



# LIFESTYLE SITUATION AND NONCOMMUNICABLE DISEASES OF CHILEAN WORKERS TREATED AT MUTUAL DE SEGURIDAD (PILOT STUDY)

SITUACIÓN DE ESTILO DE VIDA Y ENFERMEDADES NO TRANSMISIBLES DE TRABAJADORES CHILENOS ATENDIDOS EN MUTUAL DE SEGURIDAD (ESTUDIO PILOTO)

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## ABSTRACT

**Objective:** To learn the lifestyle and NCDs of a group of workers who had occupational health evaluations performed in a branch of a mutuality: the Centro de Evaluación del Trabajo (CET), of Mutual de Seguridad. **Methods:** The sample included 30 workers who went in for occupational health evaluations. Blood tests and vital signs were taken and finally, during the medical evaluation, they were given a survey. All data were collected and included in a database for analysis. **Results:** 93.3% of those enrolled were men; 66.6% were overweight or obese; 43.3% presented blood pressure in the high-normal range; 80% presented at least one altered parameter in their lipid profile; 50% indicated that they performed the minimum suggested amount of exercise per week; 83.3% indicated that they consume foods high in fat during the day; less than half (43.3%) indicated sleeping between 7-9 hours a day; 36.5% of the participants reported smoking at least once a day; 63.3% believe that they should make a change in relation to their lifestyle and are interested in being contacted in the future to participate in an intervention. **Conclusion:** There are many lifestyle factors that need to be improved. Information should be delivered, and knowledge updated regarding lifestyle medicine in the type of population studied, taking into consideration that there is a willingness to make changes.

**Keywords:** Lifestyle, lifestyle risk reduction, non-communicable diseases. (Source : MeSH - NLM).

## RESUMEN

**Objetivo:** Conocer el estilo de vida y de ENT de un grupo de trabajadores que realizan evaluaciones de salud laboral en una sucursal de una mutualidad: el Centro de Evaluación del Trabajo (CET) Santiago Centro, de Mutual de Seguridad. **Materiales y métodos:** La muestra considera 33 trabajadores que acudieron a realizar evaluaciones de salud laboral. Se realizó toma de exámenes de sangre, signos vitales y finalmente, durante la evaluación médica se les entregó una encuesta. Todos los datos fueron recopilados e incluidos en una base de datos para su análisis. **Resultados:** El 93,3% de los enrolados resultaron ser hombres; el 66,6% presentó sobrepeso u obesidad; el 43,3% presentó presión arterial en rango normal-alto; el 80% presentó al menos un parámetro alterado en su perfil lipídico; el 50% indicó realizar la cantidad mínima sugerida de ejercicio a la semana; el 83,3% indicó que consume alimentos altos en grasa durante el día; menos de la mitad (43,3%) indicó dormir entre 7-9 horas al día; el 36,5% de los participantes refirió fumar al menos 1 vez al día; 63,3% cree que debería hacer un cambio en relación a su estilo de vida y les interesa ser contactados en el futuro para participar de alguna intervención. **Conclusión:** existen muchos factores en el estilo de vida que deben ser mejorados. Se debe favorecer la entrega de información y actualizar conocimientos en medicina del estilo de vida en el tipo de población estudiada, sobre todo considerando que se encuentra dispuesta a realizar cambios.

**Palabras clave:** Estilo de Vida, reducción de riesgo en estilo de vida, enfermedades no transmisibles. (Fuente: MeSH - NLM)

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## INTRODUCTION

Non-communicable chronic diseases (NCD) are the main cause of death and disability. They are the cause of 71% of annual deaths worldwide. Among the NCDs, cardiovascular diseases are the primary cause, followed by cancer, respiratory diseases and diabetes. Among the risk factors for NCD are obesity, dyslipidemia, unhealthy diets, inactivity, consumption of toxic substances, high levels of stress, among others<sup>(1)</sup>. NCDs in Chile are the cause of 85% of deaths per year<sup>(2)</sup>. Within the affected population, there are those of working age (between 15 to 65 years) which currently represent 44.4% of the total population, which is why NCDs bring as a consequence loss of years of life and disability, in addition to affecting the general work productivity and impacting the economic and social development of the country<sup>(3)</sup>. On the other hand, Lifestyle Medicine (LM) has gained importance in prevention, treatment, and reversion of the majority of chronic diseases, directly covering their subjacent causes<sup>(4)</sup>. In this context, we developed this pilot study for a descriptive, cross-sectional type of research, which seeks to update the data regarding Lifestyle Medicine and NCDs in Chilean workers treated in the Mutual de Seguridad in April 2021, to amplify the data base in Latin America and in the country in addition to being a source for future sanitary planning and public policies.

## METHODS

### Design and area of study

This is a pilot study for descriptive, cross-sectional type research, that includes a sample of 30 workers who went to Centro de Evaluación del Trabajo (CET), of Mutual de Seguridad (corporation that administers the Seguro Obligatorio de Accidentes del Trabajo y Enfermedades Profesionales, according to Law N° 16.744) to undergo workplace health evaluations (occupational and pre-occupational)<sup>(5)</sup>.

### Population and sample

33 workers that went for a occupational health evaluation, between 18 to 65 years of age. Among the

inclusion criteria, we included people that had, within their evaluation, the exams required in this study. The workplace health evaluations were carried out in April 2021.

### Variables and instruments

In addition to the glycemic and lipid profile values, we measured weight, height (for the body mass index calculation, BMI) and arterial pressure. The validated survey covered aspects such as lifestyle habits. They were asked if they suffered from NCDs, specifically type 2 diabetes mellitus, arterial hypertension, and cardiovascular diseases. Among the questions related to lifestyle habits we covered aspects such as physical activity, healthy or unhealthy eating habits, quantity and quality of sleep, toxic substance use, tools for stress management, healthy social relationships, and spirituality.

The majority of questions were based on the Health Promoting Lifestyle Profile survey (HPLP-II)<sup>(6)</sup>, adapting the questions to Spanish commonly used in Chile. These measures were registered in an electronic data system. Once obtained, they were collected and incorporated in a data base. The dichotomic and multiple-choice variables, from the survey were evaluated with respect to the percentage of the total sample. In this analysis, we included the blood pressure, glycemia, and lipid profile results classifying them as normal or altered and obtaining the percentage of each one. The BMI were grouped into normal<sup>(20,25)</sup>, overweight<sup>(25,30)</sup>, class I obesity<sup>(30,35)</sup>, class II obesity<sup>(35,40)</sup>, and class III obesity (over 40) and the percentages of each group were calculated with regard to the total sample.

### Ethical aspects

Every patient enrolled in this study was asked for an informed consent of voluntary participation. This study was approved by the Comité de Ética Científico de Mutual de Seguridad, Cámara Chilena de la Construcción.

## RESULTS

33 workers that went for an occupational health evaluation were invited to participate in this study, of



which 3 (9,09%) refused to participate in the study. Of the 30 people that accepted to participate in the study, 28 were men (93.3%). The age range was between 22 and 56 years, with an average of  $36 \pm 9,5$  years. The BMI varied between 19,3 and 38.1 with an average of  $27,3 \pm 4,5$ . 33,3% have BMI of normal range, 40% overweight, 20% class I obesity and 6,6% class II obesity. Of the total surveys responded, one worker (3,3%) indicated having a known diagnosis of type 2 diabetes mellitus in treatment and had fasting glucose of over 200 mg/dL. 6,6% of the total had fasting glucose of over 200 mg/dL and 16,6% had an altered fasting glucose (100-125 mg/dL). On the other hand, 6,6% indicated having arterial hypertension, and these workers were found to have it compensated at the time of their control. Of the total, 43,3% had blood pressure in normal-high range. Nobody indicated having any cardiovascular accident. Only 20% of the workers had a completely normal lipid profile, 56,6% had a total cholesterol over 200 mg/dL, 76,6% had normal range HDL, 50% had LDL over 130 mg/dL and 53% had triglycerides above 150 mg/dL.

Regarding physical activity, 50% indicated they completed the minimal required per week as suggested by the WHO.

Regarding personal perception, 83,3% indicated that they feel satisfied and at peace with themselves and 96,6% referred having close and trusting relationships with their friends and family.

In the spiritual/religious area, 83,3% referred having some type of belief.

In stress management, 43,3% indicated they use some type of strategy to calm down when they feel stressed, 26,6%, only in some occasions and 30% did not use any strategy. Regarding meditation or mindfulness, 3,3% indicated they practiced it, 13,3% practice it occasionally and the great majority with 83,3% do not practice it.

Regarding the type of diet, 90% indicated that if they ate products of animal origin, of them, 43.3% ate at least once a day and 53.3% ate 2 or more times a day. Regarding the consumption of whole grains, 40% referred absolutely not eating them, 53.3% eat them 1-2 times a day and 6.6% indicated eating them 3 or more times a day. On the other hand, 16,6% referred eating 2 or more refined cereals a day, 76,6% eat at least once a day and only 6,6% indicated not eating them or avoiding them. 20% indicated not eating processed food, 56,6% eat them at least once a day and 23.3% eat 2 or more times a day. 3,3% referred eating high sugar foods 2 or more times a day, 70% eat at least once a day and 26.6% does not eat them at all or avoids them. 23,3% indicated eating food high in fat 2 or more times a day, 60% eat at least once a day and only 16% do not eat them or avoid them. Regarding fruit and vegetable consumption in a day, only 6,6% eats 2 or more times a day, 86,6% eat them at least once a day and 6.6% do not eat them.

Regarding the number of hours of recommended sleep, 43,3% sleep 7 to 9 hours a day, another 43.3% sleep between 7 to 9 hours occasionally, and 13.3% never sleep that number of hours, and 30% consider themselves not having a good quality of sleep.

Regarding the use of toxic substances, 63,3% indicated not smoking in any occasion (or does not smoke in over a year), 23,3% smoke only occasionally, 6,6% smoke some days a week and another 6,6% indicated smoking every day. 20% indicated not drinking alcohol on any occasion, 26,6% indicated drinking alcohol once or less a month, 43,3% indicated drinking 2-4 times a month, 10% drink 2-3 times a week and none of those surveyed indicated drinking alcohol 4 or more times per week. Regarding illicit drugs (marijuana, base paste or others), 23,3% declared consuming them.

Lastly, 76,6% considered having a good lifestyle, 63,3% believes they should make a change regarding their lifestyle and likewise, 63,3% is interested in being contacted in the future to participate in some intervention study to improve their lifestyle. (Figure 1)

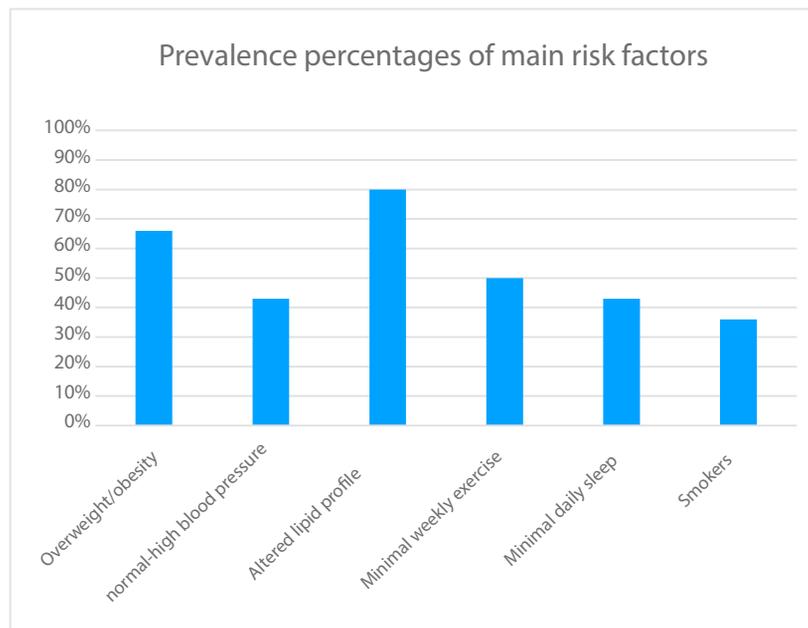


Figure 1. Percentages of the main risk factors found in the sample of workers evaluated in CET Santiago Centro, Mutual de Seguridad, Santiago de Chile. April 2021.

## DISCUSSION

The greater percentage of workers in the study correspond to men (93,3%). According to the first National Survey of Employment, Work, Health and Quality of Life of Chilean workers, 59,9% correspond to men. The difference between both results may be explained by the type of work and labor risks that are evaluated in the Mutual de Seguridad, jobs that often imply greater physical strength (for example, construction) and labor risks where the female presence is still rare (for example, mining). However, another precursor that may explain this difference, is that the Covid-19 pandemic has hit the feminine labor force even more, since, according to the Statistical Bulletin on Trimestral Employment between November 2020 and January 2021, the unemployment rate of women was 11% while of men was 9.7% <sup>(7)</sup>. The 9% of workers who were invited to participate in the study, rejected it. While it corresponds to a low rate of rejection, we should consider that in certain cases, knowing the result of the labor health evaluation (fit to work or contraindications for the same), could influence the state of mind and willingness to participate or not participate. Some contraindications could be related to

alterations in parameters that were taken into account in this study (for example, workers with BMI over 35 who have been contraindicated, workers with uncompensated diabetes, etc. who later refused to participate in the study), which therefore could be a bias. This should be an important point to consider in future implementation of a study with a greater number of participants.

The Encuesta Nacional of 2017<sup>(2)</sup>, indicated the suspicion of depression in the Chilean population over 15 years of age was 15.8%, and if we consider the social problems in Chile and furthermore the pandemic, it is possible that number be even greater, which is what was found in this study regarding the high personal perception of satisfaction, spirituality, good relationships with Friends and family could be related to the same factor mentioned before since it is expected that people with more willingness to participate are those with better general health, that do not receive any contraindication to work which is why they easily agreeable to answer the survey. This possible bias should be considered in a future study with a greater number of participants.

Close to 10% of the participants presented a diagnosis known as NTD (specifically DM2 and HTN). This low percentage could be related to the age range of participants which is of young workers (average 36 years) with respect to the range in which the majority percentage of workers in Chile fall under (between 41 – 50 years), which is why this sample could be minimizing the prevalence of certain diseases since there is less prevalence of these pathologies at a younger age<sup>(8)</sup>.

One of the possible explanations of this phenomenon could be that those workers that included in their assortment of glycemic and lipid profile exams, are workers with occupational risks of greater physical and general health demands (for example, exposure to a greater geographical altitude), which is why companies tend to pre-select people with consistent profiles, which includes younger age. Those workers not considered in a pre-selection, such as those that have uncompensated NCDs many times do not have an option to access contract work and a work health insurance, which is why they must resort to work positions without contracts, more precarious, with greater accident risk many times derived from the same medical decompensation and with a lower health safeguard.

A great percentage of workers presented normal-high blood pressure (43.3%), and only 1 of them corresponded to a patient under antihypertensive treatment. Likewise, taking into account all high glycemic levels (23.2%), only one of them was diagnosed and under treatment for type 2 diabetes mellitus, and despite this it was not managed well. It would be interesting to obtain information about how many of these workers with normal-high blood pressure and glycemia in pre-diabetes range, are under some medical supervision or under some type of pharmacological management such as lifestyle interventions, for a future study.

In this research we detected that 66.6% of overweight and obese, which is less than the value described in literature of 74%, continues to be an elevated percentage if we consider that the evaluated workers could be the more physically active of their family groups. Despite this, in this study we detected 50% of inactivity, while the national precursor corresponds to 81%<sup>(2)</sup>.

We should consider that due to the COVID-19 pandemic, food and nutrition have been jeopardized because of confinement due to a decrease in family purchasing power, economic depression, and the difficulty with access to healthy foods specially in the vulnerable sectors, while the most accessible foods were those of low nutritional quality and high caloric, sugar, sodium and saturated fat content, which is why the values of overweight, obesity, and inactivity of the active working groups could be underestimating the values of the total population<sup>(9)</sup>. Regarding the same risk factors, 16.6% of the participants presented altered fasting glucose or prediabetes (100-125 mg/dL), an expected value, although we should consider that the prevalence of prediabetes among adults widely varies in literature, having estimated it in the range of 9.0 to 40.0%<sup>(10)</sup>.

Regarding dyslipidemia, the most important cardiovascular risk factor, 80% of all participants presented at least 1 altered lipid profile value, being noteworthy that over half presented LDL values over 130 mg/dL. The ENS 2017<sup>(2)</sup> demonstrated a prevalence of LDL greater than 100mg/dL of 52,3%, while in this study we detected 66,6% of LDL greater than 100mg/dL. More than half presented triglyceride values over 150 mg/dL while in the ENS 2017<sup>(2)</sup> we evidenced 35,8% of triglycerides greater than 150 mg/dL, far below that detected in this study, with 53% The lipid profiles in this study resulted more concerning even when considering that the sample included



younger participants than the average workers in Chile and with lower BMI, as has been described, which is worth asking how much higher are the lipid profiles in the general population and how responsible of this is the pandemic.

The high percentage of people that indicated using strategies for stress management opposes the great majority of participants that, for example, stated they did not practice meditation or mindfulness, which is why we doubt how effective these tools are. Relaxation acquires importance for its preventive and therapeutic effects. Relaxation is not a simple palliative strategy, rather it plays a fundamental role for disease prevention and cooperates in personal and environmental well-being<sup>(11)</sup>.

Regarding food, in Chile, the epidemiological profile has changed, going from deficit to excess in little time, which suggests a change in the food profile. People consume more foods rich in calories, fat, sugars, and salt, and many don't eat enough fruits, vegetables, and other diet fibers<sup>(1)</sup>. According to the latest Encuesta Nacional de Consumo Alimentario<sup>(12)</sup>, Chileans that present a healthy diet are 5% while 95% require changes. This correlates with the result of a great percentage of people who indicated eating foods derived from animals, two or more times a day in more than half of them. On the other hand, a great percentage of people declared not eating whole grains at all and a low percentage ate 3 or more times a day as is recommended and on the other hand, the greater majority ate refined cereals at least once a day and a low percentage avoid them<sup>(13)</sup>. The high percentage of those that indicated eating food rich in sugar and fat stands out (70% and 60%, respectively) and low intake of fruits and vegetables since only 6.6% eats 2 or more portions per day despite the recommendation of 5 portions per day<sup>(14)</sup>.

With respect to sleep, we consider that it is a fundamental biological function since there is a tight relationship between sleep processes and the physical and psychological health of a person<sup>(15)</sup>. Regarding

quantity and quality of sleep, in Chile data is scarce, however, in ENS<sup>(2)</sup>, it was estimated that 63.2% of those above 15 years of age had problems sleeping and 50% were no able to sleep or maintain sleep for over a few hours. Of these, 25% suffer from chronic insomnia<sup>(16)</sup>. In this survey, a little less than half of the participants stated not sleeping the recommended 7 to 9 hours, consistent with the prior precursors and only 30% considers that they have a good quality of sleep. In Chile, there are no wide-spread recommendations on the importance and impact sleep plays on health and quality of life.

Regarding toxic habits, 36,5% of participants who smoke in a range from occasionally to daily, very similar to that described in the report about tobacco control in the Region of the Americas, 2018<sup>(17)</sup>, where 38% of the Chilean population smoke, being the country, which smokes the most in America. Alcohol use in Chile reaches 9.3 liters per capita, greater in comparison to the average 8 liters in the region of the Americas<sup>(18)</sup>.

Alcohol is the most consumed drug by Chileans. Regarding periods of time in which it is consumed, it is estimated that the greater volume of alcohol is in only an average of 1.6 days per week, meaning the pattern of use is associated to binge consumption, in one or two days a week (a pattern described as "Binge Drinking")<sup>(19)</sup>.

This correlates with this study since a great percentage of participants stated alcohol use, 2 to 4 occasions per month, since the use is frequent during weekends. We should emphasize that at least 10% of the sample stated they drank 2 to 3 times per week. Regarding use of illicit drugs (marijuana, cocaine, base paste or others), 23.3% stated they used them, a much greater percentage than that in XIII Estudio Nacional de Drogas en Población General de Chile, 2019<sup>(20)</sup>, in which last year's prevalence of marijuana use corresponded to 12,7%, 1% of cocaine hydrochloride, 0,4% of base paste and 1,4 of other drugs, a difference which calls to the need of updating the national general data and specially in the working age groups, since this is also influences accident rates.



Finally, a high percentage of participants considered that they have a good lifestyle (76,6%) but at the same time a high percentage believe they should make a change to their lifestyle (63,3%) and it should be noted that a majority of participants are interested in being contacted in the future to participated in some intervention study to improve their lifestyle. Due to the before mentioned, we assume that there is a lack of knowledge with respect to which are the best lifestyle habits, however, we are dealing with a population open to change and accepting third party intervention in their lives. It is up to the health teams to promote education and continue to collaborate in helping to reach the changes that help improve health and life expectancy, especially in the active work group, since they are who keep the entire country in movement. It would be an important help to intervene in businesses with classes and continued and frequent lectures that favor education on the topics of lifestyle and health.

## CONCLUSION

This study reveals the current lifestyle and NCD in a group of workers who had occupational health evaluations performed in a branch of a mutuality. The

importance of always having current data regarding NCDs is that these are the main cause of death and disability worldwide. It becomes clear that there are lifestyle factors that should be improved which is why government health measures pointing to this are necessary, not just regarding the type of food as is in the majority of countries, but also that cover other lifestyle aspects, such as how to acquire the tools for relaxation, promote better quantity and quality of sleep, promote sports, decrease use of toxic substances, including alcohol, etc.

Without a doubt, it is most important to emphasize the high percentage of the sample believe they should make a change with regards to their lifestyle, as well as a majority of participants would be interested in being contacted in the future to participate in some intervention study to improve their lifestyle, which is important to promote the delivery of information and especially update the knowledge in lifestyle medicine in this type of population who is willing to make changes.

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