



EPIDEMIOLOGICAL PROFILE OF CHRONIC DEGENERATIVE DISEASES AND OVERWEIGHT/OBESITY IN WORKERS OF A PUBLIC CHILD RESIDENCE LOCATED IN CHILPANCINGO GUERRERO

Nelissa Rodríguez Dorantes^{1*}, Lorena Inés Bernal Mendoza MSP² and Maribel Sepúlveda Covarrubias³

¹Full-time Research Professor at the Faculty of Chemical Biological Sciences and Higher School of Nursing1, UAGro

^{2,3}Full-time Research Professor, of the Higher School of Nursing 1, of the UAGro

ARTICLE INFO

Article History:

Received 6th December, 2021

Received in revised form 15th

January, 2022

Accepted 12th February, 2022

Published online 28th March, 2022

Key words:

Workers, prevalence, diabetes mellitus, arterial hypertension, epidemiological profile.

ABSTRACT

Introduction: In Mexico, chronic-degenerative diseases constitute one of the most important public health problems, due to their high prevalence, complications and high mortality in people over 20 years old. In the state of Guerrero, heart disease and Diabetes Mellitus (DM) are among the five main causes of mortality. In addition to the above, obesity is a chronic disease that affects both, the population of industrialized countries and developing pathways, it is an important risk factor for triggering chronic-degenerative diseases such as Arterial Hypertension (AHT) and DM. Timely detection and treatment, as well as positive modification of lifestyles, would change the current scenario. **Objective:** Determine the prevalence and identify the risk factors associated with DM, AHT and Overweight/Obesity in the workers of the Benita Galeana Children's Residence dependent on the Autonomous University of Guerrero. **Material and methods:** A cross-sectional, descriptive, qualitative and observational study was carried out with a sample of 53 workers, over 20 years old, carried out from February to July 2019, in the city of Chilpancingo, Guerrero.

Results: Overweight/Obesity (RM 5,95% IC 2.10) and stress (95% IC 2.10) predispose workers to suffer from AHT.

Copyright©2022 *Nelissa Rodríguez Dorantes et al.* This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

In Mexico, DM has had an alarming rise, by 1970 it was ranked 12th as a cause of death and in 2000 it was in third position. The prevalence of type 2 DM in adults older than 20 years increased from 6.7% in 1993 to 7.5% in 2000 and it is estimated that it could reach 12.3% (11.7 million Mexicans) by 2025.^(1,14,17) the factors that increase the risk of this condition are mainly overweight, abdominal obesity, lack of physical exercise, age, genetic factors, hyperglycemia.^{(2, 3, 4, 5, 6, 13).}

AHT is distributed in all regions of the world. In Mexico, the prevalence of AHT is increasing and it is estimated that there are more than 15 million hypertensive patients between ages of 20 and 69. More than half of the population with this disease ignores it, of those who are already known to have hypertension, less than half take medication, and of these, approximately 20% are controlled.^(7, 16, 18) AHT is related to family background, sex, age, obesity, stress, lack of exercise, salt, alcohol and tobacco consumption.^(2, 8, 9,15)

As already mentioned, obesity is an important factor for the development of the aforementioned diseases. In the national health survey of the year 2000 in the urban population (more than 2500 inhabitants) it was observed that 24.4% of the population has obesity, the factors that lead to this condition are the hypercaloric diet, not exercising, stress, alcohol and tobacco consumption.^(4, 5, 10, 11)

The above indicates the magnitude of these conditions and their impact on society, therefore the importance of conducting this study where the main objective was to determine the prevalence of DM, AHT and Overweight/Obesity in workers over 20 years old, in the Benita Galeana Children's Residence, dependent on the Autonomous University of Guerrero and identify the factors that are most associated with the problem.

MATERIAL AND METHODS

The study was carried out with 53 people from Chilpancingo, Gro., who are workers of the aforementioned institution. This research corresponds to a cross-sectional study carried out during the months of February-July 2019.

*Corresponding author: **Nelissa Rodríguez Dorantes**

Full-time Research Professor at the Faculty of Chemical Biological Sciences and Higher School of Nursing1, UAGro

A confidential questionnaire was applied to each one in order to know some personal and clinical background, anthropometric measurements such as weight, height, waist, hip (without shoes and with light clothing) were taken. The Body Mass Index (BMI) was calculated, this was obtained by dividing the body weight expressed in kilograms between the height expressed in squared meters. $Weight\ Kg./Height\ m^2$ ⁽¹¹⁾, for its classification as low weight, normal, overweight, obesity grade I, II and III according to the clinical guidelines for the identification, evaluation and treatment of overweight and obesity in adults of the National Institutes US Health⁽¹⁰⁾

Blood pressure was determined with a digital wrist baumanometer, brand CITIZEN, taking the measurement with the individual in a sitting position, with the arm slightly flexed, the palm of the hand facing upwards, and the forearm resting on a horizontal surface at the level of the heart, considering the average of six measurements. The worker was defined as having AHT if the person had a previous medical diagnosis, regardless of their blood pressure figures at the time of the survey, or if the person had figures greater than or equal to 140 mm/Hg for systolic blood pressure and/or greater than or equal to 90 mm/hg for diastolic blood pressure, according to the Technical Norm for the prevention, treatment and control of arterial hypertension.

Diabetic people were identified with a previous diagnosis of DM, the rest were classified according to the Secretary of Health, which depending on risk factors such as overweight, obesity, waist greater than 85 cm for women and 95 cm for men, the null or little exercise, being over 45 years old, a family background of DM and, for women, having had babies weighing more than four kilos at birth, was evaluated with the score that each one of these had, which when added together those who had more than ten points, people at high risk of suffering from DM were qualified and were candidates to undergo the presumptive fasting blood glucose test, where lancets were used to extract a drop of blood from the left ring finger and it was placed on the reactive strips for reading in the One Touch brand digital glucometer. Those who had fasting blood glucose greater than 100 mg/dl were considered prone to DM.

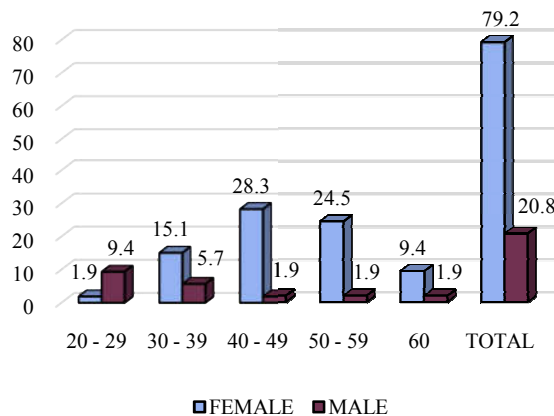
The information analysis was carried out by grouping all the data in the output tables, using the Epi Info version 6 computer program. The measures of frequency, percentages and Chi² were calculated. All the variables were related to each other, using the association measures and the significance measure Xi of Mantel and Heanzel.⁽¹²⁾

RESULTS

In a population of 66 people from the "Benita Galeana" Children's Residence, 80.3% (53) participated voluntarily, 15.1% (13) did not complete the study.

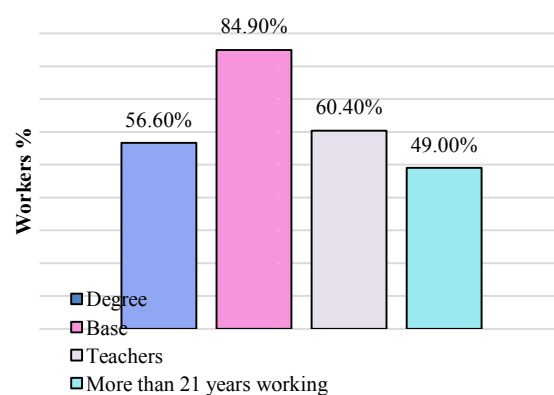
Of the 53 workers interviewed, the mode is 42 years, the variance of 152,605 and a mean of 44,830, the female sex was the most predominant with 79.2% (Graph 1).

Of the total population studied, 56.6% have a bachelor's degree, 84.9% have a basic contract, and 60.4% are teaching staff. Workers with more than 21 years of seniority occupy 49%. (Graph 2)



Graph 1 Age and sex of the workers of the Children's Residence.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.



Graph 2 Professional and labor aspects of the workers.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

The entire population is entitled to the ISSSTE, of these 79.2% are overweight/obesity, of which 30% are between 40-59 years old (Table 1), those who have a waist-hip perimeter greater than the established they belong to 66.04%.

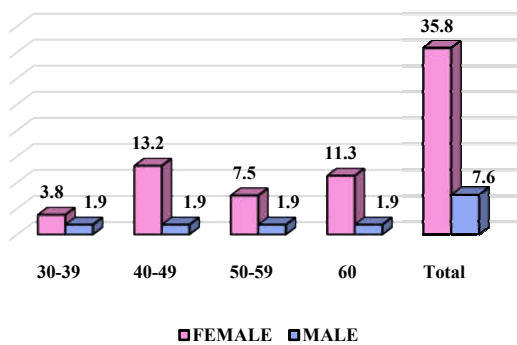
Table 1 Body Mass Index related to workers age of the Children's Residence.

Age	Under weight	Normal weight	Overweight	Obesity stage I	Obesity stage II	Total %
20-29		5.7	5.7			11.4
30-39		9.4	9.4		1.9	20.7
40-49		3.8	7.5	15.1	3.8	30.2
50-59	1.9		15.1	9.4		26.4
60			9.4	1.9		11.3
Total %	1.9	18.9	47.1	26.4	5.7	100

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

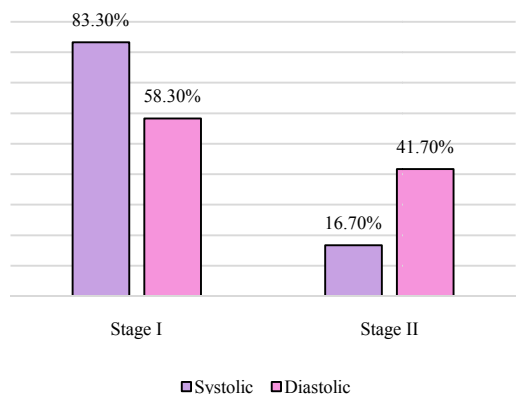
Of the total number of workers, 26.4% have a previous diagnosis of AHT, of which only half are under medical treatment. 42.9% have less than five years with the diagnosis and 42.8% more than ten years; the prevalence of this condition is 15.1% for the ranges of 40-49 years old (Graph 3)

Those with systolic AHT, 83.3% are in stage I and 16.7% in stage II, and those with diastolic AHT, 58.3% are classified in stage I and 41.7% in stage II (Graph 4). Those who are not hypertensive, 3.8% presented headache, ringing in the ears and vertigo, which are specific hypertension symptoms. Only one of them sought medical attention.



Graph 3 Prevalence of Arterial Hypertension by age and sex groups in workers of the Children's Residence

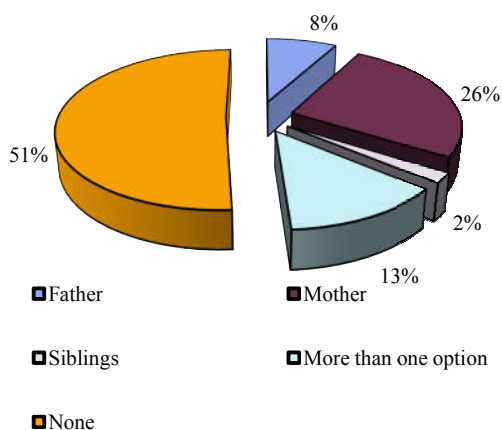
Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.



Graph 4 Classification of workers suffering from AHT.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

26% of the workers have a history of hypertension on the mother's side and 13% have more than two relatives with this disease (Graph 5), 51% have had their blood pressure "checked" more than a month ago.



Graph 5 Family Background of hypertension in workers.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

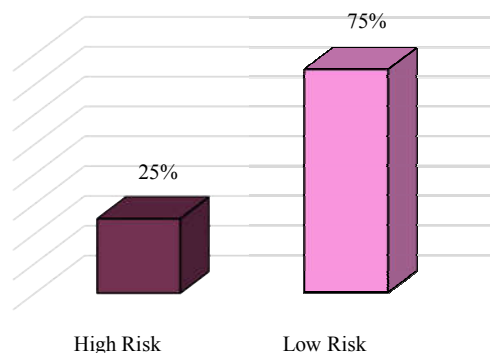
Of the total population, 17% have a family background of DM, which corresponds to the mother, 9.3% were found with a previous diagnosis of DM, which are under medical treatment, the prevalence was higher in the ranges of 40-59 years with 7.4% (Table 2). 80% of them have more than 6 years with the diagnosis.

Table 2 Prevalence of Diabetes Mellitus by age and sex groups in the workers of the Children's Residence.

DM	Sex		
	Male %	Female %	Total %
40-49	-	2	3.7
50-59	-	2	3.7
≥ 60	-	1	1.9
Total	-	5	9.3

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

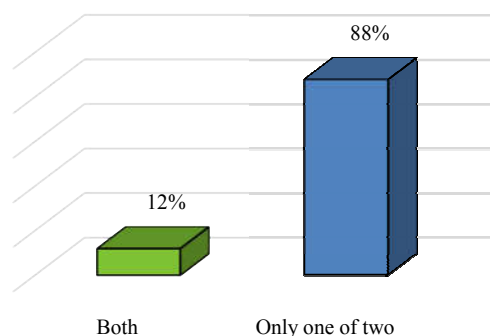
60.3% of the workers underwent the glucose test more than a month ago and 17% have never done it. 75% of the population, not counting diabetics, are at high risk of suffering from DM (Graph 6). They underwent a presumptive fasting blood glucose test, in which 11.1% were positive.



Graph 6 Risk of suffering from Diabetes Mellitus in the workers of the Children's Residence.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

About hypertensive and diabetic patients, 12% present both diseases, the rest present only one of them (Graph 7).



Graph 7 Estancia workers, who suffer from DM, AHT or both.

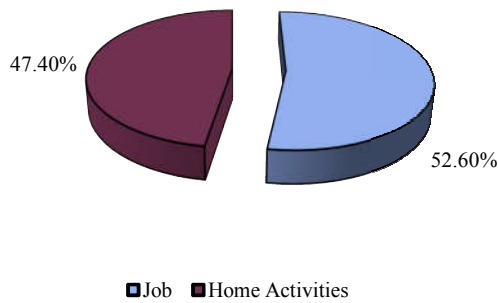
Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

52.6% of the population are stressed by work activities (Graph 8), however, 84.2% manifest stress occasionally.

37.7% of the study population do not exercise, 15.1% add salt to their food before tasting it, 7.5% smoke, but they only do so occasionally, 47.1% also consume alcohol occasionally and 15.1% have an inadequate diet (Graph 9).

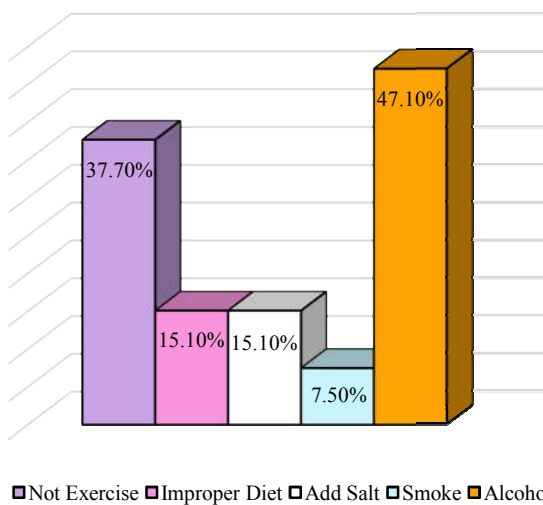
The prevalence of the risk factor (PRF) of Overweight/Obesity is 77.4% of the total number of workers under study, the odds ratio for prevalence (ORP) indicates that workers who are Overweight/Obesity have 5 times the risk of suffering from AHT, using the Mantel and HeanzelXi (XMH), the significance measure is 2.10 greater than 1.96, so the statistical

association of AHT and overweight/obesity is not due to random with a confidence level of 95 %.



Graph 8 Activities that produce stress in workers.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.



Graph 9 Some aspects of the workers' lifestyle.

Source: Survey applied to workers of the UAGro Benita Galeana Children's Residence in Chilpancingo Guerrero. May-June 2019.

Regarding the stress factor related to AHT, the PRF is 6%, the XMH is 2.01 greater than 1.96, which means that the statistical association between AHT and stress is not due to chance, with a confidence level of 95%.

In the calculation of χ^2 , the risk factors of Diabetes Mellitus related to sex (χ^2 c .66 < χ^2 t 5.99) and age (χ^2 c 1.02 < χ^2 t 9.49) in the workers, it was concluded with the evidence that the hypotheses are accepted. (χ^2 c 2, 0.95 ∞ .05), (χ^2 c 4, 0.95 ∞ .05) respectively.

On the other hand, in AHT and its risk factors related to sex (χ^2 c 2.60 < χ^2 t 12.60) and age (χ^2 c 18.91 < χ^2 t 41.34), the hypotheses are accepted. (χ^2 c 6, 0.95 ∞ .05), (χ^2 c 28, 0.95 ∞ .05) for each one respectively.

Finally, the hypotheses of Overweight/Obesity and its risk factors related to sex (χ^2 c 0.64 < χ^2 t 5.99) and age (χ^2 c 6.41 < χ^2 t 15.51), are accepted (χ^2 c 2, 0.95 ∞ .05), (χ^2 c 8, 0.95 ∞ .05).

DISCUSSION

The conditions were analyzed with each of their risk factors, however, and because the population was 53 workers, fewer measures of significance and statistical association were obtained than expected.

In the present study, AHT affected more the group of 40-49 years. It is known that blood pressure tends to increase throughout life, although the rate of increase varies at different ages. An increase in this was observed from 40 years.

Sex could also be a risk factor for AHT, however, in our population the female sex predominated, so it was decided not to calculate the measures of association with the disease.

Family background is a risk factor for AHT, as is the consumption of salt, alcohol, and tobacco. Although in the study there is probably no statistical association with the condition.

Only overweight/obesity and stress had a statistical association with AHT.

CONCLUSIONS

In the present investigation it was shown that the risk factors associated with AHT in the workers of the Benita Galeana Children's Residence of the Autonomous University of Guerrero were stress and overweight/obesity.

Suggestions

Continue the study in this working population to implement strategies and programs aimed at improving the lifestyle and control of these pathologies, raising awareness among workers so that they go for the necessary tests and detect these conditions in time, avoiding their complications, thus reducing morbidity and mortality through timely diagnosis and treatment, contributing to the institution so that its personnel are healthier and has better work performance.

References

1. Sepúlveda J., Tapia C. R., Gonzalo G. T. Encuesta Nacional de Salud 2000. Apartado 2 La Salud de los Adultos. Capítulo 6. Metodología. Pág.17.
2. Peña, E; Contreras, F; Fouilloux, C; et al. - Ejecución de un programa para reforzar el conocimiento del control de los factores de riesgos modificables de hipertensión arterial en los trabajadores de Pequiven en oficina principal. Rev. Fac. Med. (Caracas); 24(2):172-180, jul.-dic. 2001.
3. Pierre D. J., Scarsella C., Tratamiento de la obesidad: necesidad de centrar la atención en los pacientes de alto riesgo caracterizados por la obesidad abdominal. CadSaúde Pública. V. 19 Sup. 1 Río de Janeiro 2003.
4. Pamfilio P. R., Oquendo P.L., Sánchez F. C., et al. Obesidade: Atualização sobre sua etiologia, morbidade e tratamento. Rev. Nutr. V. 13. No. 1. Campinas Jan./Abr. 2000.
5. Beers M. H., Berkow M. D. R., El Manual Merk, décima edición, editorial Harcourt Merck, 1999.
6. De la Fuente J. R., Narro R. J., López B. J., Et al. Secretaría de Salud. Programa Nacional de apoyo Académico para pasantes de Servicio Social. Diabetes Mellitus. Subprograma Enfermería 1996.
7. Velázquez M. O, Rosas P. M. Lara E. A, et al. Hipertensión arterial en México: Resultados de la Encuesta Nacional de Salud (ENSA) 2000, Vol. 72 Número 1/Enero-Marzo 2002:71.84.
8. Rodríguez D. L., Herrera G. V. Torres P. J.M., et al. Factores de Riesgo asociados con la hipertensión arterial en los trabajadores de la oficina central del

- MINBAS. Rev. Cubana Med. Gen. Integr. 1997; 13 (5): 474-487.
9. Comisión Nacional de Hipertensión. Enfermedades crónicas no transmisibles. Programa Nacional de prevención, diagnóstico, evaluación y control de la Hipertensión. Rev. Cubana Med. 1999; 38 (3): 160-9.
 10. Kaufer H. M y Ávila R. H. ¿Somos obesos? Evaluación antropométrica de la obesidad en el adulto. Departamento de Salud Pública, Facultad de Medicina. Universidad Nacional Autónoma de México. Cuadernos de Nutrición. Vol. 26. No. 1. Enero-Febrero 2003.
 11. Burrows A. R. Prevención y tratamiento de la obesidad desde la niñez: la estrategia para disminuir las enfermedades crónicas no transmisibles del adulto. Rev. Méd. Chile V. 128. No. 1. Santiago ene 2000.
 12. Moreno A.A., López M.S., Corcho B.A. Principales medidas en epidemiología. Rev Salud Pública de México/Vol 42. no.4. Julio-Agosto de 2000.
 13. Rojas Martínez R (2018) Prevalence of diabetes due to previous medical diagnosis in Mexico. Public health of Mexico. 60 (3): 224- 232.
 14. Briseño H (2019) It is suffered by 12 million people in Mexico; it is one of the main causes of death due to complications, says José Astudillo Nava. Type 2 diabetes reaches alarming levels in Guerrero.
 15. Trindade A, Dos Santos, de Barros Carvalho, Silva Marcon S (2014) Hypertension and other risk factors associated with cardiovascular diseases in adults. Rev. Latino-Am. Enfermagem 22 (4): 547-53.
 16. SSA (2017) Project of Official Mexican Standard PROY-NOM-030- SSA2-2017, For the prevention, detection, diagnosis, treatment and control of systemic arterial hypertension. Official Diary.
 17. Beard Evia JR (2018) Mexico and the challenge of chronic non-communicable diseases. The laboratory also plays an important role. Rev LatinoamPatol Clin Med Lab 65: 4-17.
 18. Campos Nonato I (2018) Arterial hypertension in Mexican adults Prevalence, diagnosis and type of treatment. Public health of México 60(3): 233-243.
 19. Lyre C MT (2015) Impact of Arterial Hypertension as a cardiovascular risk factor. Rev Med Clin Counts 26(2): 156-163
 20. Segob. Project of Official Mexican Standard PROY-NOM-015-SSA2 (2018) For the prevention, detection, diagnosis, treatment and control of Diabetes Mellitus. Obtained from the Official Gazette of the Federation.
 21. Forbes (2018) By 2030, 40% of adults in Mexico will suffer from obesity.
 22. WHO (2017) Mexico, leader in obesity in Latin America: WHO. Alliance for food health.
 23. INSP (2018) Overweight and obesity in Mexico. INSP

How to cite this article:

Nelissa Rodríguez Dorantes *et al* (2022) 'Epidemiological Profile of Chronic Degenerative Diseases And Overweight/Obesity In Workers of A Public Child Residence Located In Chilpancingo Guerrero', *International Journal of Current Advanced Research*, 11(03), pp. 532-536. DOI: <http://dx.doi.org/10.24327/ijcar.2022.536.0118>
