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Psychosocial risk factors impact of control and reward as perceived by medical residents

Factores de riesgo psicosociales impacto del control y recompensa desde la percepción de residentes médicos

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ABSTRACT

Objective: To analyze the perception of residents to psychosocial risk factors they face throughout their academic training related to the domains of control and work rewards.

Materials and Methods: Qualitative study with phenomenological methodology, which used in-depth interview as a technique to obtain data from the elements contemplated in the Battery of Instruments for the Evaluation of Psychosocial Risk Factors of the Ministry of Social Protection of Colombia. Forty-two residents from 8 medical specialties in Barran- quilla were interviewed. The analysis of the information obtained was interpreted based on Schütz's sociological theory.

Results: A relationship was observed between workload, time and organization, with little recognition of effort. In addition, there is little attachment to the institutions and there is no stable professional and emotional bond due to the low perception of self-fulfillment in the exercise of their work.

Conclusions: The control and reward domains are conjectured as frequent problems in the field of medical residencies. If there is no control of the functions, participation in decision making and in the functioning of the institution, and if there are few opportunities to demonstrate mastery in the acquired responsibilities, the perception of well-being is implicated.

Keywords: medical residency, control, reward, hierarchy, mental health (MeSH).

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RESUMEN

Objetivo: Analizar la percepción de los residentes a factores de riesgos psicosociales a los que se enfrentan a lo largo de su formación académica relacionados con los dominios de control y recompensas del trabajo.

Materiales y métodos: Estudio cualitativo con metodología fenomenológica, que utilizó la entrevista a profundidad como técnica de obtención de los datos a partir de los elementos contemplados en la Batería de Instrumentos para la Evaluación de Factores de Riesgo Psi- cosocial del Ministerio de Protección Social de Colombia. Se entrevistó a 42 residentes de 8 especialidades médicas en Barranquilla. El análisis de la información obtenida se interpretó a partir de la teoría sociológica de Schütz.

Resultados: Se observó relación de la carga de trabajo, tiempo y organización con el poco reconocimiento al esfuerzo. Además, existe poco apego con las instituciones y no hay vín- culo profesional y emocional estable debido a la baja percepción de autorrealización en el ejercicio de su trabajo.

Conclusiones: Los dominios "control" y "recompensas" se conjeturan como problemáticas frecuentes en el ámbito de las residencias médicas. Si no hay control de las funciones, parti- cipación en la toma de decisiones y en el funcionamiento de la institución, y si existen pocas oportunidades de demostrar el dominio en las responsabilidades adquiridas, la percepción de bienestar se ve implicada.

Palabras clave: residencia médica, control, recompensa, jerarquía, salud mental (DeCS).

INTRODUCTION

Residents of medical specialties regularly face psychosocial risk factors (work stressors) in general working conditions, which are reflected in their mental health, evidenced in the form of depression, anxiety, fatigue and/or emotional disconnection, social isolation, among others (1).

Mental illness, considered worldwide to be responsible for 32.4% of the years lived with a disability (YLD), generates significant impacts in the workplace with the presence of depressive symptoms and anxiety disorders; in 2019 the World Health Organization (WHO) listed burnout as an "occupational phenomenon" in the eleventh version of the International Classification of Diseases (ICD) (2).

According to the risk factors identified as a priority in Colombia, exposure to psychosocial risks at work is in second place, with an increase of 43% (3).

On the other hand, the pandemic caused by the SARS CoV-2 virus has generated a global emergency that transformed health care and has had a great impact on the mental health of medical professionals, as many of them were redirected to the Covid-19 response (4).

In the context described, it is possible to indicate that psychosocial factors in specialty resident physicians emerge from daily interaction, inequalities between years of residency (hierarchies), little collaboration, little time and control to develop all activities, among others (5, 6, 7).

Joiner and collaborators, cited by MacFarland (8), have described suicidal behavior in physicians as "a perceived burden" derived from feeling an obligation to work for others or not wanting to take time for rest, a frustrated sense of not being included in the overvalued social group of physicians.

This publication is part of a macro-study called "Work scenarios, psychosocial conditions and mental health. The case of the training of medical specialists in Latin America (2019 - 2022)", and the analysis of the domains of control and work rewards with their corresponding dimensions was considered, based on the Battery of Instruments for the Evaluation of Psychosocial Risk Factors (9) of the Ministry of Social Protection of 2010, which contains other dimensions (work demands, leadership and social relations at work) that were not part of this study. Regarding the domains or dimensions chosen, this battery refers to "control" when the individual has a margin of decision over his activities in terms of order, quantity and pace. In addition to opportunities for the development and use of skills, participation in the processes of change and a clear definition and implementation of their role, and of course, access to necessary or ongoing training.

Regarding the "rewards" domain, the Colombian battery refers to the feeling of pride and perception of job stability, as well as the rewards obtained by the individual for the effort made.

The demand-control-social support (DCAS) model of Karasek, Johnson and Theorell (10) describes the structural characteristics of work related to the possibility of making decisions and using one's own capabilities.

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The perception of low sense of belonging and lack of recognition in practice scenarios are addressed from Herzberg's theory(11), which states that good feelings towards work, besides being short-lived, depend on specific achievements and the recognition of those achievements(11, 12).

The purpose of this study is to analyze the perception of residents to psychosocial risk factors that they face throughout their academic training related to the domains of control and work rewards, using as support the study domains of the Colombian battery of instruments for the evaluation of psychosocial risk factors, and formulating questions, based on the subcategories of this battery, on the behavior, attitude and perception of the interviewees.

MATERIALS AND METHODS

Study framed in the qualitative paradigm, with phenomenological methodology in residents of medical specialties in the city of Barranquilla, which allowed the description and interpretation of the experiences lived by medical residents. This methodology was chosen because it considers the ethics to develop coherent and exhaustive procedures to obtain data, which would be difficult to access by other research methods. Content analysis under the DCAS model and Herzberg's theory was applied to 42 in-depth interviews, because it was necessary to obtain first-hand information about the interviewees' experiences, which, in an atmosphere of security and trust, could be concrete, sincere and honest answers. The in-depth interview had to be structured in such a way as to make known the hypothesis and the objectives of the research, including an introduction in which the purpose, structure and scope of the research would be made known. These interviews were recorded and transcribed; this was done taking into account the frequency with which references were made to specific topics, as follows: 1) Each interview was transcribed verbatim to organize them into 42 main documents. 2) Theoretical codes were defined and organized for the consequent coding of the data. 3) The content of the discourse in the main documents or units of analysis was searched, selected and filtered in order to preserve the relevant content, similarities and differences were found in the testimonies, which allowed differentiation of the discourse and identification of particular aspects related to the control and rewards of the residents' work. The typification of the data obtained and the analysis of the information through systematic observation made it possible to ask the questions without modifying the participants' answers. 4) Description of the categories of analysis by domain and dimension; in this case the selected categories of the domain control and rewards, of which the dimensions and sub-dimensions

were specified, to later make the corresponding interpretation with the support of the software NVivo® version 12, licensed by the Universidad Simón Bolívar, which allows qualitative analysis and the handling of large volumes of data. Textual and multimedia data analysis using directional coding was used for this study. 5) Writing and presentation of the final manuscript of the study.

The participants were part of a heterogeneous sample with aspects common to the year of residency of eight medical specialties (critical medicine and intensive care, psychiatry, neurology, internal medicine, neurology, plastic surgery, pediatrics, gynecology and obstetrics). One or two residents from each year of residency who were enrolled and active in a specialty were invited; this was done randomly, and the only inclusion criterion was belonging to a medical specialty. No criteria related to age, sex, year of residency or type of medical specialty were considered (see Table 1).

Table1. Distribution of study participants

Medical Specialty	Number of residency participants	Participants per year of residence			
		I	II	III	IV
Plastic, Reconstructive and Aesthetic Surgery (ERCP)	7	2	2	1	2
Critical Medicine and Intensive Care (MCCI)	5	1	1	2	1
Internal Medicine (IM)	4	1	2	1	
Gynecology and Obstetrics (G)	6	2	2	2	
Psychiatry (PH)	4	2	0	2	
Neurology (UN)	8	2	2	2	2
Pediatrics (P)	6	2	2	2	
Nephrology (N)	2	1		1	

Source: Data taken from the lists of those enrolled in the postgraduate programs of medical specialties of the participating higher education institution (HEI).

This research responds to the ethical considerations of the Declaration of Helsinki and Resolution 8430 of 1993; to the aspects related to Resolution 2404 of 2019 (13), by means of which the Battery of Instruments for the Evaluation of Psychosocial Risk Factors is adopted. Prior to the application of the interview, each participant was asked to sign an informed consent form and to authorize the recording of the interview. The study was approved by the Ethics Committee of the Universidad Simón Bolívar de Barranquilla.

RESULTS

The majority of the participants were between 27 and 34 years of age; the group was predominantly female, married, and in socioeconomic strata 3 and 4 (see Table 2).

Table 2. Sociodemographic data of the interviewees

Year of residence	I		II		III		IV	
Features	**Frec***	**%**	**Frec***	**%**	**Frec***	**%**	**Frec***	**%**
Age								
27-34	9	90	9	60	10	83,3	3	60
35-42	1	10	6	40	2	16,7	2	40
Sex								
Female	6	60	7	46,7	7	58,3	2	40
Male	4	40	8	53,3	5	41,7	3	60
Marital Status								
Divorced	0	0	2	13,3	1	8,3	3	60
Married	4	40	6	40	3	25	1	20
Single	6	60	6	40	6	50	1	20
Free union	0	0	1	7,7	2	16,7	0	0
Socioeconomic stratum								
1 y 2	0	0	0	0	2	16,7	0	0
3 y 4	8	80	11	72,3	5	41,7	4	90
5 y 6	2	20	4	27,7	5	41,6	1	10

*Freq: frequency'.

Source: based on the results of the research.

The category of *control and autonomy at work* had 663 testimonies; that is, the voices of the participants in which they expressed their perception. All the times that the category was implied or mentioned in the discourse of the participants (including all its domains). The domain of *organization of time to perform their work* was the greatest concern, as they did not have adequate time to

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perform their duties fully, mostly reflected in first-year residents in the specialties of neurology, plastic surgery, critical care medicine and psychiatry.

The second and fourth year neurology interviewees expressed that the limited time they have to organize and accomplish a day's tasks, added to the lack of clarity about their role within the institutions where they rotate, has affected the rhythm of their work and, therefore, hinders their effectiveness as workers.

The plastic surgery residents agreed that the workload and pace of work is exhausting, they have little clarity of their functions. The sense of belonging and adherence in the rotation setting is low and they perceive little professional self-realization in a superior learning environment, a perception common to all first and second year residents of the participating specialties.

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Table 3. Definition of the construct, domains investigated, categorization of dimensions and sub-dimensions, number of times it is cited.the subdimension by specialization

Construct	Domain	Dimension	Subdimension	No. of references per YR*				
				R1	R2	R3	R4	T
Intralabor Factor	Control	Control and autonomy about the work [259] 39.1%	Quantity, pace and order of how to perform your work (control of it)	35	24	12	8	79
			Organization of the time for the realization of their work (control for it)	48	35	15	14	112
		Opportunities for development and use of skills and abilities [81] 12.2%	There is little opportunity to acquire knowledge or develop new skills	3	4	1	2	10
			Very little can apply knowledge and skills that you already possess	8	4	3	4	19
			Must effectively perform tasks in which he/she does not know or has not developed skills	3	2	N/H*	N/H*	5
		Participation and management	Receives information about changes in procedures, treatments, activities, etc.	N/H*	2	N/H*	N/H*	2
		change management [64] 9.7	Receives information about changes in the institution that could affect the continuity of his or her education.	N/H*	N/H*	N/H*	1	1
			Not having clear objectives or goals that are required of it	3	N/H*	2	2	7
		Role clarity [209] 31.5 %	Lack of clarity of the functions to be performed	61	26	6	7	100
			High degree of responsibility	8	3	1	1	13
			Possible limits of autonomy	N/H*	N/H*	N/H*	N/H*	0
			Responsibility and repercussions of your actions in the management of the patient.	47	33	31	10	121
		Training [50] 7.5	Attend job-related training	15	13	18	4	50
			Receive useful training to perform their work	15	13	18	4	50
Intralabor Factor	Reward	Recognition and compensation [103] 49 %	The MR* does not receive recognition for the work he/she performs	5	3	4	1	13
			The MR* feels that his hierarchical superiors distrust his abilities to perform the tasks assigned to him.	5	3	2	1	11
			The MR* feels that the economic emolument he/she receives does not correspond to the effort he/she makes.	1	5	4	N/H*	10
			The MR* does not perceive well-being for what it does	5	7	5	1	18
			The MR* does not foresee any possibility of development	2	4	1	N/H*	7
		Rewards derived from membership in the organization and the work performed [107] 51%	The MR* does not feel pride in belonging to the institution	26	33	40	8	107
			The MR* does not feel self-fulfilled in the performance of his job.	9	4	10	2	25

*MR= Medical Resident *YR= year of residency *NH= Not available *T=Total

Source: table elaborated from the data collected in the interviews conducted in this research and the measurements based on the Battery of Instruments for the Evaluation of Psychosocial Risk Factors (BIEFRP), focused on the domain of leadership and social relations.

In the subdimension responsibility and repercussions of their actions in patient management, first-year residents feel that they have the greatest burden of responsibility and unfairly greater repercussions in their actions; they believe that this is because they are assigned a great workload and when something goes wrong all the responsibility for the damage falls on their work and their name; participants were identified by the number of the interviewee, according to the coding done in the Nvivo software, year of residency, sex and the acronym of their medical specialty:

> [...] the night shifts we have the whole service, but in hospitalization there is only one round and sometimes things happen and sometimes they want you to answer for that too. Sometimes things happen and sometimes they want you to answer for that too. You have to keep quiet, because the R major is going to tell you that you solve it (8.1.M.G).

It was found that the greatest puzzle is among the third-year residents (at the general level), who express that they feel little support at the educational level from the health care institutions where they rotate:

> [...] maybe with a little more d, then it would be great (very good, excellent), so that they can contribute with the experience they already have (20.1.F.MI).

It can be said that as the year of residency progresses, the less training they receive, as part of the training process they are undergoing.

Cooccurrences were found for several domains (see Table 4) with reference to the number of coincidences found between two subdimensions in two or more medical specialties per year of residency.

In the subdimensions *quantity*, *rhythm and order of how to perform their work* and *not experiencing pride in belonging to the institution*: it could be considered a psychosocial risk factor for first-year residents in specialties such as neurology and psychiatry, due to the burden or obligation to contribute to improving pathologies and problems related to the brain, in many cases without the necessary recognition, which is reflected in the testimonies as the little support received by the institution and superiors, the little instruction to perform their work, generate feelings of little adherence and sense of belonging.

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Table 4. Subdimensions considered as a psychosocial risk factor organized by highest number of co-occurrence by year of residence, testimonials

Co-occurring subdimensions	Year of residence	Specialty	N° of co-occurrences
		Neurology	
Quantity, pace and order of how to perform their work (control of it) / The MR* does not feel pride in belonging to the institution.	I	Critical Medicine and Intensive Care and Intensive Care Nephrology Psychiatry	35
The MR* does not feel self-fulfilled in the performance of his job/Unclear job responsibilities	II	Plastic, reconstructive and aesthetic surgery Gynecology and obstetrics	37
	III	Pediatrics Internal medicine	21
Attending job-related training/ The MR* feels that his/her superiors distrust his/her ability to adequately perform the tasks assigned to him/her.	I	Internal Medicine Pediatrics Plastic, reconstructive and aesthetic surgery	23

*MR= medical resident

Source: table based on data collected during the research.

The resident physicians interviewed have been affected by psychosocial factors in the work scenarios, since in all specialties and years of medical residency, more than one co-occurrence between the workload expressed in time and organization was reflected. They also expressed that the assignment of responsibilities according to the year of residency should be considered, considering that the negative repercussions or consequences of their actions are seen as "lack of concentration, poorly spent time, negligence and poor adherence to the assigned cases".

When moving to the second year, the residents in common of all specialties perceived the lack of previous theoretical and conceptual deepening, necessary for the optimal performance of the following year's competencies; the above, according to the interviewees, would have facilitated the process of adaptation to the assigned functions, having clarity of their role within the health

care institution in accordance with the rights, duties and functions declared by Law 1917 of 2018 (14), through which the system of medical residencies in Colombia is regulated. They also expressed that, not having satisfactory experiences in health institutions, they did not feel attachment or interest in creating labor and professional link with the entity, which translates in continued migration of health professionals and the lack of specialized human talent to meet the health needs of the population.

DISCUSSION

According to Karasek and Johnson's DCAS model (1986), and in relation to the control domain, "stress does not depend so much on the fact of having many demands, but on not having the control capacity to resolve them"; this is associated with the residents' account of the little support they found in their superiors to make decisions, due to the heavy workload and the little time to carry out all the activities of the day.

Also, control is associated with the knowledge of changes, advances, and novelties in their area of medical specialty; residents feel gaps in their professional training due to the lack of constant training and see this reflected in the mistakes they sometimes make and in their lack of initiative to perform procedures.

According to Herzberg's theory, training should be oriented to emotional and intellectual growth and, on the other hand, to avoid suffering or pain (15); this is neither being considered, and therefore generates deterioration of physical and mental health, manifested in a general way in all specialties and to a great extent in first-year residents.

When comparing the correspondence between the control and reward domains, it is found that some studies relate these domains to psychosocial work factors (demand-control and effort-reward imbalance), while others only focus on relating them to stress and are based on the job-illness relationship without considering other psychosocial factors (16).

The interpretation and co-occurrence of these domains through the discourse of the residents allows interpretations to be made from the preventive approach and to highlight situations that had not been considered until now, which hinder the resident's work and have an impact on the deterioration of mental health, as well as psychosocial processes.

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The phenomenological methodology allowed us to understand the experiences of these professionals in training and to find out which factors were being perceived as a risk to their well-being, addressing these risks from the perspective of the demands of control and rewards. The content analysis made it possible to measure the clarity of the communication by identifying the characteristics of the resident physicians interviewed and also to compare the content of what they expressed (17).

Calnan and collaborators (18) found that effort is measurable, and that the comparison made between effort and reward is for predictive purposes to explain perceived work stress and distress; however, it is not a variable that adds up with subdimensions such as participation and training, which in the present research are shown to be a possible risk factor.

On the other hand, Argentina is one of the countries where the psychosocial factors that affect the health of resident physicians in one way or another have been studied the most. A study carried out in 2010 in the province of Mendoza (19) aimed to "understand the work process as a determinant of workers' health, seeking the relationships between the health-work process that determine the appearance of specific occupational risks and pathologies", in this process, the dimensions covered were: Emotional Exhaustion, Depersonalization and Personal Accomplishment. As for the theoretical reflection that would explain the problem, it was based on the demand-control-social support model, and the incidence on stress factors, changes in work and work organization, work and its relationship with health, and changes in the medical profession. However, this study attributes the problems present to the stress factors inherent to the work circumstances. Our research correlates the rewards and the perception of control that would have an impact on the psychosocial risk of resident physicians.

Regarding the relationship between the perception of recognition and of being well rewarded, Santamaría and Cadena (20) compare these domains with sleep and eating habits, but more related to the poor training, induction and organization by the institution where they rotate. Thus, it is possible to infer that the domains analyzed in this and other studies affect the psychosocial factors of physicians, which is very frequently observed in residents (21).

We were also able to find that the issue of control affected residents of all years; this could be due to the way in which some institutions function in terms of establishing hierarchies and roles and

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the way in which these were perceived as they advanced in years of residency, not only because of the same reasons for complaint or dissatisfaction, but also because of the lack of clarification of how the functions are handled according to the position.

CONCLUSIONS

The correspondence between the *control* and *reward* domains is identified. The residents' expressions of dissatisfaction with respect to the demands of the health units where they rotate allow us to understand that they are affected emotionally and physically, which manifests itself in little belonging to the health institutions, in the understanding that there are few opportunities for rewards or insufficient remuneration, thus decreasing motivation.

As a main feature, this study addressed control as a motivation and belonging as an outcome, factors that had not previously been explored together in the models chosen.

The studies showed little overlap of psychosocial factors and the relationship with the control and reward domains, as they had been explored in other operational and administrative areas, but not as thoroughly in the context of resident physicians in a medical specialty.

Considering that intense work demands, limited control, and a high degree of interference between work and home prevail in medical residency programs, it would be useful to advance in the comparison of possible correspondences between some of the demands contemplated in the Colombian battery.

On the other hand, this study can serve as a basis for implementing strategies to mitigate the degree of dissatisfaction and lack of a sense of belonging between resident physicians and institutions. Based on the theoretical models used that explain the possibility that residents can make decisions and use their own capabilities, generating specific achievements and recognition of those achievements, it could also lead to a decrease in the psychosocial risk of this population.

Limitations

There are few studies that correlate intralabor conditions with each other, based on theoretical models that identify structural characteristics and feelings toward work as psychosocial risk factors; therefore, a more extensive discussion was not possible. When the sample size is taken into account, it can be considered as not making a substantial enough contribution. But by further studying the interventions made by the interviewees, in their narrative we can suggest that this is the feeling of a broad community of resident physicians.

Conflict of interest: the authors declare that they have no conflicts of interest in the preparation of the article.

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