

Wellness Program on Weight Loss, Fasting Blood Sugar and Cholesterol Levels in Workers

Ardi Artanto¹, Putri Rizki Amalia Badri¹, Yuni Fitrianti², M. Dimas Isnada³, Nefa Hulwa Meisananda³

¹ Department of Public Health Sciences, Faculty of Medicine, Universitas Muhammadiyah Palembang

² Department of Biochemistry, Faculty of Medicine, Universitas Muhammadiyah Palembang

³ Medical Study Program, Faculty of Medicine, Universitas Muhammadiyah Palembang

ABSTRACT

The wellness program is a health program that can be used to prevent non-communicable diseases in company workers. Obesity and high blood sugar can be predictors of diabetes mellitus. High cholesterol levels in workers can cause other complications such as heart disease or even stroke which can reduce performance. The aim of this study was to assess changes in body weight, fasting blood sugar levels, and cholesterol before and after the wellness program. In this study, the sample used was workers at PT Pertamina Refinery Unit III Plaju who had taken part in a wellness program. The research period took place from January to July 2023. Sample collection used a total sampling technique with a retrospective cohort design. Body weight, fasting blood sugar and cholesterol levels were measured on workers before and after implementing the wellness program. After data collection was carried out, the bivariate data was analyzed using the Wilcoxon test with the SPSS program. This study found that there was a significant difference between body weight with a p-value of 0.000 and a p-value of 0.000 for cholesterol levels before and after the wellness program. There was no significant difference between fasting blood sugar levels before and after the wellness program with a p-value of 0.783. Wellness programs can reduce body weight and cholesterol levels in workers.

Keywords: wellness program, body weight, fasting blood sugar, cholesterol.

Correspondence: putri.badri@yahoo.com

Introduction

The number of non-communicable diseases (NCDs) continues to increase. The high number of cases of NCDs such as Diabetes Mellitus (DM), hypercholesterolemia, hypertension and other NCDs in workers of productive age who work in companies or offices can reduce work performance and productivity. One program designed to prevent, reduce, or at least control the incidence of NCDs which often occur in formal and informal workers is a wellness program.¹ Previous research shows that most workers experience non-communicable diseases. This can occur due to lack of physical activity, workers' lack of sleep, poor diet, marital status, and genetic factors. NCDs experienced by workers will affect the health status of workers so that it can affect worker performance as well as the company's productivity and quality if not handled properly.²

Riset Kesehatan Dasar (RISKESDAS) shows that the prevalence of DM in 2018 was 10.9%. The prevalence of overweight has increased, namely by 2.1%, while central obesity is 3.5%. This data illustrates that there are still many DM cases in Indonesia. This can be a heavy burden for the government and health workers.³⁻⁵ Many factors influence the increase in blood sugar levels, including body mass index, food intake containing total and simple carbohydrates, patient compliance with diet such as consumption of sweet drinks, compliance with taking medication, physical activity, and stress levels.⁶

Heart disease and stroke are impacts that occur due to increased cholesterol levels. In fact, the biggest impact is death, which is estimated at 2.6 million deaths (4.5% of the total). In the world, the prevalence of total cholesterol has increased in adults by 39%, of which 37% occurs in men and 40% occurs in

women.⁷ Hypercholesterolemia can cause other diseases. The results of research regarding the relationship between cholesterol and the incidence of hypertension showed a significant relationship. Workers who experience hypercholesterolemia have a 1.19 times higher risk of suffering from grade 1 hypertension compared to workers with normal cholesterol levels.⁸

With the increasing number of workers experiencing obesity, hypercholesterolemia and diabetes, especially at the age when someone is actively working, PT Pertamina Refinery Unit III is implementing a health program in the form of a corporate wellness program: SeBuSe (Healthy, Healthy, Happy). This program seeks to increase the improvement, maintenance and protection of health for workers. The program implemented by this company hopes that workers will become more productive and healthy even though they are entering retirement age. Previous research regarding wellness programs has been carried out as in Sinaga's research shows that there is a positive influence of wellness programs for workers on perceived organizational support. Wellness program plays an important role because it is part of compensation in supporting work enthusiasm and in order to fulfill workers' needs.⁹ There is not much research related to the wellness program: SeBuSe on health status such as changes in body weight, fasting blood sugar and cholesterol levels in workers so researchers are interested in conducting this research. The aim of the research is to determine the differences in body weight, fasting blood sugar and cholesterol levels before and after carrying out a wellness program.

Method

The research design used was a retrospective cohort research design. The

research location was carried out at PT Pertamina Refinery Unit III Plaju from January to July 2023. This research has several variables, including the dependent variable wellness program, while the independent variables are body weight, fasting blood sugar levels and cholesterol. The sampling technique used in this research was a total sampling technique. The inclusion criteria for the research were workers at PT Pertamina Refinery Unit III Plaju who had participated in the wellness program for 3 months to assess the impact changes that had occurred and based on wellness studies conducted at other workplaces, periodic evaluations were also carried out every 3 months. The SeBuSe Wellness program takes the form of calorie intake interventions (healthy catering from the company) and calorie output (marathon running, leisure cycling and fitness) which will be reported regularly through gforms and

regular meetings for monitoring to workers. Other interventions include psychologist counseling and curative treatment from workers' clinics for workers who have a medical history, for example diabetes mellitus. Data was collected using data from body weight examinations and blood laboratories in the form of fasting blood sugar and cholesterol levels before and after the wellness program. After the data was collected, the data was then analyzed using the Wilcoxon test with the SPSS program. Ethical feasibility has been approved with ethical approval letter number No. 045 /EC/KBHKI/FKUMP/XI/2022.

Results

The results of this research include the following characteristics in the form of age and gender of respondents:

Table 1. Characteristics of Respondents by Age and Gender

	Frequency (n)	Percentage (%)
Age		
>45 years	17	22.9
<45 years	57	77.1
Total	74	100
Gender		
Man	70	94.5
Woman	4	5.5
Total	74	100

Based on table 1, the majority of respondents aged <45 years were 57

people (77.1%) and 70 people (94.5%) were male.

Table 2. Body weight, fasting blood sugar and cholesterol levels before and after the wellness program

	Median	Minimum	Maximum	P value
Weight				0,000
Before	80	153	181	
After	76	53	110	
Fasting blood sugar				0.783
Before	90.50	66	256	
After	89.50	60	333	

	Median	Minimum	Maximum	P value
Cholesterol				0,000
Before	267	94	390	
After	175	71	356	

From 74 respondents, the weight score before 80 (153-181) and after 76 (53-110) was obtained. The p value for body weight of 0.000 means there is a significant difference before and after the wellness program. Median blood sugar before the wellness program was 90.50 (67-333), blood sugar after 89.50 (65-256) with a p value of 0.783, meaning there was no significant difference between fasting blood sugar levels in workers before and after the wellness program. Cholesterol levels before 267 (94-390) while cholesterol levels after 175 (71-356). The p value for cholesterol and the wellness program is 0.000, which means there is a significant difference between cholesterol levels before and after the wellness program.

Discussion

From the research results, it was found that weight loss was significant before and after the wellness program was carried out with a p value of 0.000. Ar Rafiq's research also obtained the same results where there was a significant difference between physical activity and a person's weight loss. Physical activity accounts for one third of the body's energy expenditure. When someone does physical activity, the body needs energy to do it by converting reserves into energy.¹⁰ In this research, the wellness program carried out was not only physical activity but also healthy catering from the company. Many factors can cause obesity, including poor diet, such as foods that contain a lot of sugar, fat, and low levels of vegetables and fruit. This can increase energy production which will then be stored as body fat and result in obesity. Reducing calorie intake is very important to

prevent weight gain and determine the amount of healthy food composition to eat.¹¹

Wellness program does not have a significant relationship with changes in fasting blood sugar levels in workers with a p value of 0.783. This result is the same as previous research which found that the comparison of changes in blood glucose levels between morning and evening groups was not significant (p=0.538). From the research above, it was found that there was no difference between morning and afternoon exercise regarding changes in blood glucose levels.¹² Widodo explained that there is a relationship between physical activity and blood sugar levels. The type of physical activity that can reduce blood sugar levels is endurance exercise in the form of treadmills, stationary bicycle, and rowing technique. High activity with moderate and heavy intensity and close supervision by instructors can reduce weight, while the wellness program in this study has not measured the intensity of each physical activity, so this could be one of the reasons there are differences in research results with existing theories.¹³ Glucose in muscles will be used more, especially when the body is doing physical activity. For glucose in the blood to be balanced, it is necessary to increase endogenous glucose formation. This mechanism can occur through the role of various systems such as the hormonal, endocrine and nervous systems.^{6,14}

Wellness program can influence differences in cholesterol levels. This is in line with Lusviana's research which shows that physical activity such as exercise has a significant relationship with patient cholesterol levels (p value

0.051). When a person does physical activity, there will be a decrease in triglycerides because fat is used as the body's energy source. This causes an increase in High Density Lipoprotein (HDL) levels of 5-10% which arises due to increased production and increased work of enzymes which play a role in cholesterol transport. This will then increase the action of lipoproteins and result in accelerated transfer of other lipoprotein substances to HDL. Apart from that, there was also an increase in the work of the Lipoprotein Lipase (LPL) enzyme and a decrease in the hepatic lipase enzyme. LDL will be moved from the blood to the liver via LPL which will then be secreted and cause a decrease in cholesterol and LDL.^{10,15-17} Diet has a big influence on increasing cholesterol, especially those containing high calories and high fat, so it is also very important to calculate the number of calories in food so that there is a balance between input and output released through physical activity.¹⁸

Wellness program can reduce the risk of disease due to lifestyle changes, such as increasing physical activity and ideal body weight targets. The SeBuSe wellness program has a positive impact on workers' health and fitness so that worker productivity can increase. A healthy lifestyle with physical activity and stopping smoking can reduce the risk of suffering from heart disease.^{19,20} The increase in physical activity contained in the SeBuSe wellness program can help Pertamina workers prevent the possibility of experiencing other NCDs. This is supported by the results of this study where there was a significant reduction in the risk of workers experiencing obesity and hypercholesterolemia. This decrease in numbers could occur due to the influence of the SeBuSe wellness program which helps improve employee lifestyles by following sports and healthy lifestyles,

with the aim of increasing productivity, health and welfare of PT. Pertamina workers.

Conclusions and suggestions

There was a significant difference between body weight and cholesterol before and after the wellness program. There is no significant difference between blood sugar levels in PT.Pertamina Refinery Unit III workers before and after the wellness program. The wellness program at PT. Pertamina is running well, but follow-up is needed for workers regarding various factors that influence blood sugar levels.

Acknowledgements

The author would like to express his deepest thanks to all parties involved, especially PT. Pertamina Refinery Unit III Plaju and Muhammadiyah University Palembang.

References

1. Fikri M, Wicaksono MC. 2018. Pengembangan Konsep Worksite Health And Wellness Programs di Kantor Pemerintahan Kota Yogyakarta Sebagai Strategi Pencegahan Penyakit Tidak Menular Bagi Karyawan. In: *Publiv Health Symposium*. Yogyakarta: Universitas Gajah Mada.
2. Yusvita F, Nandra NS. Sex, physical activity, obesity, and hypercholesterolemia in millennial workers of X Corp, Jakarta, Indonesia, in 2023. *BKM Public Health & Community Medicine (Berita Kedokteran Masyarakat)*. 2023;39(11):1-6.
3. Menteri Kesehatan Republik Indonesia. 2020. *Tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Diabetes Melitus Tipe 2 Dewasa*.

- Jakarta: Menteri Kesehatan Republik Indonesia.
4. PERKENI. 2021. Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 Dewasa di Indonesia 2021. Jakarta: PB.PERKENI.
 5. PERKENI. 2021. Pedoman Pemantauan Glukosa Darah Mandiri. 1st ed. Jakarta: PB.PERKENI.
 6. Karwati. Hubungan Aktivitas Fisik Dengan Kadar Gula Darah Pada Lansia Penderita Diabetes Melitus Tipe 2 Di Wilayah Kerja Puskesmas Situ. *Jurnal Ilmu Keperawatan Sebeleas* April. 2022;4(1):11–7.
 7. WHO. Raised Cholesterol (Online). 2023. <https://www.who.int/data/gho/indicator-metadata-registry/indicator-details/3236> [cited 2024 Mar 1].
 8. Suci L, Adnan N. Hubungan Kadar Kolesterol Tinggi (Hiperkolesterol) Dengan Kejadian Hipertensi Derajat 1 Pada Pekerja di Bandara Soekarno Hatta Tahun 2017. *PROMOTIF: Jurnal Kesehatan Masyarakat*. 2017;10(2):97–104.
 9. Sinaga MS, Andreas W. G. Pengaruh Employee Wellnes Program Dan Action To Adapt The Organization To The Situation Caused By Covid 19 Terhadap Job Satisfaction Dengan Perceived Organizational Support Sebagai Variabel Mediasi Pada Perusahaan Food And Beverages. *Jurnal Ekonomi Trisakti*. 2023 Aug 4;3(2):2471–80.
 10. Ar Rafiq A, Lukman Wicaksana A. Pengaruh Aktivitas Fisik terhadap Penurunan Berat Badan dan Tingkat Kolesterol pada Orang dengan Obesitas: Literature. *Jurnal Keperawatan Klinis dan Komunitas*. 2021;5(3):167–78.
 11. Suryadinata RV, Sukarno DA. Pengaruh Aktivitas Fisik Terhadap Risiko Obesitas Pada Usia Dewasa. *The Indonesian Journal of Public Health* . 2019;14(1):104–14.
 12. Kamal RH, Wigati KW, Lefi A. The Similar Changes Of Glucose Levels Before And After Moderate Intensity Exercise Acutely In The Morning And Evening. *Majalah Biomorfologi*. 2020 Sep 3;30(2):39–44.
 13. Widodo C, Tamtomo D, Prabandari AN. Hubungan Aktifitas Fisik, Kepatuhan Mengonsumsi Obat Anti Diabetik dengan Kadar Gula Darah Pasien Diabetes Mellitus di Fasyankes Primer Klaten. *Jurnal Sistem Kesehatan*. 2016;2(2):63–9.
 14. Lubis RF, Kanzasabilla R, Rifa K:, Lubis F. Latihan Senam dapat Menurunkan Kadar Glukosa Darah Pada Penderita Diabetes Melitus Tipe II. *Jurnal Bikfokes*. 2021;1(3):177-188.
 15. Rahmad AR Al. Pengaruh Pemberian Konseling Gizi terhadap Penurunan Kadar Kolesterol Darah. *Jurnal Kesehatan*. 2018;9(2):241–7.
 16. Dana YA, Maharani H. Hubungan Indeks Massa Tubuh dengan Kadar Kolesterol Pada Karyawan Dan Mahasiswi Politeknik Kudus. *Jurnal Ilmiah Kesehatan*. 2022;1(1):1–9.
 17. Anakonda S, Widiyanti FL, Inayah I. Hubungan aktivitas olahraga dengan kadar kolesterol pasien penyakit jantung koroner. *Ilmu Gizi Indonesia*. 2019;2(2):125–32.
 18. Ampangallo E, Jafar N, Indriasari R, Salam A, Syam A. Hubungan

- Pola Makan Dengan Kadar Kolesterol Pada Polisi Yang Mengalami Gizi Lebih Di Polresta Sidenreng Rappang. *JGMI: The Journal of Indonesian Community Nutrition*. 2021;10(2):173–85.
19. CDC. Cholesterol Intervention (Online). 2016 <https://www.cdc.gov/workplacehealthpromotion/health-strategies/cholesterol/index.html> [cited 2024 Mar 1].
 20. Al-Alawi AI, Al Mahamid SM, Baloshi MB. Factors Associated with Participation in a Corporate Wellness Program: The Case of International Hospitality Company. *Jurnal Pengurusan*. 2021;62:65–80.