

Research Article

Prevalence of LBP in male factory workers of Nishat Mills limited, Sheikhpura, Pakistan

Muhammad Kashif, Qurat-Ul-Ain, Shahid Ahmed Heera, Saima Rafiq and Fiba Sherwani

School of Rehabilitation Sciences, The University of Faisalabad, Faisalabad, Pakistan

*E-mail of the corresponding author: kashif.shaffi@gmail.com

Accepted Date: 13 July 2014

Low back pain is common problem in factory worker. However there is a lack of evidence related to work related to LBP in factory workers in Pakistan. This study is conducted to identify the prevalence of Low back pain in factory workers and identify the need for awareness in workers about the working postures and safety measures in Nishat mills limited, Sheikhpura. A survey was conducted with sample size of 170 subjects, collected through non probability sampling technique. Nordic questionnaire (part 1) was used with addition of some questions related to research topic. Self-reported questionnaire Performa was filled. Study population included only male workers aged between 20-45 years with career duration of one or more than one year and working duration of 8 hours. Statistical analysis was done by using SPSS 17.00. According to results 75 out of 170 workers reported low back trouble. The intensity of the low back ache varied from mild to severe. 21 (28%) workers reported mild category of pain, 40 (53.3%) had moderate pain and 14 (18.7%) were having severe pain. Majority (77.3%) workers felt pain for 1-7days during last 12 months. The results showed that there is statistically significant ($p < 0.05$) association between Low back pain and type of work. The workers who do job related to Weight lifting were suffering more frequently from backache comparatively to the workers of manufacturing department. No statistically significant ($p > 0.05$) association between Low back pain and working Posture was found. It was concluded from the study that prevalence of LBP was higher in weight lifting workers. And low back pain was also prevalent in those workers who are engaged with static work like in prolong standing; LBP founds to affect their work activity and reduces the work efficiency.

Keywords: Low back pain, prevalence, lifting, working posture.

1. INTRODUCTION

Low back pain occur mostly due to overexertion or direct trauma. 60% of LBP was due to overexertion from which 66% were related to weight lifting and 20% were related to pulling or pushing activity. Workers who were engaged in lifting tasks may have LBP due to cyclic loading. Risk Indicators in Low Back Pain (Pope. H., M., 1989).

Manual material handling like carrying or lifting loads, pulling or pushing the objects also stresses the body (Vingard 2000, Bardof 1997 and Shelerud, 2006).

A research study in coal miners suggests that high percentage of LBP associated with older age, heavy physical tasks, long working hours and extreme bending posture (Noish, Burdorf and Sorok, 1997).

In the study of (Jin, Sorock and Courtney, 2014) about prevalence of work related low backache in kiln, battery and garment workers in Shanghai. They

use cross sectional study method. Personal interview method was used to collect data. Their results were 74% LBP in workers due to their occupational fixed posture during work. Total sample size is 383 reported which have LBP symptoms lasting 24 hours. Prevalence ratio was ($PR = 1.9$, 95% $CI = 1.4 - 2.4$).

(Paudyal, et al, 2013) evaluated in a research about prevalence of pain in Nepal's textile workers in the lower back and to investigate the influence of mechanical and other type factors over lumbar pain reporting in workers. They use self-completed questionnaire method to collect data in their cross sectional study. Total sample size is 938. Result of study is 35% LBP prevalence more in females than males that is 45 % and 28 %. Work related mechanical factors were associated with increased odds of reporting LBP. Lifting heavy weights, pushing and pulling weights were associated with this percentage of LBP.

2. METHODS

This Study type was cross sectional survey. We take sample of one hundred and seventy workers in which eighty three from weight lifting and eighty seven from manufacturing departments of Nishat Mills Ltd. Participant of study are male workers, age of 20 – 45 with low back pain. History of workers was taken and self-reported questionnaire Performa was filled. Research setting was manufacturing and weight loading department of Nishat Mills Ltd Sheikhpura.

Data was collected through Nordic Questionnaire Performa (1st part) and using primary outcome measures. Modified Nordic questionnaire of musculoskeletal symptoms and Nordic job demand questionnaire was used for the examination of the LBP in selected participants. It includes questions related to sign and symptoms of pain in 9 regions of the body. We included the only first part which was related to Low back pain. After collecting the data from participants, for the purpose of statistical analysis we compiled data and were shifted to the computer on software that was SPSS 17.

Table : Preliminary phytochemical analysis.

Class of compounds	C. papaya	C. intybus	F. vulgare	N. tobaccum	R. damascena	S. nigrum	T. ammi
Ascorbic Acid	+	+	++	+	+	++	+
Free reducing sugar	-	+	+	-	+	+	++
Glycosides	+	++	+	+	+	±	-
Flavonoids	+	++	++	+	++	++	++
Phenols	++	++	++	+	++	++	++
Saponins	++	-	+	++	++	+	+
Starch	+	+	+	-	+	+	+
Steroids	-	+	+	±	+	-	-
Tannins	+	++	+	++	+	+	+
Terpenoids	++	+	+	-	++	+	+
Total sugar	+	+	++	+	+	++	+
Alkaloids	+	++	+	++	+	+	+

Where; + Positive, ++ Strong positive, ± Trace, - Negative.

4. DISCUSSION

The presence of ascorbic acid in plant species has shown high total antioxidant properties of plants, glycosides are characterized by their actions on

Method used in this study was descriptive statistics. Descriptive statistics mainly deals with mean, standard deviation, percentage and ranking. Pearson's Chi-square was also helpful in analyzing the association between Low back apin with work experience and physical demands at job.

3. RESULTS

The pharmacological effects of these all plants are due to the presence of bioactive chemical constituents. *R. damascena* and *F. vulgare* contained all tested constituents as shown in Table. Terpenoids and starch were present in all plant species except *N. tobaccum*. Saponins were present in all plants instead of *C. intybus*. Steroids were present only in *C. intybus*, *F. vulgare* and *R. damascena*. Free reducing sugar was absent in *N. tobaccum* and *C. papaya*. Glycosides were absent in *T. ammi*. *C. papaya* contained all constituents except steroids and free reducing sugars.

Following table shows the results of qualitative analysis of different medicinal plants:

contractile forces of cardiac muscle and saponins show anti-fungal, antibacterial, anti-protozoal and lipid lowering effects (Aslam *et al.*, 2009). Saponin present in all plant species shows that they can be used as lipid lowering agent as well as has

anthelmintic and antibacterial activity. Due to presence of saponins these all may be used as cytotoxic and as expectorant through the stimulation of a reflex of the upper digestive tract (Ayoola and Adeyeye, 2010).

Tannins act as astringent, antioxidants, free radical scavengers, promote healing of wounds and effective in peptic ulcers while presence of reducing sugars in these plants has a reductive properties (Rajurkar and Gaikwad, 2012). Due to presence of terpenoids these might be act as cardio protective and antioxidant (Kusmic *et al.*, 2004). Steroids are frequently used signaling molecules biologically and decrease fluidity of membranes (Sadava *et al.*, 2011).

Phenolic compounds widely distributed in all plants have been reported to exert multiple biological effects, including antioxidant, free radical scavenging abilities, anti-inflammatory and anti-carcinogenic. Due to presence of phenolic compounds these might play role in the prevention of several chronic diseases such as cardiovascular disease, cancer, diabetes, bacterial and parasitic infections (Canini *et al.*, 2007). Flavonoids can also inhibit the activity of many enzymes such as xanthine oxidase, peroxidase and nitric oxide synthase, which are supposed to be involved in free radical generation, thereby resulting in decreased oxidative damage of macromolecules (Cazarolli *et al.*, 2008).

5. Conclusion

In conclusion, the overall results of study suggest that all plants contain one or other pharmacologically active constituent in them. It is mandatory to conduct the chemical characterization to isolate and evaluate active phyto-constituents in order to develop the therapeutics that has a promising role in the treatment of dysfunction diseases.

Conflict of Interests

Authors declared no competitive interests for the presented work.

References

Adeneyea AA and JA Olagunjub, 2009. Preliminary hypoglycemic and hypolipidemic activities of the aqueous seed extract of *Carica papaya* Linn. in Wistar rats. *Biology and Medicine*, 1(1):1-10.

Aslam, F, Khalil-ur-Rehman, M.A., Sarwar, M., 2009. Antibacterial activity of various phytoconstituents of neem. *Pak. J. Agri. Sci.*,46:3.

Ayoola PB and A Adeyeye, 2010. Phytochemical And Nutrient Evaluation Of *Carica Papaya* (Pawpaw)

Leaves. *International Journal of research and reviews in applied sciences*,5(3):325-328.

Boskabady MH, A Vatanprast, H Parsee, M Ghasemzadeh, 2011. Effect of aqueous-ethanolic extract from *Rosa damascena* on guinea pig isolated heart. *Iran J Basic Med Sci.*, 14:116-121.

Canini, A., Alesiani, D., D'Arcangelo, G., Tagliatesta, P., 2007. Gas chromatography-mass spectrometry analysis of phenolic compounds from *Carica papaya* L. leaf. *Journal of Food Composition and Analysis*.20:584-590.

Cazarolli LH, L Zanatta, EH Alberton, MS Figueiredo, P Folador, RG Damazio, MG Pizzolatti and FR Silva, 2008. "Flavonoids: Prospective Drug Candidates". *Mini-Reviews in Medicinal Chemistry*. 8 (13): 1429-1440.

Edeoga, H. O., D. E. Okwu, and B. O. Mbaebie, 2005. Phytochemical Constituents of some Nigerian medicinal plants. *Afr. J. Biotechnol.*, 4 (7): 685-688.

Ganesan S and RY Bhatt, 2008. Qualitative Nature of Some Traditional Crude Drugs available in Commercial Markets of Mumbai, Maharashtra, India. *Ethnobotanical Leaflets* 12: 348-360.

Gilani, A.H., Jabeen, Q., Ghayur, M.N., Janbaz, K.H., Akhtar, M.S., 2005. Studies on the antihypertensive, antispasmodic, bronchodilator and hepatoprotective activities of the *Carum copticum* seed extract. *J Ethnopharmacol* 98, 127-135.

Hajhashemi V, A Ghannadi, M Hajiloo, 2010. Analgesic and anti-inflammatory effects of *Rosa damascena* hydroalcoholic extract and its essential oil in animal models. *Iran J Pharm Res.*, 9:163.

Harborne JB, 2005. *Phytochemical methods - A guide to modern techniques of plant analysis*. New Delhi: Springer Pvt. Ltd.

Hussain, M., Raza, S. M., Farooq, U., Bakhsh, H., Majeed, A., & Aziz. A. (2014). In vitro Antimicrobial potential of lichen (*Parmelia perlata*) against different pathogenic microbes. *International Journal of Pharma Sciences*, 4(4); 666-670.

Iqbal, Z., Lateef, M., Jabbar, A., Ghayur, M.N., Gilani, A.H., 2006. In vitro and in vivo anthelmintic activity of *Nicotiana tabacum* L. leaves against gastrointestinal nematodes of sheep. *Phytotherapy Research*.20:46-48.

Kumar GS, KN Jayaveera, CKA Kumar, UP Sanjay, BMV Swamy, and DVK Kumar, 2007. Antimicrobial effects of Indian medicinal plants

against acne-inducing bacteria. *Trop. J. Pharm. Res.*, 6: 717-723.

Kusmic, C., Basta, G., Lazzerini, G., Vesentini, N., Barsacchi, R., 2004. The effect of Ginkgo biloba in isolated ischemic/reperfused rat heart: a link between vitamin E preservation and prostaglandin biosynthesis. *J cardiovascular pharmacol*,44:356.

Nayeemunnisa A, 2009. Alloxan diabetes-induced oxidative stress and impairment of oxidative defense system in rat brain: neuroprotective effects of Cichorium intybus. *Int. J. Diabetes Metabol*,17:105-109.

Nickavar B, and FA Abolhasani, 2009. Screening of antioxidant properties of seven Umbelliferae fruits from Iran. *Pak J Pharm Sci*, 22(1):30-5.

Parekh J, and SV Chanda, 2007. In vitro antimicrobial activity and phytochemical analysis of Some Indian medicinal plants. *Turk. J. Biol*, 31: 53-58.

Rajurkar NS and K Gaikwad, 2012. Evaluation of phytochemicals, antioxidant activity and elemental content of Adiantum capillus veneris leaves. *Journal of Chemical and Pharmaceutical Research*,4(1):365-374.

Sadava D, DM Hillis, HC Heller and MR Berenbaum, 2011. *Life: The Science of Biology* 9th Edition. San Francisco: Freeman. pp.105-114.

Sofowora A ,1993 . *Medicinal Plants and Traditional Medicinal in Africa* . 2nd(Ed). Sunshine House, Ibadan, Nigeria: Spectrum Books Ltd,Screening Plants for Bioactive Agents; pp. 134-156.

Zakaria, Z.A., Gopalan, H.K., Zainal, H., MOHD. POJAN, N.H., Morsid, N.A., Aris, A., Sulaiman, M.R., 2006. Antinociceptive, anti-inflammatory and antipyretic effects of Solanum nigrum chloroform extract in animal models. *Yakugaku zasshi* 126, 1171-1178.