International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

A Review on Occupational Non-Communicable Diseases Around the World

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Abstract: ***Non-communicable diseases (NCDs) are one of the life-threatening illnesses nowadays which affect the people worldwide and it is responsible for more than 70% of total deaths globally. Diabetes, hypertension and cancer are the most common NCDs throughout the world. Several factors such as lifestyle, environment and genetic influences, obesity, alcohol intake, unhealthy diet, lack of physical activity, side effects of various agents, environmental pollution/factors are responsible for developing NCDs among common people. Workers, who are engaged in different industries, are also suffering from occupational non-communicable diseases. Various factors such as unmanageable workloads, insecurity of employment, poor relationship with colleagues, inadequate support from superiors, repetitive work, lack of knowledge, job strain etc. are responsible for the higher prevalence of occupational NCDs. To minimize the risk of developing occupational NCDs, different steps such as improved healthy lifestyle, increase physical activity, reduce job stress and strain, maintain work-rest cycle, periodic health check-ups and awareness programmes should be taken on a regular basis.***

Keywords: Non-communicable diseases (NCDs), Occupational non-communicable diseases, Diabetes, Hypertension, Cancer

1. Introduction

Occupation is more than just a means of earning for living; it encompasses the diverse range of roles and activities individuals undertake to contribute to society, fulfill personal aspirations, and define their identities. Certain occupations directly or indirectly affect their employees or workers' health status which lead them to cause various chronic diseases such as diabetes, cardiovascular disease, cancer, pulmonary disease, neurological disorders etc.

Non-communicable diseases (NCDs) are those chronic illnesses which are not caused by any infectious agents and cannot be spread or transmitted from person to person. Several factors such as lifestyle, environment and genetic influences are responsible for this modern-day burden of NCDs. According to WHO, the main risk factors such as use of tobacco and alcohol, unhealthy lifestyles, lack of physical activity and environmental pollutions are responsible for the higher prevalence of NCDs (stroke, cancer, cardiovascular disease, diabetes as well as chronic pulmonary diseases) which are responsible for more than 74% of total deaths worldwide [1]. Among all these NCDs, diabetes, hypertension and cancer are the most chronic and rapidly growing diseases all over the world at present. Occupational non-communicable diseases are adverse health conditions or illnesses that arise from the workplaces due to prolonged exposure to harmful agents.

Diabetes is a chronic disease that occurs either when the pancreas doesn't produce enough insulin or the body fails to efficiently utilize the insulin which pancreas make. Presently two types of diabetes are seen such as Type 1 Diabetes Mellitus (T1DM) *i.e.* insulin dependent and Type 2 Diabetes Mellitus (T2DM) *i.e.* non-insulin dependent. Insulin resistance can lead to Type 2 diabetes. According to the International Diabetes Federation (IDF), 425 million adults suffered from diabetes in 2017. The global number of affected individuals has increased four times since the 1980s and this trend is expected to be continued [2]. Diabetes is very rapidly achieving the status of a potential epidemic in India with more than 62 million diabetic persons currently diagnosed with the diabetes. Unmanageable workload or excessive workload, insecurity of employment, poor relationship with colleagues, lack of involvement in decision making, inadequate support from colleagues and superiors, monotonous and repetitive work, lack of information about the roles and responsibilities are the stressful factors in workplaces which induce diabetes [3]. Workers with high levels of job demand and low levels of decision latitude are placed in a category of high 'job strain' [4]. The Karasek model hypothesizes that a worker's health may be negatively associated with job demands and positively associated with control and social support at work [5].

Blood Pressure is the lateral pressure exerted by blood on the vessel walls when flowing through it. High Blood Pressure (HBP) also known as hypertension which is a vascular disorder and it is one the major NCDs according to

the World Health Organization (WHO). 20% of the total world adult population is affected by this cardiovascular disorder which causes about 9 million deaths per year [6]. Several factors such as obesity, alcohol intake, unhealthy diet, lack of physical activity, sedentary lifestyle *etc.* are responsible for developing hypertension. Near about one billion people are suffering from hypertension globally, with the majority of them living in developing/ low income countries [7]. According to ACC/AHA guideline (2017), the redefined hypertension value is >130/80 mmHg [8]. Workers in different occupations are exposed daily in different hazardous conditions such as heat, cold, noise, vibration, mechanical as well as psychosocial hazards. In addition with that workers are also affected by job stress, prolonged working hours, shifting duties, poor relationship in workplaces, low wages, insecurities in job as well as their familial and personal stresses which are responsible for the higher prevalence of hypertension among them.

Cancer is a complex disease in which abnormal cell growth occurs. It is one of the threatening causes of death worldwide. It disrupts the normal regulatory mechanisms which control cell growth as well as cell division and form tumors through uncontrolled cell proliferation. Several factors are responsible for developing cancers such as lifestyle, genetics, side effects of various agents, environmental pollution/factors *etc.* Prevalence of occupational cancer increases markedly due to rapid growth of industrialization. At present, several carcinogenic agents are over using in different industries which cause cancer to the exposed workers [9].

In this review paper an attempt is made to get some clear idea about occupational NCDs particularly diabetes, hypertension and cancer from the previous scientific researches.

2. Methodology

Initially 133 research papers have been viewed for this present review work on occupational NCDs. After review, due to lack of full paper or information, 89 papers have been finally shortlisted for this present study in which 39, 22 and 28 research papers on diabetes, hypertension and cancer respectively are included in this review work.

3. Timeline of research

3.1 Timeline of research on Diabetes

Year	Researchers	Observations
1983	Mikunti *et. al.* [10]	The authors conducted this study in 1979 (Japan) to find out the prevalence of glucose intolerance in 9000 male factory workers (labours, clerks and managers), among them glucose intolerance in the labours, clerks and managers were 3.2%, 5.8% and 9.3% respectively. Food habit was the main factor for the above said condition.
1990	Khalid *et. al.* [11]	This study (among 1996 railway workers) showed that the prevalence of total diabetic workers was 6.6%. Occurrence of impaired glucose tolerance was found 1.9%.
1999	Sakurai *et. al.*[12]	The authors carried out this study with 1598 male railway employees to determine the association between obesity and the risk of diabetes mellitus. They found that diabetes was significantly elevated among males who were obese for 10–19.9 years.
2006	Nagaya *et. al.*[13]	This study showed that policemen/fire-fighters (8.24%) had higher risk of diabetes mellitus due to their large Body mass index compared to the clerical workers (4.98%) and production/transport workers (4.54%).
2008	Ajay *et. al.* [14]	The authors observed within 10930 industrial workers (India) that prevalence of DM (11.6%) was high among individuals in the lower education group. In diabetic subjects, 38.4% were unaware that they had diabetes.
2009	Heraclides *et. al.* [15]	The authors carried out this study among 5,895 Caucasian middle-aged civil servants where it was found that ISO-strain (low work social support) in the workplace was associated with a twofold higher risk of type 2 diabetes in women but not in men.
2011	Almeida *et.al* [16]	The research paper showed that nursing staff had the higher prevalence of risk factors for developing type 2 diabetes mellitus. Abdominal obesity was the most common risk factor within hospital workers at Fortaleza-CE (Brazil, South America).
2012	Cosgro *et. al.* [5]	The study found that those women, who were exposed to a combined effect of job strain and low social support, were at an increased risk of type 2 diabetes.
2012	Ya-juan *et. al.* [17]	The scientists found that among 3929 teachers and employees (Zhengzhou city, China.), the rate of incidence of diabetes and impaired fasting glucose were 10.1% and 17.4%. They concluded that the factors responsible for this were increasing age, overweight and obesity.
2013	Young *et. al.* [18]	Among 1370 subjects (UK), the researchers noted that shift workers (23%) had higher mean HbA1c values than non-shift workers due to taking high fat foods and changes in the circadian rhythms of counter-regulatory hormones which may also have an effect on the ability to control blood glucose.
2013	Izadi *et. al.* [19]	In this study, the authors found that among 1903 bus drivers, 52.1% were hyperglycaemic due to excessive weight and hyperlipidaemia.
2016	Huang *et. al.* [20]	In Taiwan among 55,835 nurses, the researchers observed that female young nurses had shown proneness to type 2 diabetes mellitus but the proneness was less than non-nurses due to the substantial knowledge of healthcare.
2016	Jang. *et al.* [21]	In the health promotion centre at Ulsan University Hospital in Korea, among 16869 workers, the study noted that the highest prevalence of diabetes was observed in managers than service workers, clerks, professional and related workers. The non-manual workers were more prone to diabetes than the manual workers.

2016	Sui *et. al.* [22]	In this study the authors didn't find any significant association between work-related stress and risk for type 2 diabetes. But in subgroup analysis, the researchers found that job strain was a risk factor for type 2 diabetes in women.
2016	Manjula *et. al.* [4]	In this research report the authors found that among a sample of 401 school teachers (Bengaluru, India), 20.7% showed high risk of developing diabetes whereas 4.4% were diabetics and on medication. The risk factors were obesity and high Body Mass Index (BMI ≥ 25).
2017	Li and nowrouzi-kia [23]	The authors noted that occupational health outcomes including work related injury and occupation type were associated with diabetes mellitus.
2017	Persaud and Williams [24]	The scientists found that stressful work organization had a direct effect on developing Diabetes Mellitus.
2018	Ouimet *et. al.* [25]	In this study the authors reported that in case of men, prolonged work periods didn't increase the risk of developing diabetes mellitus. Whereas women who were working more than 45 hours per week, were at higher risk of developing diabetes.
2019	Prabavathy and Sangeetha [26]	The observers noted that adverse psychological factors combined with work related stress factors were responsible for developing risk of type 2 Diabetes Mellitus among working women (Industrial workers).
2019	Lyubomirova *et. al.* [27]	The authors carried out this research (among 150 workers of four economic sectors such as construction, clothing, cosmetics and healthcare) with the help of FINDRISK questionnaire. Low chance of developing diabetes was seen among the workers with the age group of up to 25 years.
2019	Msopa and Mwanakasale [28]	This study was conducted within 121 bank employees from nine selected banks of Ndola town centre (Zambia, Africa). The researchers found that the occurrence of diabetes mellitus was 15% due to the fact that the bank job was sedentary in nature and involved high levels of stress. The incidence of developing Diabetes Mellitus was high in case of obese persons.
2020	Carlson *et. al.* [2]	This study among 4,550,892 Swedish citizen, showed that occupations like professional drivers (men: 9.32%), manufacturing workers (men: 9.41%; women: 7.20%) and cleaners (women: 6.18%) had a threefold upsurge risk of type 2 diabetes in contrast with university teachers (Men: 3.44%) and physiotherapists (women: 2.20%). They concluded that these differences were probably due to lifestyle risk factors.
2020	Binesh *et. al.* [29]	This study showed that the only bio-psychological factor, "DISTRESS" was associated with occupational balance and diabetic people.
2020	Duque *et. al.* [30]	In this study, authors observed that street vendors (18-44 years of age) who consumed high sugars and desserts were more prone to diabetes.
2020	Kyrou *et. al.* [31]	The authors conducted this research (European countries, 2000) which revealed that age, ethnicity, family history, low socioeconomic status, obesity, metabolic syndrome, as well as certain unhealthy lifestyles were associated with the high prevalence of type 2 diabetes.
2021	Shokey *et. al.* [32]	The researchers observed among a sample of 366,663 employees that the prevalence of diabetes among employed US adults was 6.4%. They also noted that the occurrence of diabetes varied by occupations, such as 8.9%, 8.8% and 8.4% of protective services, farming and social services respectively. Work related factors such as shift work, job stress *etc.* were responsible for the said condition.
2021	Meo *et. al.* [33]	The researchers reported that the prevalence of diabetes mellitus was 6-fold higher in control subjects than cricket players due to high intensity physical activity of the sports.
2022	Yun *et. al.* [34]	In this study, the researchers found 349 diabetic subjects from a sample of 5141 male participants where it was noted that an increased risk of diabetes was related to occupational dust exposure (from dust -related process factories) in male workers.
2022	Vidyulatha *et. al.* [35]	As per this study, the occurrence of stress was three times elevated in T2DM patients compared to those with NGT (Normal glucose tolerance) due to lack of psychosocial support, work pressure, and the stress of family members.
2022	Seo *et. al.* [3]	The study found that 5.44% workers out of 14,258 pre-diabetes participants developed diabetes due to working periods more than 52 hours per week.
2023	Habu *et. al.* [37]	Due to working hours, sleeping hours, unhealthy behaviors, and psychosocial stress, 5.06% out of 98935 subjects (Osaka, Japan) developed diabetes who was engaged in the sales profession, manufacturing industries, and office work.
2023	Tamilarasan *et. al.* [38]	Among 118 private bus drivers and three-wheelers drivers in the Preambular Municipality Tamil Nadu, India, the researchers found that the prevalence of T2DM was 11.9% and the factors causing were age, excessive body weight, and personal habits.
2023	Alwadaei and Alhammad [39]	In Saudi Arabia, this report showed that among 8457 general workers, the occurrence of diabetes was 28% and the factor was age.
2023	Shuwaysh *et. al.* [40]	Among 360 faculty members and administrative staff of colleges (Saudi Arabia), the researchers found that 40% male subjects were at high risk for pre-diabetic.
2024	Han *et. al.* [41]	In Malaysia, among 14144 teachers, the researchers observed that the occurrence of type 2 diabetes mellitus was 4.1%, prevalence of undiagnosed diabetes mellitus was 5.1 % and the prevalence of IGF (impaired fasting glucose) was 5.6%, which is lower than the general population.

3.2 Timeline of research on Hypertension

Year	Researchers	Observations
2002	Kobayashi *et. al.* [42]	The study among 35 taxi drivers (Nagoya, Japan) showed that high prevalence of hypertension due to long working hours in addition with that Traffic jams, rainy season disturbance, waiting for customers in stops, and work-related stress.

2008	Addo *et. al.* [43]	This study showed that 27.4% (25-68 years of age) among 1015 civil servants (Ghana) were hypertensive. Where the increasing age was the main factor.
2008	Omolayo and Mokuolu [44]	The author noted that job tension was directly proportionate with personal distress among 160 participants of state university and hospital, Nigeria. This personal distress leads them towards hypertension.
2008	Baker *et. al.* [45]	In Europe, 90% prevalence of hypertension had been seen among 135 drivers from air traffic controllers and sea pilots. The factors behind this condition were alcohol consumption, smoking, adverse working conditions, night shifting, consumption of coffee and physical inactivity.
2009	Soteriade *et. al.* [46]	This study was conducted among emergency responders such as fire fighters, police officers, and emergency medical services personnel. Nearly 75% were suffering from hypertension due to their strenuous duties, irregular physical exertion, noise exposure, shift work, unhealthy diet and high job demand.
2012	Owolabi et. al. [47]	In Nigeria, 26.2% out of 324 health workers were affected from hypertension due to high work pressure, night shift and insufficient sleep. Authors also found significant correlation between job stresses with hypertension among them.
2012	Hirata *et. al.* [48]	In Parana, Brazil, 38.2% out of 659 interstate drivers were found hypertensive due to obesity, hyperlipidaemia, physical inactivity and high calorie intake.
2013	Ordinioha [49]	In South Nigeria, 21.33% among 75 medical college lecturers were found as hypertensive which was lower than the general population due to awareness about their healthy lifestyle as well as non-smoking and less alcohol intake habits.
2013	Tobin *et. al.* [50]	In South Nigeria, 21.4% of 112 full time commercial bus drivers found hypertensive and the reason behind that were age of the subjects, duration of driving and genetic factors.
2014	Salaudeen *et. al.* [51]	The study observed that 34.4% of bankers and 22.2% of traffic wardens among 180 subjects of Ilorin, Nigeria were found hypertensive in nature due to low physical activities and low knowledge of risk factors related to hypertension.
2014	Lakshman *et. al.* [52]	In this observation in Kozhikode, Kerala, India among 179 male bus drivers, 41.3% found hypertension and 41.9% found pre hypertension due to large family's responsibility, age and unhealthy diet habits.
2017	Brahmakar and Prabhu [53]	This study showed that among 340 bank employees in Western Maharashtra, India, 39.7% were hypertensive. Religious causes, leading to urban life, transporting patterns *etc*. were found as most important factors for developing hypertension.
2017	Barbini *et. al.* [54]	In Europe, 257 railway workers were examined during construction work at Treno Alta Venocita railway line and found 54% were affected by arterial hypertension.
2020	Chataut *et. al.* [55]	The study was conducted among 416 bank employees of Kathmandu, Nepal, where it was observed that prevalence of hypertension was 11.3% and prehypertension was 20.9%.
2020	Shekhar *et. al.* [56]	The study noted that occupational risk factor was one of the leading causative factors inducing hypertension among bank employees (32.4% out of 577) in urban areas of Latur in Maharashtra, India.
2020	Anto *et. al.* [57]	In Addis Ababa terminals, Ethiopia, the study observed that 22.5% out of 391 long distance bus drivers were on high Prevalence of hypertension. The factors behind that were less knowledge, obesity and physical inactivity for long time, alcoholism *etc.*
2022	Gu *et. al.* [58]	In Panjin city, China, the study was conducted among 1488 petrochemical workers. 34.3% of the total workers were hypertensive. This scenario of hypertension was found proportional with smoking, alcoholism and high BMI whereas inversely proportional with higher education.
2023	Asrun *et. al.* [59]	The study showed that 12.73% out of 385 ship crew in Indonesia were hypertensive due to smoking habits and high BMI.
2024	Orukwowu and wonodi [60]	The study in port Harcourt, Nigeria showed that hypertension (33% out of 100) was significantly correlated with high income and BMI.
2024	Goyal *et. al.* [61]	In Haryana, India, 48.6% of 323 industrial workers were found hypertensive due to hyperlipidaemia, age, smoking, alcohol intake, prolonged duration of work *etc*.

3.3 Timeline of research on Cancer

Year	Researchers	Observations
1992	Skov *et. al.* [62]	In Denmark, 1.77% cancer cases (acute myeloblastic and chronic myeloid leukemia) had been reported among 794 female nurses who were handling antineoplastic drugs (ADs).
1994	Spirtas *et. al.* [63]	The study found that 208 out of 536 had been suffering from cancer (pleural & peritoneal cancer) who handled asbestos in different industries such as furnace installation, ship building industries *etc*.
1995	Doody *et. al.* [64]	In the USA, 2628 female medical workers who worked in several radiotherapy departments had been surveyed, where no significant correlation was found between radiation exposure and developing breast cancer.
1996	Demers *et. al.* [65]	The cohort study conducted among the shoe manufacturing workers where 78.62% out of 4215 and 16.58% out of 2008 death incidence was recorded in England and Florence respectively (1950 to 1959) due to leather dust and benzene exposure.
1997	Howell *et. al.* [66]	In Yorkshire, England (1979-1991), 185 mesothelioma confirmed cases (out of 315) had been found in which 56% cases had a history of occupational asbestos exposure.
1999	Petralia *et. al.* [67]	This study was conducted in 24 states of the United States between 1984 to 1993, which showed that 30% higher risk of liver cancer and myeloid leukemia were found in white nurses whereas 30% higher risk of breast cancer was found in black nurses.
2000	Laforest *et. al.* [68]	In France, 25.34% hypo-pharyngeal cancer and 37.32% laryngeal cancer among 793 coal mine workers were seen due to prolonged exposure in coal dust.
2000	Heinemann *et. al.* [69]	This study found significant correlation between use of lead, Mercury and Formaldehyde with primary liver cancer in different chemical industry workers from six European countries over the period of 1990 to 2000.

2003	Berrino *et. al.* [70]	This study showed a positive correlation between uses of formaldehyde with laryngeal cancer in European Countries (1979-1982).
2006	Jartti *et. al.* [71]	The study conducted within 1321 Finnish physicians among which radiation exposed physicians had shown high risk for developing different types of cancers.
2006	Purdue *et. al.* [72]	During 1971–2001, a total 510 cases of squamous cell cancer in head and neck was reported out of 307799 Swedish male workers. They mainly engaged in wood and concrete industries and exposed to different types of carcinogenic substances.
2007	Cherrie *et. al.* [73]	Authors found 30 occupational carcinogens such as radon, crystalline silica, solar radiation *etc.* in Great Britain's hairdressing and other industries which increased the risk of occupational cancers among the workers.
2007	Astrakianakis *et. al.* [74]	In Shanghai, China, women textile factory workers had shown strong inverse risk of lung cancer with cumulative endotoxin exposure.
2009	Lynch *et. al.* [75]	Significant relation had been found between butylate exposure with prostate cancer among 19,655 farmers and pesticide applicators (1995-2005) in North Carolina and Iowa, USA.
2009	Urcot *et. al.* [76]	In a French carbon steel-producing factory, the significant risk of bladder cancer was observed among the workers exposed to oil mist.
2010	Rushton *et. al.* [77]	In Britain 2005, occupational carcinogenic exposure was responsible for 8.2% (male) and 2.3% (female) cancer deaths. The main carcinogens were asbestos, mineral oils, silica, coal tars *etc.*
2011	Olsson *et. al.* [78]	The study showed a positive correlation between Diesel Motor Exhaust with lung cancer among 13304 workers of diesel using sectors/ industries in Europe during 1985-2005.
2013	Fritschi *et. al.* [79]	In Western Australia, workers engaged in graveyard shifting duties (midnight to 5.00 am) were found prone to breast cancer.
2014	Colt *et. al.* [80]	In England, workers exposed in MWFs as well as soluble MWFs had shown higher risk of developing bladder cancer.
2018	Khedher *et. al.* [81]	2926 workers of the French textile industry were observed among which an inverse correlation was found between cotton dust exposures with lung cancer.
2018	Scarselli *et. al.* [82]	In Italy, researchers found that women workers were more prone to carcinogenic exposure compared to male. The most common carcinogenic agents were formaldehyde, hardwood dust, chromium VI, nickel compounds and benzene.
2018	Barul *et. al.* [83]	Researchers analyzed 837 cases of hypo-pharyngeal cancer / laryngeal cancer in petroleum workers and found that there was no relation between hypo-pharyngeal / laryngeal cancer with petroleum based solvents and oxygenated solvents.
2019	Radoi *et. al.* [84]	The study was conducted in France among 2161 leather industry workers where higher prevalence of laryngeal cancer due to leather dust exposure (<6 mg/m^3 per year) was reported.
2019	Sciannameo *et. al.* [85]	Researchers found no significant correlation between lung cancer or bladder cancer with exposure to galvanic hazards. A strong correlation between lung cancer and cumulative exposure to nickel compounds was observed.
2019	Micallef *et. al.* [86]	Among rubber manufacturing industry workers of France, mesothelioma and lung cancer was noted due to exposure to asbestos.
2020	Suraya *et. al.* [87]	This study noted that significant correlation had been found between lung cancer and prolonged exposure to asbestos among the workers engaged in textile, construction, plastic industries in Indonesia.
2022	Sritharan *et. al.* [88]	This cohort study showed that the highest prevalence of prostate cancer (28.43% out of 13642 fire-fighters and 26.2% out of 22595 policemen) was found due to exposure to several types of occupational carcinogenic hazards.
2023	Harma *et. al.* [89]	A cohort study among 33359 Finnish female healthcare workers was conducted in which significant correlation between breast cancers with night shift was found.

4. Conclusions

Non Communicable Diseases (NCDs) creates significant disease burden throughout the world. Due to rapid industrialisation, occupational NCDs also play a key role in this burden.

Diabetes, which is also known as silent killer, is the major cause of blindness, nephropathy, neuropathy, and limb amputation. Globally at present, Diabetes is the fourth leading cause of death worldwide. Diabetes is the fastest growing epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. The previous studies found that different occupational factors such as sedentariness, obesity, high job demands, low job control, lack of social support, stressful life, wrong decision making, long working period, shift work *etc.* which have significant influence on Diabetes Mellitus in work places.

These factors have a serious impact on a person's health and lead them towards Diabetes Mellitus. It has been found that persons engaged in various occupations *e.g.* doctors, nurses, teachers, drivers, bank employees, railway workers *etc.* are more prone to diabetes due to the stressful and sedentary nature of their occupation.

Diabetes can be treated and its consequences can be avoided or delayed by changing dietary habits (diet should be rich in whole grain fibers, proteins such as lean meat chicken, fruits and vegetables), avoiding high carbohydrate food, minimize tobacco and alcohol consumption and also by introducing physical activity such as swimming, walking, sports activity *etc*. The previous study also suggested introducing creative CAM (Complementary and Alternative Medicine) therapy combined with awareness to prevent Diabetes Mellitus.

At present, hypertension is one of the majorly growing NCDs around the world. Hypertension leads to stroke, cardiovascular disease, kidney complications *etc*. Factors which are responsible for developing hypertension are age, obesity, dietary habits, sedentary lifestyle, excess processed food intake, physical inactivity *etc*. Occupational hypertension is playing a vital role in total NCDs. Job stress and strain, night shifting, prolonged duration of work, lack

of awareness, psychosocial stresses, poor relationship at work places, low wages *etc.* also influence to develop hypertension among the industrial workers. To minimize the risk of developing hypertension several steps such as improved healthy lifestyle, increase physical activity, reduce job stress and strain, maintain work-rest cycle, periodic health check-ups and awareness programme should be taken on a regular basis.

Cancer is defined as uncontrolled cell growth which causes millions of deaths every year throughout the world. Several factors such as genetics, unhealthy lifestyle, environmental pollution, lack of knowledge and hygiene *etc.* are responsible for developing this fatal disease. Different industries nowadays overuse several types of carcinogenic solution/agents which directly affect those industry workers. To prevent developing of cancer, some scientific measures such as using substitute/less toxic agents instead of using carcinogenic agents, maintain proper hygiene and working environment, regular monitoring from the authority, periodic medical check-up, pre-placement medical examination, use of personal protective equipments, proper training for handling toxic substances and awareness programme should be taken to minimize the risk of developing cancer among the industrial workers.

Further research should be done focusing on the above-mentioned harmful factors which cause occupational NCDs. Government should also take necessary actions to prevent these diseases to protect and promote employee's occupational health status.

Acknowledgements
Authors are thankful to the host institutions that are Krishnath College and Murshidabad University for providing the research facilities. Scientists and researchers whose papers are cited in this review work are also thankfully acknowledged.

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