

## Individual and Situational Factors in Explaining Student Burnout: An Extension of Job-Demands–Resources Theory through a Configurational Analysis

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### Citation:

Medina-Molina, C., Rey-Tienda, S., Pérez-Macías, N., & Bilbao-Calabuig, P. (2026). Individual and Situational Factors in Explaining Student Burnout: An Extension of Job-Demands–Resources Theory through a Configurational Analysis. *JOINETECH*, 2(1), 47–56. <https://doi.org/10.65479/joinetech.37>

### ARTICLE INFO

**Keywords:** Service-learning, job-demands–resources theory, gender, qualitative comparative analysis, generic membership evaluation template.

### ABSTRACT

Burnout is a widespread problem among the population and is particularly relevant in the university setting. The nature of university activity can be highly demanding and generate burnout, which tends to increase as students' progress through their university studies. Since student gender and participation in a service-learning activity can interact with the demands and resources perceived by the student in explaining the level of burnout, this study uses a model that complements job-demands–resources theory with individual and situational factors. To this end, after calibrating the information contained in 103 interviews using a generic membership evaluation template, qualitative comparative analysis was applied.

The results show that, while demands are necessary for burnout, the existence of resources is necessary to prevent high levels of burnout. Furthermore, while one term reflects the combination of conditions that explain burnout, four combinations are sufficient to prevent experiencing high levels of burnout. Likewise, an explanation is presented that indicates that students experience high levels of burnout, as opposed to the theory that they do not reach such high levels of burnout. In explaining the perception of high levels of burnout, participation in service-learning activities is irrelevant. Otherwise, participation in a service-learning activity is highly relevant in explaining the perception of not experiencing high levels of burnout. The results confirm that female university students share a tendency to report higher levels of burnout. Finally, in most explanatory terms, individual and situational factors do not interact, and in many cases, demands are the only component of job-demands–resources theory that forms part of the solution.

*Submission: March 14, 2026, Acceptance: April 19, 2026. Published: May 2026.*

## 1. Introduction

Professors try to inspire students by setting tasks hoping that they will be rewarding and engaging. However, these tasks can be excessively demanding and a source of considerable psychological stress (Bakker & de Vries, 2021). This situation becomes even more relevant when, in addition to being a social problem, it is accepted that low levels of well-being among university students represent the most common reason for considering withdrawal during the first year. Moreover, its association with stress and burnout contributes to reduced satisfaction, diminished motivation, and poorer academic performance (Asikainen et al., 2022; Mérida-López et al., 2024; Naylor, 2022; Ruiz-Ortega & Berrios-Martos, 2025). Thus, burnout becomes a health problem that globally affects students' well-being (Xie et al., 2023). All of the above means that both mental health and burnout among university students are considered important areas of research (Mérida-López et al., 2024; Naylor, 2022). Since little in-depth analysis has been conducted (Asikainen et al., 2022), this study focuses on analyzing the causes of burnout among university students.

The problem with burnout is that, although it already exists in the early stages of university studies, it increases as students' progress through their studies (Asikainen et al., 2022). University studies impose structural demands—academic workload, performance requirements, etc.—that make university a stressful environment that can lead to mental health problems (Lesener et al., 2020; Mérida-López et al., 2024) as a result of the imbalance between demands and resources. Thus, it is noted that individual and situational factors contribute to burnout (Asikainen et al., 2022; Bakker et al., 2023). Given that there is a positive relationship between participation in a service-learning activity and social and ethical skills, with significant differences based on gender (Plaza-Angulo & López-Toro, 2024), theories must be validated, identifying the factors that determine job burnout (Bakker & de Vries, 2021). Therefore, this study answers the following research question: Do individual and situational factors interact with the demands and resources of university students when it comes to explaining their burnout?

The relevance of addressing this research question is linked to two areas insufficiently addressed by previous studies and stems from the fact that, although job-demands-resources theory (JD-R) has been widely used to explain burnout in educational settings, such demands and resources alone are insufficient to explain health and motivation (Demerouti & Bakker, 2023), especially since burnout depends on characteristics of both the individual and the context (Lesener et al., 2020). First, among the individual factors, the relevance of gender must be recognized when extending JD-R (Lee & Eisenstat, 2018). In fact, female students are at significant risk of experiencing burnout (Asikainen et al., 2022), and gender disparities in work fatigue need to be clarified (Uysal & Potas, 2026) because the experience of burnout could differ among people functioning within the same context (Bakker et al., 2023; Demerouti & Bakker, 2023). Secondly, few studies explain the benefits of service learning (Gallop et al., 2023), specifically in terms of academic engagement (Rodríguez-Izquierdo, 2020). The interplay between demands and resources has barely been systematically analyzed with the use of innovative methodologies in universities (Huang et al., 2025). These are the research gaps that this work aims to address.

This study complements the application of JD-R theory with individual factors—student gender—and situational factors—participation in a service-learning activity—thereby enriching the conclusions reached (Medina Molina et al., 2025b). Likewise, in response to the call to apply methodologies that allow for a deeper understanding of burnout (Bakker & de Vries, 2021), qualitative comparative analysis (QCA) is applied to a sample of 103 university students, of whom 56 participated in a service-learning activity and 47 did not participate in such an activity. JD-R research has traditionally adopted a variable-centered approach to analyze the main and interactive effects of demands and resources, an approach that fails to detect the different configurations of job demands and resources that could lead to the same results (Ong & Johnson, 2023). In addition, Demerouti & Bakker (2023) demonstrate that, beyond the individual impact of demands and resources, it is important to focus on their interaction. Therefore, in contrast to a variable-centered approach, a person-centered approach allows for the identification of different JD-R configurations sufficient to explain exhaustion in a more theoretically consistent way (Ong & Johnson, 2023). It has been argued that QCA—from a configurational perspective—offers a more realistic view of burnout development and overcomes the limitations of traditional perspectives (Chen & Chen, 2025) linked to the variable-centered approach. A configurational-propositional theorization can generate novel predictions about causal relationships (Campbell & Fiss, 2026) while also enabling the evolution of theoretical perspectives and the integration of additional conditions (Medina Molina et al., 2025b; Park et al., 2020). Therefore, the JD-R model extends beyond examining the main effects of individual demands and resources—additive models—to examine how they combine—multiplicative models—although there is little evidence of the application of JD-R from configurational approaches (Ong & Johnson, 2023) with QCA.

This paper makes two major theoretical contributions. The first is to demonstrate the suitability of employing a configurational perspective in the application of the JD-R, as it allows for the benefits of considering equifinality, applying an asymmetric approach, and assessing conjunctural causation. The latter is especially valuable because it shows how the different components of the model reinforce or compensate for each other. The results show how the model explains to a greater extent why students do not experience high levels of burnout compared with those who do experience such burnout. Likewise, while participation in the service-learning activity is irrelevant in explaining the perception of high levels of burnout, it is highly relevant in explaining why students do not perceive high levels of burnout. Finally, it is confirmed that women—university students in this case—report higher levels of burnout. In this sense, the second theoretical contribution relates to incorporating additional conditions—personal and contextual—that allow for a more detailed explanation of the processes that generate burnout in the university setting.

## 2. Burnout in the University Setting

Maslach (1982) provides the most influential definition of burnout, describing it as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among people in any type of job (Asikainen et al., 2022; Demerouti et al., 2001). Emotional exhaustion refers to the feeling of being overwhelmed and exhausted by the emotional demands of work. Depersonalization is characterized by a detached and cynical response to the recipients of work. Reduced personal accomplishment refers to the self-assessment that one is no longer effective in one's work, showing oneself incapable of fulfilling one's responsibilities (Demerouti et al., 2001). Subsequently, burnout is defined as the state resulting from chronic stress that manifests itself in failures, exhaustion, or fatigue—physical, cognitive and emotional—resulting from excessive demands on a person's energy, strength, or resources (Artz et al., 2022; Bakker et al., 2023; Mérida-López et al., 2024). From a similar perspective, burnout is considered to be the depletion of workers' resources over time, related to physical and mental problems such as anxiety, depression, and musculoskeletal disorders (Artz et al., 2022); this is a phenomenon that can occur when working in challenging situations (Xie et al., 2021). From another perspective, it is considered a continuum ranging from acute fatigue after a hard day's work—which disappears after a short period of recovery—to a severe and persistent form of exhaustion and its accompanying problems, such as mental detachment from work, cognitive problems, and impaired mood, which occurs after a long period of exposure to high demands and only disappears after a long period of recovery (Bakker & de Vries, 2021).

When people burn out from their jobs, they are no longer interested in making positive contributions to them (Bakker & de Vries, 2021). Burnout leads to ill health and unfavorable organizational outcomes such as reduced satisfaction, productivity, and organizational commitment; depersonalization

and lack of personal accomplishment; and increased turnover and absenteeism (Artz et al., 2022; Bakker et al., 2023). Burned-out individuals feel exploited and exhausted by the very work they once felt enthusiastic about; the more severe these feelings are, the greater the risk of serious consequences (Bakker & de Vries, 2021).

Stressful and potentially traumatic experiences increase the risk of academic burnout in university students, although they also highlight the protective role of personal resources (Zhang & Chen, 2025). In the educational setting, the three components identified in job-related burnout remain (Asikainen et al., 2022) exhaustion: feelings of being overburdened or exhausted as a result of excessive study; cynicism: a cynical or indifferent attitude toward studies; and a lack of professional efficacy: feelings of incompetence and poor academic achievement. However, Platania et al. (2020) emphasize that emotional exhaustion is the central dimension of academic burnout, while cynicism and ineffectiveness reflect attitudinal and cognitive responses that can vary in intensity depending on individual characteristics and contextual pressures. From a different perspective, Portoghese et al. (2018) place academic burnout on a continuum between engagement and exhaustion, a perspective that challenges dichotomous conceptualizations and provides a nuanced understanding of students' psychological connection to their studies. In educational contexts, burnout is associated with various negative consequences, such as dedication to studies, vigor, and absorption among university students (Asikainen et al., 2022).

### 3. Model Development

This paper develops a model that incorporates individual factors—gender—and situational factors—participation in a service-learning activity—into the interaction between demands and resources of university students in explaining their burnout. This is because the characteristics—demands and resources—of work alone are not sufficient to explain student health and motivation (Demerouti & Bakker, 2023); in fact, individual and situational factors contribute to burnout (Bakker et al., 2023).

#### 3.1. Job-demands–resources model

Job-demands–resources (JD-R) is a unifying model that explains how job demands and resources influence work performance through employee well-being—including burnout and work engagement—and how employees apply proactive work behaviors in response to these job demands and resources (Bakker et al., 2023; Hang & Wang, 2025). JD-R theory stands out for its flexibility and ability to integrate multiple job characteristics (Bakker et al., 2023) and has been widely used to understand how organizational structures influence employee burnout and engagement (Naylor, 2022). According to JD-R theory, each work context can be categorized using two categories of physical, psychological, social, or organizational characteristics: demands and resources. Job demands are aspects of work that require sustained physical, cognitive, and/or emotional effort that are associated with certain physiological and/or psychological costs (Bakker et al., 2023;

Demerouti & Bakker, 2023; Hang & Wang, 2025). Job resources have motivational potential since they are functional in achieving work goals, regulating the impact of job demands and stimulating learning and personal growth (Bakker et al., 2023; Bakker & de Vries, 2021; Demerouti & Bakker, 2023). Job resources are more strongly related to burnout than job demands (Bakker & de Vries, 2021; Xie et al., 2021). Likewise, the absence of a job demand has no motivational potential, while the absence of a job resource is not necessarily stressful (Demerouti & Bakker, 2023).

Chronic work demands, or high demands coupled with limited resources, can generate work-related stress and result in burnout (Bakker & de Vries, 2021; Demerouti & Bakker, 2023; Uysal & Potas, 2026). JD-R theory posits that job demands and resources affect employees through two independent processes (Bakker et al., 2023; Demerouti & Bakker, 2023; Xie et al., 2021). In the first process, the health-impairment process—also known as the energy-driven process—the frequency and/or severity of job demands lead to increased effort that could result in exhaustion and health problems (Bakker et al., 2023). As a result, workers experience a gradual depletion of their energy, leading to burnout, which is suggesting a positive association between job demands and burnout (Hang & Wang, 2025; Xie et al., 2021). In the second process, the motivational process, resources satisfy basic psychological needs and promote employee work engagement, leading to creativity and improved performance, suggesting a negative association between job resources and burnout (Bakker et al., 2023; Soliman et al., 2026; Xie et al., 2021). In this sense, job resources show a consistent negative relationship with the cynicism component of burnout through depersonalization, while job demands are mainly related to the exhaustion component (Bakker & de Vries, 2021; Demerouti et al., 2001).

The essence of job demands lies in the fact that they consume energy because they must be addressed, while the essence of job resources lies in the fact that they generate motivation—that is, the voluntary initiation of actions to achieve goals—and cushion the effects of job demands on employee well-being and performance. JD-R theory proposes that jobs are optimally designed when they place manageable demands on employees and provide sufficient resources to cope with them. In other words, the interaction between job demands and resources is also important, beyond the mere existence of any job characteristic. In fact, the more stressful the job, the more important resources become (Bakker & de Vries, 2021; Demerouti & Bakker, 2023). More specifically, according to the buffering hypothesis of JD-R, job resources can lessen or buffer the adverse impact of job demands on health and well-being. This means that job demands will require less effort and be less stressful when there are many resources available in the work environment. Furthermore, according to the JD-R boost hypothesis, challenging job demands can strengthen or enhance the favorable impact of job resources on work engagement (Bakker et al., 2023; Demerouti & Bakker, 2023). Therefore, they are considered health-protecting factors that keep individuals healthy even under high workloads (Xie et al., 2021).

Although the JD-R theory was developed to explain burnout in work contexts, it can be applied to the university context, where demands and resources can be understood as tasks or roles (Naylor, 2022). In fact, similar to employees, students are involved in activities that require effort; it has been shown that the same processes that occur at work are involved in the academic experience and performance of students. Thus, students' experiences regarding the demands and resources of the learning environment affect their motivation and burnout (Asikainen et al., 2022; Hang & Wang, 2025). The motivational path is more important for well-being among well-prepared students, while less prepared students may benefit from support to meet the demands of life and study (Naylor, 2022).

### 3.2. Individual and Situational Factors in the Generation of Burnout: Gender and Participation in Service Learning

Burnout is a multidimensional construct whose components can develop differently across individuals and contexts (Platania et al., 2020), with gender being a relevant factor in the study of burnout (Lee & Eissenstat, 2018). Gender is a more precise construct than biological sex and is influenced, at least in part, by social factors (Artz et al., 2022). Gender is a structural factor of vulnerability (Asikainen et al., 2022; Fiorilli et al., 2022), with burnout being considered more of a female experience since women are more likely to report it (Artz et al., 2022; Purvanova & Muros, 2010; Uysal & Potas, 2026). More precisely, while women are more likely to report the emotional exhaustion component of burnout, men are more likely to report depersonalization. Thus, offering support and resources to transform perceptions and attitudes regarding gender roles could help reduce work-related burnout resulting from a mismatch between expectations and work experiences (Artz et al., 2022; Purvanova & Muros, 2010).

Translated to the educational context, it has been suggested that female students experience higher levels of exhaustion and ineffectiveness (Asikainen et al., 2022; Fiorilli et al., 2022). In line with Purvanova and Muros (2010), who confirm the existing differences—in terms of the strength and direction of this relationship—between men and women in the analysis of burnout. In this regard, Asikainen et al. (2022) find an overrepresentation of women among those with high levels of burnout and exhaustion profiles—especially in emotional exhaustion and academic inadequacy. For their part, Fiorilli et al. (2022) showed that female university students experience higher levels of burnout, cognitive impairment, and emotional impairment compared with male students, establishing gender as a risk factor (Asikainen et al., 2022).

Higher education is moving toward values-based education, based on the acquisition of practical skills through the development of active methodologies that complement classroom learning (Plaza-Angulo & López-Toro, 2024). Service learning is a teaching and learning approach that integrates community service with academic study to enrich learning; this pedagogical and philosophical approach promotes experiential learning, incorporating lessons based on community service (Gallop et al., 2023; Garger et al., 2020).

Service learning integrates ethical and social commitment by applying previously acquired knowledge and skills in real-life situations (Plaza-Angulo & López-Toro, 2024). Service learning is a pedagogy for citizenship that, through direct experience working with individuals, groups, and organizations in the community, improves academic outcomes—influencing the development of students' skills and non-academic abilities—and promotes civic behavior and social responsibility among participating students (Gallop et al., 2023; Garger et al., 2020; Plaza-Angulo & López-Toro, 2024).

The blurred boundaries of service learning when working with people, as well as the lack of resources for its development, could be linked to the onset of burnout (Gallop et al., 2023). In fact, service learning faces challenges such as communication with other students, teachers, and community partners; difficulty in scheduling and prioritizing tasks to be completed in the project; and a degree of maturity in the student when engaging in service learning (Garger et al., 2020). In fact, working in environments with different social statuses can lead to burnout, jealousy, conflict, and injustice among employees (Wang et al., 2025). However, from the opposite perspective, it has been pointed out that participating in service learning has a positive effect on academic engagement—considered the construct opposite to burnout (Rodríguez-Izquierdo, 2020).

### 3.3. Justification of Hypotheses

The JD-R theory highlights the importance of the interaction between the demands and resources experienced by individuals (Bakker et al., 2023; Demerouti & Baker, 2023). In this sense, job resources could be both negatively and positively associated with burnout and engagement because they motivate employees and reduce psychological and physiological costs, in line with the buffer hypothesis (Ong & Johnson, 2023). The interaction between demands and resources has an effect on burnout (Asikainen et al., 2022), with different strategies for coping with burnout at work among men and women (Huang et al., 2019). In fact, the impact of resources—job security and emotional demands on employees—differs on the basis of gender (Huang et al., 2019), with job demands having a greater effect (Xie et al., 2021). Knowledge of these relationships is deepened when participation in a service-learning activity is incorporated. In fact, women—who are more likely to participate in service learning—acquire a higher level of skills, achieve higher performance, and attach greater importance to these skills when participating in such initiatives (Plaza-Angulo & López-Toro, 2024). For these reasons, the following are proposed:

**Proposition 1:** The interaction between demands and resources perceived by students together with gender and participation in a service-learning activity is sufficient to experience high levels of burnout.

**Proposition 2:** The interaction between demands and resources perceived by students together with gender and participation in a service-learning activity is sufficient to not experience high levels of burnout.

## 4. Methodology

### 4.1. Sample and Data

To collect the data, semi-structured interviews were conducted. We constructed an interview script based on the structure of the demand–resource questionnaire (Jagodics & Szabó, 2023), a tool developed specifically to measure the demands and resources of university students based on a two-factor structure—resources and demands—measured across five subscales. The demands analyses included work style, mental demands, emotional demands, career choice anxiety, and conflicts with teachers. The resources, meanwhile, covered personal development, information, feedback, perceived control and support from lecturers (Jagodics & Szabó, 2023; Tóth & Jagodics, 2025). These demands and resources predict a significant proportion of student burnout (Jagodics & Szabó, 2023).

Between September and December 2025, fieldwork was carried out on a group of first- year university students enrolled in a double-degree program in business administration and management and business analytics. Following the implementation of a service-learning activity, interviews were conducted with both the students who participated in the activity (56 interviews) and those who did not (47 interviews).

### 4.2. Method

Qualitative comparative analysis (QCA) is a comparative method based on set theory and Boolean algebra that addresses causal complexity. Unlike regression-based techniques that attempt to isolate the individual effect of conditions, QCA focuses its analysis on the interaction between these conditions when explaining a given outcome. It is a method that identifies necessary and sufficient conditions while addressing equifinality, asymmetry, and conjunctural causation. While necessary conditions are those without which the outcome under study cannot occur, sufficient conditions are those that explain the presence of the outcome. Equifinality involves identifying the different combinations of conditions that explain the presence of different outcomes. According to asymmetry, the explanation of a result and its negation requires different combinations of conditions. Finally, conjunctural causation states that it is the combination of conditions that explains the presence of a result, while the effect of the conditions depends on those with which they are combined (Medina Molina et al., 2025a).

There have been different proposals for calibrating the data obtained through interviews for application in QCA, with the Generic Membership Evaluation Template (GMET) being one of the most widely used proposals (Pagliarin et al., 2023). Developed by Tóth et al. (2017), GMET reinforces transparency in the fuzzy-set calibration process of conditions and results (Guevara et al., 2025; Kammerlander et al., 2025; Tóth et al., 2017; Waldkirch et al., 2025). To do this, it breaks down each of the constructs analyzed into different questions for which both the meaning and the intensity of the response must be assessed. Based on the calibration template that is developed, a choice is made between six fuzzy-set levels (0,

0.2, 0.4, 0.6, 0.8, 1) depending on the direction and intensity of the response. This avoids ambiguous cases and retains the detail of the assessment without introducing artificial distinctions (Forkmann et al., 2017; Guevara et al., 2025).

## 5. Analysis

First, the skewness check was performed, which was passed by three of the demands (mental demands = 61.17%, work style = 66.02%, and career choice anxiety = 33.01%), two of the resources (information = 69.90% and feedback = 73.79%), gender (57.28%), participation in service-learning activities (54.37%), and burnout (33.98%). However, two of the demands (emotional demands = 23.30% and conflict with teachers = 16.50%) and three of the resources (support with teachers = 87.38%, personal development = 97.09%, and perceived control = 91.26%) did not pass the test and were therefore not included in subsequent calculations. Thus, in assessing the results, it should be borne in mind that these were students who did not experience emotional demands or conflicts with teachers and did have support from teachers and experience personal development and perceived control. In line with previous studies (Kammerlander et al., 2025; Waldkirch et al., 2025), demands and resources were grouped using the average of the set of demands and resources included in the analysis as membership. Likewise, to avoid ambiguous cases, 0.01 was added to the ambiguous cases in the demands and 0.01 was subtracted from the ambiguous cases in the resources.

In evaluating the results, QCA relies on the parameters of consistency and coverage, which can be compared with the statistical indicators of significance and strength (Mello, 2021). Similar to statistical significance, consistency measures the degree to which an empirical relationship between a condition, or combination of conditions, and the outcome approximates a necessity or sufficiency in terms of set theory (Mello, 2008; 2017). For perfect relationships, a value of 1 is obtained, while for imperfect relationships, values less than 1 are obtained. Similar to statistical strength, coverage measures the empirical importance or relevance of a condition or combination of conditions (Mello, 2021; Ragin, 2014).

First, the existence of individual necessary conditions was analyzed. As shown in Table 1, demands are necessary for burnout to occur [consistency = 0.929, coverage = 0.688, relevance of necessity (RoN) = 0.730], while resources are necessary for the presence of ~burnout (consistency = 0.910, coverage = 0.763, RoN = 0.629).

**Table 1. Analysis of necessary conditions.**

	Outcome burnout			Outcome ~burnout		
	Consistency	Coverage	RoN	Consistency	Coverage	RoN
Demands	0.929	0.688	0.730	0.684	0.754	0.774
Resources	0.873	0.492	0.441	0.910	0.763	0.629
Gender	0.517	0.363	0.539	0.610	0.637	0.673
Service learning	0.546	0.404	0.585	0.542	0.596	0.675
~Demands	0.667	0.587	0.742	0.717	0.938	0.950
~Resources	0.579	0.813	0.930	0.393	0.821	0.933
~Gender	0.483	0.455	0.711	0.390	0.545	0.747
~Service learning	0.454	0.400	0.665	0.458	0.600	0.749

Note: RoN, relevance of necessity.

To identify sufficient conditions, a truth table was generated requesting a consistency of 0.8, two cases per configuration, and a proportional reduction of inconsistency (PRI) of 0.6. Likewise, to differentiate between core and peripheral conditions, the parsimonious solution and the complex solution were calculated using Fiss's (2011) proposal. Core conditions represent essential and causally critical elements for which there is substantial evidence of a causal relationship with the outcome; they maintain their causal relationship with the outcome through multiple solutions. Peripheral conditions act as supporting elements, reinforcing the core conditions but showing a weaker causal relationship with the outcome. These conditions may vary between different solutions that lead to the same outcome. This framework also allows for the identification of situations of indifference, where the presence or absence of a condition is irrelevant to the outcome of a configuration (Castelló-Sirvent et al., 2025).

The parsimonious solution is the most simplified version of the complex solution, generated using simplifying assumptions and presenting the most important conditions that cannot be eliminated from the solution, known as core conditions (Oana et al., 2021; Pappas & Woodside, 2021). The parsimonious solution seeks to identify the most common set of causal conditions sufficient for the outcome, facilitating the interpretation and application of its results (Kim et al., 2025). The simplest possible solution means that no condition can be removed from any of the sufficient terms without violating the information contained in the truth row. If any condition is removed from the parsimonious solution, the solution is no longer sufficient for the outcome (Oana et al., 2021). This property of non-redundancy means that it is sometimes considered the only solution that can be interpreted causally because for each of its conditions there is cross-case empirical evidence that it makes a difference to the outcome (Baumgartner, 2008). In the present case, as there were no clearly established directional expectations, the complex solution was chosen. The main difference between the parsimonious and complex solutions is that the complex solution excludes counterfactuals (Pappas & Woodside, 2021). It is a

solution generated exclusively from the rows of the truth table that explained the outcome under study and had empirical evidence. Moreover, they explained the outcome in great detail. The conservative solution offered the most cautious strategy in identifying sufficient terms and was the only one that retained all the *necessary conditions* observed in the data (Duşa, 2026).

Burnout's complex solution is  $\sim$ resources  $\times$  demands  $\times$   $\sim$ gender  $\rightarrow$  burnout. This solution had high consistency (0.893) and PRI (0.692), but low coverage (0.245). This solution is composed of a single term, as shown in the table below. The parsimonious solution for burnout had very similar parameters (consistency = 0.865, PRI = 0.638, coverage = 0.250).

**Table 2. Complex solution for burnout.**

Term	Consistency	PRI	Coverage	Unique coverage
<b><math>\sim</math>Resources <math>\times</math> demands <math>\times</math> <math>\sim</math>gender</b>	0.893	0.692	0.245	—
Model	0.893	0.692	0.245	—

Note: Core conditions are in bold. PRI, proportional reduction of inconsistency.

The complex solution for burnout is resources  $\times$   $\sim$ demands  $\times$  service learning + resources  $\times$  demands  $\times$   $\sim$ service learning +  $\sim$ demands  $\times$  gender  $\times$   $\sim$ service learning + demands  $\times$  gender  $\times$  service-learning  $\rightarrow$   $\sim$ burnout. This solution is composed of four terms with optimal parameters (consistency = 0.889, PRI = 0.773, coverage = 0.781). Likewise, the parsimonious solution presented optimal parameters (consistency = 0.769, PRI = 0.615, coverage = 0.871).

**Table 3. Complex solution for ~burnout.**

Term	Consistency	PRI	Coverage	Unique coverage
Resources × <b>~demands</b> × service learning	0.948	0.873	0.370	0.225
<b>Resources</b> × demands × <b>~service learning</b>	0.884	0.697	0.282	0.127
<b>~Demands</b> × gender × ~service learning	0.963	0.927	0.251	0.096
Demands × <b>gender</b> × <b>service learning</b>	0.838	0.628	0.178	0.033
Model	0.889	0.773	0.781	—

Note: Core conditions are in bold. PRI, proportional reduction of inconsistency.

To establish the robustness of the solutions obtained, a robustness test was performed (Oana et al., 2021; Oana & Schneider, 2024); this test is recommended when there is a low level of familiarity with the cases and allows some of the criteria used in generating the truth table to be altered simultaneously. According to this test, a comparison set was generated that consisted of three models generated from the alteration of consistency and requested three cases per configuration. In the fit-oriented test, the results were optimal for burnout analysis (RF\_cov = 1, RF\_cons = 1, RF\_SC\_minTS = 1, RF\_SC\_maxTS = 1) and high parameters for ~burnout (RF\_cov = 0.978, RF\_cons = 0.997, RF\_SC\_minTS = 0.976, RF\_SC\_maxTS = 0.877). Likewise, the values of the case-oriented test were optimal for burnout (RCR\_typ = 1, RCR\_dev = 1, RCC\_Rank = 1) and for ~burnout (RCR\_typ = 0.959, RCR\_dev = 1, RCC\_Rank = 3). The parameters obtained demonstrated the robustness of the solutions used in this study.

## 6. Discussion

The results obtained show how demands are necessary for burnout to occur, while resources are necessary for students not to experience high burnout. These results are in line with the finding that neither the denial of resources nor of demands is necessary for burnout (Demerouti & Bakker, 2023). Furthermore, the results linked to the necessary conditions analysis show how the isolated behavior of the JD-R components act as enablers for the experience of the results analyzed in this work—experiencing high levels of burnout or not experiencing such high levels of burnout.

When analyzing the conditions sufficient for university students to experience high levels of burnout, the solution consists of a single term in which high demands are combined with limited resources for women.

Although JD-R theory posits that demands and resources affect people through independent processes (Bakker et al., 2023; Demerouti & Bakker, 2023; Xie et al., 2021), the results show how, to explain burnout, the health-impairment process requires that women have limited resources. Thus, the results are in line with the approach stating that high demands combined with few resources could result in burnout (Bakker & de Vries, 2021; Demerouti & Bakker, 2023; Uysal & Potas, 2026), in the present study in the case of women. This result may be linked to the fact that our sample reflected the previously documented pattern whereby women are more

likely to report higher levels of burnout (Artz et al., 2022; Purvanova & Mures, 2010; Uysal & Potas, 2026). In this term, both having limited resources and being female act as core conditions, confirming that job resources are more strongly related to burnout than job demands (Bakker & de Vries, 2021; Xie et al., 2021).

Furthermore, the results suggest the relevance of the buffering hypothesis since the generation of burnout requires that students have limited resources available to them. These results reinforce the relevance of resources in the university context in explaining the burnout experienced by its students. For these reasons, hypothesis 1 cannot be accepted.

If we shift our focus to the conditions that explain not experiencing high levels of burnout, we find four terms.

The first two terms both have resources, which are then paired either with not having been exposed to high demands and having participated in service-learning activities or with not having participated in service-learning activities but having been exposed to high demands. These first two terms reproduce the pattern wherein resources are inversely related to burnout (Soliman et al., 2026; Xie et al., 2021), in line with the motivational process. Likewise, in the second term that explains not presenting high levels of burnout, there is a buffering effect—given the joint existence of resources and demands (Bakker & de Vries, 2021; Demerouti & Bakker, 2023), even in the case of not having participated in the service-learning activity. This second term also reflects how challenging demands can enhance the favorable impact of resources (Bakker et al., 2023; Demerouti & Baker, 2023). In any case, these results reaffirm the crucial role that the resources available to students play in preventing them from experiencing high levels of burnout. Likewise, the joint presence of conditions shows how, in line with Demerouti & Bakker (2023), the absence of a work demand does not have motivational potential, but rather requires additional conditions.

In the last two terms of not experiencing high levels of burnout, there were men who were either not exposed to high demands and had not participated in service-learning activities, or were exposed to high demands and had participated in service-learning activities. Therefore, the existence of high demands is offset by the skills generated by participation in service-learning activities, in line with the findings of Rodríguez-Izquierdo (2020). Emotional intelligence can help individuals perform their tasks and be engaged in work within

work groups with diverse social statuses (Wang et al., 2025). Thus, the results show how participation in a service-learning activity can help offset the impact of academic demands in the absence of a high valuation of resources. In evaluating these results, we must remember the profile of the sample with respect to certain resources and demands—students who did not experience emotional demands or conflicts with teachers but had support from teachers and experienced personal development and perceived control. However, in some respects, participation in service-learning activities may pose a challenge for students (Gallop et al., 2023; Garger et al., 2020).

Finally, resources did not appear in some of the explanatory terms for not experiencing high levels of burnout. Therefore, in this case, they are irrelevant, and thus, the results contradict those that suggest the relevance of the interaction between demands and resources (Asikainen et al., 2022; Demerouti & Baker, 2023). Since none of the terms interacted with individual and situational factors with demands and resources in explaining low burnout, hypothesis 2 cannot be accepted.

Finally, the results obtained are the opposite of what Ong and Johnson (2023) suggested, proposing that only the explanation of exhaustion reflects equifinality. In our case, a single term explains the experience of burnout, while equifinality appears in the absence of high levels of burnout.

## 7. Conclusions, Contributions, Limitations, and Future Lines of Research

### 7.1. Conclusions

This study aims to answer the question regarding the interaction of individual and situational factors with the demands on and resources available to university students in explaining their burnout. In the explanatory solution for burnout, demands and resources interacted with gender, with participation in service-learning activities being irrelevant. When explaining why university students do not experience high levels of burnout, the results showed that participation in service-learning only interacted with gender in the case of the male sample. Likewise, when the individual factor—gender—interacted with the situational factor—participation in service-learning activities—resources were irrelevant to the model.

### 7.2. Contributions

Among the methodological contributions of the work, the suitability of using QCA to explain whether or not university students experience high levels of burnout was demonstrated. This relevance was demonstrated by the contrasting behavior of the models that explain why students experience high levels of burnout—which were composed of a single term, with demands appearing alongside resources and participation in service-learning activities being irrelevant—and the solution that explains why they do not experience high

levels of burnout—which was composed of four terms, two of which did not include resources and always included elements related to participation in service-learning activities.

Among the theoretical contributions, it is noteworthy how participation in a service-learning activity went from being irrelevant in explaining high levels of burnout to playing a relevant role in explaining not experiencing high levels of burnout. Likewise, the incorporation of individual and situational factors meant that the perception of demands was the only component of JD-R theory that explained not experiencing high levels of burnout.

This article makes several contributions to university management. First, it shows that women are more likely to report high levels of burnout. Universities should therefore focus their interventions on women while assessing whether the behavior reflected by the male population is a response to gender stereotype pressure or whether they genuinely do not experience burnout. Likewise, the compensatory behavior exhibited by demands and participation in a service-learning activity shows how participation in a service-learning activity conditions the perception of demands—in the face of experiencing high resources.

### 7.3. Limitations and Future Lines of Research

This study was conducted at a private university, which means that the sample had certain characteristics that skew the results. Furthermore, since the study was conducted among first-year students, it would be interesting to consider how the model's behavior might change if the students were in later years of study. It should also be noted that the model's coverage is limited, which explains the high level of burnout observed in the experiment. It would therefore be important to identify the conditions that could complete the model and better explain the high perception of burnout among university students.

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