

WORK-RELATED MENTAL DISORDER - PERNAMBUCO, 2007-2023

*TRANSTORNO MENTAL RELACIONADO AO TRABALHO –
PERNAMBUCO, 2007-2023*

*TRASTORNO MENTAL RELACIONADO CON EL TRABAJO,
PERNAMBUCO, 2007-2023*

 Milena Stela Freire da Silva Carvalho¹ e  Patricia Michelly Santos Lima²

ABSTRACT

Work-Related Mental Disorders (WRMD) are among the cases of Work-Related Diseases and Injuries that consist of emotional distress and can indicate the development or worsening of mental disorders, which have as causal elements work-related risk factors, resulting from their organization and management or exposure to certain toxic agents. **Objective:** to evaluate the WRMD Surveillance System of Pernambuco, 2007-2023. **Methods:** evaluative study of data quality attributes (completeness and consistency) and representativeness, using the methodology of the Centers for Disease Control and Prevention (CDC), carried out with workers residing in the state who were notified as a case of WRMD in the Notifiable Diseases Information System. **Results:** the quality of the data was evaluated as satisfactory and obtained high representativeness. **Conclusion:** the evaluations had positive results, the surveillance performance should be maintained and improved.

Keywords: *Epidemiology; Occupational Health Surveillance; Mental Disorders.*

RESUMO

Os Transtornos Mentais Relacionados ao Trabalho (TMRT) estão entre os casos de doenças e agravos relacionados ao trabalho que consistem em sofrimento emocional e podem apontar o desenvolvimento ou piora de transtornos mentais, os quais têm como elementos causais fatores de risco relacionados ao trabalho, resultantes da sua organização e gestão ou por exposição a determinados agentes tóxicos. **Objetivo:** avaliar o Sistema de Vigilância dos TMRT de Pernambuco, 2007-2023. **Métodos:** estudo avaliativo dos atributos de qualidade dos dados (completude e consistência) e representatividade, utilizando a metodologia do *Centers for Disease Control and Prevention* (CDC), realizado com trabalhadores residentes do estado que foram notificados como caso de TMRT no Sistema de Informação de Agravos de Notificação. **Resultados:** a qualidade dos dados foi avaliada como satisfatória e obteve alta representatividade. **Conclusão:** as avaliações tiveram resultados positivos, deve-se manter e melhorar o desempenho da vigilância.

Descritores: *Epidemiologia; Vigilância em Saúde do Trabalhador; Transtornos Mentais.*

RESUMEN

Trastornos Mentales Relacionados con el Trabajo (TMRT) se encuentran de los casos de Enfermedades y Lesiones Relacionadas con el Trabajo, consisten en sufrimiento emocional y pueden indicar el desarrollo o agravamiento de trastornos mentales, tienen como elementos causales factores de riesgo relacionados con el trabajo, resultantes de organización y gestión o exposición a determinados agentes tóxicos. **Objetivo:** evaluar el Sistema de Vigilancia del TMRT, Pernambuco, 2007-2023. **Métodos:** estudio evaluativo de los atributos de calidad de los datos (completitud y consistencia) y representatividad, seleccionados de la metodología de los Centros para el Control y la Prevención de Enfermedades, realizado con trabajadores residentes en el estado que fueron notificados como caso de TMRT en el Sistema de Información de Enfermedades de Notificación Obligatoria. **Resultados:** la calidad de los datos fue evaluada como satisfactoria y se obtuvo alta representatividad. **Conclusión:** las evaluaciones tuvieron resultados positivos, el desempeño de la vigilancia debe mantenerse y mejorarse.

Descriptores: *Epidemiología; Vigilancia de la salud de los trabajadores; Trastornos mentales.*

1 Ministério da Saúde, VII Gerência Regional de Saúde. Salgueiro/PE - Brasil. 

2 Escola de Saúde Pública do Ceará. Fortaleza/CE - Brasil. 

INTRODUCTION

According to the *Health Surveillance Guide*⁴, the *Worker Health Surveillance* (VISAT) is part of the *National Health Surveillance System* (SNVS) and is structured into two main components: the *Epidemiological Surveillance of Worker Health* (VESAT) and the *Work Environment and Process Surveillance* (VAPT).

VESAT must provide knowledge and detection of changes in the determining and conditioning factors of the individual and collective health of workers associated with work processes and environments, with the aim of guiding and adopting preventive and control measures for diseases and health problems among the working population. Furthermore, according to the *Health Surveillance Guide*^{4(p.77)} the main competencies of VESAT are: “Analysis of the Health Situation of Workers (ASSTT), epidemiological investigation and recording of cases of Work-Related Diseases and Injuries (DART) in health surveillance information systems”.

As also described in the *Health Surveillance Guide*^{4(pp.77,78)}, the objectives of VESAT are:

“To identify, notify and monitor potential cases of DART; investigate the relationship between diseases and injuries with work; identify situations and risk factors to the health of workers present in work environments and processes and propose measures to minimize or eliminate them; identify groups of workers exposed to greater health risks in work processes and environments; identify and describe the epidemiological profile of workers; and guide prevention and control measures to prevent the occurrence of new cases.”

As published on the blog *Oficina de Ideias 54*, which discusses the topic of Work-Related Mental Disorders (TMRT), and corroborated by a publication from the Brazilian Ministry of Health^{2, 15}:

“Work-related mental disorders comprise all cases of emotional distress in its various forms of manifestation, having as causal elements risk factors associated with work, whether resulting from its organization and management or from exposure to certain toxic agents. Emotional distress may be expressed through agitation, anxiety, tearfulness, psychosomatic illnesses, excessive fear, irritability, nervousness, sweating, tachycardia, sadness, or insecurity.

Such symptoms, among others, may indicate the development or worsening of mental disorders included in the International Classification of Diseases, code 10 (ICD-10): Mental and behavioral disorders (F00–F99); Alcoholism (Y90 and Y91); Burnout syndrome (Z73.0); Symptoms and signs involving cognition, perception, emotional state, and behavior (R40–R46); Persons with potential health risks related to socioeconomic and psychosocial circumstances (Z55–Z65); Circumstances related to working conditions (Y96); and intentional self-inflicted injury (X60–X84).” (*author’s translation*).

VESAT related to Mental Disorders should be performed by a multidisciplinary team, consisting of identifying suspected cases, providing comprehensive patient care and confirming the diagnosis, establishing a work-related relationship, investigating, and identifying whether it refers to a DART or not. If a DART is confirmed, epidemiological surveillance actions should be carried out, such as reporting, issuing a Work Accident Report (CAT), if the worker is insured by the INSS, activating VISAT / Occupational Health Reference Center (CEREST) teams, preparing a final report, referring the patient for follow-up within the Health Care Networks (RAS), and monitoring and following up on the interventions recommended in the technical report³.

Epidemiological investigation of DART is a mandatory task when a case is suspected or when exposure to risk factors occurs in the workplace. After confirmation of the work-related nature of DART cases through epidemiological investigation, DART cases must be reported to the Notifiable Diseases Information System (SINAN), which is strictly for epidemiological and surveillance purposes⁴.

SINAN, the Mortality Information System (SIM) and the Hospital Information System (SIH) are the main information systems in the health sector of interest to workers' health, but there are also other systems and databases of intersectoral interest³.

The concept of worker health has changed from concern with the survival of the body to concern with mental health¹⁴.

Mental disorders can be related to work or to its absence, and their occurrence is also favored by inadequate work environments, ways in which activities are organized, low appreciation of workers, unsatisfactory participation in decision-making, among other factors¹.

Workers who are absent due to mental and behavioral disorders, when they return to the workplace, continue to face stressors in this environment, there are difficulties in interpersonal relationships, and there is a lack of a program to reintegrate workers into the workplace¹⁰.

However, it is important to evaluate this system because it is a study that could contribute to providing the best use of resources in the health surveillance system.

Considering that TMRT were recently included as a weekly notification, in August 2024, in the National List of Compulsory Notification of Diseases, Injuries and Public Health Events, in public and private health services throughout the national territory, which also makes it a topic of current importance, with updates in national surveillance⁵. Prior to this inclusion, they were subject to compulsory notification to be monitored through the sentinel surveillance strategy⁹.

The Occupational Health Epidemiological Surveillance System must happen and be maintained routinely and systematically. It is also necessary to constantly conduct evaluations to ensure that it fulfills the purpose for which it was created.

The objective of this study was to evaluate the data quality attributes and representativeness of the TMRT Surveillance System in Pernambuco, 2007-2023.

METHODS

This study is conducted in an evaluative manner, with analysis of TMRT data, according to data quality and representativeness attributes, selected from the methodology⁸ of the *Centers for Disease Control and Prevention* CDC / United States of America.

The study was carried out in the state of Pernambuco, with a geographic extension of 98,067,877 km², 184 municipalities plus the Fernando de Noronha archipelago, population of 9,058,931 inhabitants, demographic density of 92.37 inhabitants/km² (IBGE, 2022) and 12 Health Regions, distributed in 4 macro-regions.

The study population was comprised of workers who were notified as a case of TMRT in the Notifiable Diseases Information System (Sinan) residing in the state of Pernambuco, from 2007 to 2023.

TMRT cases are reported to healthcare facilities using the SINAN Individual Notification/Investigation Form for TMRT, which is standardized nationwide. The TMRT form contains 57 variables, divided into six sections (general data, individual notification, residence data, epidemiological history, mental disorders, and conclusion), using the CID-10 code F.99 for SINAN entry.

This study used secondary data, with anonymized records from the public domain TABNET database, containing epidemiological and morbidity data from the Department of Informatics of the Unified Health System (DATASUS). Data were analyzed in *Epi Info* and Microsoft Excel and presented in tables. The data were exported in the last quarter of 2024.

The databases used in this study are in the public domain and do not contain patient identification data, in order to guarantee the secrecy and confidentiality of the information, with no need for submission to the Ethics and Research Committee, in accordance with CNS Resolution No. 674, of May 6, 2022 - Art. 26.

In this study, the data quality attribute was assessed in terms of record completeness and consistency. Completeness is the proportion of stored data compared to the potential 100%, and consistency is characterized as the absence of differences when comparing two or more representations of an instance with a definition (ENAP, 2019). Incompleteness is considered the proportion of ignored information or blank fields (ROMERO & CUNHA, 2006), and inconsistency is the lack of consistency or coherence.

The completeness assessment was carried out using the parameters of Romero and Cunha (2006), considering the incompleteness of the variables analyzed, as described in table 2. For the final assessment of completeness, the percentage average of the variables selected for study was used.

To assess consistency, fields that were related to each other were analyzed, comparing the coherence between the records of the following variables: relationship between the age of the case x date of TMRT notification, and relationship between sex x

age x pregnant woman. The parameters were used¹³ considering the inconsistency between the variables analyzed, and for the final assessment of consistency, the average percentage of the variables selected for study was used.

If the completeness and consistency dimensions were evaluated as $\geq$ regular, the final data quality result would be considered satisfactory.

Table 1 - Variables selected to assess data quality and representativeness of TMRT notifications, Pernambuco, 2007-2023

Attributes	Block	Variable name	Characteristic
Data Quality	Completeness	Occupation	Mandatory field
		Employment situation	Essential field
		Economic Activity Code (CNAE)	Essential field
	Mental disorders	Treatment regimen	Essential field
		Specific diagnosis	Essential field
	Conclusion	Was a Work Accident Report (CAT) issued?	Mandatory field
		Are there or have there been other workers with the same disease at the workplace?	Essential field
		Was the patient referred to Psychosocial Care Center (CAPS) within SUS or to another specialized mental disorder treatment service?	Essential field
		Case evolution	Essential field
	Inconsistency	Age	Mandatory field
		Sex	Mandatory field
		Pregnant	Mandatory field, if gender = F
Representativeness	Residence data	Regional ID of residence	Internal field
	General data	State of residence (UF)	Mandatory field
		Notification date (year)	Key field
	Individual notification	Age	Mandatory field
		Sex	
		Race	
	Mental disorders	Treatment regimen	Essential field
	Conclusion	Referral to CAPS / Specialized Service	
		Case evolution	

Source: Prepared by the author, based on SINAN data, 2024.

Table 2 – Scores used to evaluate the data quality attribute of TMRT notifications, Pernambuco, 2007-2023

Attribute	Evaluation level	Score
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Data quality	Incompleteness	Excellent	< 5%
		Good	5% a 10%
		Fair	10% a 20%
		Poor	20% a 50%
		Very poor	> 50%
Inconsistency		Excellent	≤ 10%
		Fair	>10 e ≤ 30%
		Poor	> 30%

Source: Romero and Cunha, 2006; Tourinho et al., 2020.

A surveillance system is considered representative when the information it produces reflects the actual occurrence and magnitude of the event in the population, accurately describing the occurrence of a health-related event over time and its distribution in the population by place and person⁸.

To analyze representativeness, a description of TMRT cases was carried out in terms of time, person and place, comparing data from cases reported by residents of Pernambuco with cases reported by residents in the nine states of the Northeast and at a national level.

The dimensions (time, person, and place) will be classified as having satisfactory or unsatisfactory representation. The final classification of the system's representativeness will be based on the results found in the three categories, as shown in Table 3.

Table 3 – Score used to evaluate the representativeness attribute of TMRT notification data, Pernambuco, 2007-2023

Evaluation level	Number of dimensions classified with satisfactory representativeness
High representativeness	3
Moderate representativeness	2
Low representativeness	1

Source: PACHECO, 2021.

The TMRT Report from the Pernambuco State Health Department, Year 1, from January 2024, reference year 2023, and three articles related to the theme of this research were also used to assess representativeness.

RESULTS

The average incompleteness among the mandatory and essential variables analyzed was 13.3% (127.6), resulting in a regular evaluation grade.

In the consistency assessment, 10.5% (101) cases of females of reproductive age were identified with the pregnant field filled in as '*not applicable*' and 0.3% (3) neonates reported with work-related mental disorders, consequently reaching an excellent grade in the assessment.

Completeness was assessed as fair and consistency as excellent, thus the final data quality rating was satisfactory.

Table 4 - Assessment of the data quality attribute (completeness and consistency) of TMRT notifications, Pernambuco, 2007–2023

Data Quality	Variables evaluated	N	%	Degree of incompleteness
Completeness	Occupation	1	0,1	Excellent
	Employment status	35	3,7	Excellent
	Economic activity code (CNAE)	224	23,3	Poor
	Treatment regimen	58	6,0	Good
	Specific diagnosis	61	6,3	Good
	Issuance of Work Accident Report (CAT)	115	11,9	Fair
	Were there (or are there) other workers with the same illness in the workplace?	385	40,1	Poor
	Was the patient referred to a Psychosocial Care Center (CAPS) in SUS or another service specialized in the treatment of mental disorders?	144	15,0	Fair
	Case evolution	125	13,0	Fair
	Total/average percentage	127,6	13,3	Fair
Consistency	Age × TMRT notification (newborn reported with work-related mental disorder)	3	0,3%	Excellent
	Sex, pregnancy status, and age (female cases of reproductive age with pregnancy field filled as “not applicable”)	101	10,5%	Fair
	Total/average percentage	52	5,4%	Excellent

Place-related representativeness was assessed through the distribution of TMRT cases reported to residents of Pernambuco, by Regional Health Management (GERES) throughout the state. According to data from DATASUS (2024), of the 12 Regional Health Offices of Pernambuco, 10 (83.3%) have notifications (residents) in SINAN.

The 27 federative units of Brazil reported (residents) 22,393 cases of TMRT in the period from 2007 to 2023. Of these, 962 (4.3%) were registered in Pernambuco, occupying the 7th place as the federative unit with the highest number of reported cases. The nine states of the Northeastern region reported (residents) 6,790 cases, Pernambuco occupying the 3rd place in the highest number of notifications, behind only Bahia (8.1%) and Rio Grande do Norte (5.8%) (DATASUS, 2024).

By verifying the representativeness of TMRT cases in the state's geographic space, by health region, in the state of Pernambuco, and considering the significant number of cases when compared to the other federative units of Brazil, as well as the states of the northeast region, it is considered, in terms of place, satisfactory representativeness.

Regarding the time dimension, throughout the period analyzed (2007 - 2023) there were reports of TMRT cases. The years with the highest number of notifications were 2014 with 122 (12.7%) of the records, 2016 with 94 (9.8%) and 2017 with 91 (9.5%). The average number of notifications is 56.6 per year. The time dimension was evaluated as satisfactory.

By verifying the representativeness of TMRT cases in the state's geographic space, by health region, in the state of Pernambuco, and considering the significant

number of cases when compared to the other federative units of Brazil, as well as the states of the northeast region, it is considered, in terms of place, satisfactory representativeness.

The data from the Pernambuco TMRT Report¹¹, as well as the studies carried out^{6,7,12}, when compared to the findings in relation to the dimensions evaluated in these studies, reveal similarity and proximity of the information.

The final system representativeness rating is high. The three dimensions—place, time, and person—were satisfactorily represented.

DISCUSSION

Of the 962 notifications, 889 (92.4%) of these notifications are reported in I GERES, with only 7.6% (73) of the notifications under the responsibility of the remaining 9 GERES. Report¹¹ discloses that in 2023 the Health Region with the highest number of notifications was I GERES with 45 (71.4%) cases.

In the period from 2014 to 2023, 708 cases were reported, and in 2023, 63 cases¹¹. DATASUS data identify 724 cases of TMRT between 2014 and 2023, and 64 cases in 2023.

Analyzing the person dimension, when relating and comparing notification data of the same variables of TMRT cases in Pernambuco with cases in the Northeast and Brazil, some similarities were identified.

Regarding notifications of TMRT cases by SINAN age group according to Region/State of residence, in the period 2007-2023, according to data extracted from the report *Work-Related Mental Disorders*¹¹, Pernambuco has more than 40.0% of cases in the age group of 35-49 years old, as well as 7 (77.8%) of the northeastern states and at the national level. In Pernambuco it corresponds to 490 (50.9%), in the Northeast 3290 (49.0%) and in Brazil 10,918 (49.3%) of cases.

The report¹¹ also states that females were the most frequently reported TMRT cases in Pernambuco, as well as in the Northeast and Brazil. The most frequently reported race in Pernambuco and Brazil was white, corresponding to 436 (45.3%) and 9,727 (44.0%) cases, respectively.

Analyzing the age group, the same report¹¹ indicates that the highest number of cases is between 35-49 years (36 cases – 58%), females predominate (48 cases – 76%), as well as white race (28 cases – 44%)¹¹.

The various forms of harassment are among the psychosocial factors that affect workers' biopsychological issues. Federal Law No. 14.457/2022 establishes the *Emprega + Mulheres* Program, which provides guidance to companies on actions to promote, prevent, train, and combat sexual harassment and violence in the workplace¹¹.

In a study⁶ conducted in the territory of the Superintendência de Saúde Litoral Leste/Jaguaribe/Ceará, the majority of reported cases of TMRT were female (58 cases – 75.32%). The age groups with the highest number of reports were between 20 and 39 years (53.25%) and 40-59 years (42.86%). Of the reported cases, 43 (55.84%) were referred to the CAPS or another specialized service.

Cases of work-related mental disorders in Brazil between 2011 and 2020 were 63.07% female and 66.19% in the 30-49 age group¹².

The predominant treatment regimen between 2007 and 2023 was outpatient, in all states of the Northeast and in Brazil, as well as in Pernambuco. In 2023, the treatment regimen for the largest number of TMRT cases was outpatient (45 cases – 71%)¹¹, and this information is also consistent with DATASUS data evaluated for the years 2007 to 2023 for Pernambuco, the Northeast, and Brazil.

Of the reported cases of TMRT, more than 50.0% of patients were referred to a CAPS in the SUS or another service specialized in the treatment of mental disorders in Pernambuco, as well as in 7 (77.8%) of the northeastern states, and in Brazil, 11,853 (53.6%) of the cases received the same referral. According to Report¹¹, in 2023, 34 cases (54%) of workers were referred to a CAPS in the SUS.

TMRT treatments in Brazil's regions occur primarily in CAPS (69.9%) and mental health outpatient clinics (47.1%). According to the data presented by Cardoso and Araújo in their article *Attention to Work-Related Mental Disorders in Brazilian Regions*^{7(p.5)}:

“When CERESTs needed help from the Health Care Network services to diagnose TMRT cases, most professionals referred patients to the Psychosocial Care Network, which included CAPS (69.6%); mental health outpatient clinics (46.4%); and other services within this network (29.5%).”

Only 10 (1.0%) cases in Pernambuco evolved to complete recovery. It is worth noting that the number of TMRT cases that were cured in the Northeast and in Brazil are also low, corresponding to 137 (2.0%) and 796 (3.6%) respectively.

CONCLUSION

The data quality of the TMRT surveillance system in Pernambuco between 2007 and 2023 was satisfactory, but it could be improved by assessing data incompleteness. Case reports should be completed with complete forms. Particular attention should be paid to the CNAE variables, whether there are or have been other workers with the same disease in the workplace, whether a CAT was issued, whether the patient was referred to a CAPS or other specialized service, and the case's progress. Those responsible for these reports should be knowledgeable and aware of how these variables are relevant to surveillance and which fields are mandatory and/or essential.

Still in relation to the data quality attribute, data consistency was well evaluated, and with this, it communicates that effective work around this dimension must be continued for effective surveillance.

The system was evaluated with high representativeness, characterizing well the epidemiological characteristics of TMRT in the population.

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