

Psychosocial risk factors in students of dual education of the Instituto Tecnológico Superior de Poza Rica

Factores de riesgo psicosocial en alumnos de educación dual del Instituto Tecnológico Superior de Poza Rica

MORENO-RODRIGUEZ, Bertha María†*, LOYA-ESCALANTE, María Teresa, GODÍNEZ-VITE, Rodolfo Enrique and BERNAL-MAR, Ilse Ariadna

Tecnológico Nacional de México / ITS de Poza Rica. México.

ID 1st Author: *Bertha María, Moreno-Rodríguez* / ORC ID: 0000-0002-0598-7524, CVU CONACYT ID: 243865

ID 1st Co-author: *María Teresa, Loya-Escalante* / ORC ID: 0000-0003-1515-4312, CVU CONACYT ID: 635849

ID 2nd Co-author: *Rodolfo Enrique, Godínez-Vite* / ORC ID: 0000-0003-3214-4167, CVU CONACYT ID: 1074966

ID 3rd Co-author: *Ilse Adriana, Bernal-Mar* / ORC ID: 0000-0001-9827-2706, CVU CONACYT ID: 781560

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Abstract

The present work is approached within the Higher Technological Institute of Poza Rica with the purpose of identifying the psychosocial risk factors in the work environment of the students who participate in the Institutional Program of Dual Education, for which an adaptation of the Psychosocial Questionnaire is used, of Copenhagen (CoPsoQ), with 37 questions that correspond to the six large groups of the 20 psychosocial dimensions that are identified with this instrument. The evaluation is carried out on a sample of 9 students belonging to the educational programs of Electronic Engineering and Industrial Engineering. The results obtained allowed to know the level of exposure and the origin of the risks in order to offer information for the design and implementation of preventive actions, which can be carried out during the stay of the students within the company, as well as provide a study focused on dual education, since there are few studies on this developed topic.

Resumen

El presente trabajo se aborda dentro del Instituto Tecnológico Superior de Poza Rica con la finalidad de identificar los factores de riesgo psicosocial en el entorno laboral de los estudiantes que participan en el Programa Institucional de Educación Dual, para lo cual se utiliza una adaptación del Cuestionario Psicosocial de Copenhagen (CoPsoQ), con 37 preguntas que corresponden a los seis grandes grupos de las 20 dimensiones psicosociales que se identifican con este instrumento. La evaluación se realiza sobre una muestra de 9 estudiantes pertenecientes a los programas educativos de Ingeniería Electrónica e Ingeniería Industrial. Los resultados obtenidos permitieron conocer el nivel de exposición y el origen de los riesgos con la finalidad de ofrecer información para el diseño e implementación de acciones preventivas, que se pueden llevar a cabo durante la estancia de los alumnos dentro de la empresa, así también como proveer un estudio enfocado en la educación dual, puesto que son pocos los estudios realizados sobre este tema desarrollado.

Psychosocial risk, dual model, dual education

Riesgo psicosocial, modelo dual, educación dual

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† Researcher contributing as first author.

Introduction

Studies related to work-related stress and its impact on employees have shown the growth of health conditions in the population exposed to hostile working conditions. The main negative consequences on the worker are stress and job dissatisfaction, parameters such as the quantity and quality of work performed, job rotation, absenteeism, etc. are observed. The consequences are not only at the personal level of the individual worker but also at the organisational level as productivity is seriously affected. I

In addition to the above, mental health is becoming an issue of great relevance, which is not alien to the interest of Higher Education Institutions (HEI) that promote the linking of students with companies, as they are considered real environments for the implementation of what is learned in the classroom, as in the case of the Dual Education Model where it is a priority to investigate the current state of psychosocial risk factors prevalent in the working environment of students, which would result in actions to maintain the welfare and comprehensive training of young university students.

Finally, this type of population, due to their characteristics, has not been evaluated within the organisations, as they are the ones who in most cases start their work processes at least in the profession in which they have decided to train and during the time of dual training are not considered as formal employees of the company, although on many occasions the functions and responsibilities associated with their learning positions are the same as those corresponding to a formal worker.

The work is developed in the following sections, background where the psychosocial risk factors are described and research related to their identification in university population is recovered; the problems that exist within the Institute under the Dual Education modality are raised; the objectives of the research are established; the adaptation of the instrument used is described; to finally show the results and offer conclusions of the study.

It is worth mentioning that the project seeks to cover the entire population of students currently participating in the Institutional Dual Education Programme of the Instituto Tecnológico Superior de Poza Rica and to identify the psychosocial risk factors in their work environment.

Background

There are multiple theoretical contributions related to psychosocial risks among authors and organisations, we find that since 1984 in the International Labour Organisation (ILO) and the World Health Organisation (WHO) in the framework of their ninth meeting in 1984 issued a Report of the Joint ILO-WHO Committee on psychosocial factors at work, which consist of interactions between work, its environment, job satisfaction and organisational conditions on the one hand, and, on the other hand, the worker's capabilities, needs, culture and personal situation outside work, all of which, through perceptions and experiences, can influence health and job performance and satisfaction. II

As well as the encyclopaedia on occupational safety and health which defines psychosocial work factors as conditions comprising aspects of the job and work environment, such as organisational climate or culture, job functions, interpersonal relationships at work, and task design and content; and refers that the concept of psychosocial factors also extends to the environment outside the organisation (e.g. work-home dual presence) and aspects of the individual (e.g. personality and attitudes) that may influence the occurrence of stress at work. III

In this sense, it is necessary to understand in depth the elements that make up these factors, which is why the ILO and WHO (2001) classify them into three categories: a) the conditions of the individual, which take into account the capabilities, limitations, experience and motivation with respect to work, age, sex, values, norms and stereotypes that determine their perception, beliefs and aptitudes, b) the conditions of the work environment; these refer to both the internal conditions of the work, as well as those of the environment; in the tasks performed by the individual, the physical and mental workload is taken into account.

c) the conditions of the extra-work environment, in which three aspects are contemplated: 1) socio-economic and educational situation of the family group, 2) effect of work on the family and social environment, and 3) political, economic and social situation of the country. IV

The above precepts lay the foundations for the evaluation, determination and understanding of psychosocial risks associated with a job, among which stand out, for the case of Mexico, Official Mexican Standard 035 published in the Official Gazette of the Federation on 23 October 2018, which aims to "Develop knowledge, skills and attitudes to identify, analyse and prevent psychosocial risk factors, contributing to generate a healthy organisational environment" and constitutes a technical specification of mandatory compliance for all workplaces in the national territory. V

Therefore, in the sense of evaluation, the proposal of the "Questionnaire for the Assessment of Risk Factors in Teaching" (CV-FRP) is recovered, which aims to facilitate the evaluation of "those working conditions directly related to the organisation of work, the content of the work and the performance of the task that have the capacity to affect health", i.e. the assessment of occupational risk factors of psychosocial origin in teaching, allows to guide the implementation of preventive measures contextualised to each risk detected. Among the most relevant results were that it was identified that the questionnaire allows the qualitative assessment of working conditions and the perceived incidence of each dimension, and therefore the detection of risks in the workplace. This questionnaire makes it possible to quantify the perception of psychosocial risk, to find the risk indices per factor and to apply statistical analyses to these values. VI

On the other hand, the investigation of the working and psychosocial conditions of a student population of CUCEA of the University of Guadalajara, Mexico, is taken up again. VII. As well as the statistical analysis of the psychosocial dimensions presented by the Working Conditions Questionnaire (Blanch, Sahagún and Cervantes, 2010), as a result it was obtained that the highest percentage of students who consider working conditions as optimal are 53.5%, followed by a percentage of 40.8% who consider them regular and only 5.6% consider them as terrible. These working conditions refer to the general organisation of work, the financial remuneration, the workload, the quality of the employment contract and the possibility of reconciling work with private and family life.

Also, the investigation of psychosocial risk factors present in psychology internship students of a private university based in the department of Cundinamarca, with the aim of identifying psychosocial risk factors in internship students through a validated psychosocial risk battery, performing a single application to observe the results and propose appropriate intervention strategies, obtaining as a result of psychology interns can be considered quite unfavourable to the extent that 55% of respondents report a very high presentation of stress symptoms. VIII

Thus, under these analyses it can be deduced that the psychosocial risks faced by students cannot be ruled out as factors that can affect their life and work performance.

Problem

The Instituto Tecnológico Superior de Poza Rica is a Higher Education Institution which, in recent years, has promoted the Dual Education Model, guided by the good practices of the Mexican-German model, as well as by the Agreement of the Ministry of Public Education number 18/11/18 in which the Dual Model is conceptualised and defined as higher education options, as well as in accordance with the Guidelines of the National Technological Institute of Mexico. IX

As of 2019, students from various educational programmes are taking their subjects under this modality, which involves the linking of theory and practice, integrating the student in the company to develop their professional skills, while developing generic and disciplinary skills in order to achieve a comprehensive education, through the conclusion of collaboration and coordination agreements between the company and the educational establishment.

In this context, students participating in the Dual Model Institutional Programme are integrated into a work environment with various risk factors associated with work, although not formally or directly, but they are part of an organisational environment, in which companies must manage this environment through the measurement, intervention and monitoring of psychosocial risk factors, as a minimum requirement of the NOM-035-STPS-2018 standard.

But are students in the Dual Model considered within this management of the work environment in companies? What are the implications for the mental health of students when participating in a Model that combines business and school? What are the psychosocial risk factors in the work environment of ITSPR students participating in the Institutional Dual Education Programme? How can these risk factors be identified and measured?

Objective

To identify psychosocial risk factors in the work environment of ITSPR students participating in the Institutional Dual Education Programme by adapting the Copenhagen Psychosocial Questionnaire (CoPsoQ) in order to design and implement preventive measures.

Adaptation of the instrument

Instrument CoPsoQ-istas21

This questionnaire is a tool for the assessment of psychosocial occupational risks that underpins a preventive methodology. For the case of this study, the medium version of the CoPsoQ-istas21 is applied, which is the adaptation for Spanish of the Copenhagen Psychosocial Questionnaire (CoPsoQ) through which the working conditions that may represent a risk to health and well-being are identified and measured, as well as providing reference population values that represent a target exposure that can be reasonably assumed in the short term by the workplaces. X

Structure

The questionnaire in its medium version, for more than 25 workers, consists of four sections comprising items measuring exposure to psychosocial risk factors to which workers are exposed in the workplace. This instrument uses a Likert-type scale to identify and measure in values from 0 to 4 (on a scale of always, many times, sometimes, only some of the time, never) the exposure of employees to the thirty-eight psychosocial risk factors. Exposure to 20 psychosocial factors derived from work organisation and dual presence is measured and allows you to know how each of them is in your work, which are grouped into six major groups. The different dimensions of psychosocial risk included in the CoPsoQ21 method are developed through each question. Although each and every one of them constitutes a conceptually differentiated and operationally measurable entity, as a whole they are part of the same psychosocial construct and are interdependent to different extents and depending on the very different realities of the organisation and working conditions, so that the twenty dimensions are presented one by one but integrated into the large groups mentioned above: psychological demands; work-family conflict; control over work; social support and quality of leadership; compensation and social capital, and summarised in table 1 below:

Large groups	Psychosocial dimensions
Psychological demands at work	Qualitative demands Pace of work Emotional demands Demands to hide emotions
Work-family conflict	Double presence
Control over work	Influence
Social support and quality of leadership	Possibilities for development Sense of work Social support from colleagues Social support from superiors Quality of leadership Group feeling Predictability Role clarity Role conflict
Work rewards	Recognition Job insecurity Insecurity about working conditions
Social capital	Justice Trust Vertical

Table 1 Dimensions taken from COPSOQII-ISTAS21

Design and sample

The sample design was of 9 students belonging to the Dual Model programme. Table 2 shows the socio-demographic characteristics of the sample, showing that 44.44% are female and 55.55% are male, and that 66.66% are young people between 21-23 years old and 33.33% are young people aged 24-26 years old.

Variable	n	%
Female	4	44.44%
Male	5	55.55%
Total	9	100%
	Age	
Between 21 and 23	6	66.66%
Between 24 and 26	3	33.33%
Total	9	100%

Table 2 Samples

Source: own elaboration

Analysis of the results

According to the responses of the students of the Instituto Tecnológico Superior de Poza Rica who belong to the Dual Model programme, the following results were obtained, ordered by sections and by the risk in which they are presented. The sections in which the psychosocial dimensions measured are grouped are: social and family situation, health and personal well-being, current employment and working conditions, and contents and demands of your learning position.

For the presentation of the results, three intervals are used that integrate the colours of the traffic light for greater visual comprehension and are as follows:

- Green: level of psychosocial exposure most favourable to health.
- Yellow: Intermediate level of psychosocial exposure.
- Red: Most unfavourable psychosocial exposure level for health.

The overall results of the evaluation of nine students are shown below: the social and family situation section shows the priority of preventing psychosocial risks, with two students in the red range; followed by the section on the contents and demands of the learning position, where all nine respondents report a yellow range; the section on current employment and working conditions, where six of nine students (67%) have a yellow range, i.e. an intermediate level of psychosocial exposure; finally, the section on health and personal well-being, where eight of nine respondents report a green range and only one in the red range.

Subname	Social and family situation	Personal health and well-being	Current employment and working conditions	Content and requirements of your apprenticeship
Pupil 1	8	30	2,1	17,4
Pupil 2	11	55	1,8	17,4
Pupil 3	10	38	2,1	17
Pupil 4	9	38	2,2	15,5
Pupil 5	8	38	2,2	15,9
Pupil 6	9	38	2,4	17,6
Pupil 7	14	38	1,7	17,2
Pupil 8	5	38	2,3	17,9
Pupil 9	5	5	1,9	17,4

Table 3 Overall results

Source: own elaboration

The results by section are shown below, starting with section 1, social and family situation, where two students out of the nine were identified with a red interval, i.e. the most unfavourable psychosocial level for health, for which the questions "Do the domestic tasks you do remain undone? Do you think about domestic and family tasks? Are there times when you would need to be at work and at home at the same time?"

Therefore, this section identifies situations related to the demands of work and domestic-family work can negatively affect health and well-being, as this combination increases total work demands and hours (double exposure or double work) and the need to combine both responsibilities implies a conflict of time and both are part of the same social reality, mainly for women, and present frequent interferences in the time and moments when it is necessary to respond at the same time to the demands of both spaces.



Graphic 1 Results Section 1

For section 2, personal health and well-being, questions of self-perception of the respondent's health and well-being are included, such as the following: I get sick more easily than other people, I am as healthy as anyone else, I think my health is going to get worse, Have you been very nervous, Have you felt so low in morale that nothing could cheer you up, Have you felt calm and peaceful, Have you felt so calm and peaceful, Have you felt so low in morale that nothing could cheer you up, Have you felt calm and peaceful?

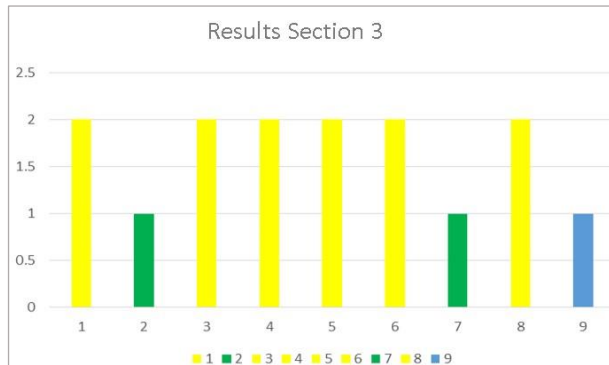
The perception of general health is a very reliable indicator and is easy to obtain and interpret in conjunction with the perception of mental health which includes depression, anxiety, behavioural and emotional control and overall positive affect. Mental health is one of the most important aspects of health and one of the central pillars of quality of life, so depending on how the student perceives it, preventive actions can be established. In this respect, one pupil out of nine (11%) requires priority attention.



Graphic 2 Results of Section 2

Section 3, current employment and working conditions, includes questions indicating or describing the department to which the learner is attached, the job position, the working hours, the number of working hours per week, the seniority in the apprenticeship position, and other questions on the conditions of the job position, e.g. do you perform tasks from different job positions, has the management or your superiors consulted you on how to improve the way you produce or perform the service, do your superiors allow you to decide how you perform your job (e.g. do your superiors allow you to decide how you perform your job? Have you been consulted by management or your superiors on how to improve the way you produce or perform the service, Are you allowed by your superiors to decide how you perform your work (methods, order of tasks, etc.), Does the work you perform correspond to your recognised pay grade or occupational group, Is the work you perform correspond to your recognised pay grade or occupational group?

This section may reflect the balance between the reward or compensation obtained in relation to the effort invested in the work. The interaction between high effort and a low level of long-term compensation represents a health risk. In addition to salary, job stability and recognition are important rewards. In the case of the evaluated students, there is no red range, however, 67% reflect an intermediate level of psychosocial exposure.



Graphic 3 Results of Section 3

Finally, in section 4, contents and demands of the learning position, questions were asked to identify the psychological demands both quantitatively, i.e. on the amount of work, which are assumed to be high when there is more work than can be done in the allotted time and are linked to the rhythm and time of work in terms of quantity and distribution. Psychological demands are also considered in terms of the type of task, which are different depending on whether you are working with people or not and for people, and therefore result in emotional demands, deriving from the interpersonal relationships associated with the work, which require specific skills that can and must be acquired.

For this section the questionnaire includes questions such as: Is the distribution of tasks irregular and does it cause work to pile up? Do you have time to keep up with your work? Does your work require you to hide your emotions? Does your work require a high level of precision? Is your opinion taken into account when tasks are assigned to you? The results show that the nine students participating in the dual model have an intermediate level of psychosocial exposure.



Graphic 4 Results Section 4

Conclusions

Psychosocial risks are part of the so-called "emerging risks", as important or more important than any of the better known or classic risks (health and safety) and how these have their origin in poor working conditions, in this case, organisational, so to answer our research questions we conclude that the students of the Dual Model are considered within the management of the working environment in companies since although they are not workers they are given a remuneration that allows them to pay some of their basic needs such as rent for a property.

It can be considered that the implications for the mental health of students participating in a Model that combines business and school are mainly the combination of domestic chores and family relationships at a distance, i.e., maintaining a double presence, resulting in an emotional burden that occurs during a period of adaptation, which turns out to be a psychosocial risk factor.

And the psychosocial risk factors in the work environment of ITSPR students participating in the Institutional Dual Education Programme are distributed in terms of their level of exposure as follows: 56% intermediate psychosocial exposure level, 36% more favourable exposure level for health and 8% more unfavourable exposure level for health.

References

- I. García del Castillo, José A., García del Castillo, Álvaro, López-Sánchez, C., Dias, Paulo C.. Conceptualización teórica de la resiliencia psicosocial y su relación con la salud Health and Addictions/Salud y Drogas. 2016, 16(1): 59-68 URI: <http://hdl.handle.net/10045/54245>
- II. OIT. (1984). Factores Psicosociales En El Trabajo: Naturaleza, incidencia y prevención. informe del comité mixto de la OIT/OMS sobre medicina del trabajo. Seguridad, higiene y medicina del trabajo Núm. 56.

- III. International Labour Office (ilo), International Programme on Safety and Health at Work and the Environment & International Occupational Safety and Health Information Centre. (2007). SafeWork bookshelf. Geneva: ilo.
- IV. ILO-OSH 2001. Directrices relativas a los Sistemas de Gestión y Salud en el Trabajo. OIT Ginebra.
- V. STPS (2019), Guía Informativa, NOM-035-STPS-2018, Factores de riesgo psicosocial Identificación, análisis y prevención, Dirección General de Previsión Social.
- VI. Secretaría de Salud Laboral y Medio Ambiente de FETE-UGT (2012), Cuestionario para la Valoración de Factores de Riesgo Psicosocial en la Enseñanza (CV-FRP). Obtenido de https://prl-sectoreducativo.saludlaboral.org/documentos/explic_metodologica_riesgo_psicosocial.pdf
- VII. Silva-Gutiérrez, B.-N., & De la Cruz-Guzmán, U.-O. (2018). Análisis de los factores psicosociales de estudiantes universitarios que trabajan. RIDE Revista Iberoamericana Para La Investigación Y El Desarrollo Educativo, 8(15), 923-945. <https://doi.org/10.23913/ride.v8i15.327>
- VIII. Blanch, Josep M., Sahagún, Miguel, & Cervantes, Genís. (2010). Estructura Factorial del Cuestionario de Condiciones de Trabajo. Revista de Psicología del Trabajo y de las Organizaciones, 26(3), 175-189. Obtenido de http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1576-59622010000300002&lng=es&tlng=es.
- IX. Tecnológico Nacional de México (2015). Manual de Lineamientos Académico-Administrativos del Tecnológico Nacional de México. Obtenido de http://www.itq.edu.mx/lineamientos/Manual_de_Lineamientos_TecNM.pdf
- X. Zelaschi, M. C., Cornelio, C., Reif, L., & Amable, M.. (2021). Validación de un cuestionario de riesgos psicosociales en población trabajadora argentina (COPSOQII-ISTAS21). Revista De Psicología, 20(2), 2-17. https://doi.org/10.24215/2422572Xe084_.