

Biopsychosocial Analysis and Mental Health in the Labor Environment: A Case Study with Highly Qualified Professionals in Brazil

Abstract

This study presents a strategic analysis of data obtained from 26 biopsychosocial assessments conducted in a private company, specifically a world-class laboratory complex open to the scientific and industrial community. The objective is to outline the demographic, socioeconomic, and mental health profile of highly qualified professionals. The results reveal an alarming prevalence of anxiety symptoms (80.8%) and depression (73.1%), in addition to a significant deficit in social skills (76.9%). It is concluded that, despite high education levels and remuneration above the national average in Brazil, the group faces severe psychosocial barriers that demand urgent organizational interventions based on the International Classification of Functioning, Disability and Health (ICF).

Keywords

Mental Health, Inclusion, PWD (Persons with Disabilities), High Technology, Biopsychosocial Assessment.

Introduction

The management of diversity and inclusion in high technology environments and scientific research imposes complex challenges that transcend simple job quotas for Persons with Disabilities (PWD). In the context of a world-class research centre, biopsychosocial assessment emerges as an essential tool to understand not only physical limitations but primarily the psychosocial and neuro-cognitive barriers that impact the performance and well-being of employees. This article analyses a sample of 26 professionals, seeking to correlate factors such as education, remuneration, and mental health within the labor environment.

Methodology

The research adopted a mixed-methods approach (qualitative and quantitative). Social and psychological interviews were conducted, and validated scientific instruments were applied, including:

- **Social Scales:** IFBr-M, WHODAS 2.0, and SF-36.
- **Psychological Instruments:** Hamilton Anxiety Rat-

Original Article

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ing Scale, Beck Depression Inventory (BDI-II), Herth Hope Index, and the Del-Prette Social Skills Inventory (SSI-DEL-PRETTE).

- **Framework:** Use of the ICF to identify barriers and facilitators in the work environment.

Results and Discussion

Demographic Profile and Education

The sample consists of 53.8% women and 46.2% men, with an average age of 32.8 years. The group stands out for its extremely high qualifications: 73.1% hold Post-Graduate, Master's, or Doctoral degrees, and 23.1% have completed Undergraduate studies. Most occupy positions such as Analyst, Junior Technological Development Specialist, and Researcher.

Demographic Profile - Distribution by Education Level

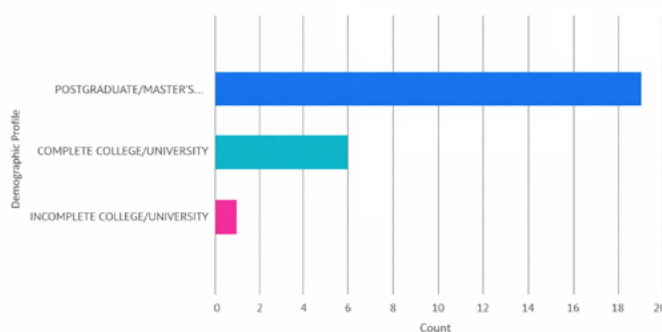


Figure 1: Distribution of respondents by detailed education level

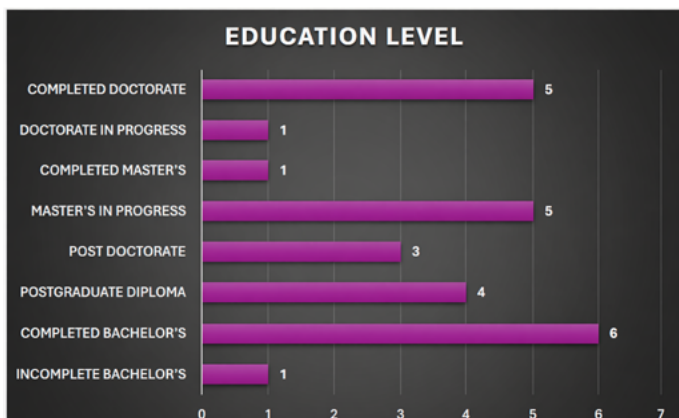


Figure 2: Frequency distribution of participants by previous health diagnoses (HD)

Well-being and Mental Health Indicators

The data reveals a silent mental health crisis within the evaluated group:

Indicator	% (n=26)
Anxiety symptoms	80.8%
Depression indicators	73.1%
Use of psychiatric medication	61.5%
Deficit in social skills	76.9%
PWD classification (ICF based)	57.7%

Table 1: Prevalence of Mental Health and Psychosocial Indicators Among Participants



Figure 3: Distribution of participants according to previously diagnosed health disorders (HD)

Despite 73.1% reporting an adequate support network, the levels of mental distress suggest that the work environment may be a primary source of stress or that existing support is insufficient for the labor load.

Socioeconomic Analysis

The group's average remuneration is R\$ 7,332.60 (approximately 4.83 minimum wages). Although this value is higher than the national average for PhDs, it is considered inadequate when confronted with two factors: the high cost of living in technological hubs like Campinas-SP and the local market, where salaries are below the floor practiced by other high-tech companies in the region. This wage gap contributes to work frustration, declared by 23.1% of the sample.

Identified Limitations and Restrictions

According to the ICF-based analysis, the main barriers faced are:

- **Cognitive (42.3%):** Difficulties with concentration, attention, and meeting deadlines.
- **Social (46.2%):** Obstacles in interaction, communication, and establishing bonds.
- **Environmental (50%):** Restrictions in dealing with stress, noise, and excessive light (sensory stimuli).

Intervention Proposals

To mitigate the identified risks, the study suggests:

- **Cognitive Ergonomics:** Deadline flexibility and structuring long tasks into smaller steps.
- **Psychological Support:** Implementation of crisis management protocols and facilitated access to therapy.
- **Sensory Adjustment:** Creation of quiet work zones and provision of noise-canceling headphones.
- **Training:** Social skills and non-violent communication training for leaders and subordinates.

Conclusion

The profile of the evaluated employees demonstrates that high intellectual qualification does not protect the individual from psychosocial vulnerabilities. The high rate of PWD classification (57.7%) reinforces the need for an inclusive culture that values neurodiversity and adjusts the environment to the sensory and cognitive needs of professionals. Reviewing salary policies and investing in mental health programs are fundamental steps for talent retention in this scientific hub.

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