce the risk of occupational injuries in the industrial workplaces. Based on review of the literature, it can be concluded that performing jobs in prolonged standing has contributed numerous health effects such as work-related musculoskeletal disorders, chronic venous insufficiency, preterm birth and spontaneous abortion, and carotid atherosclerosis. However, those injuries can be minimized through application of engineering and administrative controls.

Orlando and King (2004) in their study “Relationship of Demographic Variables on Perception of Fatigue and Discomfort following Prolonged Standing under various Flooring Conditions” found that demographic conditions are correlated to the flooring conditions. Insoles and mat conditions were also chosen significantly more often as conditions participants would use after the study when compared to the wood-block floor condition.

Waters and Dick (2015) gave an article to provide a review of the health risks and interventions for workers and employers that are involved in occupations requiring prolonged standing. There seems to be ample evidence showing that prolonged standing at work leads to adverse health outcomes. Review of the literature also supports the conclusion that certain interventions are effective in reducing the hazards associated with prolonged standing. Suggested interventions include the use of floor mats, sit-stand workstations/chairs, shoes, shoe inserts and hosiery or stockings. Studies could be improved by using more precise definitions of prolonged standing (e.g., duration, movement restrictions, and type of work), better measurement of the health outcomes and more rigorous study protocols.

Wiggermann and Keyserling (2013) did an experiment to investigate the effects of anti-fatigue mats on perceived discomfort and behavioral responses (weight-shifting between the feet) during prolonged standing. It was found that subjective reports of discomfort were not sufficiently sensitive to detect differences among mats for the experimental conditions tested. Behavioral responses, specifically weight-shifting between feet, may provide a more sensitive alternative to subjective reports.

Manna et al., (2001) in their study gave an evaluation of foot hazards due to using footwear. The subjects who use Sandals as footwear experienced more pain and discomfort than those who used shoes and slippers. The occurrence of corns was the maximum in shoe wearers. The right foot was affected in great percentage than the left foot; this can be due to the gait pattern. Women had more foot troubles than men. It may be noted that different types of foot troubles were not significantly associated with the type of footwear. The occurrence of deformities is also not related with the type of footwear. The internal volume of the shoe should be comparable with the volume of the foot along with the clearance for socks and thus many of the troubles may be reduced.

Foot problems is an issue that is faced by most employees working in various sectors and industries but this research is focused on the Hospitality Sector and its employees. This study aims to help employees to understand the common foot problems that they may experience if they do not use proper foot wear, follow proper ergonomic practices and understand their workplace very well. Further this study will also help employees to adopt measures of proper foot care and understand its importance. Ultimately, it will help employees to work more efficiently at their workplace.

The objectives of this study were:

- To enlist the common foot problems among the hotel employees engaged in different hotel operations.

- To enlist the different health related issues experienced by hotel employees due to the underlying foot problems.
- To determine how differences in the footwear worn by hotel employees has an impact on foot problems experienced by them.

METHODOLOGY

Research Design: The present study has a cause and effect correlational quantitative design. A qualitative research approach was used to determine variables causing various foot problems and health issues associated with foot problems.

Locale: The data was collected from four different Five Star Hotels of Delhi NCR Region.

Sampling Design: A total of 32 employees volunteered to participate in this study. The employees were from different hotel departments such as Food and Beverage Service, Housekeeping, Front Desk, Kitchen and held different designations. Data was collected with the help of a questionnaire which included questions about employee's name, age, sex etc. Questions regarding footwear used, foot problems faced, numbers of hours people stand at their workplace etc. were asked. Sampling technique used was a simple random probability sampling method. 62.5% of the total participants were males and the rest 37.5% were females. The participants were in the age bracket of 19-48 years. The participants were from different hotels in the Delhi-NCR region.

Tools and Technique: The primary data was collected with the help of a questionnaire. The participants were directly approached and a physical survey was conducted, some of the responses were also received using electronic mails. The basic information about the factors causing foot problems, some common preventive measures taken to prevent them and some common footwear worn by people at their workplace was obtained by the help of a quantitative research design (Fields, 2015). The information regarding foot problems was obtained from websites (Mayoclinic, 2021; Dasinger, 2021) further, the participants were asked to mention the number of hours they would spend standing on their workplace, the type of footwear they used, the foot problems and any health related issues related to the foot problems were also asked with the help of the survey. These factors were analyzed in relation to each other. The survey also asked the volunteers to mention if they took some suited preventive measures in order to avoid such foot problems and its correlated health issues. In the response sheet, the participants were given the liberty to mention multiple numbers of foot problems as well as the health related issues correlated with them if they have experienced one or more ailments at the same time or at different time intervals.

Data and Statistical Analysis: In this study, the above mentioned factors were analyzed with the help of charts, tables and bar graphs. The statistics were determined by calculating the frequency of a particular foot problem and the health related issues on a bar graph. The frequency was represented as percentage, further the analysis was done by using tables which presented the footwear that caused the maximum foot problems by determining its percentage share to the total number of cases of that particular foot problem. A similar table was used to determine the health related issues among the same footwear users. Final analysis was done by determining the relation between the footwear used and the number of foot ailments using the two tables. Factors such as long hours of standing, age of the participant and overall working conditions were also significant in determining the final results.

RESULTS AND DISCUSSION

In the present study, 62.5% of the total participants were males and the rest 37.5% were females. The age of the participants was in the age bracket of 19-48 years at the time of the study. The participants were from different class intervals of age which has been presented in Table 1.

Table 1: Different Age Intervals with the number of Participants

Age Group (In Years)	Number of Participants
19-23	13
24-28	8
29-32	5
33-36	2
37-48	4

13 participants were from the age group of 19-23 years, 8 (%) participants were from the age group of 24-28 years. The participants were engaged in different hotel departments. Out of the total number of participants 13 were from Food and Beverage Service, 7 were from Housekeeping, 5 were from Kitchen, 4 were from Front Office, and the remaining 3 were from Guest Relations, Learning and Development and the Human Resources department respectively. The participants were from all major departments such as Front Office, Housekeeping, Food and Beverage Service and Kitchen. Most participants had to stand for long hours at their workplace. 75% of the employees had to wear shoes at their workplace. Around 10% of the employees wore high heel sandals and crocs were only worn by the Kitchen Employees. Only 5% of the employees had to wear sandals as a part of their uniform. Almost 87.5% of the employees who participated in the study had to stand at their workplace for more than 6 hours a day. Only a few (4 out of 32) employees had to stand for about 6 hours a day.

From the data collected it was found that the participants also used to take some precautions while standing for long hours at their workplace. 46.9% of the respondents used to keep their body hydrated, 34.4% opted for better shoes with soft mattress and better fit, another 34.4% maintained a good body posture while working. 25% took adequate amount of breaks as an effective preventive measure.

The data collected from the different Five Star Hotel employees enlisted the number of foot problems experienced by them. Figure 1 presents the multiple foot problems experienced by hotel employees. The participants were asked to mention all the foot problems they had experienced, since many participants reported multiple foot problems, the data represents each foot problem as an individual percentage figure.

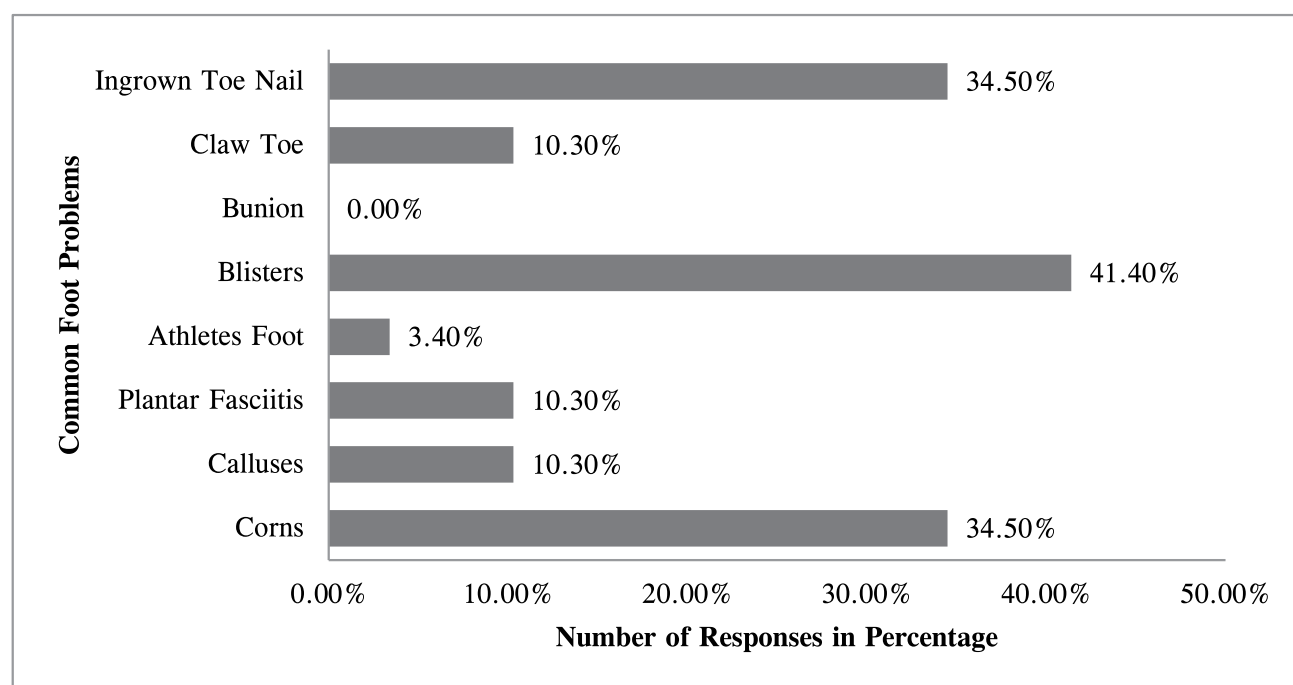


Figure 1: Foot Problems Experienced by Hotel Employees

Among the common foot problems experienced by hotel employees (Figure 1), blisters was found the most common foot problem (41.4%) followed by corns (34.5%) and ingrown toenails (34.5%), a notable point here is that 75% of the total participants wore shoes. People who wear shoes tend to have more foot problems (Manna et al., 2001).

The data collected also showed the number of health related issues hotel employees had to experience which were related to their underlying foot problems. Long hours of standing at a workplace can be one of the primary reasons for any foot problem (Messing & Kilbom, 2000). In the data collected it was observed that 87.5% of the employees had to stand for more than 6 hours at their workplace and the rest had to stand for about 6 hours. Long hours of standing leads to fatigue in lower limbs

and prolonged standing for long hours can lead to musculoskeletal disorders (Garcia et al., 2015). Figure 2 presents the health issues related to foot problems as seen among hotel employees.

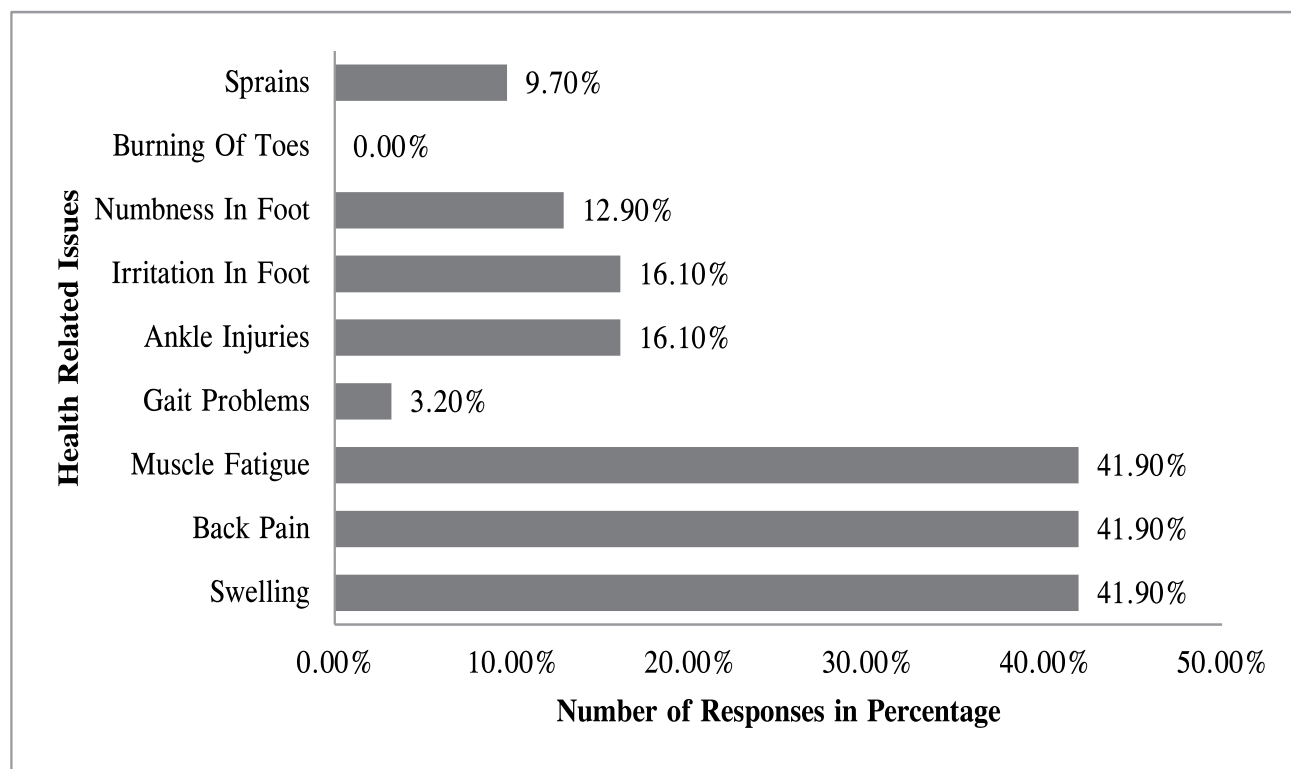


Figure 2: Health Issues Related to Foot Problems

The related issues of health in a person can depend on certain factors such as the type of job performed by a person, the number of hours spend standing or on foot and most importantly the type of footwear used (Marr and Quine, 1991). In the present study the most common health issues (Figure 2) were found to be - swelling (41.9%), back pain (41.9%) and muscle fatigue (41.9%) respectively. Other issues such as irritation in foot, numbness in foot and ankle injuries were also reported by the respondents. As suggested using the correct shoe with soft mattress can significantly reduce many health issues (Hansen et al., 1998).

It has been found that people suffering from foot problems usually lack proper knowledge and hence they lack proper foot care measures, more than 50% of the people lack knowledge of their own foot problems (Seid and Tsige, 2015). A similar scenario was observed in the data collected where 21 out of 32 participants reported that they have never consulted a podiatrist despite having multiple foot problems. According to the data, hardly any hotel organization has any guidelines or training program in order reduce the number of foot problems seen among their employees. Table 1 presents the different type of foot problems caused by using different types of footwear.

Table 2: Different Types of Foot Problem due to the Type of Footwear Used

Foot Problem	Type of Footwear				
	Shoes	Sandals	Slip Ons	High Heel Sandals	Crocs
Corns (n = 10)	80% (8)	-	-	20% (2)	-
Plantar Fasciitis (n = 3)	33% (1)	-	33% (1)	33% (1)	-
Athletes Foot (n = 1)	-	-	-	100% (1)	-
Blisters (n = 12)	75% (9)	8% (1)	-	8% (1)	8% (1)
Bunion (n = 0)	-	-	-	-	-
Claw Toe (n = 3)	67% (2)	-	33% (1)	-	-
Ingrown Toe Nail (n = 10)	60% (6)	10% (1)	-	20% (2)	10% (1)
Calluses (n = 3)	33% (1)	-	-	67% (2)	-

n = Total number of cases of a particular Foot Problem

It was found that the numbers of foot problems were significantly higher among the respondents who wore shoes—80% cases of corns, 75% cases of blisters and 60% cases of ingrown toe nail. The numbers of foot problems were also high among respondents who wore high heel sandals – 20% cases of corns, 20% cases of ingrown toe nail and 8% cases of blisters. If shoes are not proper then the person may perceive discomfort in lumbar back, legs and feet, whole body oxygen uptake can be affected negatively showing signs of increased blood pressure and heart rate (Hansen et al 1998). High heel shoes worsen the postural control of the body with a directional sensitivity in the leaning stance (Emmanouil and Rousanoglou, 2018).

It was also found that the number of health related issues are also higher in people having more foot problems. The same was analyzed with the type of footwear used. Since the maximum number of participants had to stand at their workplace for long hours hence, it increases the risk of foot ailments in an individual (Halim and Omar, 2011).

In the present study, the type of footwear used was one of the leading factors to determine the existence of foot problems among hotel employees. Long hours of standing were also one of the most significant factors taken into account. The Hotel staff needs to take certain measures in activities that involve long hours of standing. Use of interventions and following suggested guidelines on hours of standing from governmental and professional organizations should reduce the health risks from prolonged standing (Waters and Dick, 2015). The relation between the health issues and the type of footwear used is presented in table 3.

Table 3: Different types of Health Issues due to the different types of Footwear Used

Health Related Issue	Type of Footwear				
	Shoes	Sandals	Slip Ons	High Heel Sandals	Crocs
Swelling (n = 13)	70% (9)	-	-	23% (3)	7% (1)
Back Pain (n = 13)	61% (8)	9% (1)	15% (2)	15% (2)	-
Muscle Fatigue (n = 13)	77% (10)	-	-	15% (2)	8% (1)
Gait Problems (n = 1)	100% (1)	-	-	-	-
Ankle Injuries (n = 5)	40% (2)	20% (1)	20% (1)	20% (1)	-
Irritation in Foot (n = 5)	100% (5)	-	-	-	-
Numbness in Foot (n = 4)	50% (2)	-	-	50% (2)	-
Burning of Toes (n = 0)	-	-	-	-	-
Sprains (n = 3)	67% (2)	-	-	33% (1)	-

n = Total number of cases of a particular Health Related Issue

It was observed that the footwear used can significantly affect the health related issues. From Table 3 it can be seen that people who wore shoes at their workplace tend to have more health related issues – 70% cases of swelling, 61% cases of back pain and 77% cases of muscle fatigue. People who wore high heel sandals also had a significant number of health issues – 23% cases of swelling, 15% cases of back pain and 15% cases of muscle fatigue. In both these footwear the underlying foot ailments were also maximum in number. With little difference in working conditions and mat floorings it can be said that there is an urgent need for footwear manufacturers to keep in mind the working conditions of an individual and to manufacture shoes with better fit, soft mattress and overall comfortable while standing for long hours. It should also be noted by different organizations to take deep measures to reduce the causes of foot ailments (Marr and Quine, 1991).

The type of footwear must be chosen according to the working conditions. Nearly 50% of the participants suggested better fitting shoes as a preventive measure to foot ailments. It must also be emphasized that the width of the shoe is an important part of fit (McRitchie et al., 2018). The Plantar Pain Pressure Threshold (PPPT) and changing postures between jobs along with incorporation of breaks can also help to reduce foot problems (Messing and Kilbom, 2000). Even in this study it was found that the participants used good personal hygiene and avoiding long hours of standing as a preventive measure to avoid foot ailments.

CONCLUSION

The present study showed that in the Hospitality Industry, employees had to stand for long hours at their workplace. The working hours were up to nine hours a day or even more and the employees had to work while standing because their working conditions required them to do so. With such

conditions the footwear used is really an important factor to control or reduce the chances of foot ailments. In this study it was observed that majority of the hotel employees had to wear shoes at their workplace. It was found that more than 50% of the total participants had multiple foot ailments. There were many who reported multiple health issues as well due to underlying foot problems. So, it can be said that every organization needs to assess the footwear used by their employees and to make them have footwear which is comfortable, better fitting, has soft mattress. Also the organization needs to ensure that while working an employee practices good amount of ergonomic principles, incorporate breaks during his shift and follow better gait practices. Though it was observed that most employees took certain necessary precautions while working such as keeping the body hydrated which helps prevent musculoskeletal disorders but it was not sufficient to reduce the causes of foot problems. The most noteworthy point found in this study was that no organization had a proper set of training for its employees to help them avoid foot ailments and also to reduce the health issues that follow thereafter. Hence, it becomes the responsibility of both the hotel employee and the organization he/she is working with to adopt measures and introduce practices that can help achieve the common goal of no foot ailments. This will help the employees to work better and more efficiently and thus it can make the organization one of the best places to work for.

REFERENCES

1. APMA. (2014). Public Opinion Research on Foot Health and Care. <https://www.apma.org/files/APMA2014TodaysPodiatristSurveyAllFindings.pdfm>
2. Dansinger, M. (2021, June 22). Diabetic Foot Problems. <https://www.webmd.com/diabetes/foot-problems>
3. Emmanouill, A.A., & Rousanoglou, E.N. (2018). Effect of High Heeled Shoe on Postural Control in the Upright and the Leaning Body Stance. *Phys Med Rehabil Res* 2018, Volume 3(5), 1-5.
4. Fields, K.B., (2015). Evaluation and Diagnosis of Common Causes of Foot Pain in Adults. <http://www.uptodate.com/home>.
5. Garcia, M.G., Laubli, T., & Martin, B.J. (2015). Prolonged Standing Associated with Musculoskeletal Disorders. *Human Factors*, Vol. 57(7), 1162-73.
6. Halim, I., & Omar, A.R. (2011). A review on Health Effects Associated with Prolonged Standing in The Industrial Workplaces. *IJJRAS*, 8(1).

7. Hansen, L., Winkel, J., & Jorgensen, K. (1998). Significance of Mat and Shoe Softness during prolonged work in upright position. *Applied Ergonomics*, Vol. 29(3), 217-224.
8. Harrison, B.M., Hashmi, F., Nester, C., & Williams, A.E. (2017). The Prevalence of Foot Problems in an Indian Population. *The Diabetic Foot Journal*, Vol. 20(2), 95-102.
9. Indian Podiatry Association. <https://www.indiamart.com/indian-podiatry-association-new/>
10. Manna, I., Pradhan, D., Ghosh, S., Kar, S.K., & Dhara, P. (2001). A Comparative Study of Foot Dimension Between Adult Male and Female and Evaluation of Foot Hazards due to using Footwear. *J PhysiolAnthropol*, Volume 20(4), 241-246.
11. Marr, S.J., & Quine, S. (1991). Shoe Concerns and Foot Problems of wearers of Safety Footwear. *Occupational Med.* 1993, Volume 43, No 2, 73-77.
12. MayoClinic. (2021, March 13). Foot pain. <https://www.mayoclinic.org/symptoms/foot-pain/basics/causes/sym-20050792>.
13. McRitchie, M., Branthwaite, H., & Chockalingam, N. (2018). Footwear choices for Painful feet – An Observational study exploring Footwear and Foot Problems in Women. *Journal of Foot and Ankle Research* 2018.
14. Messing, K., & Kilbom, A. (2000). Standing and very slow walking: Foot Pain Pressure Threshold, Subjective Pain Experience and Work Activity. *Applied Ergonomics*, Volume 32(2001), 81-90.
15. Orlando, A.R., & King, P.M. (2004). Relationship of Demographic Variables on Perception of Fatigue and Discomfort following prolonged standing under various flooring conditions. *Journal of Occupational Rehabilitation*, Volume 14(1).
16. Seid, A., & Tsige, Y. (2015). Knowledge, Practice, and Barriers of Foot Care among Diabetic Patients attending FelegeHiwot Referral Hospital, Bahir Dar, Northwest Ethiopia. *Advances in Nursing* 2015.
17. Waters, T. R., & Dick, R.B. (2015). Evidence of Health Risks Associated with Prolonged Standing Work and Intervention Effectiveness. *RehabilNurs.* 2015, Volume 40(3), 148- 165.
18. Wiggermann, N., & Keyserling, W.M. (2013). Effects of Anti Fatigue Mats on Perceived Discomfort and Weight Shifting during Prolonged Standing. *Human Factors*, Volume 55(4), 764 -775.
19. Woolever, L. (2012). High-End Food, Low-Wage Labor. *Dissent Magazine*.