

International Journal of Human Sciences Research

HEALTH AND SAFETY TRAINING FOR UNIVERSITY TEACHERS

José Gerardo González de la Garza

Ana María Aguilar Sanchez

Nathalia Zamarrón Oztuca

Mayra Yazmin Ortiz Ozuna

Acceptance date: 25/10/2024

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: Education has had a significant change in education, however, it is of utmost importance the integration of safety and health in schools, managers, teachers, administrative and service staff should be trained to take actions to ensure rapid and effective care in case of an emergency of a student. The main objective of this research is to generate a safety plan directed especially to schools with the purpose of creating a training oriented to safety and health with the prevention of risks to students and teachers, that guarantee preventive actions, promoting the development of attitudes and values with safe actions in the decrease of dangers and quick attention in unavoidable injuries. It is based on exploratory and transversal research, data collected in a single period and specific place of study, supported by a mixed approach, qualitative with documents based on reliable scientific bases and qualitative directed to measurable or observable data, statistical and correlational analysis and relationship between variables. An instrument was applied to 88 teachers, administrative and managerial staff, with a 95% confidence level and a 5% margin of error. The reliability of the instrument is 0.95 according to Cronbach's alpha formula.

Keywords: Environment, Safety, Health, Training, Risk Prevention, Emergency

INTRODUCTION

It is of utmost importance to train teachers, administrative and service managers to be prepared to apply actions that guarantee safety and health in the event of a student's emergency.

The objective of this research is to design a health and safety plan focused on a health and safety plan focused on the labor personnel of the universities, promoting training, with the purpose of developing a set of actions oriented to health and safety, in the prevention of school risks of students, teachers and labor

personnel, generating preventive actions avoiding as much as possible dangerous situations, promoting the development of attitudes and values, safe actions in the decrease of dangers and quick attention in unavoidable accidents.

Burgos, 2011 mentions in his article, the need to train prevention from the classroom or educational institution, considering own knowledge of occupational risk prevention and preventive culture, must be present in the educational context as the engine of change of a safe school society, healthy in their personal and professional behaviors and attitudes, teachers play an important role in promoting prevention in schools, the teaching they adopt with students is likely to have a great impact on their self-esteem, confidence and emotional health.

Gairín, Diaz, Rosales & Sentinella, 2014, made it clear that safety management in educational centers, like any other organizational educational process, is defined to the best, care for the welfare of teachers, students and the educational community in general, optimize the organization and operation of the activities of the educational center, implement management processes in line with preventive cultural values.

Implementing safety measures contributes to the prevention of accidents, safeguarding physical integrity and health. The application of safety standards is a legal requirement, complying with these standards demonstrates the organization's commitment to social responsibility and protection for students.

Lozano & Lopez, 2016, indicate in their research the importance of having knowledge in health risks, it is a determining factor in the acquisition of necessary knowledge when contributing responsibly in case of any accident or health problem.

MAGNITUDE OF THE PROBLEM

The lack of training and prevention in safety, health and civil protection in schools is one of the main causes currently experienced inside and outside the classroom, the lack of knowledge of how to act in case of danger and/or emergency situations among students and teachers.

GENERAL OBJECTIVE

Design a health and safety plan that includes risk prevention strategies, prompt response to emergencies, and training of personnel working in the institution.

SPECIFIC OBJECTIVES

Conduct a comprehensive diagnosis to managers, teachers, administrative and manuals, in the area of safety and health in case of an emergency.

Analyze the most important rules and regulations in the educational centers of the Ministry of Labor and Social Prevention.

Design key strategies for risk prevention training.

JUSTIFICATION AND APPROACH

Are teachers prepared in case of an emergency?

Is there a health and safety plan in case of an emergency?

What are the key strategies for teaching prevention in and out of the classroom?

This research is carried out with the purpose of increasing the curricular preparation of managers, teachers, administrative and service staff, one of the important factors today in students is anxiety, the need to understand and address problems effectively is more urgent than ever, however, in case of an emergency it is of great importance to know what to do, act responsibly and promptly to save a life.

THEORETICAL FRAMEWORK

From the point of view of James, A., (2016). Relates as health inconveniences that attracts greater vigilance is youth violence, it results in an urgent public health complication, generating the third leading cause of death in young people aged 10 to 24 in the United States.

According to Yang, J. (2022). Educational accidents can be produced by factors outside intervention, being unexpected accidents.

According to Miranda, V. & Alarcón, H.(2021), the pandemic as a factor, linked to anxiety, has affected the emotional part of young people, related to their academic performance, the virus has a negative impact on the health of the emotions of students and teachers.

The inadequate placement of equipment, not being the right chair, can generate an injury or an illness in the long or short term, as González, R. (2021) comments. Determining the ergonomic risks in the offices where secretaries work.

Bahmani & Yibin, A. (2023), describe that despite different studies to forecast emergencies, mainly earthquakes, most of them cannot be announced in advance, early warnings and permissible or immediate evacuation can save thousands of lives during emergencies.

(Diaz Vicario A. & Garín Sallan J., (2021) With the term "health and safety" we allude to measures aimed at protecting the health and safety of the agents involved in any work context, with the intention that they develop prevention-related behaviors and attitudes in their own daily actions. One of these measures, which we consider fundamental, is "teaching and training in prevention". We talk about training in prevention from the classroom/school, considering that the knowledge of occupational risk prevention and preventive culture must be present in the educational context because we understand education as the engine of change of a society that we want

to be safe and healthy in their behaviors and attitudes both personally and professionally.

(Lee et al., 2020). It also understands, from a dynamic perspective, that the three dimensions are linked to each other and do so proactively and from organizational processes aimed at preventing, intervening, protecting, and even acting in emergency situations.

(WHO & UNESCO, 2021). The need to introduce safe and healthy schools was introduced more than 25 years ago. UNESCO and the World Health Organization have introduced the Global Standards for Health Promoting Schools, schools play a vital role in the well-being of students.

(Diaz, Vicario & Gairín, 2021). They distinguish three dimensions in the safe and healthy school organization that educational centers should attend to:

- Physical and structural environment: elements related to the school building and facilities, furniture, classrooms and sports facilities.
- Psychosocial Environment: Culture and values, educational models, networking and relationships with the environment.
- Organizational Practices: Leadership, Communication, Planning strategies, physical risk prevention, promotion of social-emotional well-being.

In terms of physical well-being, Rieck & Lundin(2021) identify four domains in which the perceptions, behaviors and practices that contribute to health care are combined.

- Physical activity: Frequency and forms of physical activation that may or may not be related to a sport.
- Food: The frequency of food intake and the type and amount of food consumed.
- Hydration: Involve the habit, quantity and frequency of natural water intake.

- Hygiene: Actions for the care, cleaning and restoration of the body through bathing, oral hygiene, sleep habits and sleep cycles.

Health and safety education should be a continuous process, with updated training programs, promoting the training of teachers who transmit their knowledge for the benefit of students.

Aguayo in 2019, p. 708, emphasizes on the emotional problems that can occur with students, psychosomatic ones with cardiovascular problems, fatigue, gastrointestinal in the emotional ones depression, lack of self-esteem, demotivation or behavioral low performance, drugs, school dropout among others.

The areas of the body most affected by occupational accidents in the education sector are the hands, wrists or fingers (18.4%) and the foot or ankle (17.1%) emphasized Adaszko, (2012). As for the most reported conditions among education workers who suffered occupational diseases in 2012, 66.3% were those affecting the larynx and pharynx mentioned the same Adaszko, (2012).

(Aguilar C., Cetina T., Centeno G, 2021) They describe an approach of occupational risk prevention to an approach of developing a safety culture, where the most important are the behaviors, values and attitudes related to safety by all workers and show the commitment to health and safety, so it constitutes the main value of occupational health and social responsibility to improve the quality of working life of their collaborators. (p.31 to 43).

METHODOLOGY

The mixed methodological approach, qualitative based on documents from reliable databases in the area of safety and health, interviews, observation and quantitative field work, application of a survey to 88 managers, teachers, administrative and service personnel.

HYPOTHESIS

H_{1A} = higher factors in safety and health training for students, teachers, administrative and service staff, lower risk.

H₀ = The lower the health and safety protocol, the higher the student productivity and well-being.

SAMPLE SIZE CALCULATION

$$n = \frac{N Z^2 * p(1-p)}{(N-1)e^2 + Z^2 p(1-p)}$$

N= 428

Z= 90%

P= 50%

e= 8%

$$n = \frac{428 (1.64)^2 0.5(1-0.5)}{428-1 (.08)^2 + (1.64)^2 0.5(1-0.5)}$$

$$n = \frac{428 (2.6896) * (0.25)}{427 (0.0064) + (2.6896) (0.25)}$$

$$n = \frac{287.723}{2.7328 + .6724}$$

$$n = \frac{287.723}{3.4052}$$

n= 88 Sample size

Case processing summary

		N	%
Cases	Valid	88	88.9
	Excluded ^a	11	11.1
	Total	99	100.0

a. Elimination by list is based on all the variables in the procedure.

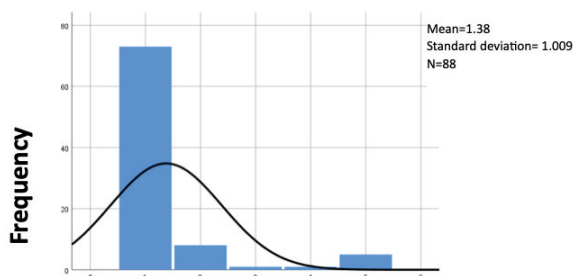
Reliability statistics

Cronbach's alpha	Cronbach's alpha based on standardized items	N of elements
.959	.957	30

An instrument developed by EDURISC was applied to 88 respondents, where Cronbach's alpha was .95.

RESULTS

Histogram



12.- Are you trained in the proper use of the fire extinguisher?

Graph 1. The graph shows that only 17% of those surveyed in schools know the proper use of a fire extinguisher.

Cross Table 12.- Are you trained in the proper use of the fire extinguisher? *Have you been trained to turn off the power in case of an emergency?

Count

		9.- It has training to cut off the power in case of an emergency.		Total
		1	2	
12.- Are you trained in the proper use of the fire extinguisher?	1	21	52	73
	2	3	5	8
	3	0	1	1
	4	0	1	1
	5	0	5	5
Total		24	64	88

Chi-square tests

	Value	df	Asymptotic significance (bilateral)
Pearson's Chi-square	3.129 ^a	4	.536
Likelihood ratio	4.935	4	.294
Linear by linear association	2.025	1	.155
N of valid cases	88		

a. 7 boxes (70.0%) have expected a count of less than 5. The minimum expected count is .27.

Table 3. According to the hypothesis, 82.92% of the respondents do not feel trained in case of an emergency or use of the fire extinguisher, so the main hypothesis is accepted, the higher the training the lower the risk, the dependence relationship between variable 1 and variable 2 is 100 as shown in CHI² likelihood ratio. Therefore, in this contingency table there is a very high dependence.

9.- It has training to cut off the power in case of an emergency.

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	1	24	24.2	27.3	27.3
	2	64	64.6	72.7	100.0
	Total	88	88.9	100.0	
Lost	System	11	11.1		
Total		99	100.0		

Table 1. 72.7% of respondents have not been trained in the event of a major emergency.

12.- Are you trained in the proper use of the fire extinguisher?

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	1	73	73.7	83.0	83.0
	2	8	8.1	9.1	92.0
	3	1	1.0	1.1	93.2
	4	1	1.0	1.1	94.3
	5	5	5.1	5.7	100.0
	Total	88	88.9	100.0	
Lost	System	11	11.1		
Total		99	100.0		

Table 2. 83% of respondents were unaware of the proper use of fire extinguishers.



12.- Are you trained in the proper use of the fire extinguisher?

Graph 2. As can be seen in the concordance graph with respect to the dispersion, it shows the variable y Do you know the location of the fire extinguishers? The behavior of the two variables reflects a high rate of awareness, the points are dispersed according to the degree of relationship between the two, since they are concentrated from 0 to 10 between X and Y, there is a positive linear relationship between the variables, which generates a lack of training in the use of fire extinguishers and emergencies.

CONCLUSION

The main hypothesis is accepted the higher the training factors, the lower the risk, according to the documentary analysis we found that Gairín, Diaz, Rosales & Sentinella, 2014, made it clear that implementing safety measures contributes to the prevention of accidents, education in safety and health, should be a continuous process with safety update programs, promoting training to teachers, in case of an emergency it is of great importance to know what to do, act responsibly, when saving a life.

According to the field work carried out, the results found are significant, since 72.2% of those surveyed do not feel capable of dealing responsibly in the event of an emergency, and 83% do not know the proper use of fire extinguishers.

The most relevant standards for educational centers issued by the Mexican Ministry of Labor and Social Security are as follows:

SAFETY STANDARDS

NOM-001-STPS-2008	Buildings, Premises and Facilities
NOM-002-STPS-2010	Fire Prevention and Protection
NOM-005-STPS-1998	Handling and storage of hazardous substances.
NOM-022-STPS-2015	Static Electricity
NOM-029-STPS-2011	Maintenance of Electrical Installations

HEALTH STANDARDS

NOM-011-STPS-2001	Noise
NOM-015-STPS-2001	Elevated or depressed thermal conditions
NOM-025-STPS-2008	Lighting
NOM-035-STPS-2018	Psychosocial risk factors
NOM-036-STPS-2018	Ergonomic risk factors

ORGANIZATIONAL STANDARDS

NOM-017-STPS-2008	Personal Protective Equipment
NOM-019-STPS-2011	Health and Safety Commissions
NOM-026-STPS-2008	Safety Colors and Signs
NOM-018-STPS-2015	Hazard and Risk Communication for Chemical Substances
NOM-030-STPS-2009	Preventive Health and Safety Services.

SPECIFIC STANDARDS

NOM-018-STPS-2013	Forest Harvesting
NOM-031 STPS-2011	Construction
NOM-003-STPS-1999	Pesticides and Fertilizers
NOM-037-STPS-2023	Occupational Health and Safety Conditions

The Mexican Official Standards issued by the Ministry of Labor and Social Welfare represent a fundamental pillar in the promotion and assurance of safety and health in work environments in Mexico, including labor in education.

SECURITY STRATEGIES

Key strategies for teaching prevention inside and outside the classroom, 7 safety measures that schools should have:

1. To have a registry of parents or guardians of students.
2. Organize safety conferences in schools
3. To have surveillance at the accesses to the institution.
4. Conduct safety drills in schools on a regular basis.
5. To have a nursing unit
6. Have implements such as fire extinguishers and risk equipment available.
7. Maintain the school transportation vehicle in good condition.

HEALTH STRATEGIES

In terms of physical well-being, Rieck and Lundin in 2021 identified four domains where perceptions, behaviors and practices that contribute to health care come together.

HEALTH CARE SETTINGS

Physical Activity

Refers to the frequency and forms of physical activation, which may or may not be related to the practice of a sport.

Feeding

It is related to dietary self-care, the frequency of food intake, as well as the type and amounts of food consumed.

Hydration

It involves the habit, quantity and frequency of natural water intake.

Hygiene

It refers to the actions for the care, cleaning and restoration of the body through bathing, oral hygiene and sleep habits and cycles, as well as the conditions of sanitation, cleanliness and tidiness of the study work space.

Safety education should be an ongoing process for both new students and teachers, as well as for those who have been in the school zone for a long time.

Ergonomics plays a vital role in the prevention of occupational hazards in institutions, educational staff and students can spend long hours in a sedentary position or performing repetitive tasks, it is essential to propose the adoption of healthy postures.

Includes

- The adaptation of furniture to the needs.
- Promotion of active breaks
- The implementation of physical exercise programs to improve general health and prevent injuries.

PROPOSAL

School or work safety: is known as the set of rules and measures in the procedures of work activities that must be followed in order to safeguard the physical integrity of students or workers, as well as to keep the areas free of risks.

It is necessary to apply at least twice a year an evaluation instrument and to train frequently the educational personnel, directors, teachers, administrative and manuals in the area of safety and health. The aim is to safeguard staff and students in the event of an emergency.

Since it is essential to create a Safety and Health Plan in schools, we will continue working on a research project that will contribute to generate a safety and health manual for schools in our country, based mainly on the standards issued by the Ministry of Labor and Social Welfare.

REFERENCES

Aguayo, R., Cañadas, G., Assbaa, L., Cañadas, G., Ramírez, L. y Ortega, E. (2019). A risk profile of socio-demographic factors in the onset of academic burnout syndrome in a sample of university students. *International Journal of Environmental Research and Public Health*, 16(5), 707 <https://doi.org/10.3390/ijerph16050707>

Bahmani y Yibin A. (2023) Comportamiento de evacuación de los estudiantes durante una emergencia en las escuelas: una revisión sistemática de la literatura. International Journal of Disaster Risk Reduction<https://doi.org/10.1016/j.ijdr.2023.103584>.

Burgos, G. (2011) *Prevención de riesgos laborales en los centros educativos: análisis de los sistemas de formación. Universidad de Granada España. DOI: 10.4438/1988-592X-RE-2011-361-134.*

Díaz-Vicario, A., & Gairín Sallán, J. (2021). La formación en salud y seguridad del profesorado para la gestión de centros educativos seguros y saludables. *Innovación educativa*, (31). <https://doi.org/10.15304/ie.31.7884>

Gairín Sallán, J., Díaz Vicario, A., Rosales Acín, M., & Sentinella Solé, X. (2014). La autoevaluación para la mejora de la seguridad integral en centros educativos. *EDUCAR*, 50(2), 363-381.

Gairín, J. y Díaz-Vicario, A. (2019). Los centros educativos como organizaciones seguras y saludables. Resultados de un estudio diagnóstico. *DYLE – Revista de Dirección y Liderazgo Educativo*, (3), 1-10. Recuperado de <https://www.dyle.es/los-centros-educativos-como-organizaciones-seguras-y-saludables-resultados-de-un-estudio-diagnostico>

González, R. (2021). Análisis de riesgo en la escuela francisco i. madero ubicada colonia zona 5b. Municipio de reforma Chiapas 2021.

Lee, A., Lo, A., Li, Q., Keung, V., y Kwong, A. (2020). Health Promoting Schools: An Update. *Applied Health Economics and Health Policy*, 18(5), 605-623. <https://doi.org/10.1007/s40258-020-00575-8>

Lozano, C. & Lopez, J. (2016). *Niveles de Ansiedad y Estrategias de Afrontamiento de un Grupo de Estudiantes Universitarios en el Valle de Aburra. Corporación Universitaria Minuto de Dios, Bello, Colombia.18.*https://repository.uniminuto.edu/bitstream/10656/5164/3/TP_LopezRestrepoJannyJohana_2016.pdf.

James, A. (2016).Centros de prevención de la violencia juvenil, allanando el camino hacia la prevención. *CrossMark, Springerlink* DOI 10.1007/s10935-016-0433-8.

Miranda, V. & Alarcón, H. (2021). *Efectos de los factores de riesgo sobre la interrupción de los estudios en jóvenes universitarios durante la covid-19. Valle Lima, Perú. DOI: 10.21142/DES-1302-2021-0021.*

Norma Oficial Mexicana NOM-030-STPS-2009 Servicios preventivos de seguridad y salud, Microsoft Word - Nom-030-STPS-2009 02.doc (uicol.mx).

Norma Oficial Mexicana NOM-009-SSA2-1993 Fomento de la salud del escolar, 10-03-94 NORMA Oficial Mexicana NOM-009-SSA2-199 (uicol.mx).

Rieck, G. y Lundin, J. (2021). *Health Education. College of the Canyons.*

Secretaría de Trabajo y Previsión Social: <https://www.gob.mx/stps>

Yang, J. (2022). *Riesgos de seguridad de las escuelas primarias y secundarias en China: un análisis sistemático utilizando el método AHP-EWM* <https://doi.org/10.3390/su14138214>

WHO y UNESCO (2021). *Making every school a health-promoting school. Global standards and indicators. WHO and UNESCO*