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Original investigation

Occupational Diseases of Women Workers in Turkey: A Neglected Area

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ABSTRACT

Objective: Despite many studies and reports regarding occupational diseases (OD) of women workers (WW) in Turkey the exact magnitude of OD is largely unknown. This study aims to identify and highlight the main topics regarding employment characteristics and work-related diseases of WW based on the data of OD outpatient clinic and national statistics with a broad perspective in Turkey.

Methods: This is a cross sectional study. Data were obtained from OD council report of 269 WW without sample selection.

Results: The mean age was 37.8 years, mean working time was 126.6 months. The three majority of the sectors were health care, automotive, textile sectors. Of the WW, 74.2% were diagnosed with one or more OD. The most common three diagnoses of OD were: musculoskeletal diseases: 57.7%, respiratory diseases 23.6%, and hearing loss and vocal cord pathologies: 7.7%.

Conclusion: Our research shows that there are still problems in the diagnosis and reporting of OD of WW. The old risks such as ergonomics, chemicals and common diseases such as musculoskeletal diseases still remain important. New sectors and new working models are rising and should be carefully evaluated for long-term OHS outcomes. There is still a huge research gap in terms of improving knowledge of OD for women

Keywords: musculoskeletal diseases; occupational diseases; women workers

INTRODUCTION

Women worker (WW) suffer many health problems related to their work but insufficient attention is given to occupational health in women. Men are believed to work in "more dangerous" jobs, and the male workers often come to mind first when talking about occupational health and safety (OHS) issues. Even the 21st century, much of women's work remains, unpaid and unregistered for the ones who work at home or in agriculture in many developing countries (1). Within the paid labor force, women are disproportionately employed in the informal sector (2, 3). Identifying issues and problems in the occupational health of WW remains a challenge and neglected in developing countries because of these social, economic, and political reasons (1).

Today, modern Turkey is one of the countries where WW issues are newly discussed. There are limited number of studies on the work life of WW which mostly focused on only one sector (4-6). However, there is gross underestimation of WW with OD in these studies. The current literature relating to women's labour force participation in Turkey is mainly based on analyzing major determinants of the participation decision and related factors (7).

This study aims to identify and highlight the main topics regarding employment characteristics and work-related diseases of WW based on the data of OD outpatient clinic with a broad perspective in Turkey.

Getting an overview of the situation of WW in Turkey will be important in terms of understanding the issue before presenting the study.

Women's participation in labor force and statistics of OD in Turkey

According to the statistics of Turkey Statistical Institute (TSI) in April 2019, 5 million (59%) out of 9 million working women are in service sector and 41% do not register with any social security institution. The rate of employment is 29.2% for women and 63.2% for men, while the rate of labor force participation (LFP) is 34.5% for women and 71.8% for men (8). The rate of women unemployment, which was 12.3% in April 2018, rose by 2.9 points to 15.2% in April 2019. Unemployment rate of non-agricultural women climbed to 18.9%. As of June 2019, 2 million and 231 thousand out of over 4 million people in total who have registered to Turkey Employment Agency (TEA) are women. There are 380 doctors, 11 thousand masters, 385 thousand bachelors among women waiting for work from TEA (9). According to the data of a non-governmental organization, the number of WW who work unregistered and unpaid in domestic labor is at least two times higher than the official figures. According to a trade union survey conducted in Turkey, the most important three problems faced by women in working life are low wages, unemployment and uninsured works and part time employment (10). On the other hand, OD data of WW are insufficient. The incidence rate of OD in WW is less than one in a hundred thousand (11).

METHODS

Study Sample and Data Collection

This study was conducted in OD outpatient clinic of Dokuz Eylul University. According to the plan, all the patients who visited the outpatient clinic were included in the study. A total of 2,277 workers of which 296 (%13) were women were evaluated in our clinic with the preliminary diagnosis of OD between 2013 and June 2019. WW were evaluated without sample selection. The statistical analyses were performed on 236 cases after the exclusion of subjects who did not continue OD evaluation.

OD council (ODC) report

Occupational medicine specialist are taken a detailed work history performed clinic examination when necessary, consultations in different departments are provided. After the final examinations, a report is issued by the ODs council (ODC). ODC reports consist of 4 sections. The first section includes sociodemographic data, the second section includes a detailed work history and exposure assessment, the third section focuses on clinical assessment. The fourth section includes data concerning the discussions of the ODC. There are three possible outcomes: First: No OD or normal: Individuals with no disease or those whose existing disease was not associated with their job. The second is the diagnosis of OD which is defined as any disease primarily contracted as a result of an exposure to risk factors arising from work activity. The third and last one is work-related diseases (WRD) due to multiple causes, factors in the work environment play a role together with other risk factors in the development of such diseases (12). All data were obtained from ODC reports. Descriptive findings were expressed as mean and standard deviation, and minimum and maximum values. The entire analysis is carried out by SPSS 15.0 package program.

RESULTS

Sociodemographic characteristics of the participants are given in Table 1. The mean age was 37.8±7.9 years (min: 21, max: 60). When the distribution of the cases according to the referring institutions was analyzed, it was found that 130 workers (47.3%) were referred from Social Security Institution (SSI), 65 workers (23.6%) from occupational physicians, and 80 workers (29.1%) from the specialist physicians of the secondary and tertiary care state hospitals. The most common reasons for referral were the suspected occupational asthma (32%), cervical and lumbar disc hernia (24%), dermatitis and latex allergy (6%), lateral epicondylitis (3.3%), and vocal cord pathologies (3.3%) respectively. Mmean working time of the group was 126.6 months (min 1-max 396 months) The majority of the sectors were health care (n=46, 16.7%), automotive (n=41, 14.9%), textiles (n=30, 10.9%), food (n=20, 7.3%), call center service (n=21, 7.7%), cleaning (n=15, 5.5%), electronic (n=11, 4.0%), plastic (n=7, 2.5%), dental technician (n=6, 2.2%), nursing home (n=5, 1.8%) and cosmetic (n=4, 1.5%). The job distribution in descending order was: assembly worker (n=51, 18.5%), cleaner (n=45, 16.4%), nurse (n=22, 8.0%), call center operator (n=21, 7.6%), packaging worker (n=11, 4.0%), sewing operator (n=16, 5.8%), dental technician (n=6, 2.2%), plastic injection machine operator (n=5, 1.8%), dishwasher (n=5, 1.8%) and ironer (n=4, 1.5%) (Table 2). Two hundred and forty workers completed OD assessment.Of the patients, 178 (%74.2) were diagnosed with OD or WRD while 62 (25.8%) workers either had no disease or their disease was not associated with their occupations. Table 3 shows distribution of OD and WRD diagnoses. Most of workers have more than one OD or WRD. A total of 182 ODs and 103 WRDs were diagnosed in 178 cases. The most common three diagnoses of OD and WRD were musculoskeletal diseases: 105 (57.7%), respiratory diseases: 43 (23.6%), hearing loss and vocal cord pathologies: 14 (7.7%). Figure 1 and 2 show the most common diagnoses of OD and average working time by sectors and jobs. MSDs are the most common ODs in all sectors except

Table 1. Number of total workers and OD by years in Turkey

Year	Number of total workers	Number of total workers with OD	Number of women workers with OD	Incidence rate of OD in women / men workers (per hundred thousand)
2014	19.821.822	494	24	0.48 /3.13
2015	20.773.227	510	40	0.66 /3.35
2016	21.131.838	597	29	0.48 /3.73
2017	22.280.463	691	28	0.56 /3.93

Table 2. Age, referral institute, preliminary diagnoses, sectors and jobs of all cases

	N=275 (%)
Age	37.8 (±7.9), 37.0 (21-60)
Referral instutie	
SSI	130 (%47.3)
Occupational physicians	65 (%23.6)
Secondary and tertiary care state hospitals	80 (%29.1)
Preliminary diagnosis	
Asthma	89 (%32.4)
Cervical disc hernia	38 (%13.8)
Lomber disc hernia	26 (%9.5)
Dermatitis	10 (%3.6)
Pneumoconiosis/ interstitial lung disease	10 (%3.6)
Lateral epicondylitis	9 (%3.3)
Carpal tunnel syndrome	9 (%3.3)
Vocal cord pathologies/dysphonia	9 (%3.3)
Latex allergy	7 (%2.5)
Hearing loss	6 (%2.2)
Tendinitis	6 (%2.2)
Meniscus pathologies	3 (%1.1)
COPD	2 (%0.7)
Other	51 (%18.5)
Mean working time (months)	126.7 ± 77.9, 120 (1-396)
Sectors	
Health care	46 (%16.7)
Automotive	41 (%14.9)
Textiles	30 (%10.9)
Call centre service	21 (%7.7)
Food production	20 (%7.3)
Cleaning	15 (%5.5)
Electronics	11 (%4.0)
Plastic industry	7 (%2.5)
Dental prosthesis	6 (%2.2)
Nursing home	5 (%1.8)
Cosmetics	4 (%1.5)
Other	69 (%25.1)
Jobs	
Assembler	51 (%18.5)
Cleaning	45 (%16.4)
Nurse	22 (%8.0)
Call centre operator	21 (%7.6)
Packaging	11 (%4.0)
Sewer	16 (%5.8)
Dental technician	6 (%2.2)
Plastic injection machine operator	5 (%1.8)
Dishwasher	5 (%1.8)
Ironer	4 (%1.5)
Other	89 (%32.4)

Table 3. Distribution of OD and WRD by systems

Systems	Occupational Diseases Diagnosis	Work Related Diseases Diagnosis
Musculoskeletal system	105 (%57.7)	64 (%62.1)
Respiratory system	43 (%23.6)	13 (%12.6)
Hearing loss and vocal cord pathologies	14 (%7.7)	12 (%11.7)
Skin diseases	17 (%9.3)	2 (%1.9)
Psychiatric diseases	1 (%0.5)	7 (%6.8)
Cardiovascular system diseases	2 (%1.1)	5 (%4.9)
Total	182(%100)	103(%100)

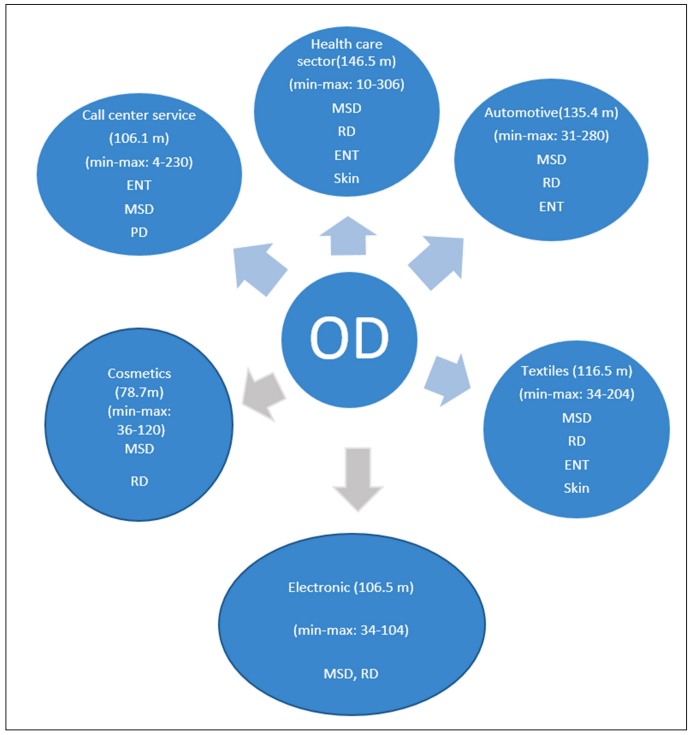

Figure 1. Distribution of the most frequently diagnosed ODs and average years of work by the sectors
MSD: Musculoskeletal disease (LDH, CDH, CTS, tendinitis), **RD:** Respiratory diseases (asthma, hypersensitivity pneumonitis, pneumoconiosis), **PD:** Psychiatric diseases (Depression, anxiety disorder, post-traumatic stress disorder), **ENT:** Ear Nose Throat (hearing loss, allergic rhinitis, vocal cord nodule), Skin (Dermatitis),
CD: Cardiac diseases (HT, CAD)

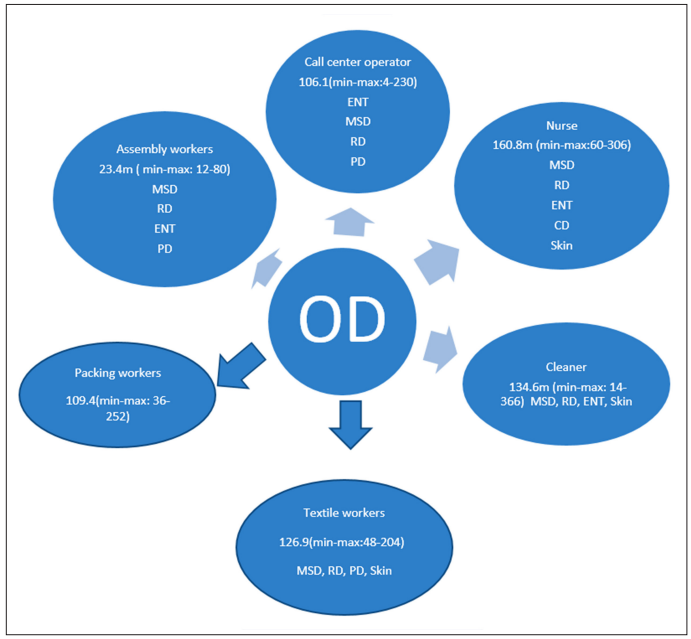

Figure 2. Distribution of the most frequently diagnosed ODs and average years of work by the jobs
MSD: Musculoskeletal disease (LDH, CDH, CTS, tendinitis), **RD:** Respiratory diseases (asthma, hypersensitivity pneumonitis, pneumoconiosis), **PD:** Psychiatric diseases (Depression, anxiety disorder, post-traumatic stress disorder), **ENT:** Ear Nose Throat (hearing loss, allergic rhinitis, vocal cord nodule), Skin (Dermatitis),
CD: Cardiac diseases (HT, CAD)

for call center service. The mean working time in the sectors was at least >30 months. Twenty-one (7.7%) women were employed as call center operators. Vocal cord pathologies, hearing loss, MSD and asthma were mostly diagnosed in these workers. The shortest latent period was in call center operators (4 months).

DISCUSSION

We have attempted to describe the current state of knowledge and identify emerging issues of the women labor force and provide a broad overview regarding OD in women. There are still serious problems with the visibility of OD in WW.The overall incidence rate of OD is low in Turkey as this rate is estimated to be much lower for WW. The most of WW are employed intensively in pink collar (which are historically considered to be women's works, such as nursery, teacher) works. MSD and respiratory diseases still represent the most common work related health disease.

Recording, reporting and notifying OD are mandatory in Turkey. According to the relevant regulation, every physician who suspects OD in any worker is obliged to refer the patient to an authorized hospital (13). However, there is no OD surveillance system fitting the recommendations of ILO on protection and prevention (14, 15). OD statistics are kept only by the SSI for insurance services it does not reflect all WW with OD.

When OD trend is evaluated, the known jobs and known risks such as MSD , latex allergy and dermatitis in healthcare workers; MSD and allergic diseases and hearing loss in textile workers; MSD and hearing loss in automotive sector (assembly workers); respiratory diseases in cleaning workers and so on- still remain important**.** In the report evaluating women and occupational health in EU countries, carpal tunnel syndrome is the most common diagnosis of OD with a rate of 42.3% followed by other MSD and allergic diseases (16). This result is similar to national and international data and literature (17-19). However, the picture is rather poor in incidence rates of other countries. Gomez et al. reported that 28,728 OD were recorded in Spain in 2004. Women's incidence rate was 188.7 per 100,000 workers, however, we found this rate as 0.48 per 100,000 workers (20, 21). The same author published a study in 2017 and reported that a total of 243,310 workers were diagnosed with OD between 1990 and 2009 and the male/women ratio was 1.07. As already shown in Tables, the number of women with OD can be counted on the fingers of one hand. It is possible to evaluate the reasons for the low number of WW with OD in a few subtitles. The first and the most important reason leading to this situation is that OD records are kept due to the insurance system.

Another important factors which affects women's occupational health are women labor participation rate and employment characteristics.

One of the striking features of Turkish labor market is the distinctly lower women labor force participation rate (WLFPR). In 1955, the WLFPR was 72%, and in the following years, this rate decreased to around 30% (9). It is also observed that male employment is higher in EU countries. While male labor participation rate fluctuates over time, women WLFPR rate increases day by day. The UK, Germany and France show high women LFP rates while the rates of Italy, Poland and Hungary remain below the EU-wide rates (22, 23). Although this topic is not the main purpose of this study, the reasons of low participation in Turkey are multidimensional: socio-cultural and economic reasons, low educational attainments, and skills which directly or indirectly effect FLFPR (24).

According to a trade union survey conducted in Turkey, the most important three problems faced by women in working life are uninsured works and part time employment. These working conditions does not allow to establish an OSH system in the company for the workers (25). Competent non-governmental organizations highlighted that a significant number of WW worked from home services (26). In Turkey, national occupational health and safety law excludes household service. There have been lack of information about the health hazards of this environment, because women's household work has been ignored and therefore there has been poor encouragement to study it in detail (13). Therefore, even though we diagnose household WW in our clinic with OD, this group remains invisible within the OSH system in Turkey.

A different discussion is provided by different types of OD between men and women. It is stated that the common ODs themselves contribute to the limitations in the diagnosis of OD. MSD and occupational dermatitis are the most common OD in WW and have a long latent period, mostly remain silent for a long time and are also common in the general population. Messing stated one of the reasons why OD in WW were diagnosed less than those in men as more MSDs and allergic diseases occurred in women. (27). In 2007, Eurostat statistical book presented that men with an OD were registered more often than women with an OD. Most of the women with an OD worked in the sectors such as 'wholesale, retail and trade' and 'health and social work' (28). Four years later, another EU report stated that the rate of notifications of OD was under 30% for women and over 70% for men. The authors explained this result with the occurrence of occupational skin diseases among WW in Germany. In the same report, on the contrary, women were diagnosed with more OD than men in Denmark. Messing stated that from a different point of view, the OD diagnosis was underestimated due to the view that "women's jobs were safe" and that "any work related health problems showing among WW could be attributed to unfitness for the work or excessive complaining "(29). Because of this complex relationship, it is not possible to find a single answer on this topic (16).

It can be mentioned that there is still an intensive women's labor force in the occupations known as historically considered to be women's work such as textile (30), cleaning and health sectors (31). Globalization of manufacture, that yield to new industrial zones in developing countries like Turkey, is under the enforcement of increased capitalist relations. These manufacturing types often rely on the exploitation of women's labor. Women increasingly involve in these sectors and in different working models such

as part-time work and home office work. Call center service is one of these sectors that have rapidly increased in recent years. According to Turkey Call Center Association Report, 66% of the call center workers are women (32, 33)**.** In our study, 21 (7.6%) women call center operators were diagnosed with OD. These workers mostly worked as home office workers and did not receive OHS service (not given in the results part). According to EU-OSHA report in 2009, 58.6% of the European work force (EU-27) was women and women filled 59% of all newly created jobs and new working models (34).

Our study has some limitations. Our rate of occupational disease may be high, as we accept patients who have undergone preliminary evaluation. We have not been able to evaluate all national data of OD. Also, It is important to include the data of occupational accidents in the evaluation of women and their work life.

There is still a huge research gap in terms of improving knowledge of occupational risks for women (35). New sectors and new working models should be carefully evaluated for long-term occupational health and safety outcomes, and surveillance methods should be developed. Occupational health and safety policies covering all WW are needed.

Compliance with Ethical Standards: The study was conducted after receiving approvalfrom the Ethics Commission of Dokuz Eylül University non-interventional research (No:2020/01-15, Date: June 6, 2020).

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - ACB, DL; Design - ACB, DL; Supervision - AC; Materials - ACB, DL, AC; Data Collection and/or Processing - ACB, DL; Analysis and/or Interpretation - ACB, DL; Literature Search - ACB, DL; Writing Manuscript - ACB, DL, AC; Critical Review - ACB, DL

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