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**\* EVALUATION OF HEALTHY LIFESTYLE BEHAVIORS AMONG WHITE-COLLAR WORKERS**

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**ABSTRACT**

**Background/aim:** To evaluate the level of healthy lifestyle and identify the relationship with socio-demographic characteristics among persons with White-Collar Workers. Because their susceptibility to diseases increases due to the responsibilities imposed on them, long-term professional pressures, and work stress that leads to an unhealthy lifestyle. The aim of this study is to evaluate the healthy lifestyle of people working in White-Collar Workers.

**Methods:** The universe of this cross-sectional descriptive study consists of 2700 people working in White-Collar Workers in the institutions of the Iraq Diwaniya governorate. 384 people working in different fields were included in the sample of the study using the random sampling method. The data were collected by using a questionnaire form containing 9 questions prepared to determine the socio-demographic characteristics of the individuals and healthy lifestyle behavior scale II.

**Results:** 37.8% of the research group is between the ages of 35-44, 58.2% are men, 47.4% have a doctorate degree, 44.3% work for 11 hours or more, 76.3% is overweight and 77.6% has a chronic disease. The mean total HPLP-II score was  $2.42 \pm 0.17$ . The lowest score of the scale belongs to the "stress management" subgroup ( $2.25 \pm 0.11$ ) and the highest score belongs to "spiritual growth" ( $2.73 \pm 0.14$ ).

**Conclusion:** Employees have a low HPLP-II score. Research findings show that individuals working in White-Collar Workers are in the risky group in terms of healthy lifestyle behaviors.

It is recommended that health care providers evaluate the risk group determined in terms of healthy lifestyle behaviors more carefully.

**Keywords:** Healthy Lifestyle, Employees, Health Promoting Lifestyle Profile-II

## INTRODUCTION

World Health Organization (WHO), has defined the term health and has developed this healthy term concept that is imperative to people's lives, health; it is a condition of normal physical, mental, social aspect not only free of illness & infirmity (WHO, 2020). Lifestyle refers to individual choices that might influence health (Bernstein et al., 2010). A healthy lifestyle is characterized as orientation toward the avoidance of health problems, and the maximization of individual well-being (Kraak and Story, 2010).

Dimensions of promoting healthy lifestyles were based on Ibrahim Maslow's pyramid (Evans et al., 2010). Perception is the basis of behavior (N. Jacintha, 2010). The perception of self-efficacy affects perceived barriers to health action (Huff et al. , 2015). Endocrine and nervous system are believed to affect human behavior (Gregory, 2015). Attitude is basic for mental development and an enthusiastic entity that characterizes individuals (Perloff, 2016).

White-Collar Workers persons are a functional class composed of people with the highest job description, they possess the highest authority, social, administrative, educational, professional or political status (Scott, 2014), which mostly affected their health and caused many health problems, signs of work stress among persons with White-Collar Workers are; physical problems and mental disorders (Mustafa, 2015), work spiritual and emotional disorder (Waddell and Walton, 2020), all these symptoms are expected on their health and lead to the appearance of many Chronic diseases(Kendall, 2011).

70-80% of deaths in developed countries and 40-50% of deaths in developing countries are diseases that occur depending on lifestyle (WHO,2019) While 53% of causes of death are related to the individual lifestyle (W.Hoeger and S. Hoeger, 2017). Unhealthy behaviors are one of the main catalysts for their occurrence through an increase of body mass index (WHO, 2019; Kearns et al., 2014) that contributes to 40% high blood pressure in the world's adults (Njambi and Tanui, 2012). Employees were 70% more likely to develop mental illness and other Chronic diseases by the age of fifty ( Samuel Harvey, 2018; Keeny, 2015). Chronic diseases can be expected by not committing healthy behavior (Baba and Wani, 2017), weaken the immune system make prone to serious diseases such as Coronavirus 2019 (QIN et al., 2020).

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To evaluate the level of healthy lifestyle and identify the relationship with socio-demographic characteristics among persons with high-class jobs. Because their susceptibility to diseases increases due to the responsibilities imposed on them, long-term professional pressures, and work stress that leads to an unhealthy lifestyle. As a matter of fact, it is stated in the literature that there is an increase in chronic diseases among those who work in these jobs, especially due to job stress ([Johannes & Jian, 2018](#)). Therefore, in this study, it was aimed to evaluate the healthy lifestyle of people working in upper class jobs and to define the relationship between healthy lifestyle and sociodemographic characteristics.

## **METHODS**

### **Design and sample**

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A descriptive design, cross-sectional was carried out from Feb. 16th, 2020 to Aug. 16th, 2020 to evaluate HL among persons with White-Collar Workers in Iraq – Al Diwaniyah City. Quantitative research was used in the design of the study. Anon –Probability sampling technique. A sample of 384 persons was taken accidentally from different areas, the sample size was determined by equation ([Charan and Biswas, 2013](#)). The sample size was 384(distributed to (34) government institutions from different regions in Al-Diwaniyah City.

### **Data collection tools**

Instrument develop were two parts, the data was being collected using a questionnaire to determine the socio-demographic characteristics of individuals and Health-promoting lifestyle profile II (HPLP- II).

### ***Socio-demographic data***

The first part were included questions about the age, gender, educational level, marital status, residence area, professions, hours working, prevalence of CDs and BMI of the participants.

### ***HPLP – II***

The second part was used to measure HPLP II to a limited extent in northern Iraq only ([Kamali et al. ,2016](#) ). Scales were consists of 52 items and had six dimensions included Spirual Growth (SG) was containing of (9) items, Health Responsibility (HR) was containing (9) items, Physical Activity (PA) was containing (8) items, Nutrition (N )was containing of (9) items, Interpersonal Relationship (IR) was containing of (9) items, (SM) was containing of (8) items, These items were scored and related on 4-point Likert scales as (4) for Routinely, (3) for Often, (2) for Sometimes,(1) for Never. This study categorizes HPLP II through three

levels: Weak, Moderate, and Excellent Healthy Lifestyle among persons with high-class jobs. The scale was valid and reliable for use as an Arabic version in Iraq, in a previous study in Iraq, the Cronbach's alpha of the HPLP was ranged from 0.80 to 0.90 which corresponds to the degree of validity of the current study. 30 White-Collar Workers persons were used in a pilot study to test the questionnaire's feasibility and applicability. The finding showed that the questionnaire was clear and unambiguous and did not require any changes to its content. The study was based on the original version (Walker et al., 1987).

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### **Data analysis**

The analysis of the data was acquired in the study in SPSS and to determine whether the study goals have been met, utilizes two statistical approaches to analyze the study data. Descriptive analysis (Frequencies, Percentages, Mean), one way anova and t test were used to evaluate the data. The level of importance to be determined in the data assessment was  $P \leq 0.05$ .

### **Ethical considerations**

This study received the approval of the research ethics committee (AREC-2020-02-016) of Iraq, Al-Diwaniyah City. All the participants gave their informed written consent after being assured that the study information was classified and that participation was anonymous and voluntary.

## **RESULTS**

### **Socio-demographic characteristics of the participants**

Table 1 shows the socio-demographic characteristics of the participants, a study sample comprised of 384 persons. Ages were (35-44) year old and accounted for 37.8 % of them. Most of the participants were male 58.1% and 14.9 females with the gender proportion reflecting that of the total White-Collar Workers persons. Educational of level that doctoral degree obtained the highest percentage (47.4%) and marital status was married major than unmarried. Residence of the area city and academic staff professions, and working 11 hours, accounted for the total sample of the total sample. According to the responses of the respondents, they obtained the highest percentage prevalence of chronic diseases, the highest percentages of the chronic diseases category that the digestive system, high blood pressure, diabetes, and heart disease. The highest percentage of body mass index was for overweight by a percentage (76.3%) It is an abnormal proportion. Abnormal body mass indicators (underweight, overweight, obesity, and obesity) got the majority at a percentage (86.2%), compared to the normal body mass index percentage (13.8%) White-Collar Workers persons

**Table 1 Demographics of the participants (n = 384).**

Characteristics	f	%	Characteristics	F	%
<b>Age</b>			<b>Hours of Work</b>		
25-34	43	11.12	7-8 hrs.	137	35.7
35-44	145	37.8	9-10 hrs.	77	20.1
45-54	124	32.3	11- and more than	170	44.3
55-65	72	18.8	TOTAL	384	100.0
TOTAL	384	100.0			
<b>Gender</b>			<b>*BMI</b>		
Male	223	58.1	>18.5 Under Weight	3	0.8
Female	161	41.9	18.5-24.9 Normal Weight	53	13.8
TOTAL	384	100.0	25-29.9 Overweigh	293	76.3
<b>Education level</b>			30-34.9 Obese	27	7.0
BSC	54	14.1	<35 Severe Obesity	8	2.1
HD	35	9.1	TOTAL	384	100.0
MSC	98	25.5			
PhD	182	47.4	<b>**Prevalence of CDs</b>		
Post-PhD	15	3.9	No CDs	86	22.4
TOTAL	384	100.0	CDs	298	77.6
<b>Marital status</b>			TOTAL	384	100.0
Married	328	85.4	Digestive Diseases	92	24.0
Unmarried	56	14.6	HTN	75	19.5
TOTAL	384	100.0	DM	50	13.0
<b>Residence Area</b>			Cardiac Diseases	44	11.5
City	271	70.6	Respiratory Diseases	15	3.9
Rural	113	29.4	Disk Pro Laps	12	3.1
TOTAL	384	100.0	Hyperthyroidism	5	1.3
<b>Professions</b>			Renal Failure	2	0.3
Academic staff	77	20.1	CVA	2	0.3
Engineering	76	19.8	Breast Cancer	1	0.1
Medical	75	19.5	TOTAL	384	100.0
Low	42	10.9			
Economy	38	9.9			
Administrative & Services	38	9.9			
Military	19	4.9			
School Teaching	19	4.9			
TOTAL	384	100.0			

\*BMI: Underweight(50kg 167- 52kg 170cm) Normal ( 55kg154cm-73kg 171cm) Overweight (60kg 154cm -73kg 170cm)Obese (73kg 156kg-89kg 172cm) Severe Obesity (90kg 155cm-105kg170 cm ).

\*\*Digestive diseases include Irritable bowel syndrome ( 83 ) ,Colitis ( 9 )Cardiac diseases include Coronary artery disease ( 19), Cardiac dysrhythmias(25)Respiratory disease include chronic allergic sinusitis (12 ),asthma (3).

## Descriptive statistics for the HPLP II

Table 2 shows that descriptive statistics for the health-promoting lifestyle subscales for the whole sample of assessment healthy lifestyle among persons with White-Collar Workers obtained low level and assessment healthy lifestyle in dimensions spiritual growth and health responsibility obtained average indicators, while assessment of healthy lifestyle in subscales of physical activity, nutrition, interpersonal relation, and stress management obtained low-level indicators.

**Table 2 White-Collar Workers persons of Measure HPLP II scores and categorize of Levels HL (n=384).**

Subscales	HPLP II scores					Highest & lowest obtainable score	Categorize of Levels HL		
	Never	Sometime	Often	Routinely	Measure of Scale (Mean)		Total Mean±SD	Levels	%
<b>SG</b>	2.61	2.85	2.61	2.87		2.735±0.1446	9–36	Moderate	%33.33
<b>HR</b>	2.37	2.63	2.44	2.62		2.515±0.1303	9–36	Moderate	
<b>PA</b>	2.26	2.07	2.43	2.41		2.293±0.1666	8–32	Weak	%66.67
<b>N</b>	2.32	2.27	2.34	2.44		2.343±0.0714	9–36	Weak	
<b>IR</b>	2.46	2.46	2.41	2.32		2.413±0.066	9–36	Weak	
<b>SM</b>	2.42	2.24	2.14	2.23		2.258±0.1173	8–32	Weak	
<b>Total</b>	14.44	14.52	14.37	14.89		2.426±0.1771	52–208	Weak	

**Comparison between socio- demographic characteristics and the health-promoting lifestyle subscales**

Table 3 shows comparison of participants between socio-demographic characteristics and subscales HL that shows the age of the sample has a significant relationship with a healthy lifestyle in the dimension of Physical Activity than others. Gender was a significant relationship with the Health lifestyle in the dimension of Spiritual Growth than other. While educational level was a significant relationship between each of the spiritual growth, health responsibility with their educational level than others. Marital status that indicates a statistically significant relationship with a healthy lifestyle in area interpersonal relations. There was a statistically significant relationship between a healthy lifestyle in the area of nutrition with their body mass index.

**Table 3 One- way ANOVA of comparison between socio- demographic characteristics and HL among persons with White-Collar Workers (n=384)**

<b>Characteristic</b>	<b>SG Mean ± SD</b>	<b>HR Mean ± SD</b>	<b>PA Mean ± SD</b>	<b>N Mean ± SD</b>	<b>IR Mean ± SD</b>	<b>SM Mean ± SD</b>	<b>TOTAL SCORE</b>
<b>Age</b>							
25-34	2.87±1.1	2.62±1.17	2.41±1.006	2.44±1.08	2.32±1.03	2.23±1.034	2.40±0.05
35-44	2.61±0.99	2.44±1.1	2.43±1.03	2.34±1.13	2.41±1.14	2.14±0.93	2.39±0.07
45-54	2.85±1.04	2.63±0.9	2.07±1.1	2.27±1.08	2.46±1.04	2.24±1.17	2.42±0.08
55-65	2.61±1.1	2.37±0.9	2.26±1.05	2.32±0.99	2.46±0.8	2.42±1.09	2.40±0.1
	F=1.66	F=1.46	F=2.64	F=0.27	F=0.20	F=1.0	F=1.205
<b>P*</b>	P>0.1	P>0.2	P<0.04	P>0.8	P>0.89	P>0.3	P> 0.38
<b>Gender</b>							
Male	2.85±1.02	2.49±1.01	2.25±1.1	2.36±1.03	2.46±1.03	2.29±1.07	2.45±0.03
Female	2.52±1.07	2.53±0.9	2.32±1.04	2.29±1.1	2.38±1.08	1.03±1.41	2.17±0.16
	F=9.62	F=0.19	F=0.38	F=0.42	F=0.61	F=0.41	F= 1.93
<b>P*</b>	P<0.002	P>0.6	P>0.5	P>0.5	P>0.4	P>0.2	P> 0.36
<b>Educational levels</b>							
BSC	2.57±0.97	2.75±1.14	2.24±1.08	2.49±1.2	2.41±1.04	2.34±1.0	2.46±0.08
HD	2.47±1.09	2.19±0.7	2.34±1.02	2.31±1.15	2.32±0.92	2.10±0.99	2.28±0.15
MSC	2.92±1.10	2.48±0.9	2.36±1.2	2.29±1.02	2.44±1.11	2.11±0.99	2.43±0.10
PhD	2.74±1.02	2.55±1.01	2.23±1.06	2.31±1.07	2.45±1.07	2.29±1.1	2.42±0.03
Post- PhD	2.11±1.0	2.04±0.9	2.35±1.2	2.36±0.8	2.49±0.9	2.29±0.9	2.27±0.13
	F=3.01	F=2.51	F=0.27	F=0.35	F=0.11	F=0.73	F= 1.16
<b>P*</b>	P<0.01	P<0.04	P>0.8	P>0.9	P>0.9	P>0.5	P> 0.52
<b>Marital status</b>							
Married	2.71±1.07	2.51±0.98	2.29±1.10	2.32±1.07	2.47±1.03	2.23±1.08	2.42±0.04
Unmarried	2.80±0.9	2.48±1.17	2.22±1.0	2.35±1.14	2.18±1.11	2.24±0.91	2.37±0.11
	F=0.41	F=0.06	F=0.18	F=0.03	F=3.06	F=0.01	F= 0.62
<b>P*</b>	P>0.5	P>0.8	P>0.6	P>0.03	P<0.04	P>0.9	P> 0.47
<b>Residence Area</b>							
City	2.74±1.07	2.52±1.01	2.32±1.09	2.33±1.0	2.45±1.11	2.21±1.04	2.42±0.04
Rural	2.68±1.02	2.48±0.99	2.18±1.07	2.35±1.2	2.37±0.90	2.31±1.10	2.39±0.10
	F=0.24	F=0.15	F=1.34	F=0.03	F=0.40	F=0.85	F= 0.501
<b>P*</b>	P>0.6	P>0.6	P>0.2	P>0.8	P>0.5	P>0.3	P> 0.5
<b>Professions</b>							
Academic staff	2.87±1.04	2.59±1.05	2.24±1.04	2.38±1.09	2.37±1.19	2.20±1.06	2.24±0.05
Engineering	2.69±1.02	2.60±2.60	2.54±0.95	2.28±1.05	2.39±1.07	2.23±1.08	2.45±0.64
Medical	2.62±1.06	2.32±1.04	2.24±1.07	2.35±1.01	2.66±0.89	2.28±1.04	2.41±0.06
Low Economy	2.97±1.05	2.56±0.90	2.14±1.16	2.40±1.05	2.41±0.92	2.10±1.01	2.43±0.09
Administrative & Services	2.79±1.01	2.45±0.7	2.12±0.9	2.38±1.06	2.51±1.1	2.29±1.14	2.42±0.16
Military School Teaching	2.34±1.06	2.21±1.1	2.28±1.2	2.30±1.2	2.17±1.05	2.27±0.99	2.26±0.08
	F=1.51	F=1.70	F=2.13	F=0.58	F=0.98	F=0.51	F= 1.23
<b>P*</b>	P>0.1	P>0.10	P<0.03	P>0.7	P>0.4	P>0.08	P>0.23

<b>Hoursof Work</b>	2.7272±1.05	2.4863±0.9	2.2589±1.2	2.3783±1.10	2.3592±1.03	2.2685±1.07	2.41±0.09
7-8 hrs.	2.87±1.04	2.59±1.05	2.24±1.04	2.38±1.09	2.37±1.1	2.20±1.06	2.44±0.02
9-10 hrs.	2.64±1.06	2.49±1.01	2.31±1.05	2.27±1.06	2.51±0.9	2.23±1.04	2.40±0.06
<b>11and more than</b>	F=1.24 P>0.2	F=0.30 P>0.7	F=0.16 P>0.8	F=0.48 P>0.6	F=0.95 P>0.3	F=0.09 P>0.9	F= 0.53 P>0.58
<b>P*</b>	2.99±0.9	3.74±1.7	2.45±1.5	4.18±0.62	2.15±0.69	2.14±0.63	2.94±0.47
<b>BMI</b>							
>18.5Under Weight	2.68±1.18	2.32±1.04	2.39±1.12	2.30±1.07	2.29±0.96	2.26±0.99	2.37±0.08
18.5-24.9 Normal Weight	2.74±1.06	2.53±1.008	2.24±1.06	2.34±1.08	2.42±1.05	2.25±1.069	2.42±0.02
25-29.9 Overweigh	2.69±0.80	2.47±0.82	2.25±1.19	2.10±1.07	2.72±1.2	2.72±1.27	2.49±0.20
30-34.9 Obese	2.69±0.80	2.47±0.82	2.25±1.19	2.10±1.07	2.72±1.2	2.72±1.27	2.49±0.20
<35Severe Obesity	F=0.50 P>0.7	F=1.62 P>0.1	F=0.68 P>0.4	F=2.67 P>0.03	F=1.09 P>0.3	F=0.52 P>0.7	F= 1.18 P> 0.37
<b>P*</b>							
<b>Prevalence of CDs</b>	2.60±0.95	2.40±0.9	2.44±1.09	2.30±1.01	2.31±1.0	2.17±0.97	2.37±0.06
No CDs	2.75±1.0	2.54±1.01	2.23±1.08	2.34±1.10	2.46±1.04	1.083±0.48	2.23±0.23
CDs	F=1.27 P>0.2	F=1.18 P>0.27	F=2.5 P>0.1	F=0.07 P>0.7	F=1.44 P>0.23	F=0.48 P>0.4	F= 1.15 P> 0.31
<b>P*</b>	2.69±0.32	2.53±0.38	2.28±0.1	2.36±0.11	2.41±0.11	2.19±0.16	2.33±0.41
<b>Total.</b>							

\*P: Significant at P<0.05 (Two-Tailed), SD: Standard Deviation

## DISCUSSION

This study focused on the level of Healthy lifestyle among persons with White-Collar Workers while aiming to evaluate the level of a healthy lifestyle. Our Study suggested that total of healthy lifestyle was the level of weak and impact on health of White-Collar Workers persons, increase indicators hours of work, BMI, and CDs, confirm to impact relationships between socio-demographic characteristics and subcastes Healthy lifestyle among persons with high-class jobs.

Our finding was supported by Al-Qahtani (2019b) a significant relationship was observed between overall scores and ranges the scope for the six dimensions with demographic variables, and the degree with the highest percentage was spiritual growth (2.708 +\_ .517; 2.889 +\_ .552, respectively) and otherwise the lowest was physical health (2.306+\_ .465; 2.345+\_ .521). Health responsibility differed in another study, where it obtained a low index and spiritual growth got a high index (Mak et al.,2018), and study (Alzahrani et al.) was Total mean score of HPLP



II(123.8+\_19.8), The highest is the spiritual growth and the lowest the physical activity(Alzahrani et al.,2019).

Data from this result agreed with results that found was no positive relationship with the age of the people and total health promoting behaviors was  $111.62 \pm 20.45$  (Tabrizi et al. ,2020) and physical activity has the highest indicator of healthy behavior and Total score age was  $2.274 \pm 0.081$  and general total (HPLP II)  $137.82 \pm 20.5$  (Estebarsari et al. ,2019). In another study, she confirmed that no relationship relates lifestyle significantly to physical activities according to age (Dorado and Racca, 2019). While it has been proven that there is a positive relationship with the person's age, the younger the person, the higher the health behavior index (Harada et al., 2013).

Most research suggests that there was a relationship with two types of stress management and gender and mean for each six dimensions healthy lifestyle was  $>17.58 \pm 2.3$  (Tol et al., 2013) and Women showed more physical of activity was male  $2.31 \pm 0.61$  and female  $2.39 \pm 0.55$  and total score healthy lifestyle was  $2.56 \pm 0.39$  (Zhang et al.,2013 ), in another study, men are more active than women(Mouodi et al.,2018 ). That is, a healthy lifestyle differs in terms of gender (Park and Kim, 2016). In another study (Alzahrani et al.), showed score of the study show that health promotion profiles differ by gender, particularly with regard to physical activity and Personal relationships (Alzahrani et al.,2019).

Result agreed with the study that confirmed the relationship of the educational level to a healthy lifestyle (Tabrizi et al.,2020; Said and Aly, 2019; Fisher and Kridli,2014). This agreement refers to the education level that enhances health responsibility for people. In other studies was sub-dimensions of healthy patterns do not show a significant difference according to educational level (Yilmaz et al.,2016).

Agree this result with the result of the current study, which confirmed the existence of a positive indication of the relationships of people to the social situation (Gezginci et al.,2019; Ojha,2019 ). In other studies, it was pointed out that married people are more committed to healthy behavior than unmarried people (Baral and Tamrakar, 2020; Tabrizi et al. ,2020; Kirag and Ocaktan,2013). a previous study showing the environment of individuals city or rural effects of healthy behavior (Omelan et al.,2020).This is consistent with what has been found in study previous were not found relationships between healthy dimensions except physical activity and professions (Tabrizi et al.,2020 ; Estebarsari et al. ,2019), the difference was found in another study that showed a significant relationship between all dimensions of healthy

lifestyle and occupations (Mouodi et al.,2018). In other studies, there is a significant negative impact resulting from poor stress management related work where it was 64% (Tsai and Liu,2012).

The results are directly consistent with the previous results That clarified the effect hours of work on healthy behavior (Doerrmann et al.,2020; Sahana et al. ,2019; Mak et al.,2018). Our study expands upon findings from previous analyses song et al. (2013) healthy habits reduce the prevalence of chronic diseases, similar findings confirmed found a significant relationship between nutrition and body mass index (Estebansari et al. ,2019; Sanlier et al.,2018; Huang et al.,2014). In another study confirms a low index of healthy lifestyle related by increasing the body mass index and thus the emergence of chronic diseases (Kocaman and Telatar, 2020).Managing stress relieves anxiety and stress from life's stressors Work environments. A healthy lifestyle is a suitable stress management environment.

### **Conclusion and Recommendations**

According to the results of the study, the study concluded the following; the persons with White-Collar Workers are disoriented toward HL also they have limited scales in dealing with stress that imposes by jobs situations, sociodemographics characteristic of the age, professions, gender, educational level, marital status, BMI, CDs have an effect domains of PA, SG, HR, IR, N of respectively, hours of work, BMI and age progress play an important role in contributing CDs, this results already confirm scientifically. Encouraging the role model as an incentive to change behavior.

### **Limitation of The Study**

The basic research limitation was lack of generalization due to the sample (accidental) and considered a weak sample considered.

### **Declaration of competing interest**

The authors have no conflicts of interest to disclose.

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