



## EFFECTS OF THE PANDEMIC ON FORMER STUDENTS OF FACE-TO-FACE UNDERGRADUATE COURSES: CASE STUDY IN A PRIVATE HIGHER EDUCATION INSTITUTION

## EFEITOS DA PANDEMIA NOS EX- ALUNOS DE CURSOS DE GRADUAÇÃO PRESENCIAL: ESTUDO DE CASO EM UMA INSTITUIÇÃO DE ENSINO SUPERIOR PRIVADA

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**Abstract** – This study brings to light the results from research carried out at a private Higher Education Institution (HEI) with former students of five face-to-face undergraduate courses in southeastern Brazil. The research used a theoretical framework on evasion and Human Capital Theory (HCT), relating the concepts to the Covid-19 pandemic, reported as more unfavorable to young people, women,

withdrawn students, black people and low-income people by the 2020-2021 literature. This article was a descriptive and explanatory case study with documentary research and questionnaires. The results of the study show that withdrawn students underwent more damage than former graduated students. Women were more affected than men, and self-declared black participants had a three times higher percentage of layoffs than white ones. Considering values reported on a Likert scale at this study, most respondents reported psychological problems and change of jobs. Among the five analyzed courses, medical students were the ones who reported the highest increase in their workload, limited free time, and lack of study time, and the majority did not start a postgraduate course. Women also reported more physical and psychological problems, intensified tiredness while working remotely, and less free time than men. Race-wise, it is striking that fewer self-declared black people reported increased working hours. People with incomes between ten and twenty salaries had less time to study and less free time. Former students earning more than ten minimum wages had a greater increase in working hours, and those earning up to two wages reported many psychological problems and most job changes.

**Keywords:** HEI; Covid-19; evasion; HCT; Face-to-face undergraduate courses.

**Resumo** – Este estudo tem como objetivo apresentar resultados de uma pesquisa realizada em uma instituição de Ensino Superior (IES) particular do sudeste do Brasil junto aos ex-alunos de cinco cursos de graduação presencial. A pesquisa usou referencial teórico sobre evasão e Teoria do Capital Humano (TCH), relacionando-os com a pandemia, cujos trabalhos dos anos de 2020 e 2021 apontavam que jovens, mulheres e pessoas de baixa renda seriam mais impactadas pela covid-19. Esse artigo foi um estudo de caso descritivo, explanatório, com pesquisa documental e questionário. Os resultados mostram que os evadidos dos cursos sofreram maiores danos do que os concluintes. Mulheres foram mais afetadas do que homens e respondentes autodeclarados pretos tiveram três vezes maior percentual de demissões do que os brancos. Considerando-se valores reportados em uma escala Likert, observou-se que maior parte dos respondentes relatou problemas psicológicos e mudança de emprego. Dentre os cursos analisados, formandos em Medicina foram os que mais relataram aumento na carga horária de trabalho, bem como tiveram menos tempo livre, menos tempo pra estudar e a maioria não iniciou curso de pós-graduação. Mulheres também tiveram mais problemas físicos e psicológicos, ficaram mais cansadas trabalhando remotamente e tiveram menos tempo livre do que homens. Em relação à raça, o item que chama a atenção é que poucas pessoas autodeclaradas pretas relataram aumento na jornada de trabalho. Pessoas com renda entre dez e vinte salários tiveram menos tempo pra estudar e menos tempo livre. Os ex-alunos com renda maior do que dez salários-mínimos tiveram maior aumento da jornada de trabalho e os que recebem até dois salários foram os que tiveram muitos problemas psicológicos e mais mudaram de emprego.

**Palavras-chave:** IES; Covid-19; Evasão; TCH; Graduação presencial.

## INTRODUCTION

There is a widely known international consensus on the university's role in promoting professional success to its students, hence avoiding the waste of time, money, talent, and human potential during the academic experience. In addition to this professional success responsibility, Higher Education Institutions (HEIs) are putting efforts into understanding the reasons for the increased rates of withdrawn students and mitigating this issue (FERRÃO; ALMEIDA, 2018).

Although school dropout has been debated since the 1950s in the United States of America, the theory still needs to be polished due to numerous divergent theoretical contributions and contrasting research according to Hoffmann, Nunes, and Muller (2019), since school evasion is a complex and multidisciplinary issue, which addresses among others, financial, social, psychological and organizational issues.

In this sense, this article is part of the ongoing expansion of the higher education sector in Brazil, i.e., the number of students increased from 1.38 million in 1990 to 8.45 million in 2018 according to Teixeira, Mentges, and Kampff (2019). Despite that, Brazil has only 14% of adults with higher education, numbers inferior to other Latin American countries, such as Chile (21%) and Colombia (22%) (OECD, 2018).

The low percentage of access to higher education in Brazil is intertwined with income, i.e., individuals with a degree earn on average 2.4 times more than those who have only finished high school, and people with postgraduate degrees have an average income 4.5 times higher than them (OECD, 2018). Besides the income differences according to the level of education, there is a large wage difference between genders and races. Empirical evidence shows that education is usually more relevant for underdeveloped and developing countries than for developed ones due to the inadequate distribution of educational efforts and workforce (MIRANDA et al., 2013; OECD, 2018).

The high dropout rates in Brazil and its rise in recent years both in distance learning and face-to-face courses may be due to the remarkable expansion in higher education and the rapid decrease in the teaching quality, which may even hamper the widely reported positive relationship between education, income, and social returns (CUNHA; CORNACHIONE JUNIOR; MARTINS, 2010).

Understanding education as one of the means to reduce social inequality, it is pivotal to emphasize the issues resulting from the Covid19 pandemic since March 2020, which has significantly affected the public-school students, poor people, and those residing in places of difficult access. According to Neri e Osorio (2021), this impact will also be perceived in the labor market.

Considering the drawbacks triggered by the pandemic, ensuring that the evasion issue does not reverberate the historical segregation and social exclusion is necessary. In addition to the negative impact on lower-class students caused by Covid-19, understanding that the economic condition is one of the most significant factors triggering withdrawn students is fundamental even if it is not a recent problem (ROSA; RIBEIRO, 2017).

If, on one hand, many researches are addressing how to study years lead to income increase and unemployment reduction (ALVES; CHAVES, 2012; SANTOS NETO, 2015; CABRAL; SILVA; SILVA, 2016; KELNIAR; LOPES, 2013; OECD, 2018; FONSECA; FERREIRA, 2020; VIANA; LIMA, 2010; HALIK; MULINA, 2020; RIBEIRO, 2015; AGUIAR, 2012; ALVES, 2007; MOSCHKOVICH; ALMEIDA, 2015), on the other hand, there is also literature pointing to the presence of wage inequalities between genders and races (ARAÚJO, 2019; OECD, 2018; CABRAL; SILVA; SILVA, 2016; KELNIAR; LOPES, 2013; SOUZA et al., 2015). Other studies tackle the dropout growth and the greater concern of institutions on the subject (TEIXEIRA; MENTGES; KAMPFF, 2019; DAVID; CHAYM, 2019; LIMA; ZAGO, 2018; PEREIRA, 2019), as well as the disproportion of evasion rates among courses (NOVA, 2019; MACIEL; ASSIS; SILVA, 2018; HOFFMANN; NUNES; MULLER, 2019).

Ambiel and Barros (2018) address that the students' expectations about their careers in the future may be closely related to dropout decisions. Our bibliometric research echoed another issue uncovered by Teixeira, Mentges e Kampff (2019), who state that there is more literature on public institutions than private ones, even with a greater number of private HEIs than former ones in Brazil, hence justifying the need and relevance of further research in private HEIs.

Based on the theoretical framework of evasion and Human Capital Theory (HCT), specific groups are more likely to experience social and financial exclusion. Therefore, this study aimed to identify the pandemic impact on former students of face-to-face courses and present the results of the research carried out in a private HEI in southeastern Brazil. To achieve the study objective, we hypothesized that withdrawn students, women, self-declared black people, and low-income people would be more impacted by Covid-19

## **UNIVERSITY WITHDRAWAL AND PERMANENCE**

University withdrawal is an international issue, and the dropout rate in Brazilian higher education is inferior to other Latin American countries, similar to European countries, but higher than eastern nations, such as Japan and Turkey (SILVA FILHO et al., 2007). On top of that, school withdrawal is also interdisciplinary and complex since it relates to other relevant topics in psychology, management, Human Capital Theory (HCT), and pedagogy.

That evasion may also be related to the forms of evaluation, financial problems, bullying, teaching methodologies, school integration, type of curriculum, job market, unsatisfactory grades, geographic and personal issues, and school subjects, among others.

Student dropout is the main hurdle to growth in enrollment standing out as an issue that has been increasingly debated and raising widely explored questions, such as: Where do dropout students go? Why do they abandon courses or take so long to

graduate? What reasons let the withdrawal? What needs to be done to decrease that?

The increase in evasion may reflect the rapid growth in student intake, the offer of courses, and the sudden expansion in the number of private institutions. In this scenario, the student has more options to choose the more suitable HEI to their demands and desires (SLHESSARENKO et al., 2014). Brazilian academic managers consider university dropouts one of the main problems in education (LOBO, 2012).

In this context, Hoffmann Nunes and Muller (2019) point out that a significant amount of capital is invested to attract new students, but little investment and efforts have been made to reduce evasion or improve students satisfaction, considering that withdrawn students increase once new offers, courses, and institutions emerge. In light of that, retaining enrolled students is as pivotal as attracting new ones, because withdrawn students can be considered as a threat or opportunity to HEIs aware of the fact that student maintenance is a shared responsibility and that close relationships are a critical condition for success (KOTLER; FOX, 1994).

## **COVID-19 AND EVASION**

In early 2020, Covid-19 has taken the world by surprise. UNESCO (2020) shows that 1.6 billion students were impacted at the height of the crisis, and many students are still affected to date worldwide. In March 2020, face-to-face classes were replaced by online ones in some Brazilian HEIs, while others did not offer courses during the first semester or even the whole year.

In most private HEIs, the change in the teaching shift had to happen quickly, hampering planning and training to engage teachers with the new methods, which may have worsened the quality of teaching. Verde and Ricarte (2020) stated that emergency remote teaching was the most adopted, and HEIs that already had distance learning stood out since they could guarantee a better application due to their experience. Universities without distance learning had to adopt this modality without proper pedagogical preparation to avoid losing students. However, they will

have to rethink the medium and long-term strategies. In terms of content, one could observe the attempt to copy the face-to-face model that students were already used to.

Even though there is still no empirical evidence on the consequences of online classes, low academic performance could be noticed in students together with increased anxiety, depression, stress, and changes in daily routine. These factors hampered motivation to study and, consequently, may increase university withdrawal (NUNES, 2021; GUSSO et al., 2020). Tinto (1998) reported that social integration plays a significant role in permanence; therefore, social isolation hinders the creation of new affective ties with colleagues and professors at the institution and, consequently, increases dropout chances.

Feitosa et al. (2020), on the other hand, pointed out that students started to attend classes in the comfort of home with greater schedule flexibility, without the need for locomotion and, hence, saving commuting costs. Moreover, there was a greater sharing of knowledge, new technologies learned, decreased resistance to the new, and increased student motivation.

Professors, on the other hand, have experienced noticeable exhaustion and overload due to the various new tasks and challenges with the novel teaching ways piled up with greater difficulty in preparing classes, more time invested in posting exercises, and unsuitable teaching environments (NUNES, 2021; GUSSO et al., 2020; SANTOS; SOUZA; SANTOS, 2021).

Regarding the reasons for university withdrawal in 2020 in private and public HEI, Saldaña (2021) reported that, in private institutions, the financial issue was the predominant factor, while the precariousness of remote teaching was the driving factor in the public ones.

According to Nunes (2021), women were the most affected by the crisis. In her research, women represented the most affected group by the crisis. Their research with higher education students verified that 30.7% of women and 21.9% of men dropped out. That difference could be due to the greater amount of domestic tasks carried out by women combined with child care and/or psychological problems.

It is noteworthy that previous research on evasions, such as Lacerda e Valentini (2018) and Silva (2012), showed that women withdraw less than men, highlighting the urge to expand research on the period between 2020 and 2021.

Casagrande (2021) analyzed dropout propensities during the pandemic in her thesis and shows that social interactions, lack of time, course structure, pedagogical issues, struggles with remote teaching, and financial issues were the main reasons leading to withdrawn students in this period.

It can be also noted that, before Covid-19, HEIs already needed to adopt initiatives to reduce student dropouts. However, Covid-19 brought urgency to the problem that affects HEIs sustainability. The need to adopt strategies to comprehend dropout causes and define actions for the student's permanence is fundamental to reducing social, organizational, and individual losses.

Another worth mentioning factor is the greater impact on public university students, who consequently have a lower income and live far from the university than private university students with good purchasing power and living in large centers. Furthermore, the educational, social, and labor market triggered by Covid-19 will probably have future effects on job possibilities and an increase in existing inequalities in countries (NERI; OSORIO, 2021; PEDROSO; GISI, 2020).

After this troubled period faced by HEIs, mainly regarding the transition from face-to-face courses to online ones, it is clear that currently, the institutions have the opportunity to plan the future of education with digital technologies, i.e., improve the digital transformation, internal processes and management to stand out as more efficient organizations and enhance their service quality. To achieve that, system integration, the use of artificial intelligence, robots, the internet of things, data-based market intelligence, and restructuring of teaching and learning strategies will be necessary (PRIETO, 2021).



## ***HUMAN CAPITAL THEORY***

The Human capital theory (HCT) is the concept stressing that acquiring more knowledge and skills increases the value of people's human capital, improving their employability, productivity, and salary. Therefore, investing in education enables increases in future salaries and further occupation of more prestigious positions in society, leading to greater social well-being and technological development (CUNHA; CORNACHIONE JUNIOR; MARTINS, 2010; PARENTE et al., 2011; RIBEIRO, 2015).

Nevertheless, Decker and Evangelista (2019) have a counterpoint to the thought that the higher the schooling, the greater the change of insertion in the labor market and the higher the salary. They point out that capital concentration and its accretion do not occur due to the number of years of an individual's study.

Pritchett (2001), echoed by Viana and Lima (2010), concurs with such a perspective and points to a lack of relationship between human capital and economic growth, stating the absence of a correlation between these variables. However, according to Marcelo Neri in Brazil (2013): "[...] wages among people with higher education are growing less compared to those without a university degree [...], but the values continue to be much higher among graduates".

Silva (2010) shed light on the weak relationship between the general unemployment rate and the average level of education. He reports that getting a job through friends, family, and public competition is easier than by graduating from a course since the title is only a minimum leveling requirement to be successful. Furthermore, a noticeable difference in wages is perceived according to the type of high school the students studied and their parents' social class. A similar result was found by Tafadzwa (2019), who stated that graduation increases employability, but race, gender, socioeconomic status, and age are still stronger determinants.

Halik and Mulina (2020) conclude in their study that HCT impacts the economy as a whole regardless of location, and has the power to modify the entire society. Such prominence has never been given to human capital and its importance for

economic development in the last decade. Even HCT critics agree that when human capital is boosted by education, it paves the societal path to achieve an environment conducive to economic growth, even if this growth favors some social classes.

## **EFFECTS OF COVID-19 ON THE LABOR MARKET**

The world economy in 2020 experienced the biggest recession since 1929 due to the coronavirus pandemic. The world's Gross Domestic Product (GDP) has shown a sharp decrease, there has been a high growth in the unemployment rate, damage to the health and education of the population, an increase in psychological problems, and there is still a long way for economic recovery (OECD, 2020). In line with the HCT, the OCDE (2020) points out that investment in formal education and training of the population is pivotal for the recovery of jobs and the economy.

Although there were noticeable problems in most sectors worldwide, some were able to adapt and had an increase in revenue and profit, e.g., areas of technology, e-commerce, retail, and pharmaceuticals (OXFAM, 2020). In contrast, small companies, tourism, clothing, and automobile sectors had a large drop in revenue and significant losses in Brazil and worldwide (CAMPOS; MIRANDA, 2021).

Since most companies suffered heavy losses, there were numerous downsizing, and most affected were young people, women, black people, and people with less education, further deepening social inequalities (BARBOSA; COSTA; HECKSHER, 2020). Besides the losses in the formal sector, the decrease in the informal sector was even more remarkable (-15.6% in the second half of 2020), which led to more damage to the most vulnerable groups (FRANCA; RUSSO, 2021).

Another relevant issue shown by the Nucleus of Operational and Health Intelligence (NOHI) was that people with higher education had a mortality rate 3 times lower than patients with no education (NOIS, 2020).

Since this work addresses the unemployment rate of former graduates and withdrawn students, mostly young, OIT (2020) data also highlighted that the crisis triggered by Covid-19 mainly affected younger people, as they were the first to have

reduced workloads due to their presence within an informal economy (mainly in a poor country) and working as freelancers or part-time.

Education and training of a country's population stand out as an important ally in maintaining jobs and enabling professional reallocation, stimulating the recovery of a country, especially when there are economic crises, wars, or environmental disasters. El-Khawas (2011) reported that the USA invested intensively in higher education in the 1920s, which helped the Americans overcome the 1929 crisis, as HEIs provided research and qualified people who contributed in that decade and, subsequently, in the two world wars.

Concerning the current Covid-19 crisis, investment in human capital is once again necessary for bringing the economy back on its feet, leading to more job vacancies, improved life expectancy, and population well-being, as stated by Campos and Miranda (2021, p.8):

We can observe, therefore, that investment in education strengthens human capital, assist in economic growth, in the technological development of countries, and improves the productivity of people and organizations. Moreover, as explained above, long-term recovery after turbulent economic and social events demands investment in human capital.... The effects of an investment in education surpass different dimensions, leading to beneficial conditions for all those involved, directly and indirectly, and in economic, social, and individual matters.

Rezende and Dias (2021) added that Covid-19 triggered a change in organizations, demanding professionals with more discipline for remote work, and emotional, intellectual, and spiritual intelligence. In addition, the study reports that technological progress will increasingly demand training and dedication from people who want to maintain their jobs. Hence, the HEIs need to promote such qualifications (theoretical and practical), connect with companies, and foment events at the national or international level to prepare students for this new reality.

Even though Brazil still needs to improve the level of its human capital, the country has managed to increase the educational level of the population in recent years and cannot let the Covid-19 damage stop this progress. In 2020, the country

offered interest-free loans to combat the issues triggered by the pandemic as well as incentive people to keep jobs, providing credit for entrepreneurs and aiding unemployed or low-income people (SEBRAE, 2020).

These measures, however, served to face immediate problems, but the country will need to offer future conditions for post-Covid-19 recovery, since the link between educational and market crisis could result in significant damage to future jobs, especially for young people, as well as increased inequalities between nations (and within them), generating major future problems for society as a whole (PEDROSO; GISI, 2020).

## **METHODOLOGICAL ASPECTS**

### **Bibliometric research and method**

The theoretical framework research was carried out on March 26, 2021, in the CAPES journal database and took into account the detailed analysis of trends, main communication vehicles, authors, and topics within the area of evasion, permanence, and Theory of Human Capital published between 2010 and 2021. Systematized bibliographical research was then carried out in 3 phases (Boolean rule, cross-sectional reading, and classification).

The research was performed in a private HEI in the southeast region of Brazil, which has more than ten thousand students in different modalities and teaching areas. To elaborate on the experimental design, the type two case study technique was defined, since a single HEI was used as a single study case and five in-person courses as subunits (units of analysis). The course choice was based on the largest number of incoming students between 2016 and 2021 out of forty HEI.

A descriptive and explanatory study was carried out with documentary research and a survey-type questionnaire. According to Yin (2001), the case study is an empirical investigation that analyzes a contemporary phenomenon within its real-

life context, especially when the boundaries between phenomenon and context are not well-defined and several evidence sources are used. It is worth mentioning that this method is the most used in qualitative research, but Gil (2009) affirms that it also works in quantitative research such as this work.

## **Sampling and Population**

Research sampling was performed through an unsystematic sampling by proportion, where the following parameters were used: test power of 95%, which is the value of type II error<sup>1</sup> ( $\beta$ ), significance level<sup>2</sup> ( $\alpha$ ) of 0.05, an effect size of 0.1, which is considered low by Cohen (1955) and constant proportion of 50%. The populational size of former students from the five different courses was 6177, and the minimum sample calculated with these parameters was 275 former students, but 605 valid responses were obtained. As we are dealing with a heterogeneous population (due to the number of each course), we decided to divide the sample into subpopulations according to Cohen (1955) so that a sample represents each course. The technique used to calculate was unsystematic non-probabilistic convenience sampling.

## **Effects of the pandemic on work**

The effects of the pandemic on participants' work were investigated by independent  $\chi^2$  analysis (Chi-square independent analysis) and portrayed using Donut diagrams (BARTOLUCCI; BACCI; GNALDI, 2016; BORCARD; GILLET; LEGENDRE, 2018; SVENSSON, 2001). The question: "Did Covid-19 impact your work in any way?" was used. Further investigations were carried out among the dropouts and graduates, course, gender, and race of respondents.

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<sup>1</sup> It consists of not rejecting the null hypothesis when it is false.

<sup>2</sup> It consists of rejecting the null hypothesis when it is true.

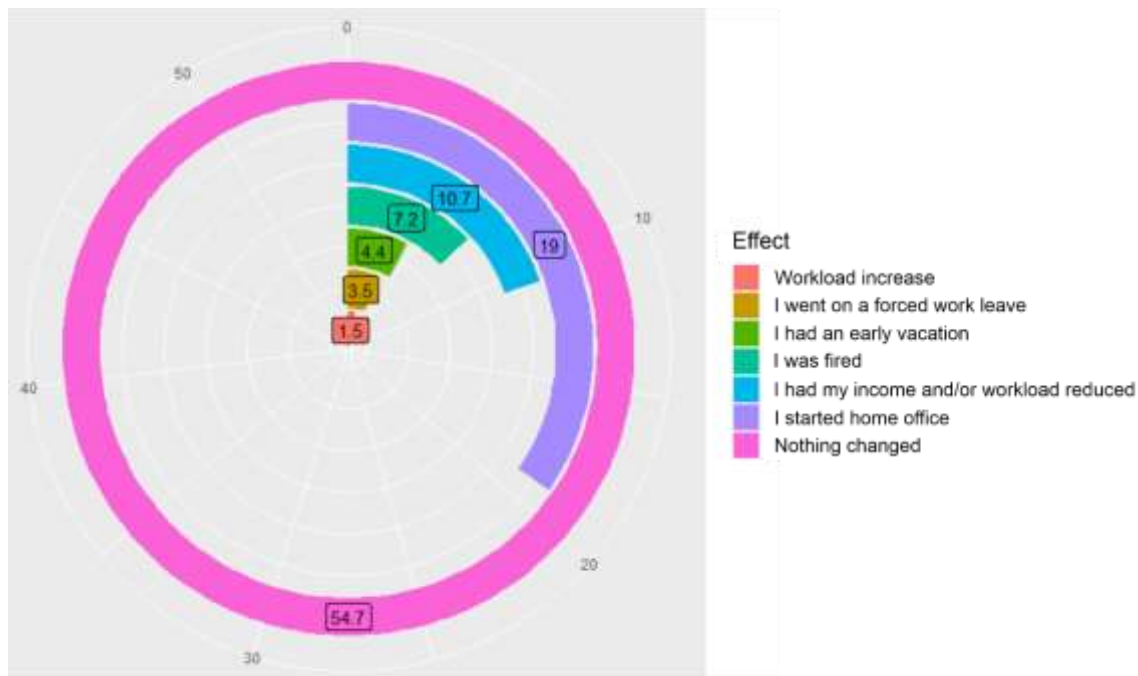
## **Effects of the pandemic on well-being**

The effects of the pandemic on respondents' well-being were assessed via Likert questionnaire analysis. First, a multiple correspondence analysis was performed to identify key indicator variables within each category. Subsequently, differences between response patterns were investigated by independent permutation analysis, since the assumptions of parametricity were not observed in the variables (BARTOLUCCI; BACCI; GNALDI, 2016; BORCARD; GILLET; LEGENDRE, 2018; SVENSSON, 2001) and were separated by course, gender, race, evasion, and current income of respondents.

## **EFFECTS OF THE PANDEMIC ON FORMER UNDEGRADUATE STUDENTS**

### **Effects of the pandemic on work**

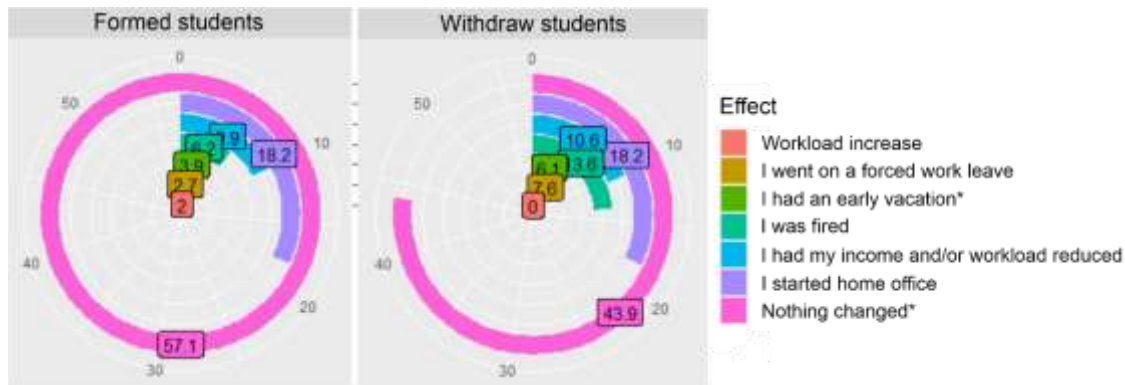
It was observed that 54% of respondents did not notice changes caused by the Covid-19 pandemic at work (Figure 1). When questioned "Has the Covid-19 pandemic impacted your work in any way?", the main answers were related to changes toward the "home office" model with 19%, followed by "reduction in income/workload" and "dismissal" with 10% and 7%, respectively (Figure 1).



**Figure 1 – Donut diagram (percentage values) of the pandemic effects on respondents' work. Source: Prepared by the author (2022).**

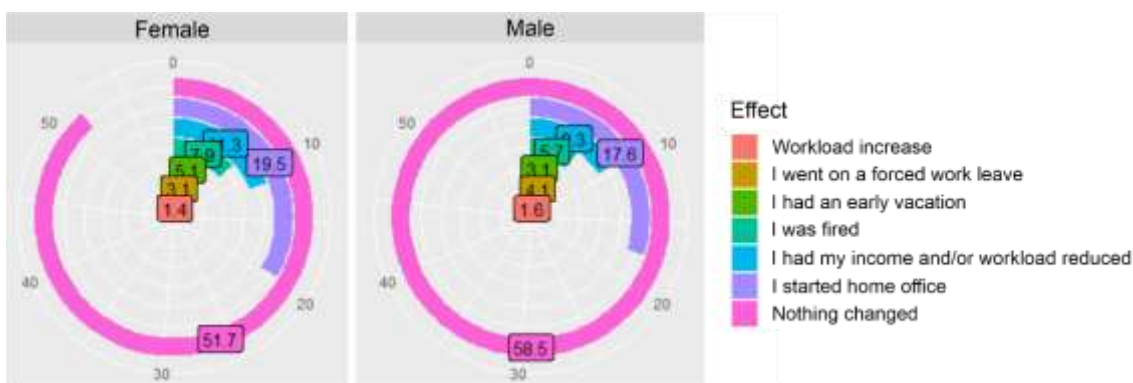
When observing higher education graduates and withdrawn students separately (Figure 2), it is clear that graduates faced less impact due to the pandemic than dropouts: 57% of graduates answered that nothing has changed, while the percentage was 43.9% for dropouts. Another statistically significant item was that only 3.9% of graduate students had early vacation while the percentage reached 6.1% of withdrawn students.

Although the other items did not show a statistical difference, they point out that dropouts experienced greater damage as they had more than twice as many layoffs (13.6%) compared to graduate students (6.2%) and faced more forced leave (7.6%) than graduate students (2.7%). The data converge with both Rezende and Dias (2021) and Campos and Miranda (2021) regarding the importance of training people to remain employed or return to the labor market.



**Figure 2 – Donut diagram (percentage values) of the pandemic effects on respondents' work among formed and withdrawn students of undergraduate courses. Statistical differences between groups were investigated by the  $\chi^2$  (independent chi-square) and signaled with \*. Source: Prepared by the author (2022).**

By distinguishing respondents by gender (Figure 3), no statistical difference was observed. Nevertheless, women had shaper reduced income and/or workload (11.3%) compared to men (9.3%), higher dismissal rates (7.9%) than men (5.7%), and more frequent early vacation (5.1%) than men 3.1%). Moreover, fewer women stated that nothing changed (51.7%) than men (58.5%). That data resonate with Barbosa, Costa and Hecksher (2020) argument that women were more affected by the pandemic than men.

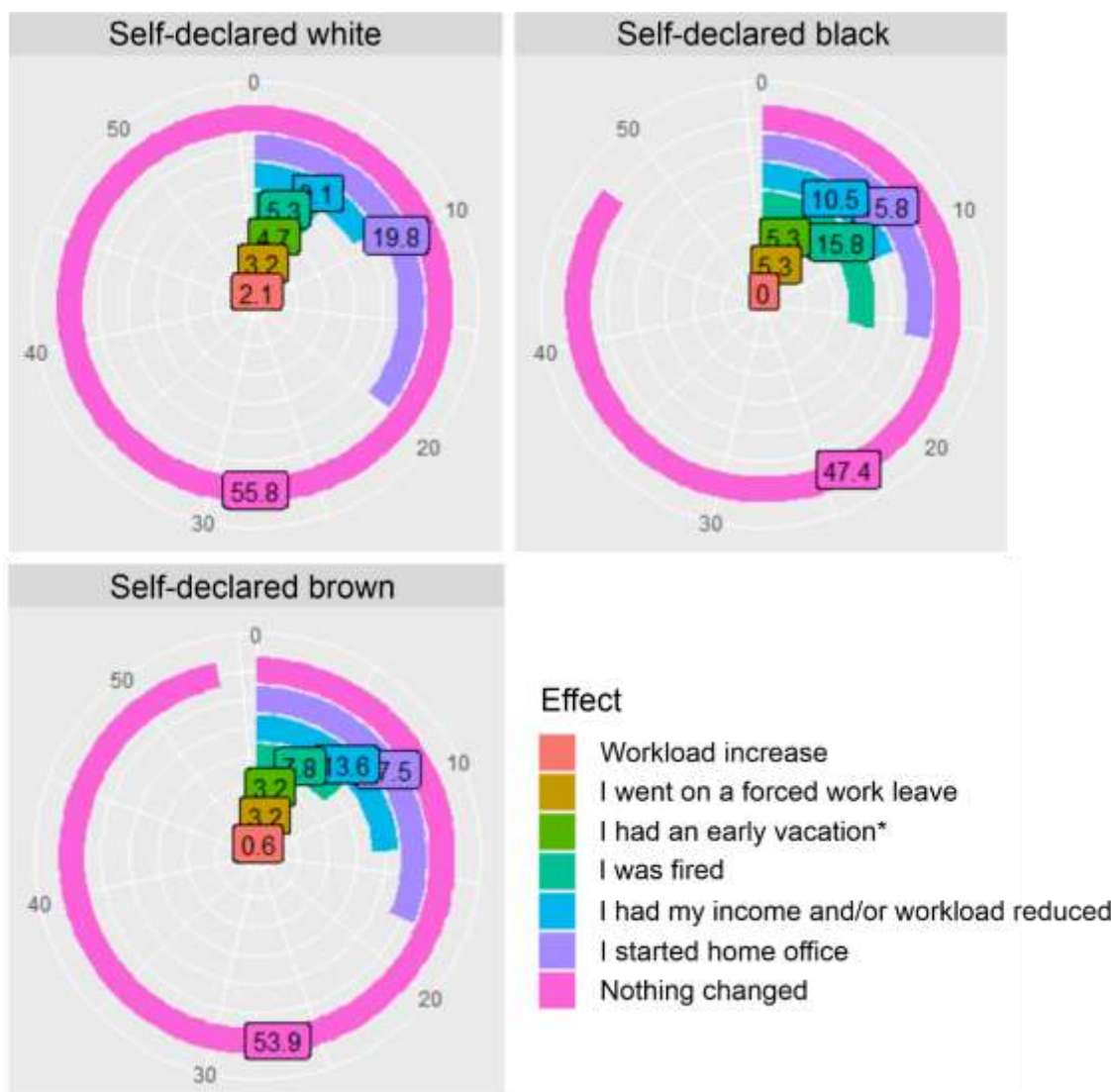


**Figure 3 – Donut diagram (percentage values) of the pandemic effects on respondents' work by gender. Source: Prepared by the author (2022).**

The results have also shown that self-declared black people experienced more losses due to Covid-19 than self-declared white and brown people (Figure 4), a result



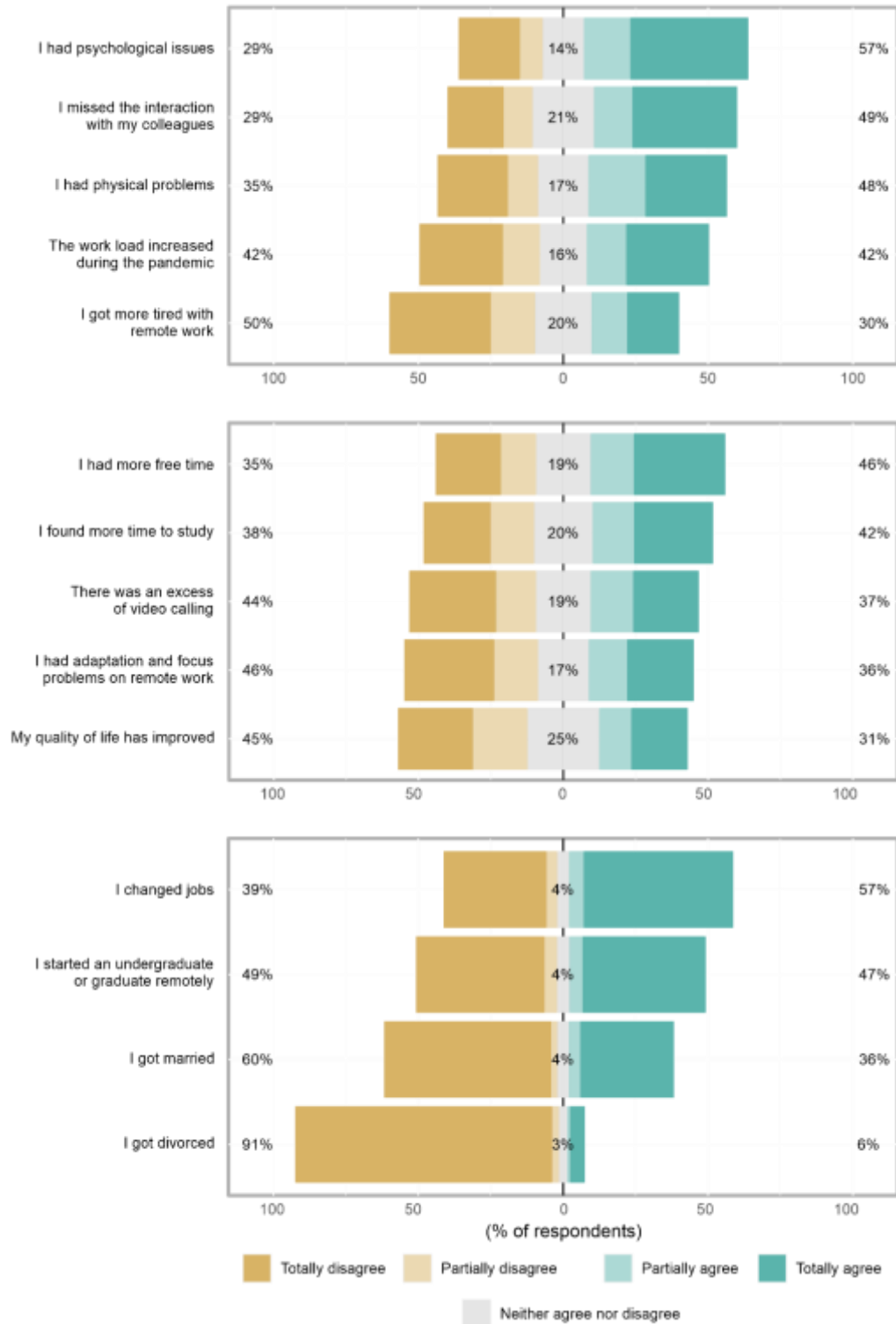
also discussed by Barbosa, Costa, and Hecksher (2020). The item “I had an early vacation” presented statistical differences (5.3% black, 4.7% white, and 3.2% brown). Even though most of the items did not present a significant difference, the number of people fired caught our attention (5.3% white, 7.8% brown, and 15.8% black lost their jobs).



**Figure 4 – Donut diagram (percentage values) of the pandemic effects on respondents’ work down by race. Statistical differences between white and black groups were investigated by the  $\chi^2$  (independent chi-square) and signaled with \*. Source: Prepared by the author (2022).**

## **Effects of the pandemic on well-being**

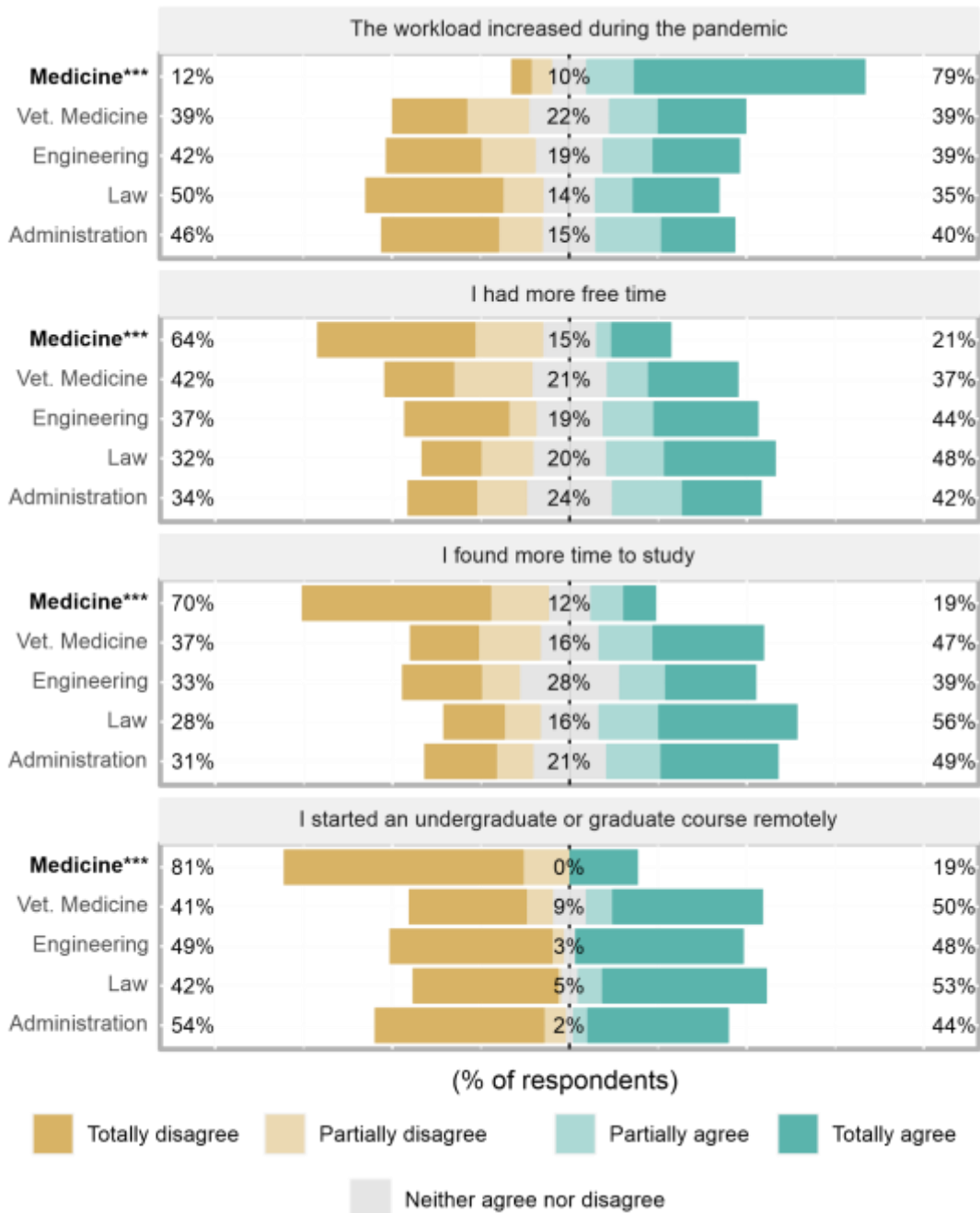
This questionnaire section analyzed the pandemic effects on alumni using the five-factor Likert scale. Figure 5 shows that 57% of respondents had psychological issues, 49% missed interactions with colleagues, 48% had physical issues, 42% said they had increased working hours, and 50% disagreed with the idea linking remote work with higher tiredness.



**Figure 5 – Response pattern to questions on the Likert form about the effects of the pandemic on the respondents’ quality of life (values are shown as percentages). The bars on the right (light and dark green) indicate positive response patterns, while the left ones (beige and mustard) show negative response patterns. The central region (in gray) denotes a neutral response pattern. Prepared by the author (2022).**

Figure 5 also shows that 46% of former students said they had more free time, 42% had more time to study, 44% did not struggle with the excess of video calling, 46% had no problem adapting to remote model, and 45% disagreed that quality of life worsened. Moreover, 57% of the respondents changed jobs, 47% started a new undergraduate or graduate degree, 36% got married, and 6% divorced.

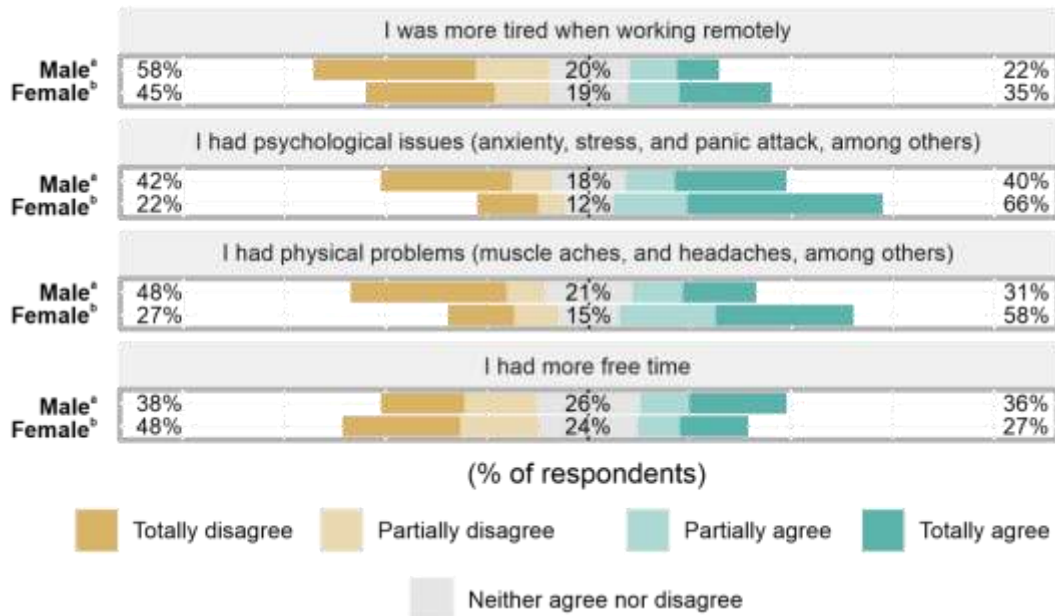
When analyzing respondents by course (Figure 7), those trained in Medicine were the ones who had statistically significant differences from the other courses in some items of the questionnaire. They underwent the most increase in working hours during the pandemic (79%), consequently, they had less free time (64%) and less time to study (70%), hence not starting a postgraduate course (81%).



**Figure 7 – Response pattern to questions on the Likert form about the effects of the pandemic on respondents' quality of life (values shown as percentages). The bars on the right (light and dark green) indicate positive response patterns, while the left ones (beige and mustard) show negative response patterns. The central region (in gray) denotes a neutral response pattern. Significant differences were investigated by permutation analysis and highlighted with a bold asterisk. Source: Prepared by the author (2022).**

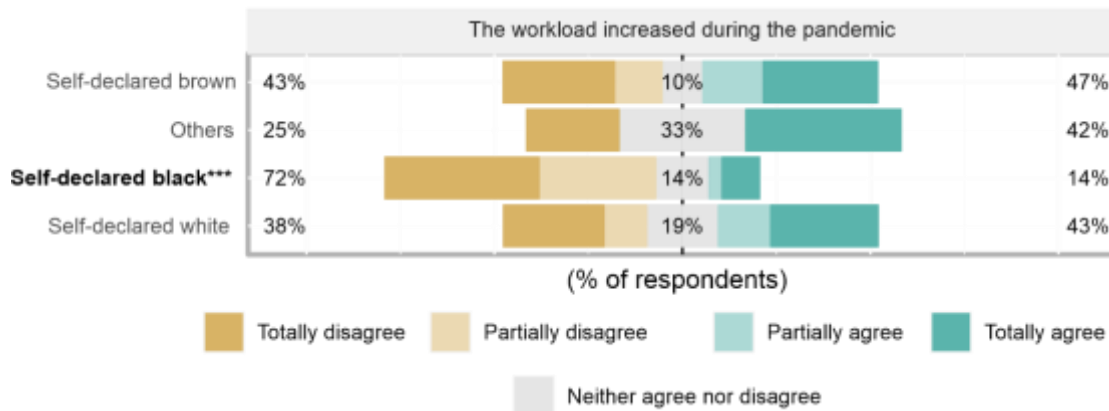
In Figure 8, the main answers are presented by gender, and the items showing statistical difference were the following: Women were more tired working

remotely (35% women and 22% men), had more psychological issues (66% women and 40% men), more physical problems (58% women and 31% men) and less free time (48% women and 38% men), possibly due to they have more housework and childcare than men.



**Figure 7 – Response pattern to questions on the Likert form about the effects of the pandemic on respondents' quality of life (values shown as percentages). The bars on the right (light and dark green) indicate positive response patterns, while the left ones (beige and mustard) show negative response patterns. The central region (in gray) denotes a neutral response pattern. Significant differences were investigated by permutation analysis and highlighted with different bold letters. Source: Prepared by the author (2022).**

Regarding the difference between races (Figure 9), the only significant statistical difference was that self-declared black respondents reported increased working hours (14% black, 43% white, and 47% brown).



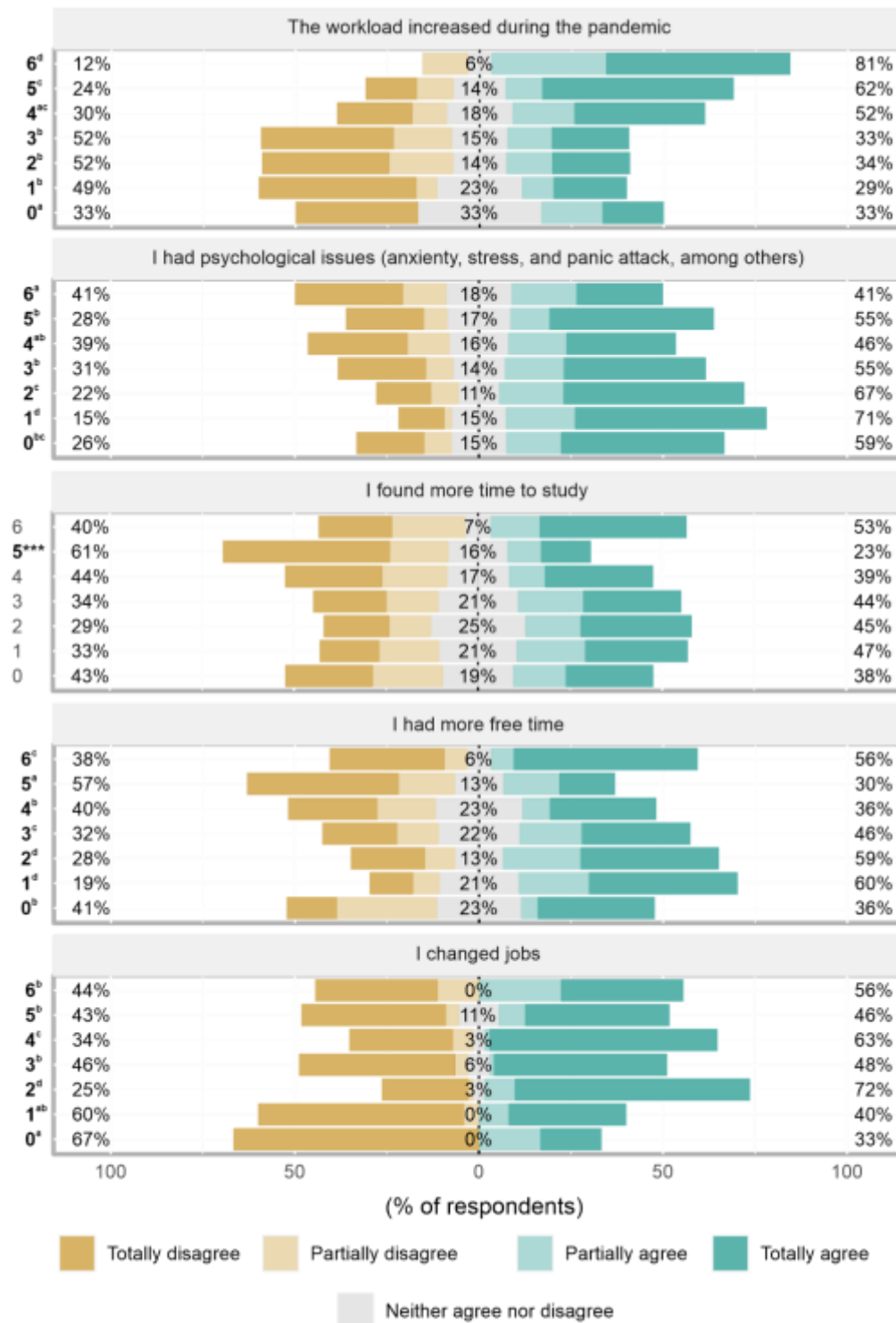
**Figure 9 – Response pattern to questions on the Likert form about the effects of the pandemic on respondents' quality of life (values shown as percentages). The bars on the right (light and dark green) indicate positive response patterns, while the left ones (beige and mustard) showed negative response patterns. The central region (in gray) denotes a neutral response pattern. Significant differences were investigated by permutation analysis and highlighted with a bold asterisk. Source: Prepared by the author (2022).**

Participants were also separated according to their income (Table 1 and Figure 10), leading to the following items with a statistical difference: people with income between ten and twenty minimum wage and above twenty wages had a higher proportion of increased working hours (62% and 81%, respectively). The low-income respondents (up to 1 and between 1 and 2 wages) were the ones who had more psychological problems (71% and 67%, respectively) and the ones who changed jobs the most (72% of people earning between 1 and 2 salaries). Participants earning between ten and twenty salaries had less time to study (61%) and less free time (57%).

**Table 1:** Analysis of respondents according to salary income

0 – without income
1 – up to 1 minimum wage
2 – between 1 and 2 minimum wages
3 – between 2 and 4 minimum wages
4 – between 4 and 10 minimum wages
5 – between 10 and 20 minimum wages
6 – more than 20 minimum wages

Source: Elaborated by the author (2022)



**Figure 10 – Response pattern to questions on the Likert form about the effects of the pandemic on respondents' quality of life (values shown as percentages). The bars on the right (light and dark green) indicate positive response patterns, while the left ones (beige and mustard) show**



*negative response patterns. The central region (in gray) denotes a neutral response pattern. Significant differences were investigated by permutation analysis and highlighted with a bold asterisk and bold letters. Source: Prepared by the author (2022).*

## FINAL CONSIDERATIONS

To sum up, the results show that the pandemic did not trigger work-wise change for most respondents (54.7%). However, among the withdrawn students without a university degree, greater damage was observed (more dismissals, early vacations, and forced leave) compared to former students who concluded the courses.

A similar outcome occurred with women, who were also more affected than men (more layoffs, early vacations, and reduced income or workload). Moreover, self-declared black participants faced about three times more layoffs than white ones.

Considering values reported on a five-factor Likert scale, it was observed that most respondents reported psychological problems and job change (57% in both items). Among the analyzed courses, medical students reported the highest workload increase, having less free time and less time to study, and the majority did not start a postgraduate course.

Women also reported more physical and psychological problems, being more tired while working remotely, and having less free time than men. Regarding race, the item that calls attention is that few self-declared black people reported an increase in working hours.

Furthermore, people earning between ten and twenty salaries had less time to study and less free time. Former students with incomes greater than ten minimum wages reported the highest increase in working hours, while the ones earning up to two minimum wages had many psychological issues and changed jobs the most.

It is noteworthy that these results converse with previous research, such as Neri and Osorio (2021), Barbosa, Costa, and Hecksher (2020), and Campos and Miranda (2021) that showed women, self-declared people, young people, poor

people, residents in hard-to-reach places, public school students and people with less training as the ones more affected by the Covid-19 crisis.

The work framed as a case study in only one particular HEI together with its restriction regarding the number of courses of a teaching modality (on-site) can be considered as study limitations. Therefore, further studies could tackle other case studies in public institutions, distance learning courses, blend courses with online support, and different face-to-face courses.

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