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Awareness Analysis of Occupational Health and Safety in Garment Industry

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Abstract
As employees of one of the biggest business areas with the largest labor force, the opinions of Turkish workers in the garment industry on occupational health and safety are significant. This study particularly examines the opinions of lower level employees in the Garment Industry. In the study, the data was obtained through surveys, and the employees' level of awareness was analyzed with the aid of grey relational analysis. As a result of the study, it became evident that despite the laws on this subject and training provided to the employees within this scope have led to an increase in the awareness levels about workers' health and occupational safety it is still not at a sufficient level. For employees, wages (45%) are still the main selection criterion. As a consequence, it is predicted that improvements in living conditions, an increase in ratio of qualified personnel and improvement in economic conditions of employees will bring the sector to a better position in terms of workers' health and occupational safety.

1. Introduction

Both around the globe and in Turkey, the process of globalization has brought an increase in the size of the workforce which in turn gave rise to social and economic insecurities. A common prediction that came with this globalization was that it would bring economic progress and an increase in welfare, environmental and social problems would be eliminated, occupational diseases and accidents would diminish, and developmental levels would increase. But on the contrary, the fast pace of technological advances, constantly changing state policies as well as regulations on occupational health and safety (OHS) caused an increase in social and economic insecurities (Keith, Brophy, Kirby, & Rosskam, 2002; Yılmaz, 2009). On the other hand, employees demand mental and physical health assured in a workplace and a safe working environment where they can both sustain their lives and exhibit their progress and skills. In contemporary OHS approaches, it is

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necessary to identify the potential sources of danger in a working environment, conduct a risk analysis in terms of health and safety, identify and implement prevention and protection measures, and inform the employees of such activities (Durdu, 2006; S., 2013).

In today's social order, each individual should be able to access all kinds of opportunities with basic insurances, and afford health services. This is why workers need improved working conditions where the risk of accidents is minimized, even eliminated, and in the unlikely event of an incident, their medical expenses and compensations are assured. This is a social justice requirement.

When the causes of occupational accidents are examined, the reasons are various. The structure of the company, its economic and industrial level of development, management style, the lack of statistical records and inspections on causes of accidents, lack of a supervising mechanism, the qualifications of the employees and their insufficient levels of awareness are among the reasons of accidents (Camkurt, 2007). Furthermore, a research indicates that 54% of the occupational accidents are caused by wrongful conducts, 38% by improper organization or the lack of it, and 8% by technical reasons (Durdu, 2006). In this context, recent occupational accidents combined with the rising concept of human value caused the notion of OHS to gain importance, and led to an increase in related efforts. These efforts aim to protect employees from occupational accidents and potential occupational diseases as well as provide a healthy and safe working environment (Tozkoparan & Taşoğlu, 2011). According to the research conducted by International Labor Organization (ILO), each year, 1.2 million workers lose their lives around the globe because of work related accidents and diseases. The same source also indicates that annually 250 million workers are injured by occupational accidents while 160 million workers suffer from occupational diseases. According to the statistics provided by Social Security Institution (SSI), in Turkey in 2006 there were 79,027 work related accidents, 160 of which were deadly and 574 work related diseases. The same institution's data also show that 191,389 occupational accidents and 371 occupational diseases were recorded in 2013 in all sectors. When we look at the textile and garment sector's data for 2013, there were 13,956 accidents and only 2 occupational diseases in total. However, it must also be noted that there are occupational accidents and diseases that are not included in this figure (https://osha.europa.eu/fop/turkey/tr/statistics, 2015; SGK, 2013). This is because the garment industry is a labor intensive sector, and in the competitive global level, the labor costs are leading to a rise in the number of unregistered workers (Bakanlık, 2013). When the data for 2006 and 2013 are compared, we can see that the number of occupational accidents almost doubled while diseases show a diminishing trend. When we disregard the unrecorded incidents, we can conclude that even with the improvements in technology and the rising number of informed employers-employees, the rise of work related accidents could not have been prevented while on the other hand, more frequent medical check-ups did actually led to a fall in the documented occupational diseases. Furthermore, the researches conducted by ILO reveals that 50% of occupational accidents could easily have been prevented while 48% could also have been prevented by taking comprehensive measures. These figures allow us to predict that, in fact, of 98% of

work related accidents could have been prevented (http://www.kayasafety.com, 2014). Occupational accidents and diseases are causing significant damages to employees and employers as well as the state economy. The economic cost of occupational accidents and diseases constitutes 4% of gross global product annually. This is why the main aim of OHS is preventing occupational accidents and diseases before they happen.

In fact, businesses are taking various health and safety measures in their premises to prevent or minimize occupational accidents and diseases. An important factor that determines the efficiency of these measures is the level of knowledge and attitudes of workers employed in manufacturing and contract manufacturing workshops in the Garment Industry. Following the OHS regulations and measures implemented in the workplace is another important issue in effectiveness of OHS.

When we survey the literature, we can see that the studies on garment industry are insufficient and there is no sound data on work related accidents in this sector. This is mostly caused by the high number of unregistered employees in textile and garment industry. The studies mostly focus on health sector, and major areas of focus include specialist medical personnel (Arfanis, Shillito, & Smith, 2011; Öztürk, Babacan, & Anahar, 2012), patients and medical staff (Çopur, Varli, Avşar, & Şenbaş, 2006; Öztürk et al., 2012), the effects of working hours in hospitals (Baldwin, Namdari, Donegan, Kamath, & Mehta, 2011; Blum, Shea, Czeisler, Landrigan, & Leape, 2011; Estryn-Béhar & Van der Heijden, 2012), and the safety of the environment (Arcury et al., 2013). There are also studies conducted about occupational health and safety in non-profit organizations (Kosny & MacEachen, 2010), iron foundries (Butlewski, Misztal, Jasiulewicz-Kaczmarek, & Janik, 2014), transportation sector (Boada-Grau, Sánchez-García, Prizmic-Kuzmica, & Vigil-Colet, 2012) and food industry (Chang, Kim, Ju, & Go, 2012). It is also possible to see studies that focus on sub-indicators of OHS in workplaces such as environmental and ergonomic conditions (Fişek). Furthermore, there are references that discuss the ergonomic conditions of the working environments in order to increase the level of OHS (de Miranda Prottes, Oliveira, & de Oliveira Andrade, 2012; Güvenliği, 2008). With the concept of OHS gaining significance, new work areas have been created in addition to new strategies, and the efforts are being concentrated on giving the issue of human health the importance it actually deserves (Koukoulaki, 2010). The studies focusing on garment industry emphasize the importance of risk analysis and the necessity to take required measures since this sector is more prone to occupational incidents due to increased and more frequent ergonomic dangers as well as increased contact with materials compared to the other sectors. When the risky areas the workers face are listed, ergonomics, the conditions in the workplace, the parts of machinery/equipment and their placement are significant issues (Güvenliği, 2008). In addition, the subject matter of the above mentioned study is addressed in Tenth Development Plan (2014-2018) and Labor Law No. 4857. This research is one of the first ones that study the level of awareness of workers on occupational health and safety in manufacturing and contract manufacturing workshops in the Garment Industry.

Within the scope of this study, surveys were conducted with workers of the Garment Industry workshops. The surveyed employees were mostly composed of

lower level personnel employed particularly in bands or warehouses/shipment departments. Since this specific group is more exposed to occupational accidents and diseases, the aim was to measure their levels of awareness.

2. Grey Relational Analysis

Grey Relational Analysis was developed in 1982 by J. Deng (Ju-Long, 1982). The reliability of familiar and widely used statistical analysis methods are affected by the small sample size and the uncertainty in universe distribution or sample variability. But in real life, in many areas, many decisions are made with inadequate/limited data due to various reasons (such as time restrictions, financial problems, the lack of real data etc.) (Ju-Long, 1982; Julong, 1989; Wu, 2007).

In Grey Relational Analysis developed by Deng, the unknown or unidentified information is described as "grey element" (Julong, 1989). In order to identify decision indicators, grey region analysis is used. "Grey relation" expresses the measurement of varying relation between two elements or two subsystems within a specific system. The similarities or differences in the analyzed elements are referred as "grey relation". During the system development process, when the change between the two elements is constant, there is a high degree of relation if the change is coherent and a low relation in the opposite case.

The grey relational analysis is used in selection and sorting of indicators that will represent the system (Julong, 1989). The process steps derived from Likert scaled surveys assuming discrete values and followed during analysis of the data are based on simple and ordinary mathematical operations. Arranging the data in a chart facilitates performing the operation sequentially.

In grey relational analysis, the first column in the table is populated with the sequence number (ki, i=1,…,n) of the persons used in inputting the data of the survey participants. In the following columns, the responses to the variables (P_s, s=1,…,m) used in the research are added with a classification sequence number in the Likert scale (e.g. in Likert scale of 5, 1 can be used to represent completely disagree while 5 can be used for completely agree), and the final column represents the sequence number (P_0) of the sequential class in the Likert scale that best represents the responses (grey element as decided by the researcher). The table that shows the difference data of the analysis is obtained by subtracting the sequence number of the answer from representation value of each responder (P_0- P_s).

By using the data composed of the differences, the maximum (max(P_0- P_s)) and the minimum (min(P_0-P_s)) values are calculated for each variable. Based on the difference data, the minimum and maximum values vary between 0 and 4. The grey relation coefficients are calculated with the following formula for each responder and each variable with the aid of end values:

$$\gamma(k, S_s) = \frac{\min(P_0 - P_s) + \xi \max(P_0 - P_s)}{(P_0 - P_s) + \xi \max(P_0 - P_s)} \qquad (1)$$

The ξ value in the formula is selected between 0 and 1, usually as 0.5 to mitigate its effect on the relation coefficient of the maximum value. Finally, the degree of grey relation as indicated in the last line of the table for grey relation coefficients is

calculated by dividing the total of grey relation coefficients to the number of people. The grey relation degrees indicated with Γ_{P_s} are sorted by magnitude, and then interpreted according to the grey element.

3. Materials and Method (Methodology)

The purpose of this study is to investigate the awareness of employees working in workshops in Garment Industry towards OHS. The universe of the study is composed of all workers in the Garment Industry. As the sampling method, convenience sampling method is selected as one of the non-probability sampling methods. Data are obtained through convenience sampling.

In the study, the data are collected through face-to-face surveys conducted with voluntary respondents. The survey is composed of two parts. The first part contains demographical information of the surveyed participants. The second part is composed of scale questions about the attitudes towards OHS. The attitude scale used in the study is the scale developed by Asuman Durdu. (Durdu, 2006). The scale is composed of 13 entries from "Completely Disagree" to "Completely Agree" in Likert scale of 5. Since 3 items related to the use of protective gear is similar, the general phrase is taken in the analysis. Hence, the assessment analyzed with SPSS 17.0 Statistical Package Program contained 11 phrases.

4. Findings and assessment

4.1. Demographic variables

The findings on respondents' demographic relations are shown in Table 1. The survey was conducted with 200 people, and 196 of them were assessed following a close inspection. Some of the surveys were disregarded because of incomplete or missing answers.

When the demographic characteristics of the respondents are examined, in the variable: company type, employees either work in manufacturing (74.5%) or contract manufacturing (25.5%). When the gender variable is considered, the employees are proportionally distributed among female variables (50.5%) and male variables (49.5%). In age variable, the distribution is as follows: (19.4%) 16-24 years of age, (27%) 24 - 34 years, (33.7%) 35-44 years and (17.3%) 45 years and older. Majority of the employees are composed of primary and secondary school graduates.

Table 1. Demographic Characteristics of the Responders

Variable		**f**	**%**
Company	Manufacturing	146	74.5
	Contract manufacturing	50	25.5
Total		196	100
Gender	Female	98	50.5
	Male	97	49.5
Total		196	100
Age	16-24	38	19.4
	24-34	53	27
	35-44	66	33.7
	45 and older	34	17.3
Total		191	97.4
Education	Literate	29	15.2
	Primary school	56	29.3
	Secondary school	69	35.2
	High school	10	5.1
	Bachelor's degree	16	8.2
	Master's degree and higher	5	2.6
	Other	6	3.1
Total		191	98.7

The answers to the question "What is the most important thing you pay attention to when choosing a company?" are given in Table 2 and Figure 1.

Table 2. Considerations when Choosing a Company

Company Selection Criteria	**f**	**%**
Salary Conditions	89	0.45
Social Benefits	20	0.10
Insurance	34	0.17
Health and Safety conditions	20	0.10
Management Style	10	0.05
Developmental Opportunities	12	0.06
Job Security	11	0.06
Total	196	100

Figure 1. Scatter Chart of Considerations when Choosing a Company

When we look at the most important considerations of the 196 survey participants when choosing a company (Figure 1), the majority of the employees regard salary

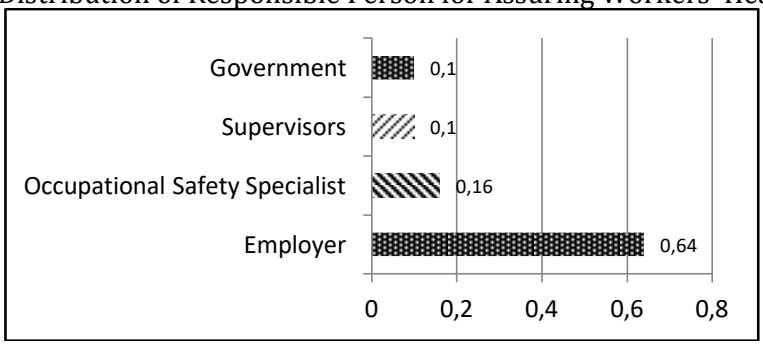
conditions as the most prominent criterion. The salary is followed by insurance as the second most important aspect in selecting a company. Employees seem not too sensitive to the issues of health and safety conditions. It can be concluded from these responses that workers employed in garment workshops usually struggle with financial difficulties, and hence consider salary and insurance a priority over health and safety conditions as well as developmental opportunities and social benefits.

In the question, "Whose responsibility is it to assure workers' health and safety?" participants were allowed to reply with multiple options. The answers to this question can be seen in Table 3.

Table 3. The Distribution of Responsible Person for Assuring Workers' Health and Safety

Responsible Person for Health and Safety	**f**	**%**
Employer	137	0.64
Occupational Safety Specialist	34	0.16
Supervisors	22	0.10
Government	22	0.10
Total	215	1.00

Figure 2. The Distribution of Responsible Person for Assuring Workers' Health and Safety



When we examine Figure 2, we see that 137 workers answered with "Employer" to the question of responsible person for assuring workers' health and safety in the workplace. We can also conclude that there is awareness about existence of an Occupational Safety Specialist depending on the size of the company based on the answers. However, this level of awareness is insufficient.

4.2. Calculation, Analysis and Assessment of Grey Relational Coefficients

The phrases of attitude scale used in grey relational analysis are given below.

P1: I value salary conditions more than health and safety measures when selecting a company.

P2: Employer is solely responsible for ensuring occupational health and safety.

P3: Trainings are not effective in preventing occupational accidents and diseases.

P4: Using protective gears prevents occupational accidents and diseases.

P5: I find current activities sufficient for occupational health and workers' safety.

P6: OHS regulations are effective in preventing occupational accidents and diseases.

P7: Regular inspections to identify whether the workers are following the health and safety measures reduce the risk of occupational accidents.

P8: I believe occupational accidents are caused by busy work schedules.

P9: I believe occupational accidents are mostly caused by insufficient safety measures in machinery and looms.

P10: The improper placement of the machinery in relation to the work flow lessens my attention.

P11: I believe the stuffy air in the workplace increases the risk of occupational accidents.

The arrangement of raw data used for grey relational analysis in a chart was based on gender, and performed for the first 5 and 195th and 196th persons as given in Table 4 (not all raw data can be given because of space limitations). The final column of the table contains the grey relation element.

Table 4. The Raw Data used in Grey Relational Analysis

	P1	P2	P3	P4	---	---	---	P10	P11	P0
K1	4	3	1	4	---	---	---	1	4	5
K2	5	5	3	5	---	---	---	5	5	5
K3	5	4	5	4	---	---	---	4	5	5
K4	5	2	1	1	---	---	---	1	5	5
K5	5	2	4	3	---	---	---	5	2	5
---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---
K195	5	1	5	1	---	---	---	4	1	5
K196	5	4	5	5	---	---	---	4	3	5

Difference data of the analysis are obtained by subtracting the sequence number of the answer from representation value of each responder (P_0-P_s). Using the differences, maximum (max(P_0-P_s)) and minimum (min(P_0-P_s)) values are obtained to create Table 5.

Table 5. Difference Series used in Grey Relational Analysis

	P0-P1	P0-P2	P0-P3	P0- P4	---	---	---	P 0-P10	P0-P11
K1	1	2	4	1	---	---	---	4	1
K2	0	0	2	0	---	---	---	0	0
K3	0	1	0	1	---	---	---	1	0
K4	0	3	4	4	---	---	---	4	0
K5	0	3	1	2	---	---	---	0	3
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
K195	0	4	0	4	---	---	---	1	4
K196	0	1	0	0	---	---	---	1	2
Max.	4	4	4	4	---	---	---	4	4
Min.	0	0	0	0	---	---	---	0	0

In Table 5, the difference series is obtained by subtracting the responses from the reference data. Then in Table 6, by using the responses of the participants of the survey, grey relation coefficients are calculated through the grey relation

coefficient formula (given in equation (1)) for each variable. The average of the calculated grey relation coefficients are then taken to obtain grey relation degrees of the variables. These operations are performed separately for company data, gender, age variable and working hours.

Table 6. Grey relation coefficients and Grey Relation Degrees of Variables

$\gamma(k_S, P_S)$	**P1**	**P2**	**P 3**	**A4**	**---**	**---**	**---**	**P10**	**P11**
K1	0.71	0.56	0.56	0.71	---	---	---	0.38	0.71
K2	1	1	0.56	1	---	---	---	1	1
K3	1	0.71	1	0.71	---	---	---	0.71	1
K4	1	0.45	0.38	0.38	---	---	---	0.38	1
K5	1	0.45	0.71	0.56	---	---	---	1	0.45
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
K195	1	0.38	1	0.38	---	---	---	0.71	0.38
K196	1	0.71	1	0.38	---	---	---	0.71	0.71
Average Grey Relation Coefficients = Grey Relation Degrees									
Γ_{P_s}									

Grey relation degrees shown with Γ_{P_s} in Table 6 are arranged in order of magnitude. In order to identify whether the statements in attitude scale changes for each classification, the operations performed in Table 6 are repeated for other variables to obtain grey relation coefficients. The grey relation coefficients are then sorted according to their magnitude, and the corresponding values of the coefficients are matched to the phrases in the attitude scale.

Table 7. Company Data

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
Manufacturing	0.745	0.710	0.693	0.693	0.653	0.646	0.637	0.613	0.604	0.585	0.539
	P1	P2	P5	P4	P3	P6	P7	P8	P9	P10	P11
Contract manufacturing	0.711	0.680	0.672	0.665	0.663	0.646	0.620	0.607	0.600	0.593	0.542

Grey relation degrees shown in Table 7 are arranged in order of magnitude. According to this, coefficients vary between 0.745 and 0.539. The largest grey scale coefficients are found in P1 value for manufacturing companies and contract manufacturing businesses followed by P2. The results show that the workers in both manufacturing and contract manufacturing companies give more importance to the salary conditions when choosing a firm rather than health and safety measures. Furthermore when the P2 coefficient is evaluated, employer is considered the sole responsible person in ensuring OHS. Another striking result can be seen in P9, P10 and P11 which assumed the lowest coefficient values. The fact that factors that directly affect the workers' safety and ensure an ergonomic layout of the workplace like the implementation of safety measures in machinery and looms, proper placement of the machinery in relation to the business flow, and well-ventilated workplaces are disregarded by the employees working in both

manufacturing and contract manufacturing companies indicate that there is insufficient awareness about OHS among the workers.

Table 8. Gender Data

	P1	**P2**	**P4**	**P3**	**P5**	**P6**	**P8**	**P7**	**P10**	**P9**	**P11**
FEMALE	0.733	0.729	0.695	0.686	0.677	0.67	0.622	0.615	0.595	0.588	0.515
	P1	**P3**	**P4**	**P2**	**P5**	**P7**	**P6**	**P9**	**P8**	**P10**	**P11**
MALE	0.727	0.69	0.681	0.675	0.648	0.643	0.633	0.618	0.606	0.583	0.551

Grey relation degrees shown in Table 8 are arranged in order of magnitude. According to this, coefficients vary between 0.733 and 0.515. The largest grey relation coefficient was found in P1 value in male and female employees. While P1 remains the most significant factor for both male and female workers, P2 ranks second for women and P3 for men. The results show that both male and female workers consider the salary conditions the most important factor in choosing a company. The female workers who value P2 second most believe that employer is the sole responsible entity in ensuring OHS while male employees rank this at 4th most important issue. P3 shows that male workers believe that trainings are not effective in preventing occupational accidents and diseases. This might be because of insufficient participation to the trainings, poor and inadequate training or underestimating the ergonomics in workplace layout despite offering training opportunities.

Table 9. Data on Age Groups

16-24 YEARS	**P1**	**P4**	**P2**	**P3**	**P6**	**P7**	**P9**	**P5**	**P8**	**P10**	**P11**
	0.811	0.749	0.725	0.721	0.709	0.649	0.619	0.574	0.567	0.552	0.505
24-34 YEARS	**P2**	**P3**	**P1**	**P5**	**P4**	**P8**	**P6**	**P7**	**P10**	**P9**	**P11**
	0.721	0.701	0.693	0.687	0.672	0.663	0.638	0.633	0.608	0.602	0.501
35-44 YEARS	**P1**	**P2**	**P4**	**P3**	**P5**	**P6**	**P8**	**P7**	**P9**	**P10**	**P11**
	0.735	0.707	0.684	0.681	0.661	0.639	0.61	0.599	0.599	0.589	0.552
45 AND OLDER	**P5**	**P1**	**P7**	**P4**	**P3**	**P2**	**P6**	**P8**	**P10**	**P9**	**P11**
	0.718	0.691	0.655	0.654	0.65	0.644	0.635	0.601	0.6	0.596	0.568

Grey relation degrees shown in Table 9 are arranged in order of magnitude. According to this, coefficients vary between 0.811 and 0.501. The largest grey relation coefficient for 16-24 age group was found in P1 value. The results indicate that for workers who are 16-24 and 35-44 years of age value P1 most, 24-34 years of age consider P2 most important while workers who are 45 years of age or older believe P5 is the most significant factor. When the results are evaluated, it can be concluded that young workers between 16-24 years of age representing the fresh labor force starting out their professional life give more value to the salary conditions than health and safety measures when compared to the lower-middle age group between 35-44 years of age who have increasing expenses with changing life conditions (probably because they are married or have kids). As an age group with higher education and aspirations to advance in their professional

careers, a closer inspection of workers at 24-34 years of age reveals that the level of awareness about OHS seems to be rising, that they try to keep informed about responsible people, and believe that training in itself is insufficient. On the other hand, the segment of 45 years of age or older approaching the retirement age consider the OHS efforts very valuable, and this in turn shows that these employees give the most significance to the health conditions.

Table 10. Data on Working Hours

	P1	**P2**	**P6**	**P4**	**P3**	**P7**	**P8**	**P5**	**P9**	**P10**	**P11**
0-1 YEAR	0.830	0.755	0.711	0.705	0.703	0.665	0.619	0.614	0.608	0.598	0.523
	P1	**P4**	**P2**	**P3**	**P5**	**P7**	**P6**	**P8**	**P9**	**P10**	**P11**
2-5 YEARS	0.702	0.697	0.686	0.681	0.663	0.656	0.637	0.632	0.607	0.568	0.507
	P4	**P2**	**P3**	**P6**	**P1**	**P9**	**P11**	**P10**	**P5**	**P8**	**P7**
6-10 YEARS	0.748	0.736	0.725	0.702	0.691	0.690	0.672	0.669	0.652	0.648	0.620
	P1	**P3**	**P2**	**P4**	**P5**	**P6**	**P8**	**P7**	**P10**	**P9**	**P11**
10 YEARS AND OVER	0.702	0.679	0.676	0.662	0.660	0.622	0.601	0.601	0.584	0.576	0.536

Grey relation degrees shown in Table 10 are arranged in order of magnitude. According to this, coefficients vary between 0.830 and 0.507. The largest grey relation coefficient for newly recruited workers with less professional experience with 0 to 1 year is seen in P1 value. For employees with least experience and for those participating the labor force for 10 years and more, P1 is the highest rated value, while the employees with 6 to 10 years of experience value P4 the most. When the results are assessed in groups with higher P1 value, wage conditions weigh more than health and safety measures, however workers with 6 to 10 years of experience believe that using protective gear is more important in preventing occupational accidents and diseases. It can be concluded that with some degree of experience in professional life, the importance given to the use of protective gear indicates a correlation between job experience and level of awareness. However, it can also be said that in existing conditions in Turkey, the work experience that comes with fulfilling the retirement requirements makes wage conditions valuable again.

5. Conclusion and Discussion

In order to measure the levels of awareness of workers' on occupational health and safety issues working in garment industry's manufacturing and contract manufacturing workshops, the results of face-to-face surveys were analyzed and evaluated.

The grey relational analysis used in the evaluation of the scale is a method that utilizes the responses directly instead of the frequency of the responses to the scale. Another advantage is that it requires no conditions for distribution of the data in addition to the simplicity of the analysis. The simple and meaningful results

of the analysis shows that it can be used reliably in research (Tektaş & Aydin, 2014).

A high number of statisticians and researchers using the Grey relational analysis emphasizes the beneficial aspects of the method as small size of the sample volume, low frequencies corresponding to the options, and the fact that the method helps achieving significant results when distribution compatibility research cannot be conducted, when speedy analysis is required or when there is a necessity to work with small data (Kurt, 2008). Even though the Grey relational analysis is a reliable method for analyzing categorical data, it is employed infrequently because of low number of statisticians and researchers familiar with this method. It was selected in this research for analysis of the categorical data due to its reliable results in addition to the number of advantages mentioned above. The researchers would like to draw attention to this method for further use in future studies with categorical data.

When the results are evaluated it is evident that the workers in both manufacturing and contract manufacturing companies, both male and female workers in almost all age groups give more importance to the salary conditions when choosing a firm rather than health and safety measures. Because of increasing global competitive conditions, while the prices of goods fall, the cost of labor increases and this leads to an environment where unregistered workers and low salaries are becoming more common in the garment industry of this country. The wage policies in the sector are far from the satisfaction of the employees. Furthermore, Karadeniz claims that undereducated workers, ignoring high occupational risks jeopardize themselves in heavy and dangerous jobs for better wages (Karadeniz, 2012). This proves that the salary is more important than any other factor. In fact, factors directly related to workers' safety, and benefits of an ergonomic workplace such as implementation of safety measures in machinery and looms, proper placement of machinery, and well-ventilated workplaces are given less significance. But in fact what increase the motivation of the workers in garment industry are the ergonomic improvements in the workplaces. These improvements also positively affect the performance of the workers. Determination that increases with motivation in turn enhances the level of performance and quality, and hence give the company a competitive edge (Çolak, 2009). This outcome shows that there is insufficient awareness about OHS among the workforce.

Both male and female workers of the sector do not have adequate information about who is the responsible person in the business about OHS. Male workers also believe that the trainings provided are not effective for productive working and proper working environment. The workload and the rush jobs in the garment industry leading to poor participation to the trainings coupled with insufficient training content, or even if the employer provides adequate training, underestimating the importance of workplace layout and ergonomic factors are the main reasons behind the current situation.

In addition to these, professional experience also has an impact on the level of awareness. There is an awareness regarding the importance of using protective gear in preventing occupational accidents and diseases particularly among the

workers with medium to high level of experience (6-10 years). However, workers with less experience feel that the salary is the most effective factor in choosing a company. According to Bilge, majority of the accidents the less-experienced workers suffer occur during beginning and end of a working day (Bilge, 2012).

When the results of the analysis are examined, it is evident that the opportunities and OHS trainings provided to the workers are not at a sufficient level to increase the awareness on the subject. In order to identify poor areas of knowledge on OHS and assure a healthier and safer work environment for the workers, it is necessary to conduct a more comprehensive research that includes issues like identifying which OHS trainings they received, how often these trainings should be provided in their opinion to be more beneficial, and how effective the OHS regulations are implemented in the workplace. For future studies on this subject, it is recommended to take these considerations into account. Preventing the majority of occupational accidents and diseases is only possible by increasing the awareness of the workers through providing necessary and adequate training.

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