CHAPTER I

INTRODUCTION

'A Diamond is Forever' – it is a famous phrase that has stayed with us for a very long time. This phrase was created in 1948, by the well-known diamond provider De Beers as a part of their marketing campaign [(1)]. Diamonds are the most beautiful and desirable stone in the world that have been attracting men and women alike since times immemorial. The word 'diamond' comes from a Greek word 'adamas' meaning 'unconquerable'[(2)].

Interestingly, diamonds and coal are both made of carbon. But, while diamond is pure carbon that takes a crystalline structure, coal is carbon along with other impurities like nitrogen, arsenic, selenium etc. Along with the purity level it is the high amount of heat and pressure that leads to the formation of diamonds [(3)]. This valuable stone that is often considered a symbol of love is known for its beauty and elegance, and passes through a very long and tough journey during its making. Diamonds are formed miles below the earth's surface when carbon crystallizes due to extreme heat and pressure. Out of all the diamonds extracted from below the surface, only 30 per cent is used for ornamentation purposes due to its beauty while 70 per cent of it finds industrial application for its unique molecular structure [(4)].

Tracing the history of this precious stone, it can be noted that the discovery of diamonds first happened in India around the 4th century. At that time, it was not only used for ornamentation but also found use as cutting equipment and as charms to ward off evil [(5)]. After the diamond supplies declined in India, Brazil dominated the market for around 150 years and later in 1866 huge reserves were found in Kimberly, South Africa [(6)]. According to a report published in 2009, Botswana in Africa was the largest producer of diamonds [(7)].

1.1. Scenario of Diamond Industry

1.1.1. Worldwide

Reports show that at least 80.6 per cent of the world's diamond deposits come from three countries: Russia, the Democratic Republic of Congo, and Botswana. The greatest reserves, totalling 650 million diamond carats and

accounting for around 52 per cent of the world's capability, are in Russia. Congo is in second place with 150 million carats, or 13 per cent of the total world supply and Botswana is third with diamond reserves of 90 million carats. The world's diamond reserves amount approximately 1.1 billion carats. Diamond reserves worth 120 million carats are in the hands of other nations [(8)]. Majority of the reserves in Russia is found in the Republic of Sakha and Arkhangelsk Oblast. Alrosa diamond mining company accounts for 97 per cent of the diamond company in Russia and 24 per cent of the world production [(9)]. Botswana is another chief producer of diamonds in the world, and diamonds are the reason for this country becoming a middle income country from a poor country. The government of Botswana is also aiming to rely on the cutting and polishing industry for the country to continue benefiting even after the diamond reserves are exhausted in the near future (Mbayi, 2011).

The stones procured from the mines are called the rough diamonds and need to undergo several stages of processing before they can be made usable. Such processing requires specialized and skilled workers who have an eye for detail and who can convert the dull stones into sparkling bright gems. The process of cutting and polishing diamonds is done in very few countries around the world. These countries first import rough diamonds and then export the finished product to the world. Ramat Gan located in Israel is one of the key players in diamond cutting and polishing. In Belgium, large-scale diamond cutting and polishing is done in the Antwerp diamond district. Diamond cutting also takes place in Guangzhou and Shenzhen districts of China. Apart from these places, diamond cutting is also done in the United States, South Africa and Russia [(10)].

1.1.2. India

In the ancient Indian scriptures diamond has been called *'vajra'* as per sanskrit language. Differently colored diamonds have been associated with different deities. There are also mythological beliefs associated with diamonds, like wearing appropriate diamonds can free one from fear of serpents, fire, poison

etc. Certain diamonds are useful to attract wealth and even bless with good children [(11)].

The history of diamonds finds its roots in India where it was first mined. Much before diamonds started being used for the purpose of ornamentation, it was recognised for its hardness and as a mineral that could make a hole in the hardest of a rock. Many travellers started making voyages to India as they were attracted to this rich country. Some of them were French travellers like Tavernier, who introduced diamonds to Europe (Radhakrishna, 2007). In the fifteenth century this industry shifted base to Europe and after shifting from one city to another it finally came back to India in the 20th century (Hofmeester, 2013).

Although diamonds were first mined in India thousands of years ago along the Krishna and Godavari rivers, today diamond mining is carried out only in selected mines of Madhya Pradesh, Andhra Pradesh and Orissa where the production of rough stones is very low. However, India leads in the cutting and polishing work of rough diamonds that are imported from other countries and then the finished diamond is exported again outside the country (Dhadus, 2015).

India's diamond business has been a substantial contributor to the nation's economy and one of the key sources of the country's foreign exchange profits. It is one of the fastest growing sectors and contributes to 7 per cent of the country's GDP and 15 per cent to India’s total merchandise export. It also provides employment to millions of people which is expected to rise to 8.23 million employees by the year 2022 [(12)].

Initially the diamonds polished in India were of poor quality but gradually as improvisations occurred there was competition felt in Antwerp and Israel during the 1970s (Goldwasser,1970). Although many Asian countries like Sri Lanka, Thailand and China tried their hands at this sector but they failed to match the quantity production done by India.

1.1.2.1 Surat- A Hub for Diamond Cutting and Polishing

Surat is one of the world’s fastest growing cities located in the western region of India in the State of Gujarat. This city formerly known as Suryapur has been listed as the second cleanest city of India according to Swachh

Survekshan 2020 [13]. The growth that the city has witnessed in the last few decades has been tremendous making it an economic and commercial hub of South Gujarat Region. It has also emerged as one of the top industrial cities in Gujarat with diamond, jari and textile industries as the key players (Chaudhry, 2002). Although many other states in India do boast of their traditional textile craft but is no match to the popularity of the manmade fibre and fabric manufactured in Surat and the large quantities in which it is exported worldwide. Similarly, the diamond cutting and polishing industry of the city is very unique and is one of its kinds in India. The admiration and attractiveness of this industry has been so much that Surat is also known as the 'Diamond City' of India.

Every 9 out of 10 diamonds that are polished worldwide are polished in India. And 75 per cent of this contribution is credited to the Surat diamond industry. The country imports raw diamonds worth $11 billion annually for polishing, 80 per cent of which come from diamond mining businesses and the remaining 20 per cent from Antwerp. More than 80 per cent of India's yearly exports, or Rs 70,000 crore, comes from Surat city. In the city more than 1.5 million people are involved in this industry [14]. One of the reasons for this flourishing industry is due to the cheap and easy availability of labour as well as the proximity to the rough diamond sources like Africa.

1.2. Making of Diamonds

1.2.1. Value Chain of Diamond Industry

There are three processes involved in the value chain of the diamond industry. First, the upstream process involves mining, production and sorting of rough diamonds. Second, the midstream process involves the cutting and polishing of rough diamonds and third, the downstream process involves jewellery designing and its retail sale [15].

1.2.2. Converting Rough Stones to Diamonds

A rough stone passes through several stages before being converted to a sparkling diamond. The process begins with the mining of roughs that take place at specific locations around the world and may take several years and

a lot of manpower to collect a significant amount of stones that can be converted to diamonds. After the initial sorting of the stones, the roughs are sent to the cutting and polishing units. The cutting and polishing process which is partly mechanized and partly manual is very intricate and is taken up by skilled workers. The rough stones are first sent for marking using computer software. In this process the best possible way to cut the rough stone is estimated that would give the optimum output in terms of value. Once the stone is marked it is sent for laser cutting, which is an automatic process and is undertaken under minimum human supervision. After the cutting process, the diamond is handed over to the polishing unit. The final result of the polished diamond lies in the hands of the skills of the diamond polishers since this is a totally manual work. They rub each piece of stone against a spinning wheel until the desired outcome is achieved. The different facets of the stone are rubbed to get the desired result. The quality and shine of the diamond depends on the experience and skills of the polishers. Once the final product is inspected, it is ready to be exported in the market to be retailed and made into beautiful jewellery.

1.3. Workers in the Diamond Industry

The workers working in the Indian diamond industry are mostly migrants coming from drought prone areas where the scope and future for agriculture seem very grim. The sparkle of the diamond attracts them to join this industry (Desai & Raj, 2001). According to a report published by Engelshoven in 1999, the Saurashtra Patel caste formed the integral part of the diamond industry in Surat and diamonds contributed towards shaping their lives. Apart from the Patel community other backward communities like Koli, Vankar and others originating from Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh have migrated to Surat and are working in this industry (Hirway, 2009).

One of the contributors to the flourishing diamond industry in India is the availability of low cost and high skilled labours [(12)]. It can be very well said that a major contribution towards the success of the industry has been the background of its workers. The community of workers are very simple, religious and have little formal education. In spite of having little academic training, these

workers have developed great managerial and organizational skills (Rao, 2009). Today, female workers are also finding employment in the diamond polishing sector.

The work involved in diamond polishing requires a lot of concentration and attention to details. It also involves the polishers to sit in uncomfortable posture for long periods of time. The movements are repetitive and the device holding the diamond piece and the eyepiece to check the finish of the product, both are done by hand. Long working hours with very little break time can take a toll on the health of the workers. The conditions are even more questionable in the small unorganised units where not much attention is paid to the occupational health hazards and other problems faced by the workers. Such a working environment interested the researcher to study the occupational health hazards and problems faced by the workers of the diamond polishing industry.

1.4. Problems at Workplace

Every industry has its own set of problems that the workers face on a daily basis. These problems can be industry specific and caused due to the very nature of the sector or it could be due to the external factors like the location, culture and demography of people employed in the industry. Internal factors like the employees own attitude, interpersonal and communication skills, problem solving and adjustment skills etc. are also aspects that influence the level of challenges that a person faces at the workplace. In an industrial setup the problems can have serious repercussions since it is being experienced by the workers everyday throughout the working hours. The nature of the work may lead to physiological problems as well as psychosocial problems.

1.4.1. Physiological Problems

Physiological disorders typically result from the body's organs malfunctioning, not functioning, or the true cellular structures changing over time, which affects the body's ability to function regularly or properly and results in illness [(16)]. Physiological problems may include chronic illnesses, respiratory problems, musculoskeletal problems and problems related to other organs like the eye, skin and ears.

Some activities and professions like that of the brick field workers can cause chronic problems by impacting the heart rate and blood pressure adversely. Musculoskeletal problems are also faced by the workers like pain in the lower back, hands, knees, wrist, shoulder and neck (Das, 2014). Studies have stated that work related upper limb disorders like carpal tunnel syndrome, shoulder tendinitis, wrist tendinitis etc. are common occupational problems faced by workers (Saxton, 2000).

Some industries like the cement industry and small scale sectors like welding, painting, vehicle repairing that expose the workers to large amounts of fine dust and particulate matter may result in respiratory problems and reduce the proper functioning of the lungs. It is important to take strict measures and implement control strategies to minimize the exposure of the workers to the harmful particles (Rafeemanesh, et al., 2015, Ahmad and Balkhyour, 2020). A cross-sectional study was conducted by Nemery, et. al. in 1992 on the diamond polishers, in which they discovered that there was a prevalence of fibrosing alveolitis and bronchial asthma in the workers due to the exposure to cobalt. Cobalt was used for making the high speed diamond polishing tools. The problems related to this aggravated when ventilation conditions were poor and symptoms like chest tightness and coughing were seen. (Demedts, et.al., 1984).

Prolonged exposure to physical and chemical hazards at work place have been found to cause skin problems categorised under occupational skin diseases and occupational contact dermatitis (Febriana, et.al., 2014). Work that requires intense concentration like that in the electronic or jewellery making sectors, the workers may face problems related to vision. The nature of work, along with poor illumination may cause excessive strain in the eyes. Researchers have suggested that to overcome this problem, proper lighting with the introduction of short rest breaks will help to a great extent (Untimanon, et.al., 2006).

The Surat diamond polishers especially those working in the small units may develop physiological problems which may aggravate over a period of time resulting in chronic illnesses, musculoskeletal problems due to poor postures,

respiratory problems due to poor ventilation conditions inside the units and also other problems like eye stress, ear irritation, headaches etc. Sometimes these problems are so severe that they become totally irreversible and result in permanent health damage.

1.4.2. Psychosocial Problems

All issues that are not technically medical or somatic fall under the wide category of psychosocial difficulties. They have an impact on how the individual functions in daily life, as well as his or her surroundings and/or life events. It includes psychological problems like stress, anxiety, depression, substance abuse, sleep disorder, relational problems, eating disorders etc., and social problems like financial problems, socio-cultural problems, problems with work etc. (Vannieuwenborg, et.al., 2015).

The psychosocial issues that today's workers are dealing with can be quite stressful, and this stress is likely to have a negative impact on both their ability to perform well at work and their personal attributes. It has been proven that psychosocial problems have an influence on stress levels which results in the deterioration of the workers self-esteem as well as reduces their commitment towards the organization. (Choi, et.al., 2015). An extensive study conducted across 15 countries for a period of 10 years showed that physical, verbal or sexual violence at workplace was directly related to sleep problems (Magnavita, et.al., 2019).

Workers in the small diamond polishing industry may face psychosocial problems primarily because not much attention is paid to nurturing and developing a positive work culture. The emphasis in such work units is to derive maximum output in the minimum resources and thus building relationships between workers, providing facilities at the workplace and developing a conducive work environment often takes a back seat.

1.5 Occupational Health Hazards

Any workplace circumstance that puts workers' health in danger is referred to as an "occupational hazard" [(17)]. As rightly pointed out by the former UN Secretary General Koffi Annan in 2002, that 'Safe Work is not only sound

economic policy,' 'it is a basic human right.' In India, the occupational health of workers working in small industries are often ignored, especially in labour intensive industries that employ cheap workers who are ignorant about their right to a safe and healthy work environment. Health hazards could be of many types including, physical, chemical, biological, ergonomic and psychological. According to former Director-General International Labour Organization (ILO) Juan Somavia, "There has been progress on many fronts in the world of work. But work-related deaths, accidents and diseases, are still major causes for concern. Decent work must also be safe work!" [(18)]

Studies have revealed that MSD's is one of the chief problems in professions like that of a goldsmith, who is required to sit in uncomfortable and dangerous postures for long hours. Their neck, shoulder, wrist and lower back are highly impacted. Insufficient lighting can cause eye problems and irritation. Frequent accidents like cuts and burns have also been recorded due to the unsafe working conditions (Ghosh, et.al., 2010). According to Meena (2018), in India there is huge variability in the way different industries and occupations work therefore a standard operating policy to safeguard Occupational Health and Safety is of no use. He stated that apart from the scenario in public and private sectors, most of the industries have been ignoring good OHS practices.

1.5.1 Hazards caused due to Poor Ergonomics

Ergonomics is an applied discipline that focuses on creating and arranging objects that people use in order to maximise the effectiveness and safety of human-machine interactions [(19)]. Poor ergonomics at the workplace is believed to be the cause for cumulative trauma disorders (CTD) which is one of the major occupational health hazards in the workplace. Ergonomic hazards arise due to improperly designed workplace, repetitive movements, awkward postures etc. which results in CTD thus affecting the arms, shoulders, lower back, hands, wrists and spine area. They impact the muscles, tendons and blood vessels. Focusing on preventing such hazards will not only be important for the employee and their family but will also save the organization from additional costs that go in worker's compensation due to decrease in productivity and employee morale. (Ross, 1994).

A study conducted among the workers of Thai seafood industry revealed that personal aspects like marital status, number of dependents and other health problems along with work related aspects like repetitive and awkward hand movements and postures, standing for long hours and carrying heavy load, are related to high risk of MSDs among workers. The researchers suggested that creating awareness about the importance of ergonomics can help in preventing such problems (Soe, et.al., 2015).

Occupations that are physically demanding like the construction business, housekeeping in hotels, textile, woodwork and metal industry etc. need to lay more emphasis on the ergonomics of the workplace. Apart from the nature of work, awkward postures and repetitive motions can increase the risk of developing MSDs amongst the worker (Rahman & Jaffar, 2017; Choi, 2009; Soytas, 2006).

Similarly, the work involved in polishing diamonds requires the worker to sit for long hours in awkward postures and do repetitive movements to polish the piece of stone. If awareness is not created regarding maintaining correct postures, taking rest breaks and stretching between work, then it may lead to severe health conditions which have long term negative impact.

1.5.2 Hazards caused due to Environment of the Workplace

The lighting conditions, noise levels, temperature and humidity are the physical environment of a workplace that have a direct impact on the performance and health of the worker. The environment of a workplace is very important for the health of the workers, as poor conditions like exposure to toxic gases and radiation may lead to problems related to vital organs of the body. If the unsafe environment persists then it may result in long term illness and even death of those being exposed (Tulchinsky, & Varavikova, 2014).

Improper environmental conditions related to light, noise and temperature can lead to headache and annoyance among the workers which on the other hand can have long term impact on productivity (Deb, et.al. 2018). There is also a relationship between the physical environment and MSDs. Magnavita, et.al. (2011) stated that there is an increased risk of musculoskeletal problems due

to the interactions between environmental factors like temperature and psychosocial factors impacting the workers. They found a strong connection between temperature complaints and strain in the upper limbs.

Workers spend a lot of time in the work environment where they are required to give their best performance. Lighting, noise, temperature and furniture all have a significant impact on their productivity. The physical and psychological effects may lead to headaches, respiratory problems and fatigue. The financial stability and wellbeing of the organization will be impacted by these factors (Mathews & Khann, 2016).

Studies done in many manufacturing industries have revealed that crowded workspace, uncomfortable workstations, inadequate lighting, low ventilation and excessive noise and dust are the major problems faced by workers. But in some of the industries these environmental hazards are not totally avoidable and for this reason greater awareness about occupational health and safety needs to be created and the workers must be encouraged to use personal protective equipment that will ensure their safety (Padmini & Venmathi, 2012).

1.5.2.1 Noise

Noise is one of the physical occupational health hazards that can greatly impact the performance of the workers. Unwanted or excessive sound that can harm the environment and human health is called noise. Many industrial facilities and other workplaces produce noise pollution that is a rising health concern [(20)]. It may cause hearing loss, disturbance in sleep patterns, fatigue and irritability.

Noise in an industry may have auditory effects as well as non-auditory effects. Auditory effects can damage the hearing capabilities which may be temporary or permanent depending on the frequency and duration of exposure to noise levels. In industries, workers are usually exposed to loud noise for a long period of time and this causes a more permanent hearing impairment which may be a total or partial hearing loss. The non-auditory effects on the other hand may cause speech and listening problems,

concentration and sleep interference, irritation, annoyance, headaches and overall loss of working efficiency (Abbasi, 2011). Exposure to long durations of noise may also lead to noise induced hearing loss (NIHL) and are associated with work related injuries that lead to hospitalization (Girard, et.al., 2015).

Even if the noise levels are not too high like is the case in the diamond industry, it may be a continuous sound that causes irritation and may lead to other physiological problems like severe headache and ear pulsation.

1.5.2.2 Lighting

Proper lighting facilitates smooth work in industrial set up. Human beings get 85 per cent of the information through visuals. In addition to reducing eye strain and headaches, proper lighting helps minimise workplace accidents by making moving machinery and other safety risks more visible [(21)]. The overall quality of lighting is determined by both the light entering the eye and the light on the visual task. The benefits of proper lighting on the health and wellness in the workplace are significant not just for the workers themselves, but they also result in improved safety, reduced absenteeism, and greater work performance (Van Bommel & Van den Beld, 2004).

While poor lighting may lead to headaches and eye strain, too much lighting may result in stress and glare. Lighting problem does not always require installation of more light source, but it could also be resolved by positioning the lights correctly for a specific task, cleaning the light source and keeping it in good condition and also by making the best use of natural light available. It is crucial that the light is directed at the task rather than directly or indirectly into the eyes of the workers. More light is required for intricate work so that the workers complete the operation effectively [(22)].

An interesting study emphasized on the importance of proper lighting in industries by stating that improving the luminance contributed greatly to the increased performance by its workers in terms of their visual performance, comfort and biological clock. It improved interpersonal relationships, job satisfaction and enhanced their problem solving skills. It stimulated them and

brought better acceptance of the change process. The luminance levels also helped in creating visual ambience (Juslén & Tenner, 2005).

Diamond polishing is a very intricate process that requires a high level of precision and thus individual task light is provided on each of the polishing stations. The light should be adequate but should not produce glare. Color of the light should not change the color of the stone.

1.5.2.3 Temperature and Humidity

Temperature, which is frequently represented in terms of degrees Fahrenheit or Celsius, is the measurement of warmth or coolness in relation to a predetermined norm. The amount of water vapour, often known as moisture, in the air is known as humidity. To ensure employee health, comfort, and productivity in the context of workplace health and safety, appropriate temperature and humidity levels must be maintained. Improper temperature and humidity may affect the air quality of the internal space and may cause skin problems and also affect respiratory conditions. The concentration and productivity of the employees may also be affected [(23)].

Small diamond polishing units are flourishing in the old buildings of the crowded locale in Surat. Apart from fans the lack of natural ventilation may cause the indoor temperatures to rise considerably especially during summers. Some of the big players have installed air conditioners in their units, but this is not possible for the small units. High humidity levels make matters worse thus making the workers exhausted due to which their productivity may reduce.

1.6 Coping strategies

Coping is the process of managing the demands of stressful conditions on oneself and one's environment through thoughts and actions (Folkman & Moskowitz, 2004). Stress resulting from workplace related problems is present in almost all industries and is experienced most of the time. Different people react differently to such stressors based on their age, gender, education, experience, knowledge etc. The response to a stressful environment is coping behaviour and the coping strategies adopted help in lessening the effect of stress

(Wechsler, 1995). Studies have supported that coping strategies help in reducing the serious effects of stressors in the workplace and positively affect performance at the job (Tillmann & Beard, 2001). Coping strategies adopted by workers of the US manufacturing industry were drinking caffeinated drinks, exercising and by increasing communication with colleagues. This was done to cope with the fatigue experienced due to poor sleep patterns and stress at the workplace (Lu, et.al., 2017).

Sometimes, the importance of providing a healthy work environment is often neglected. Often, the workers are also not aware about their rights and the impact that their workplace can have on their mental and physical wellbeing. The small diamond polishing industry is one such sector that poses health risks for its workers due to the very nature of the work involved. Long hours of sitting, repetitive work, incorrect postures and work environment may take a toll on the mental and physical health of the workers. Thus a need was felt to assess the problems and hazards faced by the workers working in the small diamond polishing industry.

JUSTIFICATION

The diamond cutting and polishing industry provides employment to lakhs of people as well as contributes greatly to India's GDP. In India this industry is majorly concentrated in Surat city with a few units in Navsari and also Mumbai. Surat is home to roughly 8000 diamond polishing units of which majority of them fall in the small-scale unorganised sector. India is the largest importer of rough stone. Once the rough stone reaches the cutting unit, software is used to get the best value out of the stone by providing suitable markings on the stone. After the diamond is cut roughly in the desired shape it is sent to the polishing unit. In the polishing section the stone passes through five stages where its different facets are curated. Each of the processes involves repetitive movements and the worker is required to sit for long hours in awkward postures. High level of concentration is also required to handle this expensive piece of stone which may further add to the strain. It is thus important to provide a suitable environment to the workers that will not only help them to perform better but will also be beneficial for their health. The workers physical as well as mental health is of utmost importance since it has a direct impact on their

productivity. Also, external factors like noise, light, temperature and humidity affect the work efficiency of the workers. Although this industry involves light to moderate work, the static posture and repetitive movements of some parts of the body may cause work related upper body musculoskeletal disorders. Chronic illnesses, respiratory problems and other health related issues are also likely to develop due to the work environment, nature of work and psychosocial stress. Psychosocial problems on the other hand may result from poor relations at work, work demands, lack of facilities etc.

Review of literature indicated that a lot of studies regarding the ergonomic and postural problems have been done in various industries across India namely, the textile industry, the iron and steel industry etc. However, there was limited exploration related to the study conducted in the given aspects at the selected locale for the given industry. The physiological problems, psychosocial problems, ergonomic hazards and physical work environment hazards have not been investigated yet and for this reason this study was conceptualized. The inferences from the study will be helpful to the owners of the diamond polishing environment as it will make them aware of the present situation and guide them in improving the work environment. The study will be also helpful in sensitizing the workers of the industry about the importance of correct work postures that should be adopted by them for their welfare. Such improvements on the part of the employer as well as the worker will directly impact better performance and high productivity. The researcher aims to suggest coping strategies to deal with physical as well as psychosocial problems. The researcher also proposes to design comfort enhancing products to reduce the impact of physical problems faced by diamond polishers. The use of these products will greatly reduce the physical strain experienced by the polishers while doing their work.

Safe, healthy and comfortable work environment is the right of every individual. It is an important concern that most people often tend to neglect due to their ignorance and also due to the fear of losing jobs. Finding access to two square meals a day is a top most priority for many thus the occupational health concerns often take the backseat.

In the most literal sense issues related to safety and health should find place in the policies of any organization, however in India where huge differences in cultures, educational levels and values prevail, these policies are only guidelines and far from being mandatory. It is the moral and ethical duty of the industry authorities as well as employers to take it upon oneself to provide its employees a safe and healthy environment without comparing it to the economic return on their investment. The study of occupational health and safety has become very important because a worker spends 8-9 hours of his day exposed to machines and processes that may be damaging and hazardous to his well-being.

The present study finds great relevance in today's scenario since it is a proven fact that occupation related diseases both mental as well as physical, has taken a toll on every human's wellbeing and happiness. In today's challenging environment where the true meaning of 'Health is Wealth' has emerged there is no scope of neglecting this aspect by the employers, employees as well as the government.

STATEMENT OF THE PROBLEM

The present study aimed to assess occupational health hazards and problems faced by the workers employed in the small diamond polishing industry. The study also aimed to suggest coping strategies and develop comfort enhancing products in order to enhance the mental and physical health of the workers.

OBJECTIVES OF THE STUDY

1. To find out the background information of the workers employed in the diamond polishing industry
2. To assess the problems faced by the workers at their workplace
3. To analyse occupational health hazards faced by them at work
4. To suggest coping strategies in order to deal with their problems and enhance the mental and physical health of the workers
5. To develop comfort enhancing products to reduce physical health hazards of the diamond industry worker

DELIMITATIONS OF THE STUDY

1. The study was limited to the diamond industry located in Surat city only.
2. The study was limited to the diamond polishing process only.
3. The study was limited to small units employing less than 50 employees.
4. The study was limited to units polishing brilliant cut diamonds only.
5. The study was limited to a sample size of 500 respondents.
6. The study was limited to those respondents who have been doing the present work for a minimum period of 2 years.

HYPOTHESES FOR THE STUDY

1. There exists a relationship between Physiological Problems and Psychosocial Problems.
2. There exists a relationship between Physiological Problems and Perceived Musculoskeletal Pain.
3. The Physiological Problems of the respondents will vary with their Personal Variables (Gender, Age, Marital Status and Education Level), Family Related Variables (Family Type and Number of Members in the Family) and Work Related Variables (Work Experience and Work Type).
4. The Psychosocial Problems of the respondents will vary with their Personal Variables (Gender, Age, Marital Status and Education Level), Family Related Variables (Family Type and Number of Members in the Family) and Work Related Variables (Work Experience and Work Type).