RESULTS

The result of this study are presented in 5 parts as shown in tables from (1 to 21).

Part 1: computer users' sociodemographic data and job characteristics (table 1 to 3)

Part 2: Distribution of computer users' knowledge about ergonomic requirements related to computer usage. (table 4to 5)

Part 3: Distribution of computer users' knowledge about the common health complaints and risk factors related to compute usage. (table 6 to 9)

Part 4: Distribution of computer users' practice toward computer usage. (table 10 to 12)

Part 5: Relation between computer users' knowledge, practice andSociodemographic and job characteristics (table3 to 21)

N. B:

P > 0.05 : no statistical signitficant difference.

P < 0.05: statistical significant difference.

P < 0.001: highly statistical significant difference.

Table (1): socio-demographic and job characteristics of subject in the

Item	Number of hours of daily exposure

studied sample

Socio – demographic	Number(56)	Percentage(%)	Mean± S.D
Age /year			
20 –	26	46.4	27.5 ± 2.6
30–	18	32.1	34 ± 2.3
40–	12	21.4	46 ± 3.3
Total	56	100%	32 ± 8.4
Gender			
Male	23	41.1	
Female	33	58.9	
Education			
Secondary or equivalent	27	48.2	
University	29	51.8	
Experience years			
< 5	17	30.4	
5 +	39	69.6	6.1 ± 3.2
Daily work hrs in using computer			
< 6	33	58.9	
6 +	23	41.1	5.4 ± 2.1
Place of work (Benha city)			
Faculty of medicine	22	39.3	
Faculty of nursing	9	19.1	
University hospital	25	44.6	

Table (1) denotes that mean age of computer users was 32±8.4 while 58.9% were females. Education of the users were almost half by half (51.8% , 48.2%) with university and secondary or equivalent education. The mean years of work experience were 6.1±3.2 while the mean daily work hours were 5.4±2.1. The place of work was 39.3% users in faculty of medicine, (16.1% users in faculty of nursing and the majority (44.6%) of users were working in benha university hospital.

	none		< 2		2 - 05		5 >	
	NO	**%**	**NO**	**%**	**NO**	**%**	**NO**	**%**
Sitting	2	3.571	4	7.14	29	52	21	38
Awkward Movements:								
Back bending	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Back rotation	46	82.14	4	7.14	5	8.9	1	1.8
Neck bending	12	21.43	17	30.4	25	45	2	3.6
Neck rotation	39	69.64	3	5.36	11	20	3	5.4
Wrist bending	11	19.64	8	14.3	31	55	6	11
Wrist rotation	44	78.57	3	5.36	8	14	1	1.8
Arm extension	45	80.36	8	14.3	2	3.6	1	1.8
Arm flexion	21	37.5	12	21.4	21	38	2	3.6
Repeated Movement								
Back	36	64.29	9	16.1	10	18	1	1.8
Neck	24	42.86	7	12.5	22	39	3	5.4
Shoulder	26	46.43	6	10.7	21	38	3	5.4
Arm	17	30.36	6	10.7	30	54	3	5.4
Wrist	14	25	7	12.5	29	52	6	11

Extent of exposure	**Number(56)**	**Percentage(%)**

Table(2): Exposure to various ergonomic health problems among subjects in the studied sample.(n = 56)

Table (2) Explains the ergonomic health problems during the daily exposure to computer, users were in the sitting position for (52%) and (38%) corresponding with 2 - 5 hours and more than 5 hours respectively. While users were in wrist bending position for(55%) and (11%) corresponding with 2 - 5 hours and more than 5 hours respectively and users were in arm repeated movement for (54%) within 2 : 5 hours. While users were in wrist repeated movement for (11%) within 5 > hours.

Sitting		
Low (< 50% of the time).	5	8.9
High (50%+ of the time)	51	91.1
Awkward Movements		
Low (< 50% of the time)	50	89.3
High (50%+ of the time)	6	10.7
Repeated Movement		
Low (< 50% of the time)	33	58.9
High (50%+ of the time)	23	41.1
Total		
Low (< 50% of the time)	46	82.1
High (50%+ of the time)	10	17.9

Table (3): Extent of exposure to various ergonomic health problems among subjects in the studied sample.

Table (3) showed that the majority (91.1%) of computer's users were in the sitting position for 50% + of the time and (8.9) of them for < 50% of the time. While (89.3%) in awkward movement for < 50% of the time and (10.7) of them for 50% + of the time. (58.9%)of the users in repeated movement for <50% of the time and (41.1) of them for 50% + of the time. Total exposure to ergonomic health problems were (82.1%) for< 50% of the time while (17.9) of them for 50% + of the time.

Table (4): Knowledge about ergonomics of seats and sitting position in computer work among subjects in the studied sample.

Knowledge	Number(56)	Percentage %
Seat		
Movable	39	69.6
Head support	40	71.4
Lumbar support	21	37.5
Arm rests	47	83.9
Seat not pressing against calf	30	53.6
Proper distance between seat and work surface	9	16.1
Sitting position		
Full support to back	33	58.9
Avoiding overstitching	35	62.5
Use of feet rest	43	76.8
Large feet rest preferable to small one	31	55.4
Use of cushion	40	71.4
Legs not extended	12	21.4
Elbow joints at right angles	27	48.2
Knee joints at right angles	29	51.8
Feet flat on floor	54	96.4

Table (4) explains the knowledge of computer's users about seats and sitting position during computer work, in relation to seats, more than three quarters (83.9%) of computer users were responded to the arm rests while (16.1%) of users were answered that proper distance between seat and work surface. Regarding sitting position (96.4%) of users were answered that feet flat on floor while (21.4%) were answered that legs not extended.

Table(5): Correct knowledge about ergonomics characteristics in relation to computer work among subjects in the studied

sample

Items	Number(56)	Percentage(%)
Mouse		
Appropriate size	24	42.9
At reach	47	83.9
Use of palm rather than fingers to move	25	44.6
Keyboard		
With wrist support	43	76.8
Not to be put on the lap	55	98.2
Appropriate height	37	66.1
At reach	46	82.1
Not looking all the time to keyboard	40	71.4
Documents stand		
Importance	52	92.9
Proper placement	18	32.1
Helps avoiding Some Ergonomic Hazards	31	55.4
Screen		
Proper placement in front of user	43	76.8
Proper distance, not <60cm	42	75
Proper Brightness Level	33	58.9
Light Background Better Than Dark	24	42.9
Placement to avoid Neck Rotation	26	46.4
Proper Height	33	58.9
Use of Screen Filter	53	94.6
Work surface		
Proper Height	6	10.7
Keyboard drawer surface	43	76.8
Placement of CPU	10	17.9
Not any disk can be used	47	83.9
Lighting from:		
Behind	16	28.6
Front	26	46.4
Left side	10	17.9
Right side	47	83.9
Indirect Lighting is Preferred	23	41.1

Table (5**)** explains the Correct knowledge about ergonomic characteristics related to computer work, as the mouse that more than three quarters (83.9%) of the users were mentioned "at reach of their hands", while (42.9%) answered appropriate size. Keyboard, the majority (98.2%) of the users answered "not to be put on the lap", while (66.1%) answered "appropriate height". Regarding the documents stand, the majority (92.9%) of users were response that is importance while (32.1%) answered proper placement. About screen, (94.6%) of users answered "use of screen filter" while (42.9%) answered "light background better than dark". About work surface, (83.9%) of users answered "not any desk can be used" while (10.7%) answered "proper height". About lighting, (83.9%) of users answered lighting from right side while (17.9%) answered lighting from left side.

Table (6): Correct knowledge about the common health complaints related to computer work among subjects in the studied sample

Items	Number(56)	Percentage(%)
Neck pain	43	76.8
Shoulder pain	37	66.1
Arm pain	34	60.7
Wrist pain	18	32.1
Arthritis	12	21.4
Low back pain	44	78.6
Disc prolapse	9	16.1
Pain and redness of the eyes	32	57.1
Osteoporosis	7	12.5
Decreased visual acuity	24	42.9
Hypertension	44	78.6
Varicose veins	11	19.6

Table (6) shows that equal percentage (78.6%) of the computer user's knowledge were related to low back pain and hypertension. While only (12.5%)of the users mentioned that of osteoporosis.

Table (7):knowledge about the common ergonomic risk factors related to computer work among subjects in the studied sample.

Risk Factors	Not important		Important		Very important	
	No	%	No	%	No	%
Prolonged sitting	0	0.0	9	16.1	47	83.9
Sitting in awkward positions	0	0.0	15	26.8	41	73.2
Unproer arrangement of computer facilities	11	19.6	28	50.0	17	30.4
Lack of work facilities	18	32.1	22	39.3	16	28.6
Inappropriate seats	0	0.0	19	33.9	37	66.1
Bad lighting	2	3.6	22	39.3	32	57.1
Work load	25	44.6	15	26.8	16	28.6
Lack of awareness	10	17.9	28	50.0	18	32.1
Personal risk factors	33	58.9	12	21.4	11	19.6
Radiation from computer	0	0.0	15	26.8	41	372

Table (7) denotes that the unproer arrangement of computer facilities and also Lack of awareness were the most common risk factors that responded as important was 50% of the computer users. While prolonged sitting responded as very important was 83.9% of the computer users.

Table (8): Knowledge about proper action to be taken in case of having health problems related to computer work among subjects in the studied sample

Proper action	Number(56)	Percentage(%)
Take frequent short rest periods	46	82.1
Short physical exercises	25	44.6
Change of sitting position	43	76.8
Consult doctor	20	35.7
Avoid taking analgesics	49	87.5
Consult physiotherapist	12	21.4

Table (8) showed that the Knowledge about action to be taken percentage as 87.5% , 82.1% , 76.8% for avoid taking analgesics**,** take frequent short rest periods**,** change of sitting position respectively. While only 21.4% for consult physiotherapist.

Table (9): Total satisfactory knowledge (60%+) about various ergonomic requirements related to computer work among subjects in the studied sample

Satisfactory knowledge	Number(56)	Percentage(%)
Seat	28	50
Proper sitting	23	41.1
Mouse	34	60.7
Keyboard	48	85.7
Documents stand	40	71.4
Screen	29	51.8
Work surface	11	19.6
Work environment	17	30.4
Total exposure	25	44.6
Health complaints	11	19.6
Risk factors	32	57.1
Proper action in case of complaints	21	37.5

Table (9) Calculates the total Satisfactory knowledge (60%+) of the computer's users in relation to the various ergonomic problems**,** the most common five problems were presented as 85.7% , 71.4% , 60.7% , 57.1% ,50% were for keyboard, documents stand, mouse**,** risk factors**,** seat respectively.

Table (10) : Ergonomic worke place as observed in relation to characteristics of seat during sitting position in computer work among subjects in the studied sample.

Seat	Number(56)	Percentage(%)
Proper size	33	58.9
Proper height	35	62.5
With back support	46	82.1
Back support properly placed	24	52.2
With arm support	17	30.4
Adjustable arm rests	5	31.3
2-4inches between edge and back of knee	21	37.5
Feet flat on floor or feet support	44	78.6
Seat has at least 5 wheels	4	7.1
Adjustable height	10	17.9
Adjustable back	10	17.9
Seat can be turned around	10	17.9

Table (10) shows the main characteristics of the seat with back support, feet flat on floor or feet support, proper height and proper size were observed among computer's users.

Table (11): Ergonomic practices related to computer work among subjects in the studied sample.

Items	Number(56)	Percentage(%)
Central processing unit (CPU)		
At reach	48	85.7
Proper placement of documents	49	87.5
Screen		
In front of user	54	96.4
At eyes level	49	87.5
At proper distance from user	40	71.4
No brightness	54	96.4
No glare	53	94.6
Keyboard		
On special drawer surface	6	10.7
Appropriate height	41	73.2
At proper distance from user	38	67.9
Tent - shaped	29	51.8
Inclined at 15 degrees from horizontal	33	58.9
Has wrist support	8	14.3
With no defective keys	53	94.6
Mouse		
Close to keyboard	54	96.4
Properly used (no tight grip)	54	96.4
Work surface		
No sharp edge	51	91.1
Proper height	49	87.5
Enough clearance for thighs	47	8.9
Feet flat on floor	49	87.5
No obstacles (drawers, etc.)	42	75.0
Documents stand present	23	41.1
Documents stand properly placed	22	95.7
Work tools at reach	26	46.4
Work environment		
Indirect lighting	50	89.3
Sufficient lighting	48	85.7
No light reflections on screen	53	94.6
Proper ventilation	53	94.6
No air drafts	53	94.6
Not crowded	36	64.3
Ordered	43	76.8
Calm	47	83.9

Table (11) explains the observed practices during exposure to computer, the majority of users were the screen in front the user with no brightness, mouse close to keyboard and properly used were presented equally as (96.4%). Also the screen no glare, keyboard with no defective key, proper ventilation and no air draft in working place were presented equally as (94.6%) while those who use keyboard on special drawer surface and has rest support were 10.7% and 14.3% respectively.

Table (12): Total adequate ergonomic practices related to computer work among subjects in studied sample

Adequate practice	Number(56)	Percentage(%)
Seat	7	12.5
CPU	45	80.4
Screen	49	78.5
Keyboard	5	8.9
Mouse	53	94.6
Work surface	24	42.9
Work environment	44	78.6
Total practice	28	50.0

Table (12) Calculates the total adequate practices in relation to ergonomic requirements, the most common ergonomic practice were presented as 94.6% , 80.4% , 78.6% were for the mouse, CPU and environment while only 8.9% were for keyboard

Table (13): Relation between studied subjects` knowledge about ergonomic exposures in computer work and their socio-demographic and job characteristics (n = 56)

Socio- demographic and job characteristics	knowledge about exposure.				X^2	p
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age / year						
20 –	11	42.5	15	57.5		
30 –	10	55.6	8	44.4		
40+	5	41.7	7	58.3	5.99	0.05*
Gender						
Male	8	34.8	15	65.2		
Female	17	51.5	16	48.5	9.21	0.01**
Education						
Secondary or equivalent	12	44.4	15	55.6		
University	13	44.8	16	55.2	7.82	0.05*
Experience years						
<5	8	47.1	9	52.9		
5+	17	43.6	22	56.4	11.07	0.05*
Daily work hours						
<6	14	42.4	19	57.6		
6+	11	47.8	12	52.2	15.09	0.01**
Total exposure						
Low (<50 % of the time)	20	43.5	26	56.5		
High (50 % + of the time)	5	50.0	5	50.0	15.51	0.05*
Place of work (Benha city)						
Faculty of medicine	6	27.3	16	72.7		
Faculty of nursing	5	55.6	4	44.4		
University hospital	14	56.0	11	44.0	5.98	0.05*

(**)Highly Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

Table(13) shows that more than the half (58.3%) of the users who had unsatisfactory knowledge was aged > 40 years, also (55.6%) of them who had satisfactory knowledge was aged 30- 40 years with statistically significant differences. The highest percent (65.2%) of the users who had unsatisfactory knowledge were males, also more than the half (51.5%) of the users who had satisfactory knowledge were females with highly statistically significant differences.

In relation to the level of education that almost half by half (55.6% , 55.2%) of the users who had unsatisfactory knowledge were secondary and university education while (44.8%) of them who had satisfactory knowledge were university education. Regarding experience years that (56.4%) of users with unsatisfactory knowledge had 5+ years of experience while (47.1%) of users with satisfactory knowledge had <5 years of experience with statistically significant differences.

Regarding daily work hours (57.6%) of users with unsatisfactory knowledge were <6 hours of daily work. While (47.8%) of users with satisfactory knowledge were 6 + hours of daily work with highly statistically significant differences.

More than half of users (56.5%) with unsatisfactory knowledge were in ergonomic exposure <50% of the time. While (50 %)of users with satisfactory knowledge had ergonomic exposure 50% + of the time. The majority (72.7%)of the users who had unsatisfactory knowledge were in faculty of medicine, also (56.0%)of users who had satisfactory knowledge were in Benha university hospital with statistically significant differences.

Table (14): Relation between study subjects knowledge about common health complaints related computer work and their socio-demographic and job characteristics.(n = 56)

Socio- demographic and job characteristics	knowledge about common health complaints				X^2	P
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age / year						
20 –	17	65.4	9	34.6		
30 –	7	38.9	11	61.1		
40+	7	58.3	5	41.7	45.6	0.01**
Gender						
Male	5	21.7	18	78.3	43.77	0.05*
Female	6	18.2	27	81.8		
Education						
Secondary or equivalent	4	14.8	23	85.2	27.59	0.05*
University	7	24.1	22	75.9		
Experience years						
<5	3	17.6	14	82.4	49.95	0.01**
5+	8	20.5	31	79.5		
Daily work hours						
<6	5	15.2	28	84.8	14.07	0.05*
6+	6	26.1	17	73.9		
Total exposure						
Low (<50 % of the time)	10	21.7	36	78.3	48.28	0.01**
High (50 % + of the time)	1	10.0	9	90.0		
Place of work (Benha city)						
Faculty of medicine	7	31.8	15	68.2		
Faculty of nursing	1	11.1	8	88.9	31.41	0.05**
University hospital	3	12.0	22	88.0		

(**)Highly Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

Table(14) shows that more than the half of the users(61.1%) who had unsatisfactory knowledge was aged between 30- 40 years, also (65.4%) of users who had satisfactory knowledge was aged 20 -30 years with highly statistically significant differences. More than three quarters of users (81.8%) who had unsatisfactory knowledge were females, also (21.7%) of users who had satisfactory knowledge were males with statistically significant differences.

Regarding to the level of education that more than three quarters (85.2%) of the users who had unsatisfactory knowledge were secondary or equivalent education also (24%) of the users who had satisfactory knowledge were university education with statistically significant differences. Experience years, more than three quarters (82.4%) of users with unsatisfactory knowledge had <5 years of experience, also (20.5%) of users with satisfactory knowledge had >5 years of experience with highly statistically significant differences.

Regarding daily work hours (84.8%) of users with unsatisfactory knowledge were worked <6 hours of day. while (26.1%) of users with satisfactory knowledge were worked 6+ hours of day with statistically significant differences.

The majority of users (90.0%) with unsatisfactory knowledge had ergonomic exposure 50% + of the time, also(21.7 %)of users with satisfactory knowledge had ergonomic exposure <50% of the time with highly statistically significant differences.

More than three quarters (88.9%)of the users who had unsatisfactory knowledge was in Benha faculty of nursing while(68.2%) of them was in Benha faculty of medicine, also (31.8%)of users who had satisfactory knowledge was in Benha faculty of medicine while (11.1%) of them was in Benha faculty of nursing with statistically significant differences.

Table (15): Relation between study subjects knowledge about risk factors affecting ergonomic exposures in computer work and their socio- demographic and job characteristics.(n = 56)

Socio- demographic and job characteristics	knowledge about risk factors				X^2	P
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age / year						
20 –	7	26.9	19	73.1		
30 –	12	66.7	6	33.3		
40+	8	66.7	4	33.3	0.13	0.58
Gender						
Male	14	60.9	9	391		
Female	18	54.5	15	45.5	16.92	0.05*
Education						
Secondary or equivalent	15	55.6	12	44.4		
University	17	58.6	12	41.4	16.81	0.01**
Experience years						
<5	9	52.9	5	47.1		
5+	23	59.0	16	41.0	0.18	0.67
Daily work hours						
<6	17	51.5	16	48.5		
6+	15	65.2	8	34.8	1.04	0.31
Total exposure						
Low (<50 % of the time)	25	54.3	21	45.7		
High (50 % + of the time)	7	70.0	3	30.0	38.93	0.01**
Place of work (Benha city)						
Faculty of medicine	14	63.6	8	36.4		
Faculty of nursing	5	55.6	4	44.4	27.59	
University hospital	13	52.0	12	48.0		0.05*

(**)Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

The above table illustrated that more than two thirds of the users (73.1%) who had unsatisfactory knowledge was aged 20- 30 years, also more than the half of users(66.7%) who had satisfactory knowledge was aged 31-<40 years with out statistically significant differences. while (45.5%) who had unsatisfactory knowledge were males, also (60.9%) of users who had satisfactory knowledge were males with statistically significant differences.

Level of education that (44.4%) of the users with unsatisfactory knowledge have got secondary or equivalent, also (58.6%) of the users with satisfactory knowledge were university education with highly statistically significant differences.

Experience years that (47.1%) of users with unsatisfactory knowledge had <5 years of experience, also (59.0%) of users with satisfactory knowledge had 5+ years of experience. Regarding daily work hours (48.5%) of users with unsatisfactory knowledge had worked <6 hours of day, also (65.2%) of users with satisfactory knowledge had worked 6+ hours of day with out statistically significant differences.

Nearly to the half of users (45.7%) with unsatisfactory knowledge had ergonomic exposure <50% of the time, also(70.0 %)of users with satisfactory knowledge had ergonomic exposure 50%+ of the time with highly statistically significant differences. While (48.0%) of the users who had unsatisfactory knowledge was in Benha university hospital, also (63.6%)of users who had satisfactory knowledge was in faculty of medicine with statistically significant differences.

Table (16): Relation between study subjects knowledge proper action related to ergonomic exposures in computer work and their socio- demographic and job characteristics. (n = 56)

Socio- demographic and job characteristics	knowledge about proper action				X^2	P
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age / year						
20 –	10	38.5	16	61.5		
30 –	5	27.8	13	72.2		
40+	3	25	9	75	15.51	0.05*
Gender						
Male	8	34.8	25	65.2		
Female	13	39.4	20	60.6	31.41	0.05*
Education						
Secondary or equivalent	10	37.0	17	36.0		
University	11	37.9	18	62.1	0.00	0.94
Experience years						
<5	10	58.8	7	41.2		
5+	11	28.2	28	71.8	4.74	0.03*
Daily work hours						
<6	14	42.4	19	57.6	0.83	0.36
6+	7	30.4	16	69.6		
Total exposure						
Low (<50 % of the time)	18	39.1	28	60.9		
High (50 % + of the time)	3	30.0	7	70.0	30.14	0.05*
Place of work (Benha city)						
Faculty of medicine	7	31.8	15	68.2		
Faculty of nursing	6	66.7	3	33.3		
University hospital	8	32.0	17	68.0	3.89	0.14

(**)Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

The above table shows that more than two thirds of the users(75%) who had unsatisfactory knowledge was aged > 40 years, also (38.5%) of users who had satisfactory knowledge was aged 20-30 years with statistically significant differences. While (65.2%) of users with unsatisfactory knowledge were males, also (39.4%) of users with satisfactory knowledge were females with statistically significant differences.

Level of education that more than the half of users (63.0%) with unsatisfactory knowledge were secondary or equivalent education, also (37.9%) of the users with satisfactory knowledge were university education with out statistically significant differences. Experience years that (41.2%) of users with unsatisfactory knowledge had <5 years of experience, while (58.8%) of users with satisfactory knowledge had <5 years of experience with statistically significant differences.

Regarding daily work hours (69.6%) of users with unsatisfactory knowledge had worked >6 hours of day, also (42.4%) of users with satisfactory knowledge had worked <6 hours of day with out statistically significant differences.

Two thirds of the users (70.0%) with unsatisfactory knowledge had ergonomic exposure >50% of the time, also(39.1 %)of users with satisfactory knowledge had ergonomic exposure <50% of the time with statistically significant differences. while (68.2%) of users with unsatisfactory knowledge was in faculty of medicine, also (66.7%) of users with satisfactory knowledge was in faculty of nursing while with out statistically significant differences.

Table (17): Relation between study subjects total knowledge about ergonomic exposures in computer work and their socio-demographic and job characteristics.(n = 56)

Socio- demographic and job characteristics	Total knowledge				X^2	p
	satisfactory		Unsatisfactory			
	No	%	No	%		
Age / year						
20 –	12	46.2	14	53.8		
30 –	12	66.7	6	33.3		
40+	7	58.3	5	41.7	12.59	0.05*
Gender						
Male	5	21.7	18	78.3		
Female	12	36.4	21	63.6	25.00	0.05*
Education						
Secondary or equivalent	7	25.9	20	74.1	0.48	0.49
University	10	34.5	19	65.5		
Experience years						
<5	6	35.3	11	64.7		
5+	11	28.2	28	71.8	0.28	0.60
Daily work hours						
<6	8	24.2	25	75.8		0.23
6+	9	39.1	14	60.9	1.42	
Total exposure						
Low (<50 % of the time)	12	26.1	34	73.9		
High (50 % + of the time)	5	50.0	5	50.0	9.21	0.01**
Place of work (Benha city)						
Faculty of medicine	4	18.2	18	81.8		
Faculty of nursing	4	44.4	5	55.6		
University hospital	9	36.0	16	64.0	2.76	0.25

(**)Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

The above table showed that more than the half of the users(53.8%) who had unsatisfactory knowledge was aged 20-30 years, also (66.7%) of users who had satisfactory knowledge was aged 30-40 years with statistically significant differences. More than two thirds of users (78.3%) who had unsatisfactory knowledge were males, also (36.4%) of users who had satisfactory knowledge were females with statistically significant differences.

Level of education that more than two thirds of users (74.1%) of the users who had unsatisfactory knowledge were secondary or equivalent education, also (34.5%) of the users who had satisfactory knowledge were university education. Experience years that (71.8%) of users with unsatisfactory knowledge had >5 years of experience, also (35.3%) of users with satisfactory knowledge had <5 years of experience. Regarding daily work hours (75.8%) of users with unsatisfactory knowledge had worked <6 hours of day, also (39.1%) of users with satisfactory knowledge had worked >6 hours of day with out statistically significant differences.

More than two thirds of the users (73.9%) with unsatisfactory knowledge had ergonomic exposure <50% of the time, also(50 %)of users with satisfactory knowledge had ergonomic exposure >50% of the time with highly statistically significant differences. More than three quarters of users (81.8%) who had unsatisfactory knowledge was in faculty of medicine, also (44.4%) of users who had satisfactory knowledge was in faculty of nursing with out statistically significant differences.

Table (18): Relation between study subjects practices in computer work and their socio- demographic and ob characteristics (n = 56)

Socio- demographic and job characteristics	Practices				X^2	p
	Adequate		Inadequate			
	No	%	No	%		
Age / year						
20 –	12	46.2	14	53.8		
30 –	5	27.8	13	72.2		
40+	3	25	9	75	27.59	0.05*
Gender						
Male	13	56.5	10	43.5		
Female	15	54.5	18	54.5	0.66	0.42
Education						
Secondary or equivalent	15	55.6	12	44.4		
University	13	44.8	16	55.2	0.64	0.42
Experience years						
<5	9	52.9	8	47.1		
5+	19	48.7	20	51.3	24.72	0.01**
Daily work hours						
<6	18	54.5	15	45.5		
6+	10	43.5	13	56.5	13.28	0.05*
Total exposure						
Low (<50 % of the time)	24	52.2	22	47.8		
High (50 % + of the time)	4	40.00	6	60.0	30.14	0.05*
Place of work (Benha city)						
Faculty of medicine	14	63.6	8	36.4		
Faculty of nursing	0	0.0	9	100.0		
University hospital	14	56.0	11	44.0	11.00	0.004*

(**)Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

The above table shows that more than two thirds of the users (75%) who did inadequate practices was aged >40 years while (53.8%) of them was aged 20-30 years, also (46.2%) of users who did adequate practices was aged 20-30 years with statistically significant differences.

More than the half of users (54.5%) who did inadequate practices were females, while (56.5%) of users who did adequate practices were males. Also more than the half of users (55.2%) of the users who did inadequate practices were university education, while(55.6%) of the users who did adequate practices were secondary or equivalent education with out statistically significant differences.

Experience years that more than the half of users (51.3%) of users who did inadequate practices had >5 years of experience, while (52.9%) of users who did adequate practices had <5 years of experience with highly statistically significant differences.

Regarding daily work hours more than the half (56.5%) of users who did inadequate practices was worked >6 hours of day, while (54.5%) of users who did adequate practices was worked <6 hours of day. Two thirds of the users (60.0%) who did inadequate practices had ergonomic exposure >50% of the time, while (52.2 %)of users who did adequate practices had ergonomic exposure <50% of the time. The total of users (100.0%) who did inadequate practices was in Benha faculty of nursing, while (63.6%) of users who did adequate practices was in Benha faculty of medicine with statistically significant differences.

Table (19): Relation between study subjects knowledge and practices related to ergonomic exposures in computer work (n = 56)

	Knowledge				X^2	p
	Satisfactory		Unsatisfactory			
	No	%	No	%		
practice:						
Adequate	4	14.3	24	85.7		
Inadequate	13	46.4	15	53.6	6.84	0.009*

(*)Statistically significant at p= 0.05

Table (19) illustrated that a statistical significant difference between user's knowledge and their practices.

Table (20): Correlation between study subjects knowledge and practice scores related to ergonomic exposures in computer work and their socio-demographic and job characteristics.

Items	Pearson Correlation	
	Knowledge Score	Observation Score
	r	r
Observation score	-0.78*	---------
Age	0.846*	-0.54**
Educational level.	0.545**	0.963*
Experience years	0.315	0.65*
Total exposure score	0.515**	0.66*
Exposure index (score x time)	0.761**	0.565*

(**)Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

Table(20) illustrated that a statistical significant difference between Subjects Knowledge and observation Scores.

Table (21): Correlation between study subjects scores of various areas of knowledge related to ergonomic exposures in computer work and their socio- demographic and job characteristics.

Items	Score of knowledge related to							
	Exposure		Symptoms		Risk factors		Proper action	
	r	P-Value	r	P-Value	r	P-Value	r	P-Value
Age	-0.15	0.27	0.03	0.81	0.01	0.94	-0.02	0.88
Educational level	0.10	0.47	0.28	0.04*	0.02-	0.89	0.01	0.98
Experience years	0.01*	0.94	0.09	0.49	0.08	0.55	-0.26	0.06
Total exposure score	0.35	0.01*	0.08	0.55	-0.19	0.17	-0.02	0.89
exposure index (score x time)	0.14	0.30	0.20	0.14	0.03	0.82	-0.19	0.15

(**)Statistically significant at p=0.01 *(*)Statistically significant at p= 0.05*

Table(21) illustrated that a statistical significant difference between subjects knowledge scores related to exposure, symptoms, risk factors and proper action.