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AN OBSERVATIONAL, RETROSPECTIVE, STUDY TO ASSESS SEHETNA WELLNESS PROGRAM IMPACT ON EMPLOYEES' WELL-BEING AND HEALTH

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AN OBSERVATIONAL, RETROSPECTIVE, STUDY TO ASSESS SEHETNA WELLNESS PROGRAM IMPACT ON EMPLOYEES' WELL-BEING AND HEALTH

Abstract

Wellness is an ongoing process that leads to realizing one's full potential, with studies showing reduced inpatient admissions, healthcare costs, and improved health-related quality of life through participation in large-scale wellness programs. SEHETNA program is a wellness initiative conducted with the Egyptian Group for Import and Export (EGMED) to enhance employees' well-being. This study aimed to assess the SEHETNA wellness program impact on the general health of employees. This is a retrospective descriptive observational study including employees enrolled in wellness program for up to 12-months in 2021. Data were entered and analyzed using SPSS. Descriptive analysis was done, categorical variables were reported by number and percentage, and continuous variables as mean and standard deviation. 54 employees were included in the analysis. Body measurements and composition such as waist-circumference, body-mass-index (BMI), body-shape-index (ABSI), and percentage muscle-mass showed significant changes. Blood and nutrition indicators also showed significant changes except for vitamin-D, potassium, and hemoglobin. As for the fitness exercise, a significant change in running and plank time, push-ups' and squats' number, and Resting-Heart-Rate (RHR) was observed. The physical health and environmental domain in the Quality-of-Life (QOL) assessment showed significant changes. Mindfulness measurements showed no significant change in the Five-Facet Mindfulness Questionnaire (FFMQ) and subscales scores overall. This study highlighted workplace wellness programs' value, their impact on employees' well-being, and the increased awareness need about wellness interventions. Also, it demonstrated the potential efficacy of the program; however, further research and longer follow-up are needed to demonstrate this effectiveness.

Keywords

Nutrition, wellness, health, awareness, and lifestyle

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1. INTRODUCTION

Workplaces have been recognized as a primary domain for the promotion of health in the 21st century.(Malik et al., 2014) It has been demonstrated that they have a direct influence on the physical, emotional, economic, and social well-being of employees, as well as the health of their families. (Abdin et al., 2018) The majority of individuals strive to maintain good health; nonetheless, the medical sector has recently prioritized the treatment of illnesses rather than the promotion of well-being.(Naci et al., 2015). In the last decade, healthcare practitioners have begun to adopt a new strategy by regularly recommending individuals to adopt better lifestyle choices and promoting overall well-being.(Polak et al., 2015).

The World Health Organization (WHO) in 1964 provided a definition of health as a condition of complete physical, mental, and social well-being, rather than simply the absence of illness.(McMahon et al., 2010). Furthermore, due to the fact that wellness spans a broader scope than mere physical health, its definition is always expanding. Well-being is the equilibrium achieved when an individual's resources, challenges, and quality of life (QoL) are in harmony. It encompasses the individual's subjective perception of health and functioning across physical, psychological, social, and cognitive dimensions.(Bart et al., 2018; Breslow et al., 1972; WHO, 1995). Several studies have shown that engaging in extensive wellness programs leads to decreased hospital admissions, lower healthcare expenses, and enhanced health-related quality of life.(Coberlet et al., 2011). The majority of wellness outlines a framework that includes many interrelated elements and a holistic perspective of the individual. Therefore, engaging with fellow community members, exercising one's mind, taking care of the body, and nurturing the soul are all integral aspects of human well-being.(Miller et al., 2010).

Finally, wellness is a holistic, ongoing process that encompasses several components such as lifestyle, spirituality, and environmental well-being. It ultimately enables individuals to achieve their maximum potential.(Bart et al., 2018; King et al., 2019). Therefore, in order to improve behavioral health outcomes, preventive interventions, and all other aspects of patient care, standardized wellness evaluation techniques may be employed in primary care settings. Furthermore, this will allow the projection of long-term health results and the continuous monitoring of patients' general health throughout time.(Malik et al., 2014).

Organizations are implementing several strategies to enhance workplace efficiency and facilitate employees' best performance.(Good et al., 2015). Mindfulness therapies enhance concentration and promote heightened awareness of current situations. Employers are increasingly using mindfulness efforts to enhance the health, well-being, and productivity of their employees.(Good et al., 2015; Gu et al., 2016; Baer et al., 2004; Wilde et al., 2006)

The Five Facet Mindfulness Questionnaire (FFMQ) is a well-established and extensively utilized tool for evaluating mindfulness in relation to thoughts, feelings, and behaviors in daily life.(Gu et al., 2016). The questionnaire employs a self-evaluation method and concentrates on five aspects of mindfulness: observation, description, deliberate actions, non-judgmental internal experience, and non-reactivity.(Gu et al., 2016). This survey was crucial as it was among the initial studies to investigate the efficacy of mindfulness in addressing real-life problems.(Baer et al., 2004).

Physical fitness refers to a collection of attributes that individuals possess or attain, which can be categorized as either health-related or skill-related.(Wilder et al., 2006). Physical fitness encompasses several components that are interconnected with health, including cardiovascular and respiratory endurance, muscular strength and endurance, body composition, flexibility, power, and performance.(Fieto et al., 2018). Specialized assessments can be employed to evaluate the extent to which an individual demonstrates these attributes.(Caspersen et al., 2013).

Nutritional status refers to the extent to which the intake and use of nutrients impact an individual's overall health condition.(Diet and health, 1989). Nutritional status refers to the complex connection between food consumption, general well-being, and the impact of one's surroundings.(Rodrigues, 2004). The examination necessitates the inclusion of data pertaining to body weight, height, BMI, and body composition.(Viani et al., 2020; Cederholm et al., 2017)

Quality of life is referred to as a person's perception of their position in life in relation to their goals, expectations, standards, and concerns within the framework of the society they inhabit.(WHO, 1995). Additionally, the health aspects of quality of life emphasize the impact of illnesses and treatments on impairment and everyday functioning. Also, it has been postulated that they demonstrate the correlation between an individual's assessment of their well-being and their capacity to experience a satisfying existence.(Haraldstad et al., 2019).

The overall well-being of community members is crucial for a healthy future, since a productive workforce is vital for the sustainability of enterprises and a thriving economy.(Sehetna Wellness) The SEHETNA wellness program has been established to offer comprehensive guidance and assistance in the areas of nutrition, physical exercise, and mindfulness. The aim of this pilot study is to assess the impact of SEHETNA wellness program on the general health of the employees, where the initiative involved employees from the Egyptian Group for Import and Export. This study is the first to assess the effectiveness of SEHETNA wellness program.

2. METHODS

2.1 Design

This study is a descriptive observational, retrospective study designed to assess the impact of SEHETNA wellness program on the general health of the employees in terms of 4 pillars: mindfulness, fitness, nutrition status, and QoL.

2.2 Setting and Sampling

Data of 54 participants collected up to 12 months in 2021 at EGMED Company in Cairo, Egypt were included in this analysis. The study included adult volunteers who were enrolled in the program between January 4th and December 31st, 2021. While temporary employees, independent contractors, and people with medical conditions that prevent them from participating in either a basic or advanced program were excluded.

2.3 Ethical considerations

A waiver of informed consent for the study participants was requested as this is a retrospective study. The study protocol was approved by the Central Directorate of Research and Health Development, Ministry of Health, Egypt (EC approval number: 5-2022/1).

2.4 Data collection

The analysis was performed at the baseline and the endpoint. The first measurements were taken at baseline at the time of enrollment, while the second were taken at the end of follow-up. Count and percent summarized categorical variables, whereas continuous variables were presented by the mean and standard deviation or by median and interquartile range based on the normality of the data. The four pillars were then presented with a suitable measure of their central tendency. The significant change in these measures from baseline was explored using paired student t-test if data were normal or Wilcoxon signed rank test if data were skewed.

A Body Shape Index (ABSI) was calculated using the following formula: $ABSI = WC/BMI^{2/3} \times height^{1/2}$.(Rodriguez, 2004) The WHOQOL-BREF questionnaire was used to assess the quality-of-life profile of participants. Four domain scores were derived: physical health, psychological, social relationships, and environment, as well as QOL and overall health. The WHOQOL-BREF evaluates each item on a five-point ordinal scale from 1 to 5. The scores are linearly transformed to 0–100. The mindfulness score was calculated based on participants' answers to the FFMQ questionnaire. Six different scores representing different dimensions were calculated: total FFMQ score and five scores relative to the five categories that this questionnaire assesses, including observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. The average score for each of the six categories was calculated. The score was calculated at the baseline and the endpoint. Paired sample t-tests were used to determine significance with a P-value <0.05.

3. RESULTS

A total of 54 participants with a mean age of 36.8 ± 6.2 years were enrolled in this study, of which 45 (83.3%) were males, 40 (74.1%) were married, and 51 (94.4%) had a bachelor's degree. Of these participants, 34 (63.0%) were assigned to the basic fitness program, while 20 (37.0%) were assigned to the advanced fitness program (Table 1).

Table 1: Baseline characteristics of the participants

Characteristic		
Age		36.8±6.2
Gender	Female	9 (16.7%)
	Male	45 (83.3%)
Highest Received Education	Bachelor	51 (94.4%)
Marital status	Single	13 (24.1%)
	Married	40 (74.1%)
Fitness Program enrollment	Basic	34 (63.0%)
	Advanced	20 37.0%)

3.1. Body measurements

There was a significant decrease in waist circumference from 99.4±12.9 cm at baseline to 96.4±13.2 cm ($p<0.001$) at the program end and BMI from 28.6±5.0 kg/m^2 to 28.2±5.3 kg/m^2 ($p< 0.018$). A decrease was also seen in bust and hip circumference; however, the change was not statistically significant. Also, the ABSI score decreased significantly from 0.0811 at baseline to 0.0795 at the end of the program ($p= 0.001$). As for the body composition, the percentage of fat decreased significantly from 31.0% at baseline to 30.2% at the end of the program). The percentage of muscle mass increased significantly from 37.7±6.6% at baseline to 40.3±8.9% at the end of the program, while there was no significant change in the fat and water percentages (Table 2).

Table 2: Body measurements indicators

Body Measurements	Baseline	Endpoint	p-value
Waist circumference(cm)	99.35±12.87	96.37±13.16	<0.001
Bust circumference (cm)	103.50±11.73	102.98±11.11	0.084
Hip circumference (cm)	105.98±17.49	105.83±11.31	0.934
BMI(Kg/m2)	28.60±4.97	28.17±5.28	0.018
ABSI	0.08 ± 0.00	0.08 ± 0.00	<0.001
% Fat	31.00 ± 8.85	30.24±9.07	0.040
% Muscle	37.65 ± 6.64	40.34±8.91	0.008
% Water	49.90±6.26	49.15±8.52	0.429

3.2. Blood and nutrition indicators

A decrease in blood indicators was observed at the end line, where serum uric acid, cholesterol, triglycerides, and glycated hemoglobin (HbA1c) showed a significant decrease at the end of the program (Table 3).

However, the change in nutrition indicators was varying, where a significant increase in vitamin B12, calcium, and water intake at the end of the program. Although there was a statistically significant decline in zinc and sodium levels, however, this decrease wasn't clinically significant, as all the minerals' levels were within their normal range at the baseline and at the end of the program (Table 3).

Table 3: Blood and Nutrition indicators concentration/frequency

Nutrition indicators	Baseline	Endpoint	P-value
Vitamin B12 (pg/mL)	474.91±262.85	627.43±459.93	0.004
Vitamin D (g/mL)	19.04±8.70	20.91±8.45	0.191
Zinc (µg/dL)	94.50±15.99	78.02±13.40	<0.001
Sodium (mmol/dL)	143.96±2.93	138.32±2.70	<0.001
Potassium (mmol/L)	4.48±0.29	4.46±0.33	0.646
Calcium (mg/dL)	9.66±0.43	10.01±0.43	<0.001
Serum Uric acid (mg/dL)	5.21±1.34	4.39±1.09	<0.001
Cholesterol (mg/dL)	192.22±47.79	157.29±35.04	<0.001
Triglycerides (mg/dL)	99.85±44.32	80.83±33.16	<0.001
Hemoglobin (g/dL)	14.52±1.67	14.68±1.17	0.428
HbA1C (%)	6.44±1.26	5.59±1.00	<0.001
Water intake (cups/day)	5.76 ± 1.08	7.85 ± 0.66	<0.001

3.3. Fitness measurements

A significant improvement in running time from a median of 5 minutes at baseline compared to 15 minutes at the end of the program, push-ups per day from 29 push-ups at baseline to 34 at the endpoint, plank time from 87 sec/day at baseline to 96 sec/day, and squats from 37 to 40. While the number of sit-ups and pull-ups performed each day did not significantly change (Table 4).

All six fitness tests showed no change in the frequency and time of exercise except for squat frequency, running/jogging time, and plank time. The resting heart rate (RHR) pulse rate decreased significantly from an average of approximately 79 beats/minute at baseline to 74 beats/minute at the end of the program (Table 4).

Table 4: Fitness exercises

Fitness Activity	Description of Activity	Baseline	Endpoint	p-value
Running/jogging	Time (min/day)	6.35 ± 3.01	15.64 ± 8.22	<0.001
	Frequency (days/week)	1.98 ± 0.25	2.00 ± 0	0.564
	Skipped (not conducted)	6 (11.1%)	9 (16.7%)	
Push up	Number/day	28.76±11.94	33.44±14.12	0.004
	Time (min /day)	1±0	1±0	NA
	Frequency (days/week)	2±0	2±0	NA
	Skipped (not conducted)	5 (9.3%)	9 (16.7%)	
Sit up	Number per day	27.10±12.15	25.76±15.64	0.578
	Time (min /day)	1.00±0.00	1.00±0	NA
	Frequency (days/week)	2.00±0	2.00±0	NA
	Skipped (not conducted)	6 (11.1%)	9 (16.7%)	
Planks	Time (sec/day)	86.82±36.93	95.82±36.86	0.046
	Frequency (days/week)	2.00±0.00	2.00±0.00	NA
	Skipped (not conducted)	5 (9.3%)	9 (16.7%)	
Pull up	Number per day	4 [IQR=8]	3 [IQR=10]	0.962
	Time (min /day)	1.00±0.00	1.00±0.00	NA
	Frequency (days/week)	2.00±0.00	2.00±0.00	NA
	Skipped (not conducted)	5 (9.3%)	9 (16.7%)	
Squat	Number per day	37.08±10.43	40.40±9.60	0.041
	Time (min /day)	1.00±0.00	1.00±0.00	NA
	Frequency (days/week)	2.00±0.00	1.98±0.15	0.323
	Skipped (not conducted)	5 (9.3%)	9 (16.7%)	
RHR	pulse/min	80[IQR=5]	75[IQR=5]	<0.001

3.4. Quality of life assessments

The results of the four domains' scores at baseline and the end of the program are shown in Table 5. A significant improvement in the environment domain score was shown from 27.3±4.9 to 29.2±4.6 (p-value = 0.004), and a slight improvement in the social relationship score from 11.4±2.0 at baseline to 11.6±1.9 at the end of the program. On the other hand, there was a significant decrease in the physical health domain score from 24.7±3.3 to 23.9±3.1 (p=0.03) and a slight decrease in the psychological domain score from 21.1±3.4 at baseline to 21.0±3.7 at the end of the program.

Table 5: Scores of the four quality-of-life domains

	Baseline score	Endpoint score	p-value
Physical health	24.74±3.31	23.93±3.09	0.03
Psychological	21.07±3.42	21.00±3.69	0.866
Social relationships	11.39±2.01	11.61±1.94	0.419
Environment	27.26±4.84	29.17±4.63	0.004

3.5. Mindfulness measurements

The total FFMQ score average decreased from 3.3±0.4 to 3.2±0.4. The observing subscale average score slightly increased from 3.50±0.58 at baseline to 3.53±0.6 at the end of the program as well as the non-reactivity to inner score that slightly decreased from 3.1±0.5 at baseline to 3.3±0.7 at the end of the program. On the other hand, the describing and non-judging of inner experience scores slightly decreased from 3.4±0.6 at baseline to 3.3±0.6 and from 2.82±0.65 at baseline to 2.81±0.71 at the end of the program, respectively. The acting with awareness

subscale showed a significant decrease from 3.52±0.63 at baseline to 3.21 ± 0.85 (p-value = 0.018) at the end of the program. Overall, there was no significant change in the FFMQ and subscales scores. (Table 6)

Table 6: Total FFMQ score and subscales scores.

Subscale	Baseline	Endpoint	P-value
Observing	3.50±0.58	3.53±0.6	0.703
Describing	3.40±0.6	3.32±0.55	0.363
Acting with awareness	3.52 ± 0.63	3.21 ± 0.85	0.018
Non-judging of inner experience	2.82±0.65	2.81±0.71	0.913
Non-reactivity to inner experience	3.10±0.54	3.26±0.65	0.071
Total FFMQ	3.27±0.39	3.23±0.41	0.315

4. DISCUSSION

A person's general health can be improved and maintained by engaging in wellness programs. The work environment can be the foundation for maintaining and reinforcing more health-conscious attitudes and lifestyles by encouraging physical activity and incorporating nutrition education since a healthy diet and exercise individuals' functional status.(Kamyan et al., 2020; Malińska, 2017; Villareal et al., 2017; Hyat et al., 2010) Results from previous studies demonstrated that worksite wellness programs targeting nutrition, physical activity, and mindfulness, created relevant to participants' needs, resulted in improvement in their overall health and QoL.(Sandercock et al., 2018; WHO, 1993; Almeida et al., 2015)

SEHETNA wellness program is a thorough curriculum that focuses on lifestyle changes, including nutrition, exercise, and mindfulness. This analysis of an applied extensive wellness program showed significant changes in the physical well-being of participants with a focus on waist circumference and BMI changes. A similar school-based intervention wellness program led to improved BMI in comparison to the control group when nutritional intervention and physical activity intervention were carried out separately.(Ickovics et al., 2019)
Previous studies found strong evidence that worksite health promotion programs that enhance nutrition, physical activity, or both successfully lower weight, BMI, and waist circumference after 6-12 months.(Anderson et al., 2009; Briss et al., 2000; van Wier et al., 2013) All these studies and much more are consistent with our study's results that demonstrate a reduction in waist circumference and BMI following the wellness program intervention.

As for the ABSI score, few studies show the effect of the wellness programs at worksites on ABSI, but some studies showed that dietary intervention and/or fitness programs significantly decreased the ABSI scores. These results are consistent with the result of our study, which shows a significant decrease in ABSI after intervention.(Rondanelli et al., 2015). Contrary to the intervention carried out, an intervention program for 32,974 employees at a large company in the United States showed no significant effects on waist circumference and BMI.(Anderson et al., 2009).

As for the body composition, the increase in muscle mass and decrease in fat percentage were significant, possibly due to the healthy diet and regular exercises participants followed. Previous studies showed that healthy food intake combined with training increased muscle mass and decreased the fat mass.(Garthe et al., 2011; Ribeiro et al., 2019; Sandercock & Andrade, 2018; Wanik et al., 2017 SEHETNA wellness program emphasizes living a healthy lifestyle through diet and exercise by offering customized meal plans, private nutritional counseling, and interactive sessions where users can share knowledge and ask questions. As a result, participants in this program demonstrated improvement in most nutritional indicators, including serum uric acid, vitamin B12, calcium, cholesterol, triglycerides, and HbA1c. These findings mirror a longitudinal retrospective study conducted in the USA, which found a link between a healthy eating pattern and better nutrition and health indicators.(Ribeiro et al., 2019). Moreover, results show a significant decrease in zinc and sodium levels that reflect the results of previous studies showing that exercising and healthy diet decrease zinc and sodium levels in blood.(Hernández-Camacho et al., 2020; Turner & Avolio, 2016) But since the study was done during a short period of time, this statistically significant decrease wasn't perceived clinically and also since the levels were still in the normal range. Similarly, several studies demonstrated the impact of wellness initiatives on improving certain nutritional and health indicators. They helped participants consume more fruits, vegetables, and whole grains, which are strongly linked to several aspects of quality of life (QoL).(Ribeiro et al., 2019; Soliman et al., 2019).

Additionally, interventions for employees and their families resulted in a significant decline in the lipid profile, specifically cholesterol and triglyceride.(Hernández-Camacho et al., 2020). Furthermore, the U.S. Preventive Services Task Force's updated systematic review results also show a significant change in BMI, waist circumference, and lipid profiles, supporting the current study's findings.(Turner et al., 2016). In our study, a significant drop in HbA1c levels was observed, consistent with different studies' results that reported the impact of wellness and dietary interventions on employees' glucose levels and diabetes status.(Shin et al., 2020; Davis et al., 2014).

As for the water intake, the current study reveals a significant rise in participants' intake. These findings are supported by numerous earlier studies that showed a significant increase in the water intake of employees

following the wellness intervention.(Patnode et al., 2017; Cohen et al., 2021). Studies that provide a thorough analysis and profile of fitness activities are lacking in this topic. However, most studies revealed that worksite wellness programs increased employee physical activity levels, time, number, and endurance.(Shrestha et al.,2018; Yin Lou et al; Altwaijri et al., 2019; Rezai et al., 2020) These studies explain the current findings' improvement in running time, plank duration, and push-up frequency. According to the current study, the RHR may have been caused by the intervention's requirement for regular exercise since various studies indicated that physical activity and fitness lower RHR.(Robert et al.; Butler et al., 2015).

Regarding the quality-of-life assessment, the psychological and social relationships domains showed no significant change, which would be because the improvement in these aspects is slow and needs consistency. In contrast, the physical health domain showed a significant decrease (Haines et al., 2007) which would be due to participants' higher expectations of improvement or because they felt stressed out due to the added workload and responsibilities. Furthermore, since the WHOQOL-BREF questionnaire is subjective and reflects a person's perceptions of their health and well-being, false conclusions could be drawn from the results.(Huang et al., 2005). Therefore, more awareness about health and wellness is needed for people to notice changes significantly.

The environmental domain significantly increased due to participants' safe feelings after the program. Possibly, participants perceived this interventional program as a health and social service offered by the company and that the company is primarily concerned with their well-being. Moreover, the program's new knowledge and skills that participants acquired would also contribute to their improvement in this domain.(Butler et al., 2015).

Concerning mindfulness, there is a lack of studies showing the mindfulness intervention's detailed FFMQ and subscale scores. No significant change in these scores was reported due to participants' inability to interpret the questions or significantly rate the score. Additionally, developing mindfulness requires perseverance and consistency, and participants must wait for changes to become noticeable before they can detect them, which needs more time.(Reimers et al., 2018; Vahedi et al., 2010)

This study faced some limitations. Mainly, its retrospective nature, and the small sample size, which may impact the results. Additionally, the relatively short study duration might affect the outcomes. Understanding the long-term impact of the program on employees requires longer study durations to validate the outcome of this study. Finally, the lack of previous studies on this topic limited the ability to compare the study results with similar study designs and outcomes.

6. CONCLUSION

In conclusion, this study highlighted the value of workplace wellness programs, their impact on employees' well-being, and the need for increased awareness about wellness interventions. Employee well-being affects both their work and the people around them, as well as the overall well-being of the population.(Stoewen et al., 2017). Furthermore, this study demonstrated the SEHETNA wellness program's efficacy and demonstrated the need for further research into this program's effectiveness. Additionally, more in-depth research on wellness initiatives is needed, particularly regarding FFMQ scores, the relationship between fitness exercises and wellness, and QoL assessment scores, as there are currently no studies that fully reflect these factors.

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