

# EVALUATION OF PSYCHOSOCIAL RISKS IN THE CENTRAL STERILE SUPPLY DEPARTMENT OF NORTHERN BRAZIL

*Avaliação dos riscos psicossociais no centro de material e esterilização do norte do Brasil*

*Evaluación de riesgos psicosociales en el centro de material y esterilización del norte de Brasil*

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**ABSTRACT: Objective:** To analyze the level of psychosocial risks of workers at the Central Sterile Supply Department of a large hospital in Rondônia. **Method:** Cross-sectional study, including assistants, nursing technicians, and nurses, using the Copenhagen Psychosocial Questionnaire. Descriptive analyses were performed using the Stata® statistical package, version 11. **Results:** 35 workers took part in the study, most of them women, aged over 40 years old, and nursing technicians. Of the six dimensions assessed, four had a medium risk. The dimension of justice and respect presented a high psychosocial risk, and the dimension of work organization and content, low risk. **Conclusion:** The workers considered their work important and significant, but they experienced a high psychosocial risk with regard to the demand for attention and emotional demand of the activities carried out in the unit. Few were satisfied with the work, the environment, and the use of individual skills by the service. Information about psychosocial relationships is an important indicator for analyzing work situations, generating information that supports safe interventions in the work process.

**Keywords:** Psychosocial impact. Nursing, team. Sterilization.

**RESUMO: Objetivo:** Analisar o nível de riscos psicossociais dos trabalhadores do Centro de Material e Esterilização de um hospital de grande porte de Rondônia. **Método:** Estudo transversal, incluindo auxiliares, técnicos de enfermagem e enfermeiros, utilizando o questionário *Copenhagen Psychosocial Questionnaire*. As análises descritivas foram realizadas no pacote estatístico Stata® versão 11. **Resultados:** Participaram 35 trabalhadores, sendo a maioria mulheres, com idade acima de 40 anos e técnicas de enfermagem. Das seis dimensões avaliadas, quatro tiveram risco médio. A dimensão sobre justiça e respeito apresentou elevado risco psicossocial, e a dimensão organização do trabalho e conteúdo, baixo risco. **Conclusão:** Os trabalhadores consideravam seu trabalho importante e significativo, porém vivenciavam alto risco psicossocial no que se refere à exigência de atenção e exigência emocional das atividades desenvolvidas na unidade. Poucos estavam satisfeitos com o trabalho, com o ambiente e com a utilização das habilidades individuais pelo serviço. As informações sobre as relações psicossociais constituem um importante indicador para análise das situações de trabalho, gerando informações que apoiam intervenções seguras sobre o processo de trabalho.

**Palavras-chave:** Impacto psicossocial. Equipe de enfermagem. Esterilização.

**RESUMEN: Objetivo:** Analizar el nivel de riesgo psicosocial de los trabajadores del Centro de Material y Esterilización de un gran hospital de Rondônia. **Método:** Estudio transversal, incluyendo auxiliares, técnicos de enfermería y enfermeras, utilizando el Cuestionario Psicosocial de Copenhague. Los análisis descriptivos se realizaron con el paquete estadístico Stata® versión 11. **Resultados:** participaron 35 trabajadores, en su mayoría mujeres, mayores de 40 años y técnicos de enfermería. De las seis dimensiones evaluadas, cuatro tenían un riesgo medio. La dimensión de justicia y respeto presentó un alto riesgo psicosocial y la dimensión de organización y contenido del trabajo fue de bajo riesgo. **Conclusión:** Los trabajadores consideraron su trabajo importante y significativo, pero experimentaron un alto riesgo psicosocial en cuanto a la demanda de atención y demanda emocional de las actividades desarrolladas en la unidad. Pocos estaban satisfechos con el trabajo, el entorno y el uso de habilidades individuales por parte del servicio. La información sobre las relaciones psicosociales es un indicador importante para analizar situaciones laborales, generando información que sustente intervenciones seguras en el proceso laboral.

**Palabras clave:** Impacto psicosocial. Grupo de enfermería. Esterilización.

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## INTRODUCTION

The Central Sterile Supply Department (CSSD) is the sector whose main activity is to provide safe health products (HP) for direct assistance to the user in the Surgical Center, in inpatient units, outpatient clinics, diagnostic sectors, in addition to emergency units<sup>1-3</sup>.

It is considered a critical area, as it receives HP contaminated with organic secretions from the procedures performed by the health team. The environment and work organization in this sector exposes workers to various occupational risks: biological, chemical (vapors and liquids), physical (noise, high temperature, and inadequate lighting), ergonomic (physical efforts and uncomfortable positions), and psychosocial (stress, dissatisfaction, and mental overload)<sup>4</sup>.

The work process at CSSD requires specific skills and competences from workers at a very fast production pace and with physical and mental demands. In addition to the environment and work process, other factors can potentialize psychosocial problems among workers, such as management support and relationships between colleagues and with the technician responsible for the sector<sup>5</sup>.

A systematic review on exposure to psychosocial risk factors in work contexts analyzed 22 articles that used the *Copenhagen Psychosocial Questionnaire* (COPSOQ) to measure psychosocial factors. The findings showed an influence between individual, work-related, and psychosocial risk factors regardless of the risk exposed. All workers included in the studies showed losses in relation to their mental health and physical well-being<sup>6</sup>.

A study conducted at the CSSD of a university hospital in Rio de Janeiro, with 34 professionals, pointed out that the physical environment, the process, and the organization of work in the sector were directly related to the physical and emotional exhaustion of the professionals<sup>7</sup>. Respondents reported being subjected to work conditions that caused stress and decreased concentration and attention, resulting in migraine, high blood pressure or gastric ulcer<sup>7</sup>. Another study carried out in a public hospital in the state of São Paulo, with 63 professionals, showed that the main psychosocial factors that trigger stress and illness in the CSSD are: high demand for work, relationship between team members, management support,

low recognition, and a stigmatized view of the sector for not working directly on patient care<sup>5</sup>.

In the previous literature review, there were no studies on the subject in the Amazon region. The Brazilian Amazon consists of nine states, which occupy 61% of the country's territory, housing 12% of the population, which faces several public health, social, and economic problems<sup>8</sup>. The health institution where the study was conducted has the challenge of processing HP with the same quality standard as any other institution, but with structural and work process problems peculiar to a region far from the major technological and professional training centers.

## OBJECTIVE

To analyze the level of psychosocial risks of health workers who work at the CSSD of a public general hospital in Rondônia.

## METHODS

This is a cross-sectional study, carried out at the CSSD of a public tertiary-level hospital, large and state reference in the provision of public health care in Rondônia — however, it receives users from Amazonas, Acre, and Bolivia<sup>8</sup>. It serves the specialties of neurosurgery, oncology, orthopedic surgery, corneal, and kidney transplantation, general surgery, and bariatric surgery. It is the only public hemodynamic service in the state as well as the only public health care establishment that provides care in the Neonatal Intensive Care Unit<sup>9</sup>.

The studied CSSD is classified as Class II, according to the Resolution of the Collegiate Board of the National Health Surveillance Agency No. 15 of 2012<sup>3</sup>. The processed HP are used in the different units of the hospital. This CSSD is a reference in the stage of HP sterilization of other local institutions when they present operational difficulties in the stage of sterilization.

The dimensioning of personnel was observed by the scales of monthly services, with the average of eight mid-level nursing professionals and one higher-level nursing professional, exclusive to the sector, in a 12-hour day. 41 workers directly in the processing of HP were identified,

## RESULTS

including nurses, technicians, and nursing assistants, and all were invited to participate in the study. Those who were present in the sector during the collection period were included and those on sick leave, vacation or premium leave were excluded.

Of the total number of CSSD workers, 35 took part in the study, 29 of which were nursing assistants and technicians and 6 nurses. Six were excluded because they were on sick leave or vacation during the period of data collection, carried out between March 2016 and April 2017.

Two questionnaires were used: the first addressing sociodemographic, occupational and lifestyle aspects of the participants, with 19 open and closed questions, based on the instrument proposed by Santos<sup>10</sup>; the second was the COPSOQ questionnaire, translated and adapted by Silva et al.<sup>11</sup>, containing 26 items, with six dimensions:

- labor requirements;
- social relations and leadership;
- organization of work and content;
- work-individual interface;
- justice and respect;
- general physical health.

Each item contained five response alternatives, with a maximum score of five and a minimum of one point, with the final risk obtained by averaging the item's responses (Chart 1).

Quantitative analysis was performed using the Stata<sup>®</sup> software, version 11. Data were entered and stored in Microsoft Excel<sup>®</sup>, and absolute and relative frequencies and measures of central tendency (mean and standard deviation [SD]) were calculated.

This study was approved by the Research Ethics Committee of *Universidade Federal de Rondônia*, under approval opinion 1.849.750.

Among the 35 study participants, a mean age of 48 years was obtained (SD = 9.43). Most participants had the following characteristics: female gender (77.1%); belonging to the auxiliary and technical nursing categories (82.9%); family income of up to four minimum wages (60.0%); training time over ten years (74.3%); length of service in the sector for more than five years (40.0%); on-call regime adding up to 40 hours a week (94.9%); only one job (60.0%); execution of only the function to which they were assigned in the CSSD (85.7%). Approximately half the professionals work in the areas of preparation and sterilization of HP (48.6%), and 20.0% of them frequently work overtime (Table 1).

For most workers, the break time in the workday is less than 30 minutes (62.9%), and the distribution of the period was variable according to the shift period. Just over half of the participants do not exercise (54.3%), 22.9% are former smokers, and 5.7% still smoke. As for the Body Mass Index, the majority presented the categories overweight or obesity (Table 2).

Regarding psychosocial risks, in general, the analysis made through COPSOQ showed that most dimensions were classified as medium risk. The justice and respect dimension was considered to be of high risk, and the organization of work and content, of low psychosocial risk for the participants (Table 3).

In this analysis, high risks were found in the following categories:

- Work, self-emotional (mean=3.94; SD=1.21), and cognitive demands, with regard to the need for constant attention in the execution of the work (mean=4.82; SD=0.71);
- Social relationships and leadership, with regard to the fact that colleagues are not open to hearing about work problems (mean=3.71; SD=0.99);

**Chart 1.** Alternative responses, scores, and categories of the level of psychosocial risk.

Answer alternatives	Score Questions 1 to 8 and 22	Score Questions 9 to 25, except 22	Categories/mean
Always	5	1	High risk: greater than 3.67 Medium risk: 2.35 to 3.66 Low risk: less than 2.34
Often	4	2	
Sometimes	3	3	
Rarely	2	4	
Never	1	5	

Source: adapted from Silva et al.<sup>11</sup>.

**Table 1.** Sociodemographic and occupational profile of the professionals participating in the research, who work at the Central Sterile Supply Department (n=35).

Characteristic	N	%	Characteristic	N	%
Gender			Occupation area		
Female	27	77.1	Reception and cleaning area	10	28.6
Male	08	22.9	Preparation and sterilization area	17	48.6
Professional category			Storage area	08	22.8
Nursing assistant/technician	29	82.9	Other functions at the Central Sterile Supply Department		
Nurse	06	17.1	No	30	85.7
Age range (years)			Yes	05	14.3
26 to 30	02	5.7	Working hours		
31 to 35	02	5.7	On duty	29	82.9
36 to 40 years	05	14.3	Daily regimen	06	17.1
41 to 45	06	17.2	Hourly load in the sector (hours)		
46 to 50	02	5.7	≤40	33	94.9
over 50	18	51.4	>40	02	5.1
Family income * (minimum wage)			More than one job		
0-4	21	60.0	No	21	60.0
5-10	09	25.7	Yes	14	40.0
>10	05	14.3	Often works overtime		
Time of profession (years)			No	28	80.0
0-4	03	8.6	Yes	07	20.0
5-9	06	17.1	Break period		
≥10	26	74.3	Morning	12	34.3
Time at the Central Sterile Supply Department (years)			Afternoon	09	25.7
0-4	10	28.6	Night	14	40.0
5-9	14	40.0	Break duration (minutes)		
≥10	11	31.4	≤30	22	62.9
			>30	13	37.1

\*Minimum wage in Brazil in 2017=R\$ 937.00, according to the Inter-Union Department of Statistics and Socioeconomic Studies<sup>12</sup>.

**Table 2.** Lifestyle of the professionals participating in the research, who work at the Central Sterile Supply Department (n=35).

Characteristic	N	%
Physical exercise		
No	19	54.3
Yes	16	45.7
Smoking		
No, never smoked	25	71.4
No, former smoker	08	22.9
Yes	02	5.7
Body Mass Index		
Low weight	-	-
Eutrophic	10	28.6
Overweight	15	42.9
Obesity I	08	22.9
Obesity II	-	-
Obesity III	02	5.6

- Justice and respect, regarding the feeling of belonging to a community (mean=4.00; SD=1.37).

Items considered as low risk were:

- Social relations and leadership, in terms of help and support from co-workers (mean= 2.25; SD=0.95);
- Organization of work and content, with regard to the meaning of work for oneself (mean=1.86; SD=0.49) and the feeling that work is important (mean=1.82; SD=0.45).

The participants' perception of their general health was classified as good (mean=3.00; SD=1.03), but one participant considered his health to be excellent, and three as deficient.

**Table 3.** Level of psychosocial risks of the professionals participating in the research, who work at the Central Sterile Supply Department (n=35).

Characteristic	Always		Often		Sometimes		Rarely		Never		Mean (SD) / Level of risk
	N	%	N	%	N	%	N	%	N	%	
<b>Work demands</b>											<b>3.23 (0.83) medium</b>
Quantitative											
1. Poorly distributed workload	02	5.71	07	20.00	10	28.57	07	20.00	09	25.71	2.60 (1.24) medium
2. Not enough time to complete all tasks	08	14.29	01	2.86	07	20.00	14	40.00	08	22.86	2.46 (1.29) medium
3. Need to work overtime	07	20.00	08	22.86	11	31.43	02	5.71	07	20.00	3.17 (1.38) medium
Work pace											
4. Need to work very quickly	04	11.43	05	14.29	09	25.71	07	20.00	10	28.57	2.60 (1.35) medium
Emotional											
5. Self-emotional demand	16	45.71	08	22.86	05	14.29	05	14.29	01	2.86	3.94 (1.21) high
Cognitive											
6. Requires constant attention	32	91.43	02	5.71	-	-	-	-	01	2.86	4.82 (0.71) high
7. Work requires one to be good at proposing new ideas	10	28.57	12	34.29	05	14.29	06	17.14	02	5.71	3.63 (1.24) medium
8. Work requires one to make difficult decisions	03	8.57	05	14.29	11	31.43	10	28.57	06	17.14	2.68 (1.18) medium
<b>Social relations and leadership</b>											<b>3.08 (0.58) medium</b>
Social support from colleagues											
9. Has help and support from co-workers	09	25.71	11	31.43	12	34.29	03	22.86	09	25.71	2.25 (0.95) low
10. Colleagues hear about their work problems	05	14.29	05	14.29	11	31.43	09	25.71	05	14.29	3.71 (0.99) high
11. Colleagues talk about their work performance	-	-	04	11.43	11	31.43	11	31.43	09	25.71	
Social support from superiors											
12. Immediate superior talks about one's work	05	14.29	03	8.57	8	22.86	12	34.29	07	20.00	3.37 (1.31) medium
13. Has help and support from one's immediate superior	10	28.57	07	20.00	9	25.71	08	22.86	01	2.86	2.51 (1.22) medium
14. Immediate superior talks about one's job performance	04	11.43	03	8.57	5	14.29	17	48.57	06	17.14	3.51 (1.22) medium
<b>Work organization and content</b>											<b>2.17 (0.58) low</b>
Meaning of work											
15. One's work is meaningful	07	20.00	26	74.29	02	5.71	-	-	-	-	1.86 (0.49) low
16. One feels their work is important	07	20.00	27	77.14	01	2.86	-	-	-	-	1.82 (0.45) low
17. Feeling motivated and involved with work	01	2.86	12	34.29	13	37.14	09	25.71	-	-	2.85 (0.84) medium
<b>Work-individual interface</b>											<b>2.73 (0.33) medium</b>
Job satisfaction											
18. Satisfied with job prospects	01	2.86	18	51.43	13	37.14	03	51.43	-	-	2.51 (0.70) medium
19. Satisfied with work in a global way	02	5.71	07	20.00	15	42.86	11	31.43	-	-	3.00 (0.87) medium
20. Satisfied with the physical conditions of the place	02	5.71	15	42.86	17	48.57	01	2.86	-	-	2.48 (0.66) medium
21. Satisfied with the way one's skills are used	-	-	06	17.14	17	48.57	12	34.29	-	-	3.17 (0.71) medium
Job insecurity											
22. Being worried about becoming unemployed	13	37.14	07	20.00	02	5.71	10	28.57	03	8.57	2.51 (1.46) medium

Continue...

**Table 3.** Continuation.

Characteristic	Always		Often		Sometimes		Rarely		Never		Mean (SD) / Level of risk
	N	%	N	%	N	%	N	%	N	%	
<b>Justice and respect</b>											<b>3.69 (0.27) high</b>
Social community at work											
23. There is a good working environment between one and their colleagues	-	-	05	14.29	13	37.14	09	25.71	08	22.86	3.57 (1.00) medium
24. There is good cooperation between co-workers	-	-	04	11.43	15	42.86	10	28.57	06	17.14	3.51 (0.92) medium
25. Feeling of belonging to a community when in the workplace	02	5.71	06	17.14	2	5.71	05	14.29	20	57.14	4.00 (1.37) high
<b>Overall health</b>											<b>3.00 (1.03) medium</b>
	<b>Excellent</b>	<b>%</b>	<b>Very good</b>	<b>%</b>	<b>Good</b>	<b>%</b>	<b>Mild</b>	<b>%</b>	<b>Poor</b>	<b>%</b>	
26. Overall health	01	2.86	12	34.29	11	31.43	08	22.86	03	8.57	<b>3.00 (1.03) medium</b>

SD: standard deviation.

## DISCUSSION

The results of the study showed that psychosocial risks influence the work process in the CSSD and, consequently, predispose workers to conditions of illness. In the literature review of the theme, there is a lack of studies carried out in the Amazon on the psychosocial factor, given the peculiarity of the work process at the CSSD, focused on the HP production system with a work organization based on a fragmented socio-technical division.

The socio-demographic and professional profile of the participants was female, aged over 50 years old and with medium-level positions (Table 1). These data corroborate the profile of a worker commonly assigned to the CSSD, that is, professionals about to retire, who are more likely to feel unmotivated, have physical and emotional stress<sup>4,5,13</sup>. In addition, the female gender seems to be a precursor to higher levels of stress and old age is a risk factor for heavier tasks, with regard to resistance and resilience<sup>6</sup>.

Most had family income of up to four minimum wages, worked on duty regimen, 40.0% had more than one job, and 20.0% worked overtime frequently (Table 1). More than one job or extra jobs can bring financial compensation, but many hours of work can lead to overload and strenuous hours, interfering in work processes and contributing to the illness of workers<sup>13,14</sup>. The break period during the activities was conditioned to the number of workers scheduled for the day and the demand for receiving HP for processing. A study on ergonomic risks in the CSSD, carried out in a public hospital in Piauí, showed that staying in the same body posture

without pauses for a long time causes, in addition to musculoskeletal disorders, psychological disorders<sup>15</sup>.

Other psychosocial risks related to long working hours are: decreased attention span, concentration, perception and decision-making; development of stress; anxiety, depression, and apathy; substance abuse, such as alcohol, tobacco, and other drugs<sup>6,7</sup>. Exposure to these risks raises the stress level of workers and, as a consequence, can lead to the use of substances such as alcohol and tobacco. It also triggers physiological aspects, such as neuroendocrine and immunological reactions, which can be associated with weight gain and less willingness to practice physical exercises<sup>6</sup>. These three factors are risks for cardiovascular disease and interfere with general health.

In addition to life habits, stressful daily work helps workers to consume a more caloric diet than the body needs, which is generally low in fiber and nutrients, which can be related to overweight or obesity. In Rondônia, most workers were overweight (Table 2); less than half practiced physical exercises; 22.9% had been smokers; 5.7% reported smoking.

In the dimension of work demands, the highest mean for psychosocial risk was found in the item demand for constant attention during work and, in this same dimension, high risk in the item self-emotional demand (Table 3). This high demand for attention is mainly due to sophistication, the new conformations of the HP and technological advances in sterilization methods and surgical approaches<sup>16</sup>.

Social relationships and leadership had a medium risk for psychosocial problems (Table 3). Low risk was found for the

help of colleagues and high risk for the item colleagues heard about their work problems, and 57.14% of the participants indicated that they rarely or never had a dialogue about their work performance. This absence of dialogue on work performance by management may be related to the devaluation of the work performed in the sector compared to those who provide direct assistance to the patient. However, the final product of the activities carried out at the CSSD contributes to the continuity of health care throughout the care chain<sup>4</sup>.

In Rondônia, a low psychosocial risk was found for the dimension of work organization and content. Work was rated as significant and important for most workers, and most participants indicated that they had help from their colleagues (Table 3).

The work-individual interface dimension had a medium psychosocial risk. More than half of the professionals expressed concern about their permanence in the job, which can be explained by the temporary employment contract of some. Less than half of the workers were generally satisfied with their work and with the conditions of the environment, and only 17.1% were satisfied with the way their capacities were used in the sector. A study conducted in ten public hospitals in São Paulo and a private hospital in Belo Horizonte (Minas Gerais), with 463 participants, found that the meaning of work for those professionals was the possibility of professional valorization and socioeconomic improvement, and the professionals of the private hospital showed greater emotional commitment to their work, due to the instability of the employment relationship<sup>17</sup>.

In the social community of work dimension, almost half of the workers indicated that the work environment is rarely or never good, and, in terms of cooperation between colleagues, slightly less than half indicated that there is rarely or never good cooperation (Table 3). This shows a probability of relational conflicts in the work environment, which can cause stress and psychological wear and tear on workers. Corroborating this finding, a study carried out in a university hospital in the state of São Paulo, with 63 participants, concluded that the main psychosocial factors in the CSSD studied are the high demand for work, aggravated by absenteeism from colleagues, by working in a closed environment and without communication with other sectors, and the devaluation of work by other hospital professionals<sup>5</sup>.

In general, there was a medium psychosocial risk (Table 3), but high risk in the dimension of justice and respect,

in the feeling part of the community item. In other words, the study workers did not feel part of a group, which is essential for collaborative work and is opposed to the activities proposed in the CSSD.

In addition, in the domain of social relations and leadership, there was a high risk in the item that assessed how receptive colleagues are to hearing the individual's problems at work. Teamwork is vital in this activity, since the processes are sequential and summative, and the repercussion in the case of failures can generate serious damages.

As a limitation of the study, the failure to assess the implications of psychosocial relationships and possible outcomes in the health-disease process of CSSD workers is considered.

## FINAL CONSIDERATIONS

In this study, workers considered their work important and significant, but they experienced a high psychosocial risk with regard to the demand for attention and the emotional demand of the activities developed at the CSSD. Few of them were satisfied with the work, the environment, and the use of individual skills by the service.

Information about psychosocial relationships is an important indicator for understanding the work process in the CSSD. The way this group is looked at needs to be rethought by health care managers and organizations, as understanding the work processes in the CME dynamics contributes to an organization that is not only focused on the product, but that considers workers to be determining subjects for the best quality of HP processing.

Psychosocial risks presented and reflected unwanted conditions for the present and for the future of a practice focused on patient safety and the prevention of infections related to health care and free from adverse events.

It is considered relevant to carry out awareness-raising actions for workers' health care and to develop strategies for Permanent Education in Health, with intersectoral actions with the Center for Permanent Education and the Center for Surveillance of Worker's Health Diseases.

It is also noteworthy that the study's CSSD is a reference scenario for the teaching practices of nursing students at higher and technical levels, contributing to teaching and research related to workers' health in health institutions.

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