

OCCUPATIONAL SAFETY AND HEALTH IN THE MACEDONIAN TEXTILE INDUSTRY

Analysis of conditions and generated data
from two independent databases



ABSTRACT

A cross-sectoral analysis of two databases (a descriptive study and a survey) involving approximately 15% of the total number of employees in the textile industry in Macedonia for the purpose of measuring the impact of workplaces on workers

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Occupational Safety and Health in the Textile Industry

PROF. ELISAVETA STIKOVA, PHD

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Introduction

The Macedonian textile industry is the second largest industrial branch in the country following the metal industry. It is also one of the most developed and diversified sectors in the national economy in terms of industrial production, employment and export earnings, contributing to the gross domestic product (GDP) with 2,3% or approximately 450 million euros' worth of merchandise exports. Officially, 1.076 legal entities are registered in it and are actively involved in different levels of production, providing employment to approximately 35.000 workers and representing 8,36% of the country's export in 2019 (State Statistical Office, 2021). The majority of the companies work according to the cut, make and trim principle (CMT). Less than 15% of the companies can provide the "whole package", practically offering the customer a ready-made product, starting from design, material selection, cut and trim, quality control and delivery. The textile industry contributed with 8.36% to the total export in Macedonia in 2019 and with 9.53% in 2018. Approximately 93% of the overall textile production depends on the so-called CMT (cut, make and trim) production. The most important export destination, with more than 60% of the export, is Germany, followed by The Netherlands, Greece, Turkey, Austria, Bulgaria, The United Kingdom, Switzerland, Italy and Belgium. The Macedonian clothing industry on a worldwide scale represents somewhat less than 1% of the global export of textile (FWF, 2021).

The clothing industry was heavily impacted in 2020. COVID-19 resulted in reduced orders and production, despite the fact that some companies started producing protective masks, leading to a short-term increase in liquidity. Many workers lost their jobs; however, in some cases, following the interventions of the State Labour Inspectorate (SLI), the employers were forced to bring them back to work. The (non-)compliance with the stipulated occupational safety and health measures and protocols on the part of the employers, and in particular on the part of the production companies consisting of workers from the textile, leather and the shoemaking industry, posed a considerable challenge.

The health and safety state of this industrial branch is on a basic level and it is within the framework of the “minimum legal requirements”. Such has been the case ever since the Macedonian independence up to present day. By adopting this approach to occupational safety and health, that is, combining the lowest salaries and the large amount of overtime, many of the employers managed to detract young workers from possibly choosing this industry for employment. As such, the industry is doomed to start counting its final days of existence. The health of these employees, as the authors shall elaborate in the course of this study, is significantly deteriorating and it is expected that the productivity will decrease, whereas production errors will keep increasing.

Methodology

The research was conducted in three segments:

- An analysis of the general demographic and socio-economic conditions in the textile industry
- An analysis of the registered conditions related to occupational safety
- An analysis of the registered conditions related to the health conditions of employees in the textile industry.

In order to determine the general demographic and socio-economic conditions, official statistical data and data available in relevant studies were used.

In order to determine the condition of occupational safety, published data from relevant studies and statistics were used.

In order to determine the health condition, two types of research were conducted:

- A descriptive cross-sectoral study of the preventive medical examinations conducted among 15% of the total number of employees in the textile industry
- A random sample survey research among a group of employees in the textile industry

The State of the Labour Market in the Textile Industry

Provided that we were to make a profile of the characteristic textile worker in the Macedonian textile factories following the survey conducted by “GlasenTekstilec” for the purposes of this study, it would initially look like this:

Table 1 Profile of the textile worker in Macedonia

Question	Response	Percentage of respondents
Sex	Female	70% ¹
Age	36 to 55 years of age	69%
Children	2	55%
Salary (net)	15,044.00 MKD to 17,550 MKD	54%
Length of service in the textile industry	Up to 10 years	37%
Works in a Collective	Over 100 employees	47%
Knows colleagues who get paid less than the stipulated minimum wage	Yes	52%
Personal protective equipment	Procured on their own	51%
Occupational safety training	No	67%
Feels safe in the workplace	Yes	8%
The employer has introduced them to the contents of the risk assessment and the occupational safety statement	No	73%

¹ Research on the preventive medical examinations carried out by occupational medicine authorized institutions

Labour Relations

Formally, the legal/normative framework defining labour issues in Macedonia is relatively well-developed and the country has generally ratified the relevant conventions of the International Labour Organization (ILO). The basic law regulating labour market issues is the Law on Labour Relations (Ministry of Labour and Social Policy, 2021) which has been amended more than ten times since the day it was passed until the completion of this study. It is expected that the new Law on Labour Relations will be passed in the course this year (2022). Numerous by-laws from the labour relation area further regulate the area.

As is the case with many other sectors in Macedonia, including the textile industry, problems do not occur due to the absence of legal frameworks or solutions. Problems arise as a result of an incomplete implementation of the laws and by-laws, due to an individual, arbitrary interpretation and selective penalization following a failure to implement the laws. This is largely the recipe, or the cause, as was indicated by a great deal of various (inter)national relevant organizations, of corrupt dealings and creation of unequal bases for conducting business.

The approach to the defining the fundamental problems of the textile sector which are related to labour relations issues will revolve around the following items:

- Failure to implement publicly declared, fixed working time of 8 hours per day/40 hours per week;
- Failure to register overtime in accordance with the Law;
- Failure to compensate overtime working hours as per the premium coefficient defined in the Law on Labour Relations and the Collective Agreements at a branch level;
- Failure to take a leave, which is a direct breach of the Macedonian Constitution;
- The payment of the minimum wage involves additional coefficients/specifics of the workplace, although this is a breach of the Law on Labour Relations;
- Inconsistent implementation of the labour legislation by the legal entities;

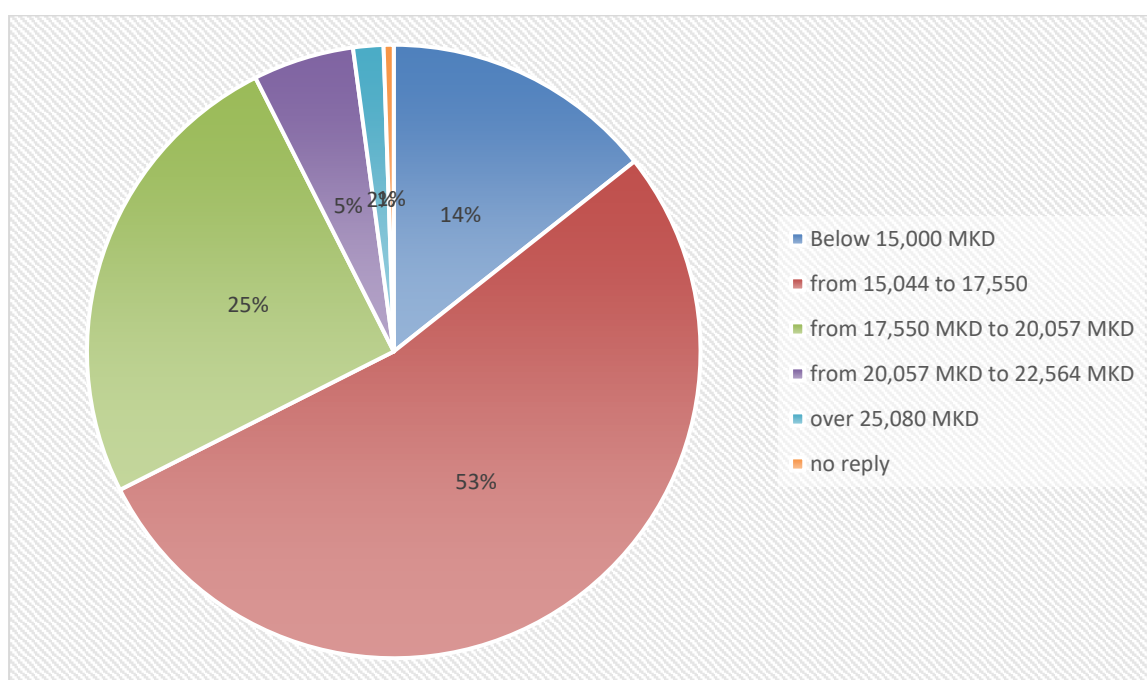
- Incomplete and inconsistent supervision of the implementation of laws and by-laws of the labour area by the state authorities;
- Largely, absence of social dialogue at an industrial branch level, which gets transferred to the company level;
- Non-fulfillment of the freedom of association and collective bargaining;
- Non-payment of the annual leave compensation;
- Non-payment of salary allowances and bonuses based on overtime exceeding 150 hours per annum.

It is to be emphasized that these are only some of the deviations characteristic of the textile sector present ever since Macedonia obtained its independence in the early nineties of the previous century. Nevertheless, it is to be noted that a great deal of these deviations occur as a consequence of the inadequate supply chain and domestic labour policies of buying/hiring, administered by international brands primarily stimulated by the urge to generate the highest profit and to convey a large amount of logistics issues to the Macedonian CMT factories (unsynchronized transport of initial raw materials, late deliveries, materials of inadequate quality etc.). The lack of social responsibility that international brands exhibit towards the societies/countries in which they are produced is one of the main causative agents of a partial or selective implementation of world conventions and labour standards, such as labour relations and occupational safety and health. Indisputably, all of this is made possible by the limited managerial and negotiation abilities of the Macedonian textile managers for whom the struggle to find work generally boils down to a direct negotiation of the work output per hour, since in most cases the price of output per hour has already been imposed by the customer. The customer sets the price consequential to global offers from various countries around the world where the textile industry is at a different level, as mechanization, industrialization and production quantity indicate. All of these are things that the Macedonian textile manager needs to learn along the way, while being part of the process of channeling the pressure towards the only ones who are lower on the production chain – the Macedonian textile employees.

Table 2 Reference values related to working hours, overtime and annual leave

A review of the legal framework on working hours	
A standard working day	8 hours
Ordinary working hours per week	40 hours
Maximum weekly working days	6 days
Sunday is a non-business day	Yes
Maximum amount of overtime per calendar week	8 hours
Maximum amount of overtime per year	190 hours
Right to allowances and bonuses for overtime (following how much overtime per year?)	150 hours
Night shift allowance (% of the salary per hour)	35%
Allowance for working on Sundays and public holidays (% of the salary per hour)	50%
Overtime allowance (% of the salary per hour)	35%
Night work limitations?	Yes
Are women who are not pregnant and/or breastfeeding allowed to work night hours just as men are?	Yes
Limitations on working on Sundays?	No
Overtime limitations?	Yes
A paid annual leave for workers with a one-year work experience (in working days)	20 to 26 working days

According to numerous public statements of employers and managers in the textile industry, labour productivity has not increased swiftly enough and in volume in recent years so that pay rises and improvement of the standard of living would be ensured. The provision of salary for a dignified life in many of the textile factories around Macedonia is merely an abstract noun, as many managers equate the term “living wage” with “minimum wage”. Although the Regular Economic Report of the World Bank indicates that the average gross pay rose by 4.1% in 2019, a considerable number of employees in labour intensive sectors, such as the textile sector (34,7% of the employees²) earn the minimum wage, which amounted to 15.194,00 MKD net (247 euros) or 22.146,00 MKD gross pay (360 euros) at the end of 2021. On the other hand, according to the research carried out for the purpose of this study by “Glasen Tekstilec”, 14,7% of the employees interviewed in the textile industry earn a wage below the legal minimum. The majority of the employees interviewed (54,4%) earn a wage between 15.044,00 MKD and 17.550,00 MKD, whereas 25,5% earn a wage between 17,550.00 MKD and 20,057.00 MKD. Circa 7% earn a wage greater than this amount. The salaries are paid out regularly, within the legally prescribed period, by the 15th of each month.



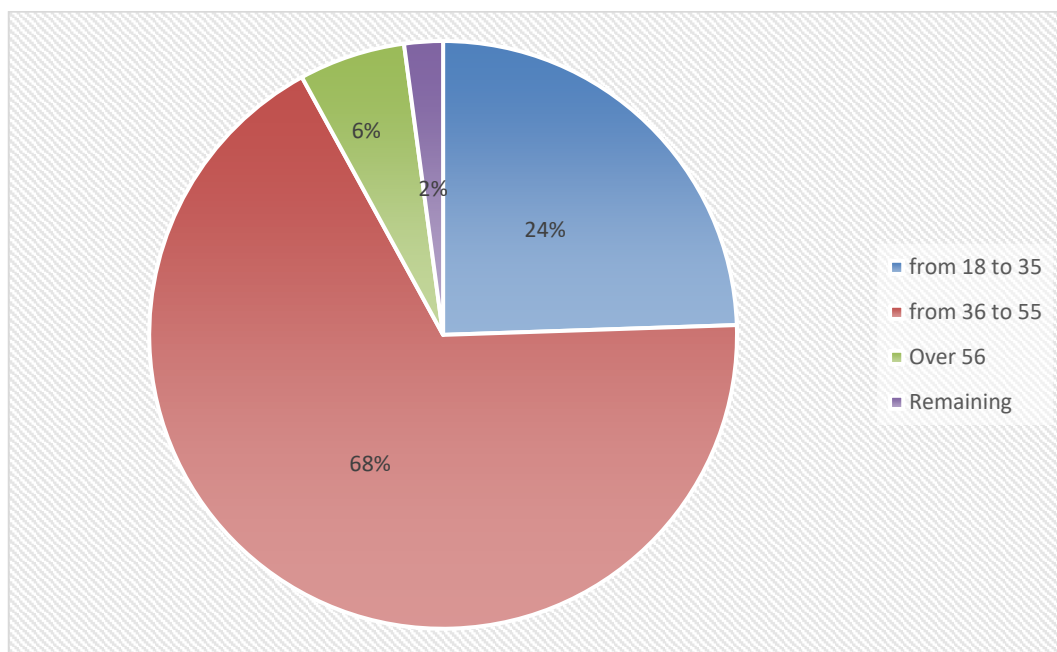
Graph 1 Average salary in the textile industry

²A survey conducted for the purpose of the study completed by “Glasen Tekstilec”, Shtip

From the very beginning, the introduction of a higher minimum wage posed certain challenges, especially in the textile sector in 2017. Some employers implement the legal regulations incorrectly and consider the minimum wage to be sufficient in covering all payments (salary, complexity of work, performance, overtime, length of service etc.) to the employees in total, and not just the basic pay. On the other hand, employers frequently underline that these imposed and uneconomic measures make for a disruption in the hierarchy of the company and the system of labour evaluation, so that the salary earned by the less qualified and capable employees is equated with that of the more proficient and hard-working ones. As such, production quality and quantity drops, and so does profit. Upon being asked about why they do not introduce a progressive pay rise, bearing in mind the minimum wage, managers almost unanimously explain that it is pre-conditioned by the prices that the customers pay. Thus, the situation comes full circle.

Due to the above-mentioned reasons, this sector is not attractive to young workers, which leads to a drastic decrease in the workforce, and the workforce cannot be replaced naturally. A large number of young people tend to avoid the textile sector and seek for better paid workplaces in other industrial branches or migrate to more developed countries, which directly leads to ageing of the workforce both within microenvironments and generally within the country. Employers find it more and more difficult to find young workers; however, despite this trend, almost nothing is done to change the dying flow of the textile industry. Consequential to the survey³, around 25% of the employees interviewed belong to the group of employees between 18 and 35 years of age. The majority of employees in the textile industry belong to the group of employees between 36 and 55 years of age (69%), whereas 6% belong to the group of employees who are biologically older than 56. The average of the biological age of the textile workers generally revolves around 54 years of age, and according to some conservative estimates, unless this trend changes, in 10 years' time, there will be no workers interested in working in the sector and the industry will disappear.

³A survey conducted for the purposes of the study carried out by "Glasen Tekstilec", Shtip



Graph 2 Employees in the textile industry according to biological age

Occupational Safety and Health

Legal Framework

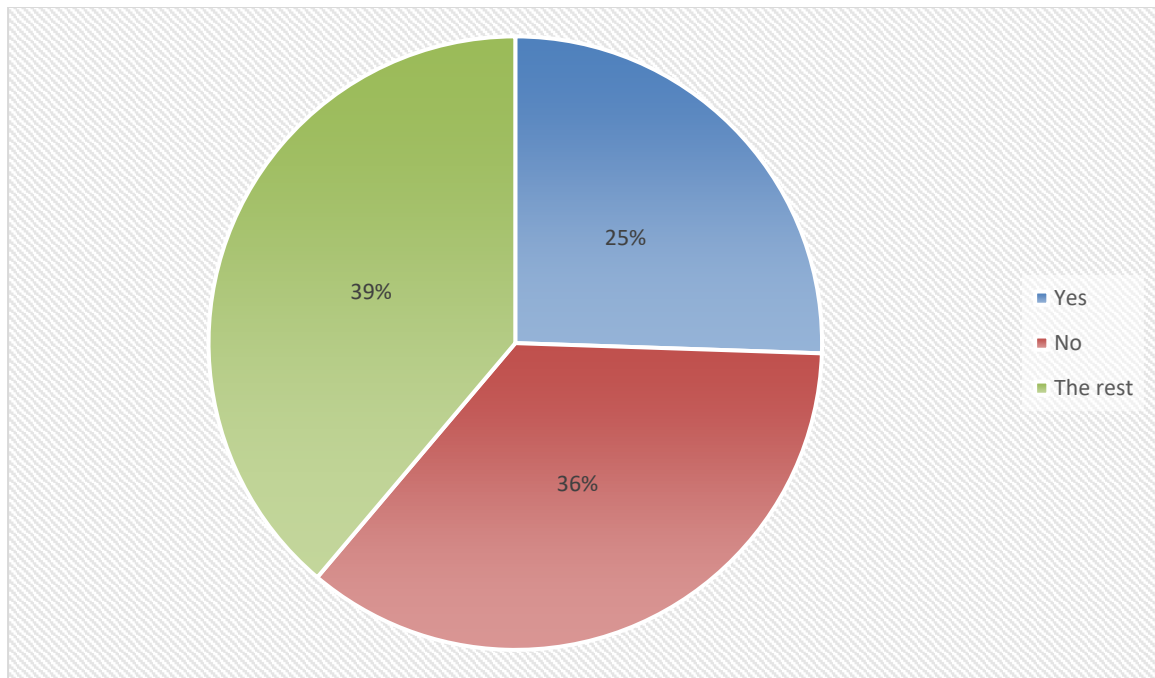
Generally, the safety and health of employees in the textile sector is regulated by the Law on Occupational Safety and Health (MLSP, 2017), as well as by numerous by-laws (MLSP, 2007) (MLSP, 2007)(MLSP, 2019)(MLSP, 2007)(MLSP, 2008)(MLSP, 2008)(MLSP, 2007)(MLSP, 2008)(MLSP, 2010). (MLSP, 2010) (MLSP, 2010) (MLSP, 2011) (MLSP, 2012) etc. In 2007, the Law served as a direct transposition of the Framework Directive on Occupational Safety and Health 89/391 EEC (The Council of the European Communities, 2021). This Law, in addition to the Law on Labour Relations, was subject to 11 amendments and modifications ever since it was passed. Some segments of it were obsolete, representing an overload of the law and its implementation. Even though the core of this law deems the employer solely responsible for the safety and the health of the workers, the employer is primarily concerned with creating a preventive culture in the very workplace. However, by no means does this make the textile sector a safe and healthy workplace. Despite the annual reports of the Macedonian Occupational Safety and Health Association (MOSHA, 2021) which indicate that the textile industry has not had any fatal

accidents, nor has it had serious or collective accidents, clear trends illustrate that the textile industry has a direct influence on the health of the textile workers, and as such, the more the workers' biological age increases, the higher are their chances of becoming chronically ill, which will undoubtedly pitch their life into a downward spiral.

Safety Statement Based on the Risk Assessment of Workplaces

In line with the Occupational Safety and Health Law (MLSP, 2021), the employer is obliged to draw up an Occupational Safety Statement based on the assessment of risks present in their company and to undertake corrective measures accordingly in order to completely eliminate those risks from the work environment or to bring them to an acceptable level. This Statement shall be drafted by qualified professionals in occupational safety and health in collaboration with an occupational medicine physician and one or more competent persons appointed by the employer in accordance with the instructions set out in the Rulebook on drafting the safety statement, its contents and the data on which the risk assessment is to be based (MLSP, 2009).

These documents, consequential to some of the continuous research conducted by the Macedonian Occupational Safety and Health Association and the survey carried out by "Glasen Tekstilec" for the purposes of this study, are generally drafted offhandedly and do not fully illustrate the specific work process of a particular legal entity, but they are usually created in a ready-made style and multiplied among various legal entities. In accordance with the survey, as far as 36% of the employees declared that their employer had not made a workplace risk assessment, whereas 39% stated that they did not know whether it had been made at all.



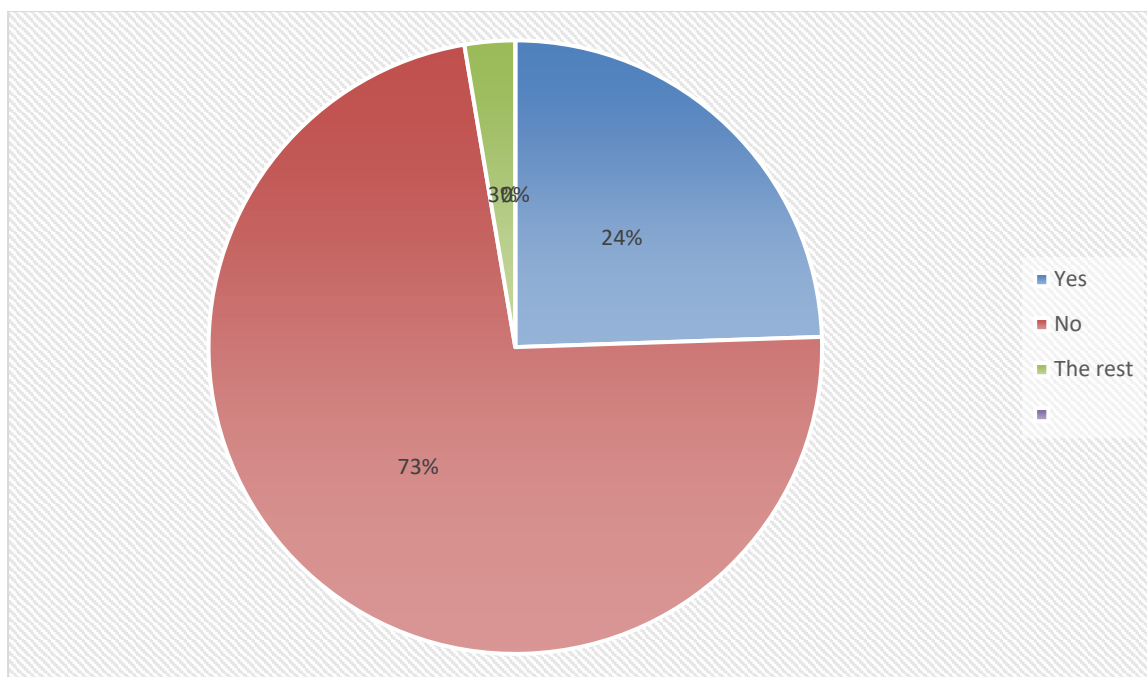
Graph 3 Percentage of employees' familiarity as to whether the employer has made a workplace risk assessment

An obvious example for the particular claim that there is a ready-made drafting of workplace risk assessments is the very fact that in almost all textile factories, process dust is not perceived as risky and it is always within the legally permissible limitations. However, merely one walk around the premises is sufficient to disprove that. As an annex to this is the statement of nearly 20% of all the interviewed textile employees who claimed to have respiratory issues. A second characteristic example present in the textile industry is the virtually non-existent ergonomic workplace recommendations (e.g. not providing ergonomic chairs) in textile sectors, despite the fact that almost 100% of the employees sit on “adjusted” wooden chairs longer than 8 hours per day, 6 days a week and they all have musculoskeletal disorders. According to the survey analysis, as far as 62,5% of the interviewees have reported neck or spine problems. Finally, overcoming the level of noise in textile factories is virtually non-existent; however, in reality, employees work in the immediate vicinity of only 30 centimeters to sewing machines, button attaching machines, buttonhole machines, embroidery machines etc., which on average are older than 10 years, so the noise they generate surpasses the legally prescribed norms. As the data from the survey indicate, 18,5% of the respondents reported hearing problems.

Even though the Workplace Risk Assessment is a legal obligation, it is rarely imparted to the employees, and thus, neither particular risks identified in the workplace and included in the Risk Assessment and the Safety Statement nor the recommended corrective actions outlined by the professional, who generally drafts the document and is competent in occupational safety, are being conveyed. Generally, employees are not acquainted with the hazards which may cause work-related accidents or injuries.

Employees' Occupational Safety and Health Representative

One of the common non-compliances with the law is the absence of an Employees' Occupational Safety and Health Representative. Even if there was one, this person would be appointed by the employer judging by their cooperativeness in what they consider to be satisfactory parameters. A staggering 75% of the interviewees pointed out that they have not voted for an Occupational Safety and Health Representative, which is in stark contrast to the 25% who did participate in his/her selection. The majority of employees exhibit a lack of awareness of the role of the Employees' Occupational Safety and Health Representative. Since the appointing an employee as an Occupational Health and Safety Representative is a legal requirement, this person is generally appointed by the employer only on paper without being properly trained. In most cases, the Employees' Occupational Safety and Health Representatives are not recognized by the other employees. There are no regular meetings held between the Employees' Occupational Safety and Health Representative and the factory management; additionally, there are no records of monitoring the representatives' activities in factories. Namely, most of the Employees' Occupational Safety and Health Representatives are representatives only because this is a requirement stipulated in the Law on Occupational Safety and Health. The usual response given out by the employers to the OHS Representative is that "the institution itself is obsolete, because employers are in the mill every day and all employees can directly communicate with them on matters both in and out of work".



Graph 4 Have the employees voted for the Employees' Occupational Safety and Health Representative?

Occupational Safety and Health Training/Fire Protection

A significant number of employees and employers have not been trained in recognizing potential hazards and problems in factories. Additionally, they do not take these risks seriously. One such example is the risk related to fire protection and the rarely available fire incident reporting systems. In most factories, the fire incident reporting system is not available, or if it is, it is not available on all factory premises (for example, it is missing in some departments) of the production capacity. The same goes for fire extinguishers, which are not always carefully selected and set up in accordance with the mandatory fire protection plan and the minimum legal requirements for their maintenance (for example, they are blocked, incorrectly set up or placed at an inaccessible location, etc.). In practice, employers hire a certified company for matters related to fire protection only to fulfill the stipulated basic legal requirements. On the other hand, the service delivered is not always up to par with fire protection standards. Employers do not understand the risks and hazards clearly when they do not have appropriate and functional fire extinguishing systems.

Safe Handling of Chemical Agents

There are almost no policies or concrete measures for safe handling of chemical agents (stain removers, various aggressive acids for sanitation facility treatment, easily flammable mineral oils for machinery maintenance, such as compressors, etc.) in textile factories. Workers are largely not aware of the risks associated with the use of hazardous chemical agents. The chemical materials used are not always kept in separate cabinets. Access to these chemicals is frequently unobstructed and none of the procedures suggested by the very producers of those chemical substances are being complied with. The labeling of chemicals is virtually non-existent, and so is finding the instructions of use in Macedonian language, which in itself limits the workers' understanding of the risks of the chemicals they employ. Factories which use chemicals during the production process, or in other processes, do not keep an adequate inventory/record in most cases. There have been instances of inappropriate or incorrect labeling of chemicals and other hazardous substances.

Preventive Medical Examinations

Another characteristic deviation in the occupational safety and health system of the textile industry is the performance of preventive medical examinations in poor conditions (on the premises of the factory itself) as well as non-performance of specific examinations (e.g., of the respiratory system) by means if which particular health conditions and hazards present in micro locations of the workplaces would be determined among the employees. An interesting finding from the survey confirms that as far as 89% of the employees who requested to undergo a professional conducting examination due to particular hazards in the workplace were rejected by their respective employers. For that purpose, in the section on detailed analyses that were conducted over the last period, we shall describe the direct influences on the work micro environment in the textile industry based on the data received from various sources and we shall therefore point out the overriding trends for the assessment of the vitality of this industry from the viewpoint of how healthy its employees (the industry's primary resource) are.

Supervisory Bodies in Law Implementation

The State Labour Inspectorate (SLI) is the authority in charge of the implementation of the above-mentioned laws and by-laws from the labour area. According to the periodical progress reports of the European Union on Macedonia and as was constantly and undoubtedly pointed out, the SLI has not fully completed its mission, which contributes to numerous infringements occurring in the Macedonian economy, including the textile industry. As such, these infringements have become the rule, rather than the exception. The reasons outlined by the EU in its reports primarily refer to the manner of organization, how equipped the supervisory body of the country is and what its capacities are, but this should by no means be a justification of the non-delivery of the services that citizens/employees continuously pay for.

Stakeholders in the Textile Sector

State Institutions

The Ministry of Economy

The Ministry of Economy is an institution responsible for the creation and execution of documents and programs associated with the economic and industrial policy, the competitiveness of SMEs (small and medium enterprises) and the improvement of innovations.

Ministry of Labour and Social Policy (MLSP)

MLSP is the institution which is primarily responsible for the social dialogue and work conditions. It conducts activities in the area of industrial relations, recruitment, employment, protection at work, salaries and standard of living, social policy and promotion of gender equality. The Ministry facilitates the social dialogue, keeps records of trade unions and employer associations, as well as of the general and sectoral collective agreements concluded in the country.

The Economic and Social Council (ESC)

The ESC is the only tripartite institution promoting the social dialogue on a national level. It has a consultative role in the government with regards to the development and implementation of economic and social policies and an advisory role on matters of

economic and social interest to employers and employees. The ESC was first founded on December 30, 1996. In 2010, it was reconstructed when the Agreement for the Establishment of the ESC was signed by the government and the following social partners [The Organization of Employers of Macedonia (OEM), The Federation of Trade Unions of Macedonia (FTUM) and The Confederation of Free Trade Unions in Macedonia (CFTU)]. The ESC consists of 12 members. They are representatives from:

- Trade unions (two representatives from FTUM and CFTU each);
- Representatives of employer associations (all four come from OEM);
- Representatives of the government - four.

On a local level, the tripartite dialogue in Macedonia is realized through local ESC (LESC).

LESC are formed as consultative and advisory bodies of municipalities so that a democratic and social dialogue can be established, thus achieving a constant and stable social peace and active inclusion of all social partners in the decision-making processes for the most significant queries of economic and social nature within the local community. Currently, there are 15 LESC within the following municipalities: Bitola, Veles, Gostivar, Gazi Baba, Kavadarci, Kichevo, Kumanovo, Radovish, Resen, Sveti Nikole, Skopje, Struga, Strumica, Tetovo, Shtip; however, the LESC in Gostivar, Kavadarci and Gazi Baba are non-operational.

Employer Organizations

The Organization of Employers of Macedonia (OEM)

The OEM is an association of employers in the private sector. It consists of 1.012 companies in 15 sectors providing employment to almost 70.000 workers (over 14% of all employees) in the private sector. It aspires to represent the interests of employers in general, especially in the development of social partnership. A special emphasis is placed on the protection of rights and freedoms ensuing from collective bargaining agreements (CBA). The OEM's purpose is to support employers in the implementation of general CBAs on a national level and to facilitate the execution of sectoral agreements.

Textile Trade Association - Textile Cluster

The cluster is a non-profit organization founded in October 2003 in the industrial area of Shtip, representing 80 Macedonian companies which employ almost 20.000 workers in the textile industry. Its primary goal is to improve the companies' competitiveness in line with the worldwide trends and global market changes and to adjust its members' production to any such trends and changes.

Business Confederation of Macedonia (BCM)

BCM was founded in 2001. It started operating as an employer association which articulated, represented and supported the interests of its members and the interests of the business community in the country. BCM's focus is on continuously improving the work environment, supporting entrepreneurship and micro, small and medium enterprises (MSMEs) which are believed to represent a basis for economic growth and a decrease of unemployment, as well as an advancement of human capital in economy through training and education.

Trade Unions

This section provides an overview of the trade unions in Macedonia. Since it is difficult to obtain accurate and updated information, the data shared in this section are be treated with caution.

The Federation of Trade Unions in Macedonia (FTUM)

FTUM was first founded in 1946 and then it was reconstructed during the Macedonian Congress in 1990. It was organized on a voluntary basis, with 17 independent trade unions allied in (industrial) branches ranging from construction to law enforcement. The Federation has a network of 2.000 primary trade union organizations with 65.900 members (37.529 members in the private sector), as opposed to the 75.997 members present in 2017. FTUM is a trade union representative in all tripartite bodies in the country. The branch trade unions associated with FTUM have signed 14 branch collective agreements. The Trade Union of Textile, Leather and Shoemaking Industry of RM is one of the branch trade unions of FTUM. It is a signatory (representative) trade union in the collective agreement of the textile sector.

The Confederation of Free Trade Unions of Macedonia (CFTU)

CFTU was founded during a congress in Skopje as an alternative to FTU on December 28, 2005. The founding trade unions were The Independent Trade Union of Education, Science and Culture of the Republic of Macedonia (TUESC), The Independent Trade Union of Defense Workers, The Federation for Transport and Communications and The Trade Union of Financial Organizations of Macedonia. TUESC is the largest and the most financially stable trade union within CFTU, having established its own organizational structure in 20 centers of the community. Those centers also complete tasks per CFTU requirements. The Confederation has 11 branch trade unions and 39.377 members. It is a representative trade union on a national level and it participates in ESC's work.

The Union of Independent Autonomous Trade Unions of Macedonia (UIATUM)

UIATUM was founded in 1991, and it includes the following independent trade unions: The Independent Trade Union of EMO Ohrid, The Autonomous Trade Union of Mines and Metallurgy Skopje, The Independent Professional Trade Union of the Macedonian Railway Machinists and The Independent Trade Union of Individual Farmers Kochani. UIATUM affiliates 170 independent basic trade unions and 16 municipal independent trade unions under six branch federations. UIATUM has been a member of the World Confederation of Labour since 1999 and a member of the International Trade Union Confederation since 2006.

The Confederation of Trade Union Organizations of Macedonia - CTUOM

The independent police trade union is the largest trade union affiliated with CTUOM and it represents 2.979 members. CTUOM does not provide information on the remaining eight branches.

Non-Governmental Organizations Operating in the Labour Area

"Glasen Tekstilec" Local Labour Organization

Glasen Tekstilec was established in May 2012 by a group of activists who took part in initiatives and organizations with shared common goals. Their purpose is to raise awareness and educate workers in the textile, leather and shoemaking industry as

regards their rights. They also advocate for the enforcement of rights of employees working in these sectors.

Macedonian Occupational Safety and Health Association (MOSHA)

MOSHA is the first and the oldest professional occupational protection association in Macedonia. It was founded in 1967. During a period of more than 50 years of continued existence, besides carrying out typical activities of a civil organization, MOSHA was an initiator of various systemic solutions leading to creation and advancement of occupational safety and health. Part of the solutions proposed by MOSHA are related to the introduction of academic (undergraduate and postgraduate) studies in occupational protection, active participation in the creation of a legal and regulatory framework on occupational safety and health, obtaining international recognition by being part of numerous international institutions, such as: ILO, EUOSHA and other international networks, as well as directly establishing some, such as BALcanOSH.net. The primary goal of MOSHA is to establish a humane and safe approach to work in the occupational environment, while some of the other goals include: maintaining the psychophysical integrity of the employees, improving workers' rights, as well as enforcing and completely synchronizing with the existing safety measures. MOSHA has been the Macedonian collaborating centre of ILO/CIS ever since 2008, offering a foundation for exchange of knowledge and resources on occupational safety and health. It was a focal point of the European Agency for Safety and Health at Work up until 2019.

Helsinki Committee for Human Rights

The Committee monitors the state of human rights, offers legal advice and collaborates with state organs and other organizations in order to: improve the promotion, respect and protection of the human rights and freedoms enshrined in the Constitution and on international instruments, the regulation of human rights and the Helsinki Final Act of 1975, as well as laying down democratic conditions in which these rights and freedoms can get materialized based on the rule of law.

“Open Gate“- Association for Action Against Violence and Trafficking in Human Beings (La Strada)

La Strada was formed in 2000, when a group of female activists expressed their concerns on the increased levels of human trafficking as a crime in Macedonia. Thus, they established an organization to combat it. La Strada is a resource organization and a partner in the clean clothes campaign.

STATISTICAL ANALYSES AND DATA FROM SURVEYS AND RESEARCH CONDUCTED WITH REGARDS TO OCCUPATIONAL HEALTH IN THE TEXTILE INDUSTRY⁴

The Impact of Work Conditions on Employees' Health

The textile and garment production industry is one of the earliest and technologically most arduous branches of industrial production. One of the fundamental characteristics of this industry, making it different from the viewpoint of production, but also from the viewpoint of safety and health, is its production basis consisting of a wide range of fibers/yarns of natural origin, such as: yarn, jute, silk, wool, and artificial fibers such as: rayon, polyester, nylon and acrylic fiber. The textile industry consists of a large number of units that deal with spinning, weaving, dyeing, printing, finishing and transforming these products into a finalized fabric or garment, as well as into household items, such as bedding, towels, coverlets and the like.

The textile industry is characterized by the presence of a broad range of machines and equipment linked by automatic or manual transport systems. These systems do not only connect the machines, but they also link the storage and stopping points, because of which special attention is to be paid to the systems of active and passive safety in order to minimize and/or eliminate occupational accidents.

The Most Significant Safety and Health Risks

Apart from the risk of occupational injury, there are other safety and health problems associated with the specifics of the textile industry production.

⁴ Collaborator: Gjorgji Janev, PhD, Specialist in Occupational Medicine

The main safety and health issues in the textile industry can be identified as the employees' occupational exposure to:

- Cotton dust
- Hazardous chemicals
- Noise (pollution)
- Ergonomic problems and musculoskeletal disorders

Exposure to Process Dust and Fiber

Workers' exposure to process dust emanating from materials such as silk, cotton, wool, flax, hemp, sisal and jute, as well as other synthetic materials, can occur during weaving, spinning, cutting and packing of materials and products. This is associated with the occurrence of a series of respiratory systems, but the emergence of nasal or bladder cancer is not excluded either.

Workers who are tasked with processing and spinning cotton are exposed to cotton dust and other kinds of dust, which can cause not only some typical problems in the respiratory tract, but can also generate an onset of various diseases, most significant of which are occupational asthma and byssinosis.

The symptoms of these diseases include chest tightness, bouts of shortness of breath, difficulties inhaling, coughing and breathing difficulties. In addition, the frequency of the occurrence of acute respiratory disorders, chronic bronchitis and chronic obstructive pulmonary disease (COPD) has increased among textile workers.

Exposure to Chemicals

In the processes of dyeing, printing and finishing, as well as in the process of stain removal off finished products, workers are exposed to lots of chemicals containing benzedrine, solvents and fixatives, heavy metals, crease-resistant agents which release formaldehyde and so on. Flame retardants are composed of organic phosphorous and other numerous compounds, while antimicrobial agents used in textile manufacturing operations can also be hazardous to one's health.

In the textile industry, an exceptionally serious problem is that of occupational exposure to formaldehyde, which can lead to the onset of the following disorders among workers:

- Nasal, pulmonary, brain cancer and leukemia,
- Respiratory tract disorders,
- Skin disorders and occurrence of occupational eczema (contact dermatitis).

As a consequence of the occupational exposure to chemicals, an increased frequency of occurrence of other malignant disorders (cancer) is occasionally observed among textile workers, such as those of:

- The mouth cavity,
- The throat,
- The bladder (among women),
- The gastrointestinal tract (the digestive system),
- The thyroid,
- The testicles, and
- Non-Hodgkin's lymphoma (a malignant disorder of the lymph nodes).

Exposure to Biological Agents

In various cases, workers in the textile industry can be exposed to biological agents such as anthrax, clostridium (the causative agent of tetanus) or *Coxiella burnetti* (which causes Q fever). The exposure to these and other biological agents in the workplace can result in the occurrence of infectious diseases, allergies, toxic reactions/damage to certain systems and organs.

Exposure to Physical Agents

Workers in the textile industry can be exposed to adverse microclimatic conditions (air temperature, relative humidity, thermal radiation and air circulation), inadequate natural and/or artificial lighting, noise and vibrations, usually during weaving, spinning, sewing, twisting and cutting the materials and during the production of clothes.

Exposure to vibrations, especially alongside the risk factors of musculoskeletal disorders, can cause long-term damage by disrupting circulation or it can cause modifications to the bones and joints, which manifests itself by numbness in the hands, pain, inadequate thermoregulation etc. At some workplaces in the textile sector, even non-ionizing electromagnetic fields can be found during various processes.

High levels of noise from the poorly maintained machines are known to damage the hearing organs in the long run, and to cause ringing in the ears and hearing loss after a lengthy period of exposure.

Exposure to noise is associated with a great deal of other, so-called non-auditory problems, such as exhaustion, tiredness, anxiety, fluctuating pulse and blood pressure fluctuations, as well as somniphobia and sleep problems.

Exposure to adverse microclimatic conditions can lead to heat exhaustion, heat cramps, reduced resistance etc. Inadequate lighting in workplaces has a considerable influence on eyesight damage, and it represents a serious contributing factor to occurrence of occupational injuries.

Ergonomic Problems and Musculoskeletal Disorders

Employees in the textile industry are faced with numerous problems which are primarily associated with insufficient occupational ergonomic solutions in the workplace, resulting in an overload of the musculoskeletal system.

Musculoskeletal disorders (MSD) are the most frequently encountered work-related health issues. In the EU countries, almost every fourth worker has reported back pain, whereas every fifth worker has complained of muscle pain. Manual handling, lifting, holding, lowering, pushing, pulling, carrying and moving loads is the principal reason for injuries in the textile sector. Manual handling can cause or lead to unexpected and/or continuous, cumulative disorders of the musculoskeletal system, such as neck pain or pain in the lumbar spine of the lower back or acute trauma, such as cuts and fractures due to occupational accidents.

In the textile sector, MSD risk factors include:

1. Work in an unsuitable and constrained body position for a prolonged period of time,
2. Repetitive, monotonous movements,
3. Fatigue resulting from manual work during storage, control, delivery, finishing, cutting and sewing textile.

This overload additionally worsens due to the inadequate design of the work space, surfaces, furniture and the chairs, as well as due to deficient lighting and ventilation. Therefore, spinal musculoskeletal disorders, limb deformities, varicose veins etc. are a common problem for a substantial number of employees in the textile industry.

Psychosocial Overload in the Textile Sector

Occupational stress is defined as a prolonged state during which the requirements of the work environment surpass the capability of workers to handle them or place them under control. Occupational stress can be a problem in various areas of the textile sector connected with, for instance, tasks with a repetitive, fast pace, where the worker has no influence on how the work is organized. Working under set delivery deadlines and unsolved social and existential matters in conditions of disrupted interpersonal relations additionally influences the onset of stress, which leads to an occurrence of a series of psychosomatic diseases such as high blood pressure, weight problems, digestive problems and the like.

Occupational Accidents

Ergonomic work conditions, musculoskeletal overexertion, as well as occupational psychosocial overload present in the textile sector have a significant contribution to occupational injuries. Most often, it is a matter of injuries occurring due to the machines and tools that workers come into contact with on a daily basis. For instance, pinch point injuries come from needles, buttonhole machines, manual or electric scissors etc. The same tools can also cause bruising and pressure injuries, which most often affect the limbs. In light of our law, injuries on the way to work and vice versa due to slipping, falling, tripping etc., are also registered.

ANALYSIS OF THE EMPLOYEES' HEALTH CONDITION IN THE TEXTILE INDUSTRY

GENERAL STATES AND CONSIDERATIONS INFLUENCING EMPLOYEES' HEALTH

It is evident that there are numerous hazards and detriments associated with work conditions in the textile industry. They can pose a real occupational risk, since there could be emergence of dangerous, adverse effects on the health of occupationally exposed workers. One must not neglect the above-mentioned fact that the professional foundation for a real occupational risk assessment in every workplace is shaken due to a lack of capacities (personal, organizational, infrastructural, methodological, etc.). Equally, the lack of capacity can greatly influence the objective assessment of the adverse impact of professional injuries on the health of exposed workers, as their health falls under the competence of occupational medical services.

An appropriate, accurate and precise workplace risk assessment is the main prerequisite for the quality of preventive medical examinations, since the type and extent of preventive medical examinations precisely relies on that assessment.

When it comes to preventive medical examinations, one should bear in mind the fact that the legally ascertained methodology of their content and periodicity of execution was published in the following by-law – Ordinance on the Type, Extent, Content and Price List of Preventive Medical Examinations (MLSP, 2013). Additionally, in line with the Law on Health Records (MH, 2009), there is a legally binding obligation of providing regular reports of activities carried out by authorized occupational medical institutions. Unfortunately, this obligation is not being carried out to the fullest due to the discrepancies of this Law and the OSH Law. Therefore, it can rightfully be stated that our country does not have an official system of collecting and processing cross-sectoral data in order to determine the state of occupational safety and the impact work conditions have on the health of the occupationally exposed employees. In a sense, there is a deficit of hazard measurement in the workplace, lack of data on the number of workplaces with an increased risk along with the reasons for its emergence, as well as data on the preventive medical examinations

conducted and the examined health condition and the work capability of the occupationally exposed workers.

Prior to elaborating on the analysis of employees' health condition in the Macedonian textile industry, it should once again be pointed out that preventive medical examinations are an obligatory health screening with the goal of identifying initial, early signs and symptoms which could lead to changes in the health condition of workers. Besides, not every deviation from the normal values of the screening tests applied during a preventive examination is necessarily equated with a clinically manifested, confirmed illness. Based on the occupational anamnesis and the information received from the screening exam, provided that a doctor - specialist in occupational medicine observes a particular deviation, they will send the worker to an examination carried out by their GP in order for them to establish a diagnosis of a possible illness. Thus, a preventive examination is not a diagnostic check-up and doctors who are specialists in occupational medicine cannot, may not and are not licensed for providing health protection to workers. That is why the pieces of information on illnesses and diagnoses used in this analysis were already considered to be medical conditions for which the workers had previously received suitable medical documentation.

However, as it was previously pointed out, the content of those examinations has precisely been stipulated by a law and a by-law consisting of various elements particular to any occupational damage with an increased risk. The purpose of the examinations is to identify early and specific deviations from the normal values of the analyses conducted. They consist of general elements (laboratory tests, an assessment of the pulmonary function, the heart, the liver, the kidneys, the state of auditory and visual organs, etc.) as well as additional elements particular to any occupational damage individually. Based on these deviations, doctors-specialists in occupational medicine advise the employee who was examined to schedule an appointment with their GP so that they could establish a final diagnosis of a possible illness. That diagnosis further enables the doctor-specialist in occupational medicine to make a work capability assessment of the examined employee.

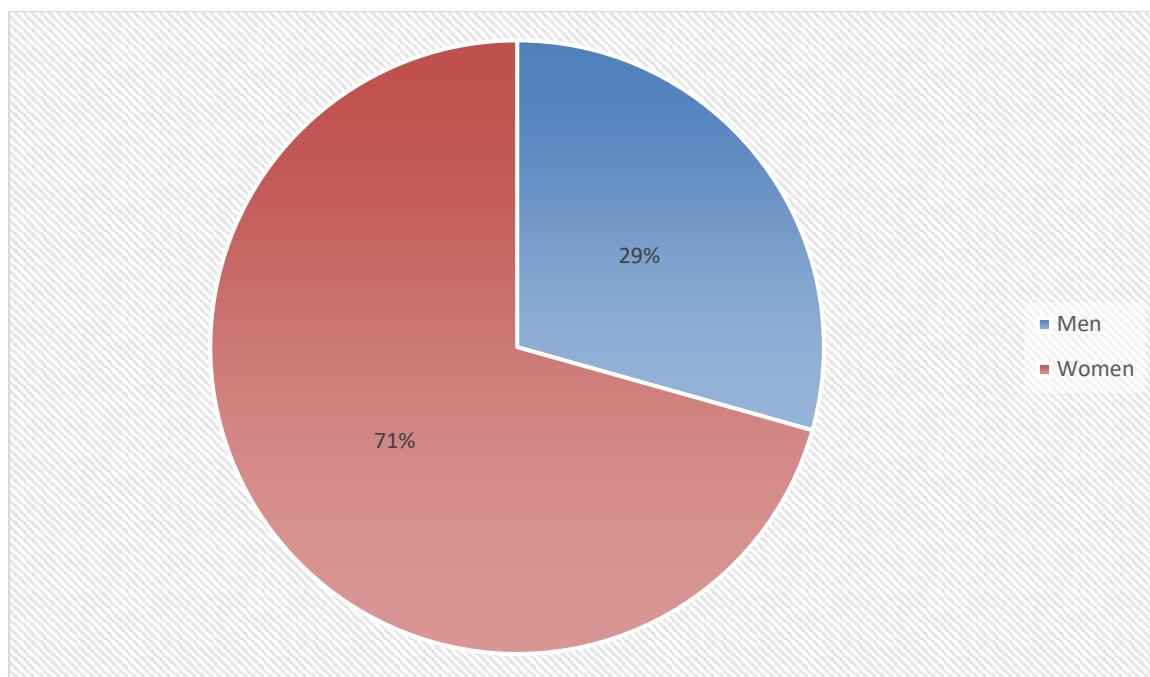
Adopting this approach while carrying out preventive examinations gives an opportunity of individually analyzing the health problems and medical conditions which had been previously diagnosed among employees. Moreover, it allows for a perusal of the frequency of occurrence of a significantly larger number of deviations found within the framework of preventive medical examinations.

Analysis of the Health Conditions and Problems Established During Preventive Medical Examinations

Bearing in mind the lawful set-up of the purpose and the content of preventive medical examinations, we conducted a descriptive cross-sectoral study in which we analyzed conditions registered by a doctor-specialist in occupational medicine during a preventive examination so that we could obtain relevant data on the assessment of employees' health conditions in the textile industry in our country which would be as realistic as possible. They are as follows:

1. the total number of ascertained medical diagnoses for which the respondents have appropriate medical documentation or another proof of ailment, and
2. the total number of conditions, changes and deviations registered within preventive medical examinations in the office of a doctor-specialist in occupational medicine.

The analysis in both cases was performed on results obtained during the preventive medical examinations conducted among a total of 6447 workers employed in various textile companies in 5 geographical regions of the country. According to their structure, there were 1893 (29,3%) male respondents and 4553 (70,3%) female respondents.



Graph 5 Percentual distribution of respondents by sex

In terms of their age, the total number of workers whose results obtained from the preventive medical examinations was analyzed, was divided into three groups, and they are as follows:

Group 1: workers at the age of 18-35

Group 2: workers at the age of 36-55

Group 3: workers over 55

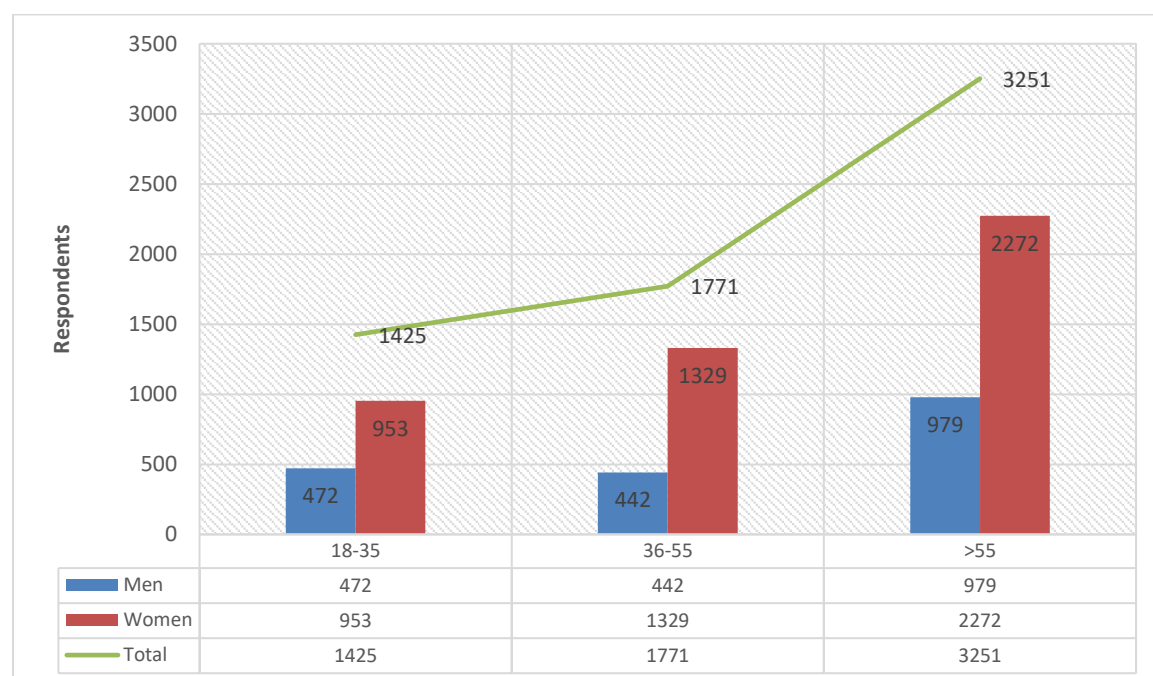
The distribution of the respondents in this study by age and sex is presented in the following table:

Table 3 Distribution of respondents by age and sex

	18-35		36-55		>55		TOTAL	
M		472 32,2%		442 24,9%		979 30,1%		1893 29,3%
F		953 66,8%		1329 75,1%		2272 69,9%		4553 70,3%
TOTAL		1425 22,1%		1771 27,5%		3251 50,4%		6447 100,0%

Based on their age structure, 1425 (22,1% of the total) respondents (Graph 6 Distribution of respondents by sex and age) are at the age of 18-35. At the age of 36-55, there are exactly 1771 workers, which represents 27,5% out of the total number of respondents. In accordance with the structure of workers in the textile industry in Macedonia, 3251 employees who were examined, or 50,4% of all respondents, belong to the group of workers older than 55. Out of this group of respondents, almost 70% are women, whereas 30% are men.

The structure of the participants in this study illustrates the general demographic characteristics of the workforce of the textile industry, where the average age of workers is around 54 and the female workforce is predominant. This distribution is shown on the following graph.



Graph 6 Distribution of respondents by sex and age

What followed was an analysis of the data obtained from the preventive medical examinations that were conducted. The focus of our research was initially placed on gaining information on how many examinees from the textile sector had a confirmed health disorder and what the distribution differences of the disorders were, based on the age-sex structure of the respondents.

The data from this phase of the research demonstrates that deviations in the health condition have been observed among 1815 workers in total, which represents 28,2% of all the textile sector workers subject to examination. What this means is that on average, almost every third employee in the textile industry has experienced changes in their health condition and has a particular medical diagnosis. From the viewpoint of their age structure, changes have been identified in 212 (14,9%) of the respondents aged 18-35, in 453 (25,6%) of the respondents aged 36-55 and in 1150 (35,4%) of the respondents over 55. The results of this descriptive analysis clearly show that the more the age advanced, the higher the percentage of respondents

with deviations in their health condition became; and, it is more notable in the female workforce.

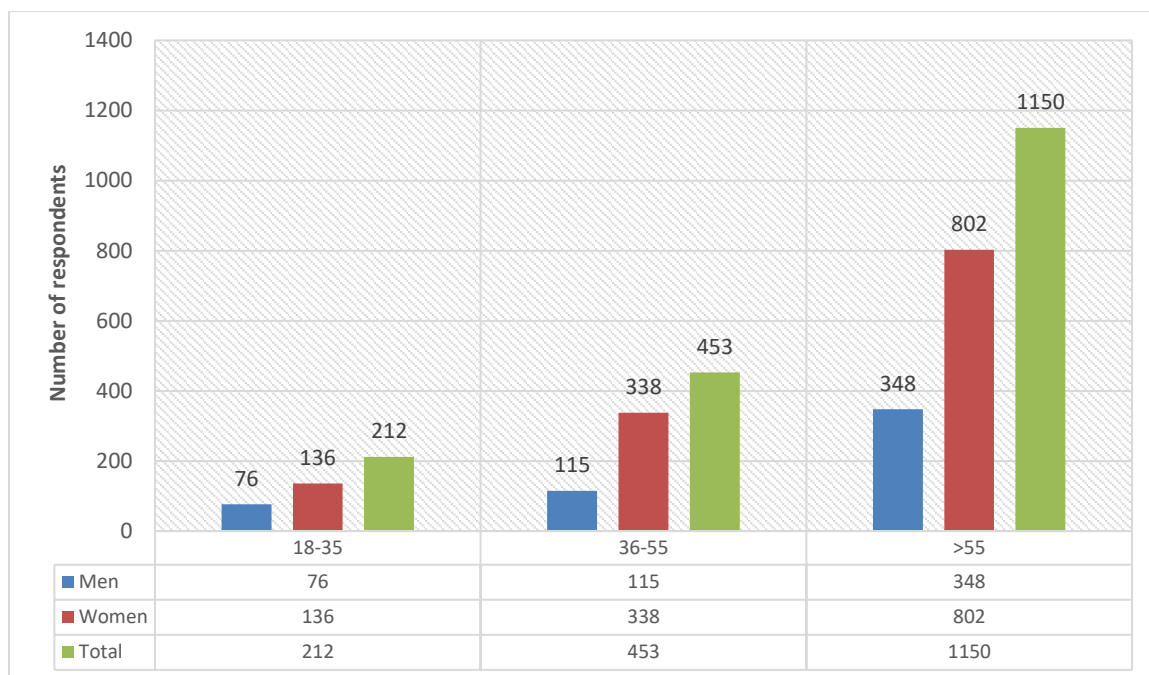
Table 4 Age and sex distribution of respondents with medical diagnoses observed during a preventive medical examination

	All participants	MEN		WOMEN		All respondents who have been diagnosed	
18-35	1425	 76	5,3%	 136	9,5%	 212	14,9%
36-55	1771	 115	6,5%	 338	19,1%	 453	25,6%
>55	3251	 348	10,7%	 802	25,7%	 1150	35,4%
TOTAL	6447	 539	8,3%	 1276	19,8%	 1815	28,2%

Thus, based on the results shown in Table 4, it can be observed that the percentual participation of respondents (35,4%) with established health changes in the age group of people older than 55 is twice as big in comparison to those aged 18-35 (14,9%).

In that sense, it can further be noted that within the sex structure of the respondents, there were changes in the health condition of 539 (8,3%) male employees subject to examination. As for female respondents, there were changes in every fifth worker, i.e. in 1276 workers in total, or 19,8% of the respondents.

What matters is that as age advances, the percentage of respondents with changes in their health condition among both sexes also rises. Hence, when it came to male respondents in the age group of 18-35 years, 76 (5,3%) health problems were identified. As for those aged 36-55, 115 (6,5%) health problems were observed, whereas in those aged over 55, 348 (10,7%) health problems were registered. Among female respondents, these percentages got significantly higher. Thus, among respondents aged 18-35, 136 (9,5%) changes were registered; in those aged 36-55, 338 (19,1%) were identified, whereas for those aged over 55, changes were noted in a fourth of them, i.e., 802 (25,7%) of the total number of respondents. This is shown in Graph 7.



Graph 7 Respondents with observed health problems, by sex and age

These results lead to the conclusion that the female respondents subject to examination tend to get sick 2-4 times more compared to their male coworkers, with variations ascending by 10-15% as they proceed from a younger to an older age group.

As regards the general considerations for monitoring the health condition, it was noted that preventive medical examinations are screening examinations, which, as the goal and the methodology of this study delineates, are tasked with identifying early, if possible reversible signs and symptoms based on which a doctor-specialist in occupational medicine would ascertain the need of further diagnostic tests within the framework of the primary and/or consulting-specialist branch. In that sense, doctors-specialists in occupational medicine do not perform healthcare-related activities, they do not establish a diagnosis and/or therapy, but they identify the need for such medical tests within the framework of preventive medical examinations. If the worker decides to continue treatment with the assistance of a GP, doctors-specialists in occupational medicine are required to assess their work capability in terms of whether the worker is fit to do their job in the workplace in accordance with the diagnosis that would be established further.

The preventive medical examination is not a diagnostic examination. It consists of a personal and work anamnesis and a few screening tests. Those screening tests are the obligatory laboratory minimum: a select number of blood and urine tests, examining the state of pulmonary ventilation (spirometry), an audiometric hearing measurement, a vision examination and a heart test (ECG). The examination, based on the risk assessment in the workplace, contains other additional elements (further laboratory and enzyme testing of the state of the liver and kidneys, biological toxicology analysis, chest X-ray, Doppler ultrasound, allergy tests etc.). Apart from the personal and work anamnesis of the worker and the information obtained from a previously confirmed medical diagnosis, the doctor-specialist in occupational medicine receives particulars on the existence of various subjective difficulties, pains, problems and afflictions which might be work-related and might prevent the worker from doing their job properly.

Therefore, what we were further interested was an ascertainment of the problems that textile industry workers most commonly complained about and what the conditions, subjective problems, changes and deviations from the normal, reference values were. Moreover, we were interested in the medical findings registered by doctors-specialists in occupational medicine when conducting preventive medical examinations of employees in their offices.

Following the experience from the disease structure among textile workers and the content of obligatory preventive medical examinations, we formed 10 groups of the most frequently encountered subjective signs and problems, as well as the most frequently anticipated health issues and the screening test values emerging among the employees subject to examination. Consequently, those 10 groups of conditions and problems were what we directed our further interest of research towards. Those groups of conditions and problems are as follows:

- Vision problems
- Hearing problems
- Low number of red blood cells (Anemia)
- High blood pressure (Hypertension)

- Cardiovascular problems (circulatory system disorders)
- Changes in how glands with internal secretion function (endocrine disorders)
- Changes in the respiratory system (respiratory disorders)
- Malignant disorders (cancers)
- Skin changes (irritant and allergic contact dermatitis)
- Musculoskeletal disorders
- Other/states which have not been classified

The analysis conducted in order to determine the rank of the distribution of changes in functional laboratory testing, as well as the disorders, problems and difficulties identified among the textile workers subject to examination by sex is shown in the following Table (5).

Table 5 Rank of signs, changes and deviations determined within the framework of preventive examinations by sex and the diagnoses observed

Rank	Changes	MEN		WOMEN		TOTAL	
1	Vision		686 36,20%		2356 51,70%		3042 48,20%
4	Hearing		572 30,20%		1461 32,10%		2033 31,50%
3	Anemia		125 6,60%		1958 43,00%		2083 32,30%
2	Hypertension		592 31,30%		1634 35,90%		2226 34,50%
5	Cardiovasc.		391 20,20%		1111 24,40%		1502 23,30%
7	Endocrine		354 18,70%		655 14,40%		1009 15,60%
6	Respiratory		210 11,10%		832 18,30%		1042 16,20%
9	Malignant		178 9,40%		373 8,20%		551 8,50%
11	Skin		24 1,30%		25 0,50%		49 0,80%
8	Musculo-skel.		221 11,70%		619 13,60%		839 13,00%
10	The rest		31 1,60%		40 0,90%		71 1,10%

These figures show that vision problems are the leading signs and problems observed during the preventive medical examinations, manifested in nearly half of the employees subject to examination, i.e. in 3042 respondents, which represents 48,2% of the total number of respondents who participated in this study (6447). Undoubtedly, the age structure of workers plays a role in the high percentage of vision problem, which is confirmed by the fact that vision changes have been registered among 13,7% of the respondents aged 18-35, among 40,6% of those aged 36-55 and among a staggering 65,4% of those aged over 55. It is essential to note that in all age groups, vision changes occur more commonly among female employees, as opposed to their counterparts of the opposite sex. Unfortunately, such data cannot be analyzed in light of the quality of the natural and artificial lighting present in different factories,

since such cross-sectoral data do not exist and are registered neither in the healthcare statistics nor in the existing records of the OSH area.

High blood pressure and anemia found themselves in second and third place, with 2226 (34,5%) and 2083 (32,3%) respondents respectively. It should be noted that hypertension occurred in 1634 (35,9%) female participants and in 592 (31,3%) male participants. However, when it came to anemia, it was much more frequent among the female respondents in comparison to their male counterparts. Therefore, 1958 (43,0%) cases of anemia were registered among the female participants, whereas male respondents exhibited only 125 (6,6%) cases of anemia. The high percentage of anemia occurrence among the female age group older than 55 (998 cases, i.e., 30,7%) rejects the possibility of anemia being observed as a condition which stems from the reproductive function of the woman. It should additionally be viewed in light of diet and socio-economic living conditions. In that sense, one of the possible reasons for this state, not to be discarded, might stem from specific occupational exposure to chemicals in the textile workplace which typically employs female workers. However, further investigation is required to determine this.

The fourth place was taken up by hearing impairments, as phenomena occurring in nearly every third employee. In the problem structure, hearing impairments have been identified among 2033 (31,5%) respondents, with an insignificant sex difference (30,2% among males as opposed to 32,1% among females). Cardiovascular disorders ensued immediately afterwards, contributing to the structure of all health problems and deviations which have been identified with 1502 respondents (23,3%).

Respiratory disorders found themselves on the sixth place with 1042 (16,2%) respondents exhibiting deviations during the pulmonary function tests which were conducted with the purpose of ascertaining the condition of ventilation. There was a higher frequency of occurrence among female textile employees as opposed to male respondents (18,3% versus 11,1%).

Endocrine disorders (disorders of internal secretion glands) followed immediately after the respiratory ones, with blood sugar and thyroid gland function changes dominating.

Such deviations have been registered among 1009 (15,6%) respondents (18,7% male and 14,4% female).

Musculoskeletal disorders, contrary to expectations, were ranked in the eighth place, having been perceived in a total of 839 (13,0%) respondents within the structure of conditions registered during preventive medical examinations. Moreover, there is no significant difference in their sex structure (11,7% among males as opposed to 13,6% among females).

Malignant disorders followed immediately afterwards, occurring in 8,5% or among 551 respondents, with a negligible difference among males (9,4%) and females (8,2%). What this implies is that every 12th worker in the textile industry has some sort of malignant disorder.

Finally, the tenth place is occupied by skin disorders (allergic and irritant contact dermatitis). In the structure of all changes identified, their contribution is of minor importance, i.e., less than 1%. They have been noted in 49 out of all the employees subject to examination.

The distribution of these signs, changes and deviations observed during preventive medical examinations, by the respondents' age and sex, is shown in the following table.

Table 6 Signs, changes and deviations perceived within the framework of preventive examinations by age and sex of respondents

	18-35			36-55			>55			total		
	men	women	total	men	women	total	men	women	total	men	women	total
Respondent database			1425			1771			3251	1893	4553	6447
Vision	44 3,09%	151 10,60%	195 13,68%	164 9,26%	556 31,39%	720 40,65%	478 14,70%	1649 50,72%	2127 65,43%	686 30,20%	2356 51,74%	3042 48,20%
Hearing	6 0,42%	24 1,68%	30 2,11%	80 4,52%	201 11,35%	281 15,87%	486 14,95%	1236 38,02%	1722 52,97%	572 30,21%	1461 32,08%	2033 31,50%
Anemia	7 0,49%	350 24,56%	357 25,05%	42 2,37%	610 34,44%	652 36,82%	76 2,34%	998 30,70%	1074 33,04%	125 6,60%	1958 43,00%	2083 32,30%
Hypertension	35 2,46%	66 4,63%	101 7,09%	95 5,36%	364 20,55%	459 25,92%	462 14,21%	1204 37,03%	1666 51,25%	592 31,30%	1634 35,90%	2226 34,50%
Endocrines	9 0,63%	62 4,35%	71 4,98%	60 3,39%	239 13,50%	299 16,88%	322 9,90%	810 24,92%	1132 34,82%	391 20,20%	1111 24,40%	1502 23,30%
Circulatory	7 0,49%	30 2,11%	37 2,60%	48 2,71%	107 6,04%	155 8,75%	299 9,20%	518 15,93%	817 25,13%	354 18,70%	655 14,4%	1009 15,60%
Respiratory	9 0,63%	62 4,35%	71 4,98%	45 2,54%	185 10,45%	230 12,99%	156 4,80%	585 17,99%	741 22,79%	210 11,10%	832 18,3%	1042 16,20%
Cancers	0 0,00%	2 0,14%	2 0,14%	28 1,58%	80 4,52%	108 6,10%	150 4,61%	291 8,95%	441 13,57%	178 9,40%	373 8,20%	551 8,5%
Skin	0 0,00%	2 0,14%	2 0,14%	4 0,23%	3 0,17%	7 0,40%	20 0,62%	20 0,62%	40 1,23%	24 1,30%	25 0,50%	49 0,80%
Musculo-skel.	3 0,21%	3 0,21%	6 0,42%	60 3,39%	166 9,37%	226 12,76%	158 4,86%	449 13,81%	607 18,67%	221 11,70%	618 13,6%	839 13,0%
Other	2 0,14%	2 0,14%	4 0,28%	4 0,23%	13 0,73%	17 0,96%	25 0,77%	25 0,77%	50 1,54%	31 1,60%	40 0,90%	71 1,1%

Surely, what this segment of research was particularly focused on was noting how many deviations from the normal values of the function laboratory testing there would be within the framework of the respondent group in total, as well as establishing how many of these collectively determined ailments, problems and difficulties would occur on average among the employees that were subject to examination. Finally, observing how these changes were distributed based on age and sex was also of interest.

The statistics from this analysis are shown in Table 7, which provides a gender overview of all the changes perceived among the respondents, as well as an overview of changes distributed among the three age groups. These pieces of information show that out of the total number of 6446 respondents, 14,448 (224,2%) deviations from the normal values, subjective toils and objective findings were registered during the laboratory and other analyses that were conducted. That translates to 2,2 changes among every worker in the textile industry. Those changes are to be further monitored in continuity within the framework of preventive medical examinations.

In addition, the workers in whom such changes were observed are to be redirected to the health sector so that an eventual diagnosis can be determined and confirmed. It is to be expected that as such, the age group of respondents over 55 is the most affected one, where on average 10417 (320,4%) deviations from the reference values, subjective toils and objective findings were confirmed, which means that 3,2 changes in the health condition of every employee in the textile sector coming from this age group were discovered on average. The frequency of occurrence of these changes is higher among female respondents as opposed to male participants (342,6% versus 268,8%).

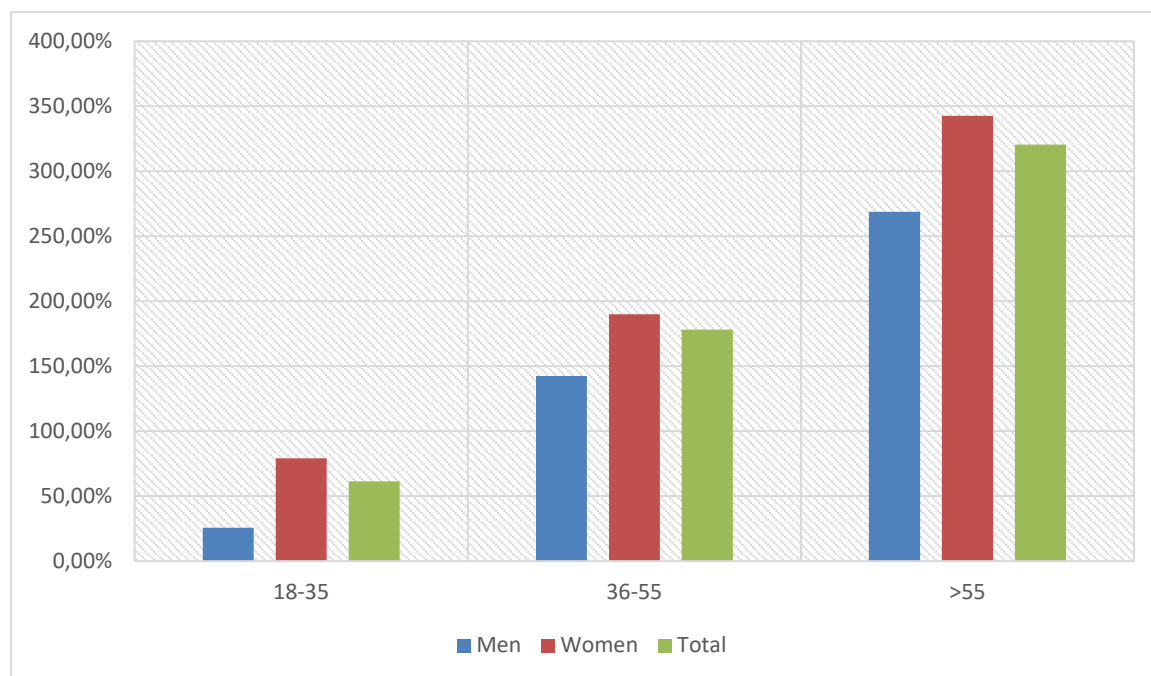
The fewest number of deviations have been registered among the age group of respondents aged 18-35, which is a result of their biological age and, certainly, the shorter experience of occupational exposure in the textile industry. Thus, the male respondents aged 18-35 exhibited 122 deviations (25,8%), i.e., every 4th employee did, while the female respondents exhibited 754 (79,1%) deviations. 876 (61,5%) deviations and toils have been identified among both males and females from this age group. As for the age group of respondents aged 36-55, changes have been noted in 3154 (178,1%) workers, with a slightly more significant contribution of women (189,9%) in proportion to the 142,5% occurring among men.

Table 7 Table overview of the distribution of textile industry workers who exhibited signs, changes and symptoms during preventive medical examinations, by sex and age

	18-35			36-55			>55			Total		
Men	472	122	25,80%	442	630	142,50%	979	2632	268,80%	1893	3384	178,80%
Women	953	754	79,10%	1329	2524	189,90%	2272	7785	342,60%	4553	11064	243,00%
Total	1425	876	61,50%	1771	3154	178,10%	3251	10417	320,40%	6447	14448	224,20%

This statistically significant difference in the distribution of deviations from the normal findings and the subjective toils and objective findings observed among the respondents depending on their age is elaborated to a greater extent in the following diagram, from which it can clearly be seen that the biological characteristics of the ageing process influence the perception of one's health, the frequency of functional incapacity, as well as the onset of early functional laboratory deviations from the normal values and findings. However, the unfavorable and unsuitable work conditions must be taken into consideration, since they certainly

have an additional contribution to the severe exacerbation of the health of the textile industry employees, which progresses as they grow older and as the length of their occupational exposure rises.



Graph 8 Percentage of respondents with noted deviations and subjective toils by sex and age

Within the framework of this research, the companies were separated into the ones that gravitated towards 5 different geographical locations based on the geographical affiliation of the place where they were situated in order to determine whether there was a difference in the frequency of occurrence of health damage from the structure of the dominant disorders occurring among workers, which would lead us to the exigency of analyzing the influence of other, principally public-health determinants on the onset of diseases (social status, the influence of environmental factors etc.). The analysis of the data demonstrated that such differences were not identified. Thus, the characteristics of the health condition of the respondents and the sex-age differences that were noted can be ascribed to the shared demographic and socio-economic determinants of Macedonian textile workers with great certainty, as well as to similar (common) characteristics of their occupational exposure and the risks present in their respective workplaces.

Analysis of the Health Problems Determined by the Survey

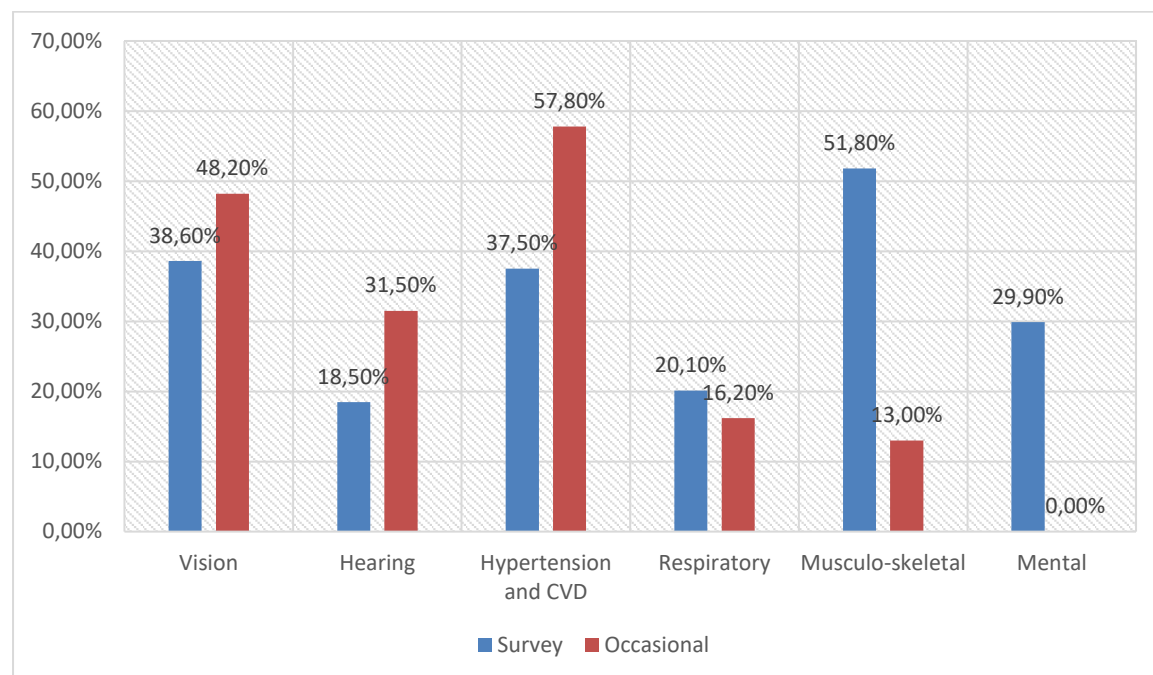
A particular focus of our research was placed on examining the relevance and accuracy of the data obtained; and to compare whether the textile employees perceive their health and their health condition in an appropriate manner or whether they consider themselves to be in a significantly better or worse state compared to the health condition that was registered during the screening carried out within the framework of the preventive medical examinations, be it for subjective or objective reasons.

Therefore, for the purpose of this study, “Glasen Tekstilec” from Shtip conducted a survey encompassing 180 respondents who were asked a couple of questions regarding some relevant safety and health aspects in their companies. Among other things, information on the health condition of the interviewees was collected. We wanted to use the data obtained in such a manner in order to do a comparative analysis of the results received from two independent sources (preventive medical examinations and an employee survey). Thus, the original questions from the survey were (re)formulated to correspond to those of the preventive medical examinations and for us to be able to make a comparative analysis. It is to be noted that during the survey, nearly 1/3 of the answers that were received could not be categorized and analyzed comparatively in an appropriate manner.

In continuation, the results of the comparative analysis of the responses to the following survey questions are provided:

- Vision problems
- Hearing problems
- High blood pressure and other cardiovascular disorders (high blood pressure, heart conditions and other states associated with circulation and blood vessels)
- Respiratory problems
- Occasional/seasonal and/or year-round allergies of the respiratory tract and/or the skin
- Musculoskeletal disorders
- Changes in mental status caused by stress

The results of this descriptive-comparative analysis are illustrated in Graph 9.



Graph 9 Comparative analysis of the data on the presence of various health problems obtained in the two segments of research

The analysis of this information did not show any significant deviations in terms of the frequency of occurrence of certain health problems which were observed among the surveyed employees. On average, the textile employees exhibited changes in their health condition in approximately the same percentual value registered during the preventive medical examinations, whereas the deviations that were determined were generally a reflection of the influence of objective reasons which conditioned this difference (for instance, hearing problems as opposed to an audiometric hearing test). The only difference of major importance is in terms of the data on musculoskeletal disorders, and the reason for this probably lies in the (non-) existence of an objective method of identification and verification of musculoskeletal disorders and joint/muscle pain.

On the whole, the results obtained from the survey and the analysis of the conditions noted within the framework of preventive medical examinations point to the objectivity and relevance of the research that was conducted. However, despite the objectivity and the relevance, the analysis of the results obtained opens the floodgates on a

series of other questions that need to be addressed as soon as possible, representing a foundation for improving the health and the work capability of textile workers.

Work Capability Assessment of Textile Industry Employees

Certainly, seeing whether employees are capable of doing their job and what kind of measures would be taken by the employer should they receive information that their employee is coping with health problems and is unable to perform their job is of particular interest to this research. Our research was not directed along this route, primarily due to the fact that there is an enormous number of subjective and objective problems because of which, in absence of official healthcare statistical data, it is realistically difficult for the employer to obtain information on how to act upon receiving a report on the work capability of the examined employees.

The Institute of Public Health of RNM regularly publishes an annual Report on monitoring, assessing and planning the preventive medical protection of workers (IPH, 2020). The report provides summary data of the type, number and extent of the preventive examinations conducted, but lacks categorization of the data on the health conditions determined and the work capability in various economic branches and industrial fields. Nevertheless, despite this, in their most recent report from 2020 (and in the reports from previous years), particulars show that an exceptionally small number of the employees who examined were deemed unfit to do their job, or considered fit with certain limitations. In the total structure of work capability assessment, this number represents only 0,01%. The percentage of employees who were deemed fit for work with certain limitations is 0,1% on average. It should be noted that these percentages refer to the total number of all preventive examinations conducted within the country and that there is no data on the state in the textile industry. In that case, if these general bits of data are reflected on the states in the textile industry, it turns out that around 40 workers are unfit for doing their job, whereas around 400 of them are fit with certain limitations, which most likely does not illustrate the real state of the textile sector. This piece of information should certainly be a topic of discussion for further analysis, as it is not subject matter of this study.

Occupational Diseases and Work Injuries Among Textile Workers

Regardless of how small and negligible these numbers might be in comparison to the real conditions in the textile sector, the question of how many of these workers are deemed unfit for work due to non-occupational and how many of them are deemed unfit due to occupational diseases is still pertinent. In that sense, we would just like to emphasize that occupational diseases are disorders in which a direct cause-and-effect relationship between work conditions and their negative impact on health has been identified.

In our country, there is a by-law – A List of Occupational Diseases, where the etiological agents (hazards in the workplace) leading to an occurrence of an occupational disease (i.e., a disease happening as a consequence of the exposure to such agents) have been enumerated. As regards the List, there is an explicit mention of specific criteria referring to conditions in the workplace (measurements of hazards in the workplace) and of the results of the medical examinations conducted among occupationally exposed employees which need to correspond in order for a disorder to be considered occupational. As was pointed out in the introduction of this chapter, occupational diseases can occur among employees in the textile industry due to exposure to noise, vibration, dust, chemical agents... This means that an opportunity to determine a wide range of occupational diseases that could occur in the textile industry has been provided from a legal point of view. It is particularly significant because if a disorder among textile workers was acknowledged to be occupational, they should be awarded a special compensation originating from the Law on Pension and Disability Insurance and from the ILO Employment Injury Benefits Convention (ILO, 1964). These compensations, in accordance with the above-mentioned Convention which has been ratified in our country, can be substantial, and depending on the case, can refer to either benefits in cash or financial compensations of social security, as well as to benefits associated with the rights of health and pension-disability insurance.

However, there are great difficulties in our country when it comes to proving and enforcing the rights awarded due to occupational diseases. Moreover, there are no official

healthcare statistical data; thus, an analysis of the state of occupational diseases in the textile sector cannot be made.

Due to the legal irregularities and non-implementation of the Law on Health Records, our country currently does not have any official statistics on occupational diseases in the textile sector, and the register of occupational diseases has not been established yet.

When it comes to occupational injuries, the situation is nearly identical. The definition of occupational injuries has been outlined in the Law on Pension and Disability Insurance, but it has not been synchronized and standardized according to EU legislation. Basically, our definition is broader and provides greater rights to the workers. Thus, in light of our law, injuries occurring on the way to work and vice versa are also considered to be occupational injuries, but such is not the case in the European legislation and the methodology of tracking occupational injuries (ESAW). Furthermore, the European definition states that for an injury to be considered occupational, there should be a record of at least a three-day-long sick leave, whereas such an injury in our country can be considered occupational immediately upon its occurrence. In addition, according to the European legislation, every occupational fatality occurring within a year of the injury can be deemed a fatal occupational injury, while the reason for the fatality shall either directly or indirectly be related to the injury. In our country, this is not the case. An injury is considered to have a fatal outcome only when death is imminent and occurring at the site of the incident or immediately afterwards. However, bearing in mind that the compensation system is not being implemented in our country, this is an issue that seems negligible right now, yet it could have a severe impact on employees in the textile industry in the long run.

It is particularly important to note that just like the non-existent record of occupational diseases, our country does not have an official record of occupational injuries either. The one managed by the Health Insurance Fund, tasked with the payment of sick leave in the amount of 100% in case of occupational injuries is not synchronized with the OSH Law and with the employer responsibilities, especially in the section referring to the identification of conditions that led to an occupational injury.

Furthermore, the data at our disposal are based on old by-laws from the early 70s of the last century and do not realistically reflect the current situation in our country. Thereby, such outdated and inconsistent data are virtually inaccessible.

Annual reports on occupational injuries are also published by the Macedonian Occupational Safety and Health Association (MOSHA) and by the Institute of Public Health of the RNM. News about occupational injuries in companies found in the media is most frequently the source of information for MOSHA's report. Hence, their relevance to this type of research is debatable.

The data gathered by the Institute of Public Health are not complete and official since they are merely a section of the work reports of some services in certain regional units of the Health Insurance Fund. Therefore, their relevance is questionable too. Moreover, even in the published annual information of the Institute of Public Health (IPH, 2021), the data are presented only collectively referring to all the industries in our country and there is no possibility of obtaining individual data on the textile sector.

Making an analysis or an assessment of the situation as regards the two conditions in the textile industry in our country has been rendered impossible because of a lack of official data on the state of occupational diseases and injuries. This is probably one of the reasons why the system for compensating textile workers in case of an occupational disease and/or injury cannot operate.

Conclusions and Suggestions

- In light of the available data and the existing trends in society, a brighter future does not seem to await the textile industry as an industrial branch. The average biological age in this branch is 54 years, while the young population does not seem to be showing interest in seeking employment there.
- Numerous violations related to either labour issues or the work environment have been registered, but they have not been fully discussed because of the focus of this study.
- The general demographic and socio-economic indicators show that the textile industry is an industrial branch with a labour-intensive segment that employs vulnerable groups of workers. Analyzing and determining the specific negative characteristics associated with work conditions and their impact on the employees' health poses a particular challenge.
- The legal obligations pertaining to the labour subject matter are most often only performed on the minimum or they are grossly violated due to the numerous understatements and individual interpretations of different authorities.
- The analysis of the conditions necessary for conducting a safety assessment in the textile industry workplace is based on the work safety statements which are generally drafted routinely and do not analyze the probabilities of the occurrence of detriments and hazards in the workplace and their potential influence on employees' health. Identical methodologies are not being implemented and appropriate modern laboratory measurement methods are not being used so as to quantify real detriments and hazards, while the actual risk assessments are not revised in accordance with the legally prescribed obligations. This gives us an incomplete picture of the workplace microenvironment, which in turn negatively influences the type, extent and quality of preventive medical examinations.
- Preventive medical examinations are generally carried out routinely and in a repetitive fashion. Additionally, they are not concrete, especially in terms of the differences of the work environment specifics. The elements of preventive medical examinations are not always appropriately defined so that early and specific signs of health deterioration could be detected.

- In order to determine the health condition of employees working in the textile industry in our country, a cross-sectoral descriptive study was conducted, encompassing 6447 respondents out of whom 1893 (29,3%) male, while 4553 (70,3%) female. 1425 (22,1%) of the total number of respondents were aged 18-35, 1771 (27,5%) were aged 36-55, whereas 3251 (50,4%) respondents were aged over 55.
- The statistics from the research point to deviations in the health condition among 1815 (28,2%) participants in total, i.e., among every third employee from the textile sector who participated in the survey. Bearing in mind their age structure, changes were detected among 212 (14,9%) respondents aged 18-35, in 453 (25,6%) respondents aged 36-55 and among 1150 (35,4%) respondents older than 55 years.
- According to the sex structure, the analysis demonstrates that changes in the health condition were determined among 539 (8,3%) male respondents and among 1276 (19,8%) female respondents in total. The same differences were confirmed in every age group that was subject to examination, indicating that the female employees tend to get sick 2-4 times, as opposed to their male counterparts.
- The analysis of the signs, symptoms and findings noted during the preventive medical examinations among the textile sector employees that took part in the research points out that the employees were most frequently coping with vision problems, registered among 3042 (48,2%) respondents; the second and third place was occupied by high blood pressure, occurring among 2226 (34,5%) respondents and anemia, occurring among 2083 (32,3%) respondents. These were followed by hearing problems, occurring among 2033 (31,5%) participants, while cardiovascular disorders were present among 1502 (23,3%) of the respondents. Respiratory disorders found themselves on the sixth place with 1042 (16,2%) respondents, while endocrine disruption occurred in 1009 (15,6%) cases. Musculoskeletal disorders were ranked eight, having been registered in 835 (13,0%) of the respondents, whereas malignant disorders were discovered in 551 (8,5%) of the employees that were subject to examination. The last place was taken up by skin disorders (allergic and irritant contact dermatitis), having been noted in 49 (0,8%) respondents. In all of these cases, such conditions happen substantially more often among female

respondents, with the exception of cardiovascular disorders, where male respondents dominate.

- Deviations from the normal values of the functional laboratory testing that was conducted, as well as disorders, subjective/objective problems and difficulties have been registered among 14,448 (224,2%) respondents, which means that 2,2 healthcare changes were detected among every worker in the textile industry. The highest percentage was observed in the age group of employees over 55, where 10417 (320,4%) deviations from the reference values were registered or where subjective toils and objective findings were confirmed.
- No significant distributional difference of the healthcare changes based on the geographical location of the companies whose employees were examined has been noted within the framework of the research.
- For the purpose of this study, "Glasen Tekstilec" conducted a survey research in order to determine the state of occupational safety and health among workers in the textile industry. The results obtained from the survey research and the analysis of the conditions observed within the framework of preventive medical examinations do not indicate any differences, which demonstrates the objectivity and relevance of this study.
- In our country, there are no official healthcare statistics on the work capability of the workers in the textile sector. If the general statistics from the Institute of Public Health of RNM are interpolated in order to assess the work capability of textile workers, it turns out that around 40 textile workers are not fit for doing their job, while around 400 of them are, but with certain limitations.
- Due to legal irregularities and lack of implementation of the Law on Health Records, our country currently does not have any official statistics on occupational diseases in the textile sector and the register of occupational diseases has not been established yet. When it comes to occupational injuries, the situation is nearly identical. That is probably one of the reasons why the system for compensation of textile workers for occupational diseases and/or injuries cannot function.

Proposed Measures

- Modification and amendment to the Ordinance on the Type, Extent, Content and Price List of Preventive Medical Examinations of employees by incorporating specific elements within those examinations which would be characteristic of an early identification of healthcare changes among textile workers,
- Amendments to the legal regulation which would allow for cross-sectoral data collection on workplaces in which an increased risk has been determined and the health condition and the work capability of the textile industry workers who are employed in those workplaces,
- Modification of the legal regulation referring to the collection and processing of data on occupational diseases and injuries to make it congruent with the European regulation in this area,
- Modification of the legal regulation so that a single price for the services in the OSH area can be agreed upon. This is a seriously limiting factor of occupational work in the area; in particular in the textile industry, where numerous hazards occur during the process of working. Accordingly, a great deal of complex medical examinations is necessary in the textile sector; however, from a financial point of view, the guaranteed prices of the established healthcare packages cannot cover them,
- Strengthening the infrastructural capacities of the services working in the occupational safety and health area with an emphasis on establishing appropriate laboratory capacity in order to identify the characteristics of occupational hazards and to determine the early and, if possible, reversible signs of health deterioration among the exposed textile workers,
- Establishing specific educational profiles of professionals in the OSH area with a narrower formal specialization in work within the textile sector,
- Practicing the principle of continuously updating the OSH states in order to react to potential safety and health infringements proactively. The point is not to draw up documents which would only be presented as needed in front of the respective authorities in the country. A key segment of this rule is the creation of a system for monitoring work conditions in the micro-environment of a particular employer,

- Introducing specific modules for continuous training of professionals on occupational safety when it comes to work in the textile sector,
- Reinforcing the role of the OSH Representatives as the OSH Law foresees,
- Strengthening social dialogue at the company level,
- Increasing the capacities of textile managers through continuous education and exchanging ideas both among themselves and among the existing buyers in Macedonia,
- Defining the work process specifics and addressing them by practicing the legal obligation of signing Collective Agreements at the company level,
- Creating a National OSH Strategy in the textile industry, where the short-term, medium-term and long-term priorities targeting the improvement of work conditions and promoting employees' health in this sector would be defined.

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