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Subjective Workload Assessment for Elderly Sales Force

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Abstract

This study aims is to compare subjective workload level of younger and elderly industrial salespeople and discuss the differences according to gender job satisfaction and parentage. The subjective workload is particularly important for the service sector because the salespeople who have a face to face contact with the customers are the biggest asset of the company in this sector. The subjective workload of the salespeople was measured with a multi grading scale known as National Aeronautical and Space Administration Task Load Index-(NASA TLX). This study attempt to inform, and lead the managers and policy designers in relatively under-recognized subject of elderly workforce. The results show that the subjective workload of younger and elderly salespeople are different and subjective workload of younger and elderly salespeople vary according to the gender, job satisfaction and parentage.

Keywords: Subjective Workload; NASA TLX; Job Satisfaction; Salespeople; Elderly

Introduction

The amount of work to be completed within certain time span with a specified quality by an employee and the stress created by this amount of work upon him/her is described as the "workload" [1]. The workload is affected by the necessity of the work, the working conditions, the skills, habits and the perceptions of the workers [1]. Workload has two sides; the amount of work to be done and the perceived degree of difficulty. The perceived degree of difficulty is an important factor which affects the desire, performance and loyalty of the workers towards their jobs. This factor is also described as "the subjective workload". The determination of the subjective workload is very important in order to enlighten the stress caused by the work upon the employees and assigning the employees to the jobs which are much more appropriate to their capacities. It is also important for the establishment of comfortable, satisfying, efficient, effective, and secure work areas [2]. The subjective workload directly affects the performance, reactions, and attention stress, fatigue and work satisfaction levels of the employees. The work satisfaction is the sentimental attitudes and the positive behaviors of the worker towards his/her job [3]. The studies in the literature clearly prove that the one of the best indicator of the job satisfaction level is the workload [4,5].

The subjective workload is particularly important for the service sector where there is a fierce competition and has a great share in the total added value created because in this sector, the salespeople who have a face to face contact with the customers are the biggest asset of the company [6]. The salespeople are the most expensive marketing sources of the companies today [7]. These workers are supposed to create colorful, positive and unforgettable feelings to the consumption process [8]. They are also the main actors in shaping or affecting the reactions, attitudes and the intentions of the customers [9]. Briefly the salespeople are working as the "relation managers" for rearranging the experience of the salespeople and the relations with the customers [10]. The success of each selling process is dependent upon the workload endured to achieve it. The amount of workload required in these activities varies among industries [11]. The workloads required for the selling activities can be determined best by salesperson him/her selves. That is why the managers are supposed to identify the workload perceived by the employees, its adverse effects upon the job satisfaction of the employees and take the necessary steps to minimize these effects [12]. In this context, it is important to define the factors which affect the subjective workloads of the employees and establish appropriate strategies to minimize workload.

The average age of the work force has been on an increasing trend for every country in the world due the increased life span and demographic, economic and social changes today [13]. This increase in the elderly work force and the demand for the experienced and the skilled employee made the firms to revise their working environment to include the elderly work force [14]. On the other hand inadequate retirement salary and the lack of facilities after retirement made them to stay in the working life for more prolonged periods [15]. In spite of the importance of the elderly work force on the human resources strategies and work force politics, there has been limited number of studies regarding elderly work force [16]. This shows the need for the studies regarding to the elderly work force [17]. The aim of the study is to compare subjective workload level of younger and elderly industrial salespeople and discuss the differences according to job satisfaction, gender and parentage. There has been no study in the literature regarding to workload analysis of the salespeople and its relation with these variables. The firms selling industrial goods are to establish effective sales teams due to the technical features of the industrial goods. The results of this study are of critical importance for the industrial sellers who are to evaluate the business world in an integrated and systematic manner and cope with fierce competition and the human resources administrator who employ, train and assign or empower the employee in accordance with the capacities [18]. The subjective workload of the salespeople was measured with a multi grading scale known as National Aeronautical and Space Administration Task Load Index-(NASA TLX). NASA TLX scale is a reliable and accurate analysis tool for the measurement of the subjective workload [19]. The validity and reliability of the scale were verified in number of studies [20,21].

In the second part of the study NASA TLX scale is described. The third part consists of the participants and survey procedure. Forth part includes findings, results, discussion and future studies are presented in the last section.

Methods

NASA TLX is a grading system which takes physical and mental demands, temporal demand and performance level, effort and frustration levels into account. The physical demand is related to the amount of physical activity necessary for the completion of the work. The mental demand on the other hand is the mental and sensory activity took place during the completion of the work. In temporal demand dimension the amount of working pace and time stress caused by the completion of the work are evaluated. The performance level is the degree of success which the employee feels him/her in the completion of the job on time. The effort dimension shows the amount of physical and mental exertion for the achievement of the performance level specified. The frustration level specifies the level of insecurity, disenchantment and anger during the completion of the work.

NASA TLX sale is formed by two parts. In the first part each of six subjective workload dimensions are graded between 0-100 with taking into consideration of work done. The second part contains the pairwise comparison to find the superiorities of the dimension over the others. There were 15 double comparisons made for six different dimensions. As the selection number of each dimension is increased the subjective workload also increases [1]. Taking the comparison made for the employees into account and using the grades obtained in the first part the workload values could be calculated for each dimensions. The total point obtained from the summation of the six dimensions formed the subjective work load. The subjective workload varies between 0 and 100. NASA TLX Rating Scale Definitions are depicted in Table 1.

Title	Endpoints	Descriptions
Mental Demand	Low/High	How much mental and perceptual activity was required (e.g., thinking, deciding, calculating, remebering, looking, searching etc.)? Was the task easy or demanding, simple or complex, exacting or forgiving?
Physical Demand	Low/High	How much physical activity was required (e.g., pushing, pulling, turning, controlling, activating, etc.)? Was the task easy or demanding, slow or brisk, slack or strenous, restful or laborious?
Temporal Demand	Low/High	How much time pressure did you feel due to the rate or pace at which the tasks or task elements occured? Was the pace slow and leisurely or rapid and frantic?
Performance	Good/Poor	How successful do you think you were in accomplishing the goals of the task set by the experimenter (or yourself)? How satisfied were you with your performance in accomplishing these goals?
Effort	Low/High	How hard did you have to work (mentally and physically) to accomplish your level of performance?
Frustration Level	Low/High	How insecure, discouraged, irritated, stressed and annoyed versus secure, gratified, content, relaxed and complacent did you feel during the task?

Table 1: NASA TLX Rating Scale Definitions [20].

Measure

NASA TLX Method has been used to determine the subjective workload in various sectors. Lee and Liu [22] measured the subjective workload of the pilots during the flight using physiological and multi-dimensional subjective parameters. NASA TLX has been used to determine subjective workload in the treatment and surgical methods in medicine sector [23,24]. Relation between the subjective workload and task complexity degrees of fast train conductors were studied by Park, et al. [25]. Filtness and Rudin-Brown [26] used NASA TLX for the assessment of driving performance, Kuehn, et al. [27] examined the subjective workload arising from utilization of touch screens from frontal and parallel positions, for motor control disorder people. Akyeampong, et al. [28] evaluated subjective workload emerged in newly proposed Humane-Machine Interface (HMI) design concepts for improving the ergonomics of hydraulic excavators with NASA TLX.

Data Source

The working sample was constituted by the salespeople working in a medium size firm which was among the first three firms in the medical equipment sector. The reason for the choice of this sector is the positive attitude towards elderly salespeople because the technical knowledge and experience increase with age for this sector. The medical equipment sold by the company have been used in hospitals, home care centers, polyclinics, radiology centers, dentistry clinics and treatment centers. The subjective workload of the salespeople has been measured by the use of the "Subjective Workload Evaluation Survey". The survey is constituted by two parts. The first part of the survey was related to the demographic features of the working group such as age, gender, parentage, job satisfaction level and working experience level. Also, the subjective workload was computed by the use of NASA TLX scale in the second part of the survey.

In some reports it was observed that the scale was applied more than once within specified period's. In this study, because of the change in workload is not our major concern the scale was applied to the salespeople at end of the working day. The survey was given as a written document to the participants after the important points were explained to them in a face to face manner. The survey was distributed to the participants at the same time around 05.30 pm at the end of the working day. The participants were asked to leave their forms in the boxes located in predetermined areas in order to maintain anonymity. The survey was distributed to 500 sales people and 309 of them returned it. The respond ratio was 61.8%.

The survey sample size determined that those responding to the questionnaire had a homogenous structure and the probability of the phenomena taking place was calculated as 0.8 and the probability of not taking place was taken as q=0.2. The sample error was 0.05 and the significance level was $\alpha = 0.05$. The sample size was found to be 245 taking the fact that the population size was not known. The sample size was considered to be sufficient at the 95% confidence level.

49.4% of the salespeople who participated in the study were women and 49.1% of them were above 50

years old. The distribution of the working experience of the participants were 6-10 years with 3.2%, 11-15 years with 26%, 16-20 years with 53.2% and almost 17.5% of the participants had a working experience above 20 years. 50.7% of the salespeople below 50 years old are women. This ratio is 66.7% for salespeople above 50 years. 61% of the salespeople below and 62 % of the salespeople above 50 years of age had children. It was observed that %17.5 of them participants had experience more than 20 years in the sector.

Analysis

In the present study, the participants below 50 years old were called as "younger salespeople" and the participants above 50 years of age were described as "elderly salespeople". The independent t- test was employed in order to compare the subjective workloads of younger and elderly salespeople and determine the difference between two groups as regards to job satisfaction level, gender, and parentage. Statistical analysis was performed with SPSS version 17.0 software. Normality of distribution of the variables was analyzed using the Kolmogorov Simirnov test, and the Levene test was used to assess the homogeneity of variances in the groups. Parametric test assumptions were not available; thus comparison between the two groups was performed Mann- Whitney U test. P values smaller than 0.05 were considered statistically significant. Parametric test assumptions were available thus the comparison between the two groups was performed independent sample t test.

Comparison of NASA TLX scores of younger and elderly salespeople is depicted in Table 2 for six different dimensions' job satisfaction and overall workload. Results showed a statistically significant difference between elderly and younger salespeople regarding mental demand, physical demand, temporal demand, performance level, effort, frustration, job satisfaction and overall workload level respectively. Results indicated that elderly salespeople (18.39± 6.49) perceive more mental load than younger salespeople (15.10± 8.88). Younger salespeople (5.51±7.63) also feel more physical load than elderly salespeople (3.58±6.1). In terms of temporal demand, elderly sales people (15.25±7.72) sense more time pressure than younger sales people (11.71±6.75). The level of performance pressure and frustration for elderly salespeople (21.56±3.71; 9.12±6.81) is more intense comparing younger salespeople (16.85±7.75; 5.31±6.65) similarly. Younger sales people (15.58±7.30) feel that they make more effort than elderly sales people (10.14±7.47). The results also indicated that elderly salespeople (78.04±9.18; 4.09±0.69) feel more overall workload than younger salespeople (70.11±11.80; 3.61±0.71) respectively. The results indicated that elderly salespeople (78.04±9.18; 4.09±0.69) feel more overall workload and job satisfaction than younger salespeople (70.11 ±11.80; 3.61±0.71) respectively.

Subjective Workload Dimensions	Younger salespeople n=152	Elderly salespeople n=156	p
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	15.10±8.88 10.70 (0.00-33.30)	18.39±6.49 19.00 (0.00-33.30)	0.001
Physical Demand	5.51±7.63 2.00 (0.00-28.30)	3.58±6.11 0.00 (0.00-24.00)	0.000
Temporal Demand	11.71±6.75 12.00 (4.00-33.30)	15.25±7.72 17.00 (0.00-33.30)	0.000
Performance	16.85±7.75 18.00 (5.30-28.30)	21.56±3.71 22.70 (6.70-30.00)	0.000
Effort	15.58±7.30 18.00 (0.00-33.30)	10.14±7.47 9.30 (0.00-26.70)	0.000
Frustration Level	5.31±6.65 4.00 (0.00-24.00)	9.12±6.81 6.70 (0.00-18.70)	0.000
Overall Workload	70.11±11.80 65.00 (53.67-97.33)	78.04±9.18 78.33 (58.33-96.00)	0.000
Job Satisfaction	3.61±0.71 4.00 (2.00-5.00)	4.09±0.69 4.00 (3.00-5.00)	0.000

*p<0.05

Table 2: Examination of NASA TLX results in terms of two age groups.

Comparison of younger salespeople due to gender for six different workload dimensions, job satisfaction and overall workload is depicted in Table 3. When we look at the results of younger salespeople it is seen that there is a statistically significant difference between female and male salespeople on the items regarding mental demand, physical demand, performance level, frustration level. Results indicated that younger female salespeople perceive less mental load (12.31±8.90) than younger male salespeople (17.98, ±7.95) respectively. However, younger female salespeople (8.12± 9.15) experience more physical load than younger male salespeople (2.83±4.29). Performance and frustration level for female salespeople (19.39±8.47; 3.73±5.62) is also higher than males (14.25±5.93; 6.92± 7.25).

Subjective Workload Dimensions	Younger salespeople n=152		p
	Female n=77	Male n=75	
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	12.31±8.90 10.00 (0.00-33.30)	17.98±7.95 17.30 (6.00-33.30)	0.001*
Physical Demand	8.12±9.15 3.30 (0.00-28.30)	2.83±4.29 1.30 (0.00-13.30)	0.000*
Temporal Demand	10.49±3.32 12.00 (4.00-18.00)	12.97±8.86 10.00 (4.00-33.30)	0.468
Performance	19.39±8.47 22.70 (5.30-28.30)	14.25±5.93 14.00 (5.30-25.00)	0.000*
Effort	14.90±4.89 16.00 (0.00-20.00)	16.27±9.13 18.00 (0.00-33.30)	0.078
Frustration Level	3.73±5.62 2.00 (0.00-24.00)	6.92±7.25 4.70 (0.00-24.00)	0.000*
Overall Workload	68.99±8.79 64.67 (55.33-97.33)	71.26±14.21 65.33 (53.67-97.33)	0.951
Job Satisfaction	3.61±0.49 4.00 (3.00-4.00)	3.60±0.89 4.00 (2.00-5.00)	0.821

*p<0.05

Table 3: Examination of NASA TLX and Job Satisfaction results in terms of gender for younger sales people.

Comparison of elderly salespeople due to gender for six different dimensions of workload, Job Satisfaction and overall workload is depicted in Table 4. When we look at the results of elderly salespeople it is seen that there is a statistically significant difference between female and male salespeople on the items regarding mental demand, physical demand, effort level, frustration and Job Satisfaction level.

Subjective Workload Dimensions	Elderly salespeople n=156		p
	Female n=104	Male n=52	
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	15.99±6.18 16.00 (0.00-33.30)	23.19±3.96 25.30 (5.70-26.70)	0.000*
Physical Demand	5.09±6.96 1.30 (0.00-24.00)	0.55±1.27 0.00 (0.00-6.70)	0.000*
Temporal Demand	14.45±8.71	16.86±4.91	0.563

	13.30 (0.00-26.70)	17.00 (0.00-33.30)	
Performance	22.08±3.63 22.70 (11.30-30.00)	20.53±3.69 22.00 (6.70-24.00)	0.021
Effort	8.36±6.47 6.30 (0.00-26.70)	13.70±8.11 12.00 (4.70-26.70)	0.000*
Frustration Level	11.76±6.43 16.00 (0.00-18.70)	3.83±3.84 2.00 (0.00-18.70)	0.000*
Overall Workload	77.73±7.37 78.33 (58.33-96.00)	78.66±12.07 80.33 (60.67-96.00)	0.839
Job Satisfaction	4.26±0.70 4.00 (3.005.00)	3.75±0.52 4.00 (3.00-5.00)	0.000*

Table 4: Examination of NASA TLX and Job Satisfaction results in terms of gender for elderly sales people.

As seen from Table 4, results showed that elderly female salespeople (15.99±6.18; 5.09±6.96; 8.36±6.47) perceive less mental load, physical load and effort than elderly male salespeople (23.19±3.96; 0.55±1.27; 13.70±8.11) respectively. On the other hand, in performance level, frustration level, and job satisfaction level of elderly female salespeople (22.08 ±3.63; 11.76 ± 6.43;4.26±0.70) are higher than male sale staff (20.53±3.69; 3.83±3.84; 3.75 ±0.52).Averages of six different dimensions of NASA TLX and job satisfaction level among the younger and elderly salespeople with children in terms of gender are presented in Table 5. Younger salespeople with children results showed a statistically significant difference between female salespeople and male salespeople on the item regarding mental demand, physical demand, performance, frustration scores. Female salespeople (11.64±8.56; 3.40±4.87) feel lesser mental load and frustration compared male salespeople (17.50±8.18; 7.26±7.39). On the other hand the female salespeople (8.37 ±9.62; 19.37 ± 8.45) feel much higher physical demand and performance pressure than the male salespeople (2.76±4.23; 14.92± 6.54).

Subjective Workload Dimensions	**Younger salespeople with child n=93**		**p**
	Female n=49	Male n=44	
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	11.64±8.56 10.00 (0.00-33.30)	17.50±8.18 17.30 (6.00-33.30)	0.005
Physical Demand	8.37±9.62 3.30 (0.00-28.30)	2.76±4.23 1.30 (0.00-13.30)	0.000
Temporal Demand	10.23±3.31 12.00 (4.00-13.30)	13.68±9.52 10.00 (4.00-33.30)	0.267
Performance	19.37±8.45 22.70 (5.30-28.30)	14.92±6.54 15.00 (5.30-25.00)	0.018
Effort	15.29±4.28 16.00 (0.00-20.00)	15.66±9.80 18.00 (0.00-33.30)	0.816
Frustration Level	3.40±4.87 2.00 (0.00-24.00)	7.26±7.39 5.30 (0.00-24.00)	0.003
Overall Workload	68.33±8.06 64.67 (55.33-97.33)	71.83±14.82 65.33 (53.67-97.33)	0.555
Job Satisfaction	3.59±0.50 4.00 (3.00-4.00)	3.61±0.92 4.00 (2.00-5.00)	0.577

Table 5: Examination of the results of six dimensions of NASA TLX and Job Satisfaction in terms of parentage and gender for younger sales people.

Comparison of six different dimensions of NASA TLX and job satisfaction level among the elderly salespeople with children in terms of gender are presented in Table 6. Elderly salespeople with children results showed a statistically significant difference between female salespeople and male salespeople on the item regarding mental demand, physical demand, effort, and frustration and job satisfaction scores. Female salespeople (16.64±5.92; 8.82±7.11) feel lesser mental load, effort compared male salespeople (23.46±3.51; 14.26±7.99). On the other hand the female salespeople (4.80 ±7.08; 10.99 ± 6.33; 4.22±0.72) feel much higher physical demand, frustration level and job satisfaction than the male salespeople (0.74±1.57; 3.65± 3.72; 3.71±0.53).

Subjective Workload Dimensions	**Elderly salespeople with child n=95**		**p**
	Female n=64	Male n=31	
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	16.64±5.92 16.00 (0.00-33.30)	23.46±3.51 25.30 (12.70-26.70)	0.000
Physical Demand	4.80±7.08 0.70 (0.00-24.00)	0.74±1.57 0.00 (0.00-6.70)	0.009
Temporal Demand	13.49±8.59 12.70 (0.00-26.70)	17.45±4.92 17.00 (6.00-33.30)	0.133
Performance	22.16±3.62 22.70 (11.30-28.30)	20.67±4.08 22.70 (6.70-24.00)	0.128
Effort	8.82±7.11 6.30 (0.00-26.70)	14.26±7.99 12.00 (4.70-26.70)	0.002
Frustration Level	10.99±6.33 7.00 (0.00-18.70)	3.65±3.72 2.00 (0.00-17.00)	0.000
Overall Workload	76.89±7.45 77.83 (58.33-96.00)	80.23±12.27 80.33 (60.67-96.00)	0.171
Job Satisfaction	4.22±0.72 4.00 (3.00-5.00)	3.71±0.53 4.00 (3.00-5.00)	0.001

Table 6: Examination of the results of six dimensions of NASA TLX and Job Satisfaction in terms of parentage and gender for elderly sales people.

When we look at the results of the younger salespeople with no children in Table 7, as regards to physical demand, performance and frustration level dimensions, it is seen that there is a statistically significant difference between female salespeople and male salespeople. Female salespeople (7.69±8.41; 19.42±8.66) feel higher physical load and performance pressure than the male salespeople (2.93±4.46; 13.29±4.88). On the other hand, male salespeople (6.44±7.14) feel higher frustration level than female salespeople (4.32±6.80).

Subjective Workload Dimensions	**Younger salespeople without child n=59**		***p***
	Female n=28	Male n=31	
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	13.48±9.50 10.00 (0.00-33.30)	18.65±7.70 21.30 (9.00-33.30)	0.056
Physical Demand	7.69±8.41 3.30 (0.00-28.30)	2.93±4.46 1.30 (0.00-13.30)	0.001
Temporal Demand	10.93±3.34 12.00 (4.00-18.00)	11.96±7.88 10.00 (4.00-33.30)	0.817

Performance	19.42±8.66 22.70 (5.30-28.30)	13.29±4.88 13.30 (5.00-25.00)	0.002
Effort	14.23±5.83 13.30 (0.00-20.00)	17.13±8.17 18.00 (0.00-26.70)	0.085
Frustration Level	4.32±6.80 2.00 (0.00-24.00)	6.44±7.14 4.70 (0.00-24.00)	0.018
Overall Workload	70.13±9.99 65.00 (56.00-97.33)	70.45±13.50 65.00 (56.67-97.33)	0.369
Job Satisfaction	3.64±0.49 4.00 (3.00-4.00)	3.58±0.85 4.00 (2.00-5.00)	0.736

Table 7: Examination of the results of six dimensions of NASA TLX and Job Satisfaction in terms of no parentage and gender for younger sales people.

The results in Table 8 obtained for elderly salespeople with no children revealed that there were statistically significant differences between female salespeople and male salespeople in mental demand, physical demand, frustration and job satisfaction items. Female salespeople (14.94±6.50) scored lower points than the males (22.80±4.59) in mental demand dimension. The male salespeople (0.28± 0.53; 4.10±4.10; 3.81±0.51) on the other hand had lower marks than the females (5.56±6.82; 13.00±6.48; 4.33±0.66) as regards to physical demand, frustration and job satisfaction.

Subjective Workload Dimensions	**Elderly salespeople without child n=61**		**p**
	Female n=40	Male n=21	
	Mean±SD Median (min-max)	Mean±SD Median (min-max)	
Mental Demand	14.94±6.50 16.00 (0.00-33.30)	22.80±4.59 21.30 (5.70-26.70)	0.000
Physical Demand	5.56±6.82 5.70 (0.00-24.00)	0.28±0.53 0.00 (0.00-1.30)	0.001
Temporal Demand	16.00±8.78 18.00 (0.00-26.70)	15.99±4.87 17.00 (0.00-21.30)	0.995
Performance	21.96±3.70 22.70 (12.70-30.00)	20.30±3.09 20.00 (16.00-24.00)	0.085
Effort	7.63±5.28 6.30 (0.00-18.70)	12.87±8.41 11.30 (4.70-26.70)	0.058
Frustration Level	13.00±6.48 17.00 (0.00-18.70)	4.10±4.10 4.00 (0.00-18.70)	0.000
Overall Workload	79.08±7.12 78.33 (67.33-91.00)	76.33±11.67 76.00 (61.00-96.00)	0.333
Job Satisfaction	4.33±0.66 4.00 (3.00-5.00)	3.81±0.51 4.00 (3.00-5.00)	0.003

Table 8: Examination of the results of six dimensions of NASA TLX and Job Satisfaction in terms of no parentage and gender for elderly sales people.

Additionally, correlation between overall workload and job satisfaction is analyzed for elderly and younger sales people in terms of gender. For correlation analysis, spearman rho correlation which is a non-parametric correlation is performed. According to obtained results, there is a negative correlation (p=0.000, r=-0.426) between overall workload and job satisfaction for male younger sales people. For younger sales people, there is a negative correlation (p=0.002, r=-0.247) between overall workload and job satisfaction. Therefore, it was concluded that the correlations between job satisfaction

and overall workload for other groups were not statistically significant.

Discussion

According to the results obtained in this study the elderly salespeople is much more affected by the subjective workload and the dimension forming this workload than the younger salespeople except effort and physical demand. Bunce and Sisa, Sharit, et al. [29,30] proved that the subjective workload increases with age. Baldwin, et al., Huuhtanen and Leino, Smith and Brewer, Cerella and Van Gerven, et al. [31-35] stated that the mental load also increases with age similar to this study. On the other hand, there are reports in the literature that the elderly people fells much higher physical workload than the younger people [36-42]. The fact that the elderly salespeople are less affected by the physical demand and effort dimensions than the younger salespeople can be explained by the learning curve theory [43]. Workload felt in physical demand and effort dimensions of salespeople would decrease as skills improved for a complicated task [44]. These characteristics are very important for the medical equipment market.

On the other hand, the job satisfaction levels of the elderly salespeople were observed higher than the younger salespeople who are in accordance with the literature [45,46]. Beşiktaş [47] stated that the expectations of the elderly salespeople are much more realistic and they are much more cognizant about their capacities due to their higher experience which increases their job satisfaction levels. When we evaluate this dimension according to gender, it is seen that the females were found to have higher level of job satisfaction .The findings in the literature show that women have higher job satisfaction levels can be attributed to the fact that they feel much more social satisfaction to their jobs and give more importance to working conditions and social relationships [47,48].

The data found illustrated that there was a negative correlation between the job satisfaction and subjective workload for the elderly salespeople. In other words, the increase in the workload decreases the job satisfaction of the elderly salespeople. This negative correlation between the job satisfaction and the subjective workload has been illustrated in the literature in many studies [49-52]. This shows that there is an urgent need to develop policies to reduce subjective workload especially for the elderly people.

The examination of the younger and elderly salespeople according to the gender regarding to the subjective workload and its dimensions, it was found that the female salespeople feel much less load in mental demand dimensions than male salespeople. The situation is reverse for the dimensions of performance, frustration demand. Balcerzak-Paradowska, et al. [53] stated that the women spent twice much more time for the household duties and responsibilities than men. Also De preter, et al. [54] stated that household duties and responsibilities of women effect their retirement times. It is clear that the working schedule for women should be made more flexible than men [54]. On the other hand, there is a contradiction between physical demand for young and elderly salespeople. Elderly male salespeople feel much physical demand than elderly female salespeople. Contradictory to this result, young female salespeople feel more physical demand than young male salespeople. The effort dimension is not gender dependent parameter for the younger salespeople but elderly male salespeople feel higher load due to the effort dimension.

The parentage was observed to affect the frustration dimension for the younger and elderly salespeople reversely. Younger mother salespeople were observed to live through less frustration throughout their lives than fathers because women are capable to manage both their jobs and family duties together [55]. This may be due to the fact that the women successfully coping with both the motherhood and her work duties at the same time [56]. On the other hand, elderly mothers feel more frustration demand than elderly male salespeople. Young and elderly female salespeople feel less mental demand than young and elderly male salespeople with child. The performance dimension is not gender dependent parameter for the elderly salespeople but young mother salespeople feel higher load due to the performance dimension. The effort dimension is not gender dependent parameter for the young salespeople but elderly mother salespeople feel fewer loads due to the effort dimension.

Younger female salespeople with no child were observed to live through more physical throughout their lives than males. The mental dimension is not gender dependent parameter for the young salespeople but elderly female salespeople with no child feel less load due to the mental dimension. On the other hand, there is a contradiction between frustration demand for young and elderly male and female salespeople without child. Elderly female salespeople without child feel much frustration level than elderly male salespeople without child. Contradictory to this result, young female salespeople

without child feel less frustration level than young male salespeople without child.

While focusing on increasing workforce participation among elderly workers, employers have paid little attention to job design for elderly workers [57]. Organizations will need to seriously consider redesigning jobs if they wish to retain their elderly workers. By making small redesigns (i.e. defining the complicated works with work flow diagram) in job duties may easily render age related cognitive and physical setbacks of the elderly people ineffective [58,59]. This may decrease the workload perceived by the elderly people. Also employers need to train managers to communicate effectively with their elderly workers [15]. In the literature it was observed that on job training directed for the elderly people had positive effects on their learning motivations; strengthen self-confidence, organizational commitment and the social climate in groups with mixed ages [60].

Since human resource is crucial factor for the success of an organization, leading people should not ignore the importance of job satisfaction levels of workers. The high job satisfaction level protects physical and mental health of the employee and made them to learn more quickly the duties related to the job. Also the high job satisfaction level provides the decrease of occupational accidents and the complaints related to job conditions [61]. The job satisfaction also increases the content level of the workers and makes them open to coordination [62]. Also a "satisfied employee" is one of the most important assets which the company reflects to the society [63]. The job satisfaction is not only important as regards to the employees and the companies but it has also important impacts on the society. Physiologic and physical fitness increase the efficiency in the both in the public and private sectors and increases the development level of the country. A healthy, productive and satisfied work force creates a peaceful and successful society.

Kumar and Schenk [64] suggest differences in gender, race, class, and age can all be potential sources for divisions of labor that need to be addressed by employers and Unions. Such knowledge can help employers and unions design more effective compensation plans, company policies, and administrative practices. The results of this study are also in accordance with these facts and may act as a guide for the establishment of appropriate legislations.

Tschirhart [65] proved that the elderly workers gave more importance to career and social benefits than the financial gain compared to younger workers. These workers give much more importance to the quality of work than the salaries or premiums. Simpson, et al. [66] state that the difference in age changes the people's way to look at the carrier. Lamont [67] proved that as the age advances the elderly people tend to undermine the career and premium possibilities. This evaluation gives direction on the development of strategies for the elderly people who feel excessive subjective load [68].

Limitations

Various gender role models in countries may differentiate results. It is necessary to repeat the study in different cultures in order to reflect the cross-cultural differences. Also, it is important to repeat the study for different sectors for example manufacturing sector for emphasizing and comparing product and services sectors.

We have presented a research in an attempt to inform, and perhaps lead the managers and policy designers in their relatively under-recognized issues of elderly workforce. The results show that the job satisfaction level and the subjective workload of younger and elderly salespeople are different and the subjective workload of younger and elderly salespeople vary according to the gender and parentage.

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