MEANINGFUL OR MEANINGLESS? ORGANIZATIONAL CONDITIONS INFLUENCING DOCTORAL STUDENTS' MENTAL HEALTH AND ACHIEVEMENT

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ABSTRACT

Aim/Purpose	This paper presents a quantitative investigation of the organizational factors predicting the attrition of doctoral students' experience of meaning and how meaningful experience and meaningless work affect doctoral students' mental health and achievements.
Background	Today's academic environment subsumes neoliberal principles of individualism, instrumentality, and competition. Such an environment can harm doctoral students' meaningful experience. Universities' market-driven practices, indeed, can lower doctoral students' motivation and affect their mental health.
Methodology	In this paper, we referred to empirical knowledge to identify the ways through which today's academia erodes doctoral students' meaningful experiences. We hypothesized that environmental sources of meaning (e.g., coherence, significance, purpose, and belonging) become subsumed under neoliberal principles of individualism, instrumentality, and competition. Lower levels of sources of

meaning directly predict the experience of meaningless work, which is linked to higher levels of anxiety, depression, and intention to quit among doctoral students. We conducted a cross-sectional study on a sample of N = 204 doctoral students who volunteered to participate by completing a survey with self-reported measures. We analyzed data collected via structural equation modelling to test the associations among the variables.

Contribution
The present paper represents one an attempt attempts to investigate doctoral students' experience as subsumed to market-driven principles of the neoliberal ideology.

Findings
Results of structural equation modelling show that higher levels of anxiety and depression symptoms and intention to quit are associated with the lack of external supporting factors (i.e., PhD support), the perception of broad-based managerial practices as meaningless and instrumental, and a general sense of emptiness at work (i.e., meaningless work). Ultimately, doctoral students may strive to have a meaningful experience in today's academic environment. The experience of meaningless work leads to the risk of mental illness symptoms and quitting intention.

Recommendations for Practitioners
This study suggests to practitioners to improve doctoral students' well-being with multilevel interventions approach as well as including academic stakeholders to have broader practical implications.

Recommendations for Researchers
For researchers, it is suggested to focus on the managerial and organizational conditions of the academic environment that influence the basis of doctoral students' experience of doing a PhD.

Impact on Society
This study affords society the importance of prioritizing the academic environment by looking at the meaning in work through the intersection of meaningful experience and meaningless work for doctoral students' mental health and achievement.

Future Research
Future research can consider the role of factors contributing to doctoral students' meaningful experience by probing doctoral programs to understand students' mental health and achievement.

Keywords
doctoral students, meaningless work, mental health in academia

INTRODUCTION

The prioritization of doctoral students' mental health has become an important interest in research across disciplines, especially in health studies (Satinsky et al., 2021), organizational and critical management studies (Herschberg et al., 2018), and research policy (Levecque et al., 2012). This interest results from the extensive evidence of the risk for depression, anxiety, and turnover intention among doctoral students (Brown, 2015; Satinsky et al., 2021; Smith & Ulus, 2020; Tett & Hamilton, 2021).

Furthermore, researchers and scholars have also argued about the role of managerial and organizational conditions of today's neoliberal academic environment (Jensen, 2018). According to the literature, neoliberal ideology has pervaded all domains of life and types of organization, and even universities have become subsumed under neoliberal principles (Ergül & Coşar, 2017). This dominant ideology affects the organization and management of universities as well as research practices and choices resulting in an increasing proliferation of neoliberal managerial and political strategies and market-driven practices. As such, universities tend to relegate the value of doctoral students to their profitability, which follows the emphasis on individualism, instrumentality, and competition. That is, doctoral students a) adopt self-interested visions, maximizing their performance (i.e., individualism),

b) are sheer instruments for the achievement of university goals (i.e., instrumentality) and c) compete as a result of organizational practices such as selective hiring and talent management support (i.e., competition) (Bal & Dóci, 2018; Ergül & Coşar, 2017; Lei, 2021; Oleksiyenko, 2018; Olssen & Peters, 2005). Unsurprisingly, these managerial and organizational conditions can erode the meaning of doctoral students' experience, causing risks for their mental health and doctoral achievement (Van Houtum & Van Uden, 2022). The meaningful experience of doctoral students becomes an individual, competitive, and instrumental activity, turning into an unpleasant, unfulfilling, and meaningless experience (Maslach et al., 2001). Sequentialization of tasks, quantitative and measurable output orientation, comparison and competition, and little agency all lead to mistrust, lack of depth, and alienation among doctoral students (Lei, 2021; Oleksiyenko, 2018).

Universities subsumed to neoliberal principles may lower doctoral students' motivation and energy, and put them at risk of depression, anxiety, or fuel their intention to quit (Brown, 2015; Smith & Ulus, 2020; Tett & Hamilton, 2021). Despite these arguments, issues surrounding the detrimental condition for meaningful experience in a context under neoliberal ideology have not received attention (Herschberg et al., 2018). The empirical literature on doctoral students' mental health and achievement has focused on external factors (i.e., organizational support such as supervision, socialization, and financial support) and internal factors (i.e., motivation drivers' differences), yet our understanding of the academic environment in the context of neoliberalism remains limited. Specifically, there is a gap of empirical literature on the organizational factors impacted by the neoliberal academic environment which can affect doctoral students' meaningful experience and lead them to the risk of mental illness symptoms and intention to quit (Lei, 2021; McCray & Joseph-Richard, 2021; Oleksiyenko, 2018).

In the present article, we seek to address this gap by using a quantitative investigation to offer insights into a) the erosion of doctoral students' meaningful experience in the neoliberal academia and b) the effects of such meaningless experience on doctoral students' mental health and achievement. Focusing on the topic of meaningful experience allows us a better comprehension of the factors that are assumed to be related to the effect of the neoliberal academic environment. Simultaneously, the use of a quantitative approach allows us to examine how this experience impacts on mental-health and achievement. Ultimately, this research can help to expand on studies in relation to doctoral students by empirically distinguishing potential dynamics and processes which can contribute to the detrimental conditions of doctoral students.

The rest of the article proceeds as follows. First, we unravel how and to what extent the neoliberal academic environment reduces criteria for meaningful experience and how this condition can impact doctoral students' experiences, mental health, and career achievement. We introduce a literature review on the effects of neoliberal managerial practices in academia on doctoral students (Bosanquet et al., 2020; Jensen, 2018; Herschberg et al., 2018). Second, we present the methodology and describe the results of our investigation on how a sense of void and emptiness, i.e., meaningless work, impairs doctoral students' mental health and raises their intention to quit the PhD. Finally, we discuss the research and practical implications of our findings.

REVIEW OF THE LITERATURE

NEOLIBERAL ACADEMIA AND MEANINGFUL/MEANINGLESS WORK

In contemporary society, the academic environment situates in a context of neoliberalization, i.e., neoliberal ideology, with the reduction of the meaningful experience of doctoral students to a mere transition in between market-driven practices (Lei, 2021; McCray & Joseph-Richard, 2021; Oleksiyenko, 2018). The neoliberal ideologies imbue ideals of commodification which entail that the very aspects of academic environment and doctoral students' life can be exchangeable on the market. Studying and working at the university may appear to be sold in return for a salary or job position, with doctoral students negotiating their experience with the organizational environment. Universities

are at loggerheads with subordination to the capital and market-driven practices, and meaningfulness stands in this transition between the two parties (Bal & Dóci, 2018), leading doctoral students to the disillusionment of the strive for meaning. In the meantime, doctoral students may strive for excellence and survive from peer competition and cost reductions (Brown, 2015). They may face difficulties in sustaining their wish for a meaningful experience, i.e., meaningful work, which may lead to a complementary experience of meaningless work, which in turn is a risk factor leading to mental illness symptoms occurring independently of supportive contexts and dispositions (Jensen, 2018; Smith & Ulus, 2020; Tett & Hamilton, 2021).

Meaningful work is a positive phenomenon occurring when individuals experience and perceive that their work holds significance per se. Accordingly, meaningful work represents the individuals' view of their work has holding a significant value thanks to the possibility to contribute to the external (others and society), self-express, self-actualize, and self-develop (Rosso et al., 2010; Tommasi et al., 2020). Yet, meaningful work is a multidimensional construct impacted by four main features related to managerial and organizational conditions, namely, (a) significance (i.e., the perceived impact of personal action), (b) purpose (i.e., a sense of direction), (c) coherence (i.e., a sense of comprehensibility and consistency), and (d) belonging (i.e., a sense of being part of something larger than the self; Bailey et al., 2019; Schnell & Hoffmann, 2020). According to the literature, these features represent criteria for meaningful work and can be influenced by the organizational environment (e.g., neoliberal academic environment) as supporting or reducing them (Bailey & Madden, 2019; Schnell & Hoffmann, 2020).

Conversely, a lower level of features of meaningful work might reduce the meaning resulting in unpleasant and unfulfilling experiences, namely, meaningless work, which are antecedents of psychological suffering and intention to quit. Individuals can be more likely to experience meaningful work due to personal work meanings and certain work orientations. However, meaningful, and meaningless work are two distinctive individual experiences that can also be influenced by the environment, i.e., managerial and working conditions representing the salient features of meaningful work (Bailey & Madden, 2019; Schnell, 2020; Schnell & Hoffmann, 2020).

The emphasis on instrumentality, individualism, and competition can compromise the salient features of meaningful work among doctoral students. The doctoral students conduct of their tasks, job (i.e., PhD program) and life in the organization (i.e., university) become dependent on the market, resulting, for instance, in an increasing focus on individual self-responsibility for the profitability of the environment. Doctoral students may perceive that the university cares for profit rather than contribution, reducing their sense of purpose in performing their doctoral pathway. Students may also perceive less sense of significance if the university does not contribute in some ways to the greater good of society; they may feel that personal values are compromised, resulting in a lower level of sense of coherence as a mismatch and incongruence between colleagues, ideals (i.e., personal values and beliefs) of research, and the university. Moreover, because of measurement and performance pressures, higher levels of mistrust and competition among colleagues can lead doctoral students to feel uncomfortable with their colleagues or their work team, reducing their sense of belonging, and experiencing, indeed, a feeling of distance between themselves and the structural and social academic environment (Brown, 2015; Herschberg et al., 2018; Smith & Ulus, 2020; Tett & Hamilton, 2021; Van Houtum & Van Uden, 2022). For these reasons, we assume that:

> Hypothesis 1: (a) Features of meaningful work (i.e., coherence, significance, purpose, and belonging) are positively associated with the experience of meaningful work, and (b) negatively associated with meaningless work among doctoral students.

Moreover, it can be argued that universities and academic institutions that are socially and financially supportive of students can also influence the doctoral students' work and their experience, and independently of the neoliberalization of the academic environment. Recent literature reviews and meta-analysis have raised several debates on the main managerial and organizational causes of detrimental

states among students (Satinsky et al., 2021). These scholarly authors reported how there are certain external factors, namely, PhD supporting factors, which can contribute indirectly to doctoral experiences and students' mental health. These correspond to social and financial support that involve individuals, resources, and institutions around the PhD student. The lack of social and financial support is deemed as the main external cause of corresponding lower well-being with the prevalence of mental illness symptoms and a decrease in motivation to stay in university (Leveque et al., 2010; O'Meara et al., 2014). In this vein, the lack of PhD supporting factors might have an external influence on the doctoral experience by affecting individual experience and perception of the managerial and organizational environment, i.e., features of meaningful work, with the doctoral student' experience with senses of coherence, significance, purpose and belonging directly affected by a lack of a supportive environment. Hence, we argue that:

> Hypothesis 2a: Lack of PhD support is negatively associated with features of meaningful work (i.e., coherence, significance, purpose, and belonging).

> Hypothesis 2b: Lack of PhD support is indirectly associated with meaningful work and meaningless work.

MEANINGLESS WORK, MENTAL ILLNESS SYMPTOMS, AND INTENTION TO QUIT

Low levels of facets of meaningful work can lead to mental illness symptoms, with meaningless work standing at the nexus between organizational and managerial conditions and the employee's work-related well-being (Allan et al., 2019; Bailey & Madden, 2019; Bailey et al., 2019; Schnell & Hoffmann, 2020). In a neoliberal academic environment, meaningless work can represent a risk for doctoral students' mental health, with them suffering from the lack of meaningful work. For example, doctoral students may develop depression symptoms due to the lack of a sense of direction, as the purpose and direction of their work and study is limited to productivity and performative intents. Also, in the view of a competitive environment characterized by customization and privatization of research (Van Houtum & Van Uden, 2022), doctoral students' distress may arise due to high levels of performance expectations and competition, pressures which can lead to anxious states (Lei, 2021; McCray & Joseph-Richard, 2021; Oleksiyenko, 2018). Due these contextual orientations, doctoral students may feel a lack of coherence with their values or alienation from the organization. In turn, meaningless work can lead doctoral students to perceive more distance between self and one's work, increasing the risk of anxiety related to psychological distress and depression symptoms (Satinsky et al., 2021; Schnell & Hoffmann, 2020). Thus, we posit that:

> Hypothesis 3a: Features of meaningful work are negatively associated with depression and anxiety among doctoral students.

> Hypothesis 3b: Meaningless work is positively associated with depression and anxiety among doctoral students.

> Hypothesis 3c: Meaningless work mediates the association between features of meaningful work and depression and anxiety among doctoral students.

The dissatisfaction that comes with aspects of meaningful work can also result in the wish for individualized work pathways out of the academic context. As seen, work represents one of the individual fulfilling aspects, as a source of meaning in life and well-being. Therefore, it is not surprising that individuals might opt-out of their career path for their pursuit of meaning. In a neoliberal environment, individuals may put wider attention to specific managerial and organizational conditions, resulting in a wish for a different working environment. The lack of a sense of purpose and significance, doctoral students may decide to quit their PhD due to profit and performance-oriented aspects of their working context. Likewise, the match between their research expectations and research in the neoliberal environment may compromise their sense of coherence. For the same reasons, with

the lack of belongingness, doctoral students may prefer to opt-out of their career pathways in the view of a better working climate characterized by positive co-worker relations and support rather than competitiveness (Schnell & Hoffmann, 2020).

Meaningless work as a sense of void and emptiness at work may be at the basis of the wish for a different job. Independently of the managerial and organizational conditions, neoliberal fantasies can shape work as empty (Angelopoulos et al., 2020; Satinsky et al., 2021; Van Houtum & Van Uden, 2022). Therefore, we expect that:

> Hypothesis 4a: Features of meaningful work are negatively associated with intention to quit among doctoral students.
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> Hypothesis 4b: Meaningless work is positively associated with intention to quit among doctoral students.
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> Hypothesis 4c: Meaningless work mediates the association between features of meaningful work and quit intention.

METHODOLOGY

This research study used a cross-sectional quantitative explorative approach with the aim to improve the understanding of the factors underpinning mental illness symptoms and quit intention among doctoral students in the neoliberal academia. We devised a cross-sectional study allowing us to conduct a general investigation on the topic and test the viability of our hypotheses (Spector, 2019).

PARTICIPANTS AND PROCEDURE

Our cross-sectional study consisted of a questionnaire with self-report measures. One of the researchers contacted 317 PhD students via e-mail to recruit the study participants. Among the contacted people, 251 PhD students from seven universities from the north of Italy volunteered to participate in the study (response rate = 79.2%). Out of the data collected, 23 participants did not complete the questionnaire, while the responses by 24 subjects were discarded because of several missing data in the returned questionnaires. Then, 204 participants (37.3 % females, n = 76, average age μ = 29 years, σ = 4) constitute the final sample of this study. Each participant gave consent to participate to the study after being informed about the aim of the study and instructed about the study procedure by the contacting researcher. The average time for completing the questionnaire was μ = 14.45 min (σ = 7.40). This study was approved by the ethical committee of the Department of Human Sciences of Verona University (n. 201930-ex) and has been conducted according to the Declaration of Helsinki (World Medical Association, 2013).

MEASURES

Participants were firstly asked to report their demographic data. In this section, they answered closed questions about age, gender (1 = male, 2 = female, 3 = other), nationality, and education (1 = master's degree, 2 = specialization courses, 3 = other), and the attended year of PhD (from 1 to 3) (see Table A1 *[All tables and figures are in the Appendix]*). We employed two open-ended questions for asking about their field of research (N = 19 research fields spanning from arts and humanities and social sciences to chemistry, medicine, and engineering), and affiliation (N = 9 universities from the North of Italy).

PhD support: External factors measure

We considered the National Doctoral Program Survey (NDPS) dimensions related to the lack of external factors supporting the doctoral experience (i.e., PhD support) of the NDPS (O'Meara et al., 2014). That is, financial support (3 items, e.g., I don't receive sufficient financial support to maintain an acceptable standard), and social support (3 items, e.g., there is not a supportive community in my

pro), for a total amount of 6-items (4-point Likert scale, from 1 = strongly disagree to 4 = strongly agree, Cronbach α = .904).

The Meaningful Work Inventory

We used an adapted version of Modules 1 and 2 (18-items, on a 7-point rating scale from 1 = not at all, to 7 = completely) of the Meaningful Work Inventory (ME-Work) to capture the participants' levels of meaningful experience and associated environmental factors, namely meaningful work, meaningless work, and features of meaningful work in the academic context. The ME-Work is a modular questionnaire developed by Schnell & Hoffmann (2020) which resulted in having a wide validity in the Austrian, German, and Italian contexts (Tommasi et al., 2021). In comparison with other measures of meaningful work, the ME-Work offers the possibility of capturing the most salient dimensions of meaningful experience which can be impacted by neoliberal managerial practices and work organization, thanks to the modular nature comprising Module 1 for features of meaningful work and Module 2 for meaningful work and meaningless work. Given the purpose of our study, we adapted the measures to the doctoral students' context. Module 1 consists in the measurements of the four features of meaningful work, namely, coherence (3-items, e.g., my research corresponds to my interests, α = .79), significance (3-items, e.g., my research makes the world a little bit better, α = .92), purpose (3-items, e.g., my university cares about the health of society, α = .86), and belonging (3-items, e.g., we are a great research group, α = .82). Module 2 comprises the scale of meaningful work (3-items, e.g., I see meaning in my research work, α = .95) and meaningless work (3-items, e.g., my research activities seem meaningless to me, α = .90). In this study, we evaluated the factorial validity of the ME-Work via a confirmatory factor analysis (CFA). We tested whether all 18 items cohered to their single underlying factor. We found that the six-dimensional factor structure was adequate (χ^2 (60) = 81.29, p < .003; RMSEA = .05, CFI = .95, SRMR = .05).

Brief Symptom Inventory

We used the Italian version of the Brief Symptom Inventory (Derogatis, 1993) to assess the presence of anxiety (6-items, on a 5-point rating scale from 1 = never, to 7 = very often) and depression (6-items, on a 7-point rating scale from 1 = never, to 5 = very often) among PhD students. Participants had to report the level of the frequencies at which they were used to having such feelings of anxiety (e.g., feeling so restless I couldn't sit still, α = .87) and depression (e.g., feeling blue, α = .89). Raw scores are converted to T scores using the tables provided in the BSI manual. Thus, results are interpreted by comparison to age-appropriate norms to assess the presence of clinical symptoms.

Intention to quit

Regarding turnover intention, we used the intention to quit measure by Bluedorn (1982). It is a self-report measure that assesses the level to which individuals wants to leave their job in the following years based on a 5-point rating scale of agreement (1 = not at all to 5 = totally agree). As for the ME-Work, we adapted the original version to the doctoral students' context, e.g., it is likely that I will actively look for a new job out of the PhD program this year, α = .83.

DATA ANALYSIS

We used structural equation modelling (SEM) to test the viability of the overall models derived from our hypotheses. For the SEM, all variables have been patterned as latent factors with a single indicator. All latent factors were adjusted for random measurement error by establishing the random error variance of each construct corresponding to the product of its variance and the quantity minus its original internal consistency. The error variance of the indicator of the latent interaction factor was set equal to the product of its variance minus its reliability. Finally, for the variables, the path from the latent variables to their corresponding observed variable was equal to the square root of reliability of the observed score (Cortina et al., 2001). To obtain p-values and confidence intervals for indirect

effects, we ran 2,000 bootstrap resamples. We evaluated the models fits using several established fit indices, including χ^2, root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), the Tucker-Lewis index (TLI), and the confirmatory fit index (CFI). RMSEA < 0.05, SRMR < 0.05, and TLI and CFI close to 1.00 was used as cut-off and indicated a good fit. The results are presented at 95% confidence intervals. IBM SPSS v. 22 was used to compute the descriptive statistics. IBM AMOS v. 22 was used to implement the SEMs.

Firstly, we tested inter-correlations for correlations between PhD support, variables of Module 1 and 2 of the ME-Work, Brief Symptoms Inventory measures of anxiety and depression, and intention to quit. We involved two Models by considering the outcome variables separately. Those related to doctoral students' psychological states (i.e., mental illness symptoms) and the behavioral response to the meaningless condition (i.e., intention to quit). Then, we employed SEM to test these models, i.e., Model 1 with one serial mediation and mental health problems as dependent variables; Model 2 with one serial mediation and intention to quit as the dependent variable. We began with testing the associations between the variables considered. Then, we moved with testing a fully saturated model including all the variables that showed significant zero-order correlations. That is, X (PhD support) → predicts Y (meaningless work), in addition to the indirect path with X (PhD support) → predicts the mediator M (features of meaningful work) which predicts → Y in the same model. We then trimmed nonsignificant paths (p > 0.01) to arrive at the final model. Finally, we conducted a χ^2 difference test between the final model and a fully mediated model. Then, according to previous literature (Edwards & Lambert, 2007; Shrout & Bolger, 2002), we included our outcome variables to test the serial mediations in two separated Models according to our hypotheses

RESULTS

DESCRIPTIVE STATISTICS

With the emphasis on the doctoral students' experience and mental illness symptoms and intention to quit, we primary looked at their presence among participants. That is, we firstly aimed to understand the presence of mental-ill symptoms and doctoral students' intention to quit. Accordingly, we used descriptive statistics to gather the frequency of these dimensions. Anxiety symptoms were present in the 43% (n = 88) of the doctoral students, and similarly, depression symptoms were present in 39% (n = 80). The intention to quit was reported in the 54.8% of the cases (n = 112). Furthermore, we found that these results were not related to specific doctoral students' characteristics, e.g., age, gender, and research field (see Table A2).

ASSOCIATIONS AMONG THE VARIABLES

To test the first group of hypotheses (i.e., H1, H2a, H3a-b, and H4a-b, on the associations between the variables involved in our study), we ran a correlation analysis (Table A2). Overall, PhD support was associated with all the variables considered. We found that higher levels of PhD support were associated with lower reported features of meaningful work, i.e., coherence ($r = -.432$, p < .01), significance ($r = -.286$, p < .01), purpose ($r = -.557$, p < .01), and belonging ($r = -.436$, p <.01), meaningful work itself ($r = -.368$, p < .01) and higher reported levels of meaningless work ($r = .431$, p <.01). Moreover, we found convergent patterns with previous investigations (Schnell & Hoffmann, 2020) with strong zero-order correlations among variables of Module 1 and Module 2 (Table A2). Higher levels of Module 1 dimensions of coherence, significance, purpose, and belonging were significantly related to mental illness symptoms and intention to quit. The same resulted for Module 2 with, in particular, higher levels of meaningless work being significantly related with higher reported levels of anxiety ($r = -.431$, $p < .01$), depression ($r = -.533$, $p < .01$) and intention to quit ($r = -.457$, $p < .01$).

MODELS TESTING

Following with our last hypotheses, we aimed to test the mediation of features of meaningful work between PhD support, and meaningful and meaningless work and the added paths to (a) mental illness symptoms (i.e., the associations between features of meaningful work and mental health with the mediation of meaningless work, Model 1) and (b) intention to quit (i.e., the associations between features of meaningful work and quit intention with the mediation of meaningless work, Model 2). First, the final model with paths to mental illness symptoms revealed that meaningless work showed to be significantly related (i.e., a significant converse path) to both depression and anxiety (see Figure A1). Moreover, purpose had a significant effect via the mediation of meaningless work (i.e., indirect path) to anxiety while belonging showed to directly affect depression and anxiety without the mediation of meaningless work (i.e., significant direct paths). With respect to the meaningful and meaningless work levels, the final model in Figure A1 shows the positive and negative effects of features of meaningful work included in the model (see Table A3). This is the case of coherence, significance, and purpose but not for belonging, which did not predict meaningful work or meaningless work at all. Conversely, PhD support was revealed to significantly predict (i.e., an inverse significant direct effect) features of meaningful work. In total, the final model accounted for 24% of the variance for anxiety frequency and 32% of the variance in depression frequency. The χ^2 difference test confirmed that the final model better fit our data than a full mediation model, removing all direct paths, $\chi^2_{diff} = 13.018$, $p < 0.02$.

Second, Figure A2 shows the final model with paths to intention to quit. As above, the model revealed that meaningless work significantly predicts (i.e., a significant converse path) intention to quit. Moreover, the final model shows the positive and negative effects of features of meaningful work included in the model. In this respect, all the features were negatively linked to meaningless work (see Table A3). Only belonging was not significantly related to meaningful work, while coherence, significance and purpose had significant direct effects. Finally, PhD support revealed to have an inverse significant direct effect on features of meaningful work. In total, the final model accounted for 30% of the variance for intention to quit frequency. Even here, the χ^2 difference test confirmed that the final model better fit our data than a full mediation model, removing all direct paths, $\chi^2_{diff} = 8.864$, $p < 0.03$.

DISCUSSION

In the present study, we aimed to investigate the role of today's neoliberal academic environment in the erosion of doctoral students' meaningful experience (i.e., meaningless work) and the effect of such a condition on mental health and achievement outcomes. First, we conducted a literature review, highlighting that the effects of neoliberal managerial practices can be seen in how doctoral students experience and perceive their tasks, job (i.e., PhD program), and organization (i.e., university). Second, we realized a cross-sectional study to explore the associations between the individual perception of the organizational context (i.e., PhD support and features of meaningful work), their sense of significance at work (i.e., meaningful work and meaningless work), their mental illness symptoms and intention to achieve the doctoral title. Data analysis based on SEM partially confirmed the viability of our hypotheses. Doctoral students' meaningless work experience was shown to be predicted by the lack of PhD support and by the academic environment with neoliberal ideology affecting the levels of the sources of meaning. In turn, meaningless work resulted to be associated with higher levels of depression, anxiety and quit intention among doctoral students.

We began with conducting the descriptive statistics of the data collected to understand the rates of symptoms of anxiety and depression and the intention to quit intention within our sample. This informed that approximately one-third of our sample suffered from anxiety and depression symptoms, with half of the sample reporting their intention to quit. We then proceeded with our model testing of the hypothesized pathways among these dimensions. Of the hypotheses developed, we firstly tested the inter-correlations and indirect associations among the variables (Hypotheses 1, 2a, 2b).

Correlation analysis suggested that mental illness symptoms and intention to quit are associated with external supporting factors (i.e., PhD support), sense of emptiness at work (i.e., meaningless work) and the perception of broad-based managerial practices (i.e., features of meaningful work), that is, coherence, significance, purpose, and belonging, were associated with both anxiety and depression, and intention to quit. In particular, we found that features of meaningful work dimensions are related both with meaningful and meaningless work (Hypothesis 1) and with the antecedent of general financial support of the doctoral program, namely PhD support (Hypothesis 2a) (Herschberg et al., 2018; Sverdlik et al., 2018; Sverdlik & Hall, 2020). PhD support is also indirectly related to students' perception and experience of meaningful and meaningless work (Hypothesis 2b). Moreover, we found consistency with the literature on the doctoral students' achievement and well-being by the evidence of the positive linkages between doctoral students PhD support, students' mental illness symptoms and intention to quit (Sverdlik & Hall, 2020).

Secondly, we tested Hypothesis 3 and Hypothesis 4 about the role of missing features of meaningful work predicting meaningless work that relates to mental illness symptoms and quit intention. Results of the SEM partially confirmed these hypotheses. We found that meaningless work, predicted by lack of PhD support through the mediation of coherence, significance, and purpose, is related with the risk for depression and anxiety among doctoral students (Model 1). We found that this model applied to intention to quit (Model 2). However, while all the features of meaningful experience were related to quit intention with the mediation of meaningless work in Model 2, belonging resulted to not being related to meaningless work but only to depression and anxiety in Model 1. In this, coherence, significance, and purpose dimensions have emerged as important potential predictors as indications of participants' degree of (a) the mismatch between organizational practices and their values, (b) their lack of significance in mastering working skills for their tasks, and (c) a lack of sense of general contribution to society (Bailey & Madden, 2019; Bailey et al., 2017). Conversely, belonging represented a sense of misfit within the research group and the organization that directly influence anxiety and depression as a result of a cognitive-affective process of the personal feeling of not being part of a communitarian and supportive environment.

Despite this, our SEM provided a general support for our hypotheses. This makes our findings one of the first empirical contributions on the role of neoliberal managerial and organizational practices on doctoral students' wish for meaning. Although doctoral students' experience is increasingly examined in several disciplines (cf. Sverdlik et al., 2019; Sverdlik & Hall, 2020), there is a significant gap of empirical literature concerning the effects of neoliberal academic environment linked to doctoral experiences, well-being, and career paths (Arnold & Bongiovi, 2013; Bleijenbergh et al., 2013; Van Houtum & Van Uden, 2022). The neoliberal ideology indirectly influences doctoral students' perception of their work and scope in the organizational environment, imbuing ideals of working and relational practices that may conflate with individuals' vocations, personal values, and personal meanings of work. When the meaningful experience of the doctoral pathway becomes an individual, competitive, and instrumental activity in the context of the neoliberal academia, it also seems to turn into an unpleasant, unfulfilling, and meaningless experience among doctoral students. These findings are consistent with research investigating the detrimental effects of neoliberal workplaces on individuals' wish for meaningful work and its associations with mental health, and loyalty and dedication. We must note that these findings run similarly to those that specifically examined the effects of neoliberal practices on individuals and the resulted experience of meaninglessness. Scholars in the critical management literature suggested such effects as the end of the meaning of work in contemporary workplaces (Bailey & Madden, 2019; Tommasi & Degen, 2022; Ylijoki, 2016), which leads to detrimental effects on individual well-being. It is the same case of our study: in fact, meaningless work resulted in being directly affected by the perception of the neoliberal environment and predictive of both depression, anxiety, and intention to quit. These results provide an empirical answer to the proposition that doctoral students' experience would result by the underpinning individuals' personal experience and organizational conditions (Bailey et al., 2019).

PRACTICAL IMPLICATIONS

Following our results, possible initiatives might be promoted to protect and value the doctoral experience (Herschberg, et al., 2018; Jensen, 2018; Smith & Ulus, 2020; Van Houtum & Van Uden 2022). University managers and decision-makers may recognize their responsibility around PhD programs and experiences noting that the problem of the well-being of doctoral students exists and is strictly connected not only to their university life, but it necessarily also reflects on their mental health and on the implications it has on everyone's life. This awareness may also provide the starting point for real interventions aimed at increasing the perception of meaningful work among doctoral students. As this study has shown, initiatives aimed at increasing coherence, significance, purpose and belonging may be helpful for doctoral students. On an individual level, doctoral students may be helped to feel as an active part of the research groups in which they work. For this reason, giving them responsibilities commensurate with their knowledge and commitment might represent possible strategies to better include doctoral students and re-engage them in their work. Also, training courses aimed at providing them the necessary skills to self-manage their own mental health and related intentions or behaviors may be of help. At the organizational level, the provision of greater financial and social support may be useful to prevent the occurrence of mental illness symptoms among doctoral students and ultimately facilitate completion of the PhD course. In addition, innovative policies, alternative job design solutions, and the adoption of improved managerial practices, closer to transformational and ethical leadership styles (Den Hartog, 2015; Diaz-Saenz, 2011), may play a crucial role in doctoral students' career experiences. Particularly, organizational efforts should be directed towards promoting the perception that doctoral students' work is worthy of support in the first place, both financially and socially.

LIMITATIONS

The present research provides an initial basis for understanding the potential effects of neoliberal academia on the doctoral experience. However, we do acknowledge some limitations of the current study, with findings having to be interpreted with some caution. Firstly, we limited ourselves to those who decided to voluntarily participate in the study. As such, the sample composition may compromise the generalizability of our study. On the one hand, financial incentives would have reduced the risk for self-selection bias. On the other hand, we opted for not compensating participation to have participants motivated by personal interest. Furthermore, our study was not designed with explicit measures of neoliberal managerial and organizational practices. Despite seminal publications on the topic (i.e., Bal & Dóci, 2018), how neoliberal workplaces can be considered in quantitative studies represents a neglected topic. This limits our study in the extent to which there are additional variables associated with doctoral students' experience in neoliberal academia. However, this is not necessarily a limitation of the present study since assessing the salient dimensions of meaningful work in organizations can offer a general depiction of the effects of contemporary neoliberal workplaces.

Finally, we have not yet opted for a long-term research design. We took this decision as we wanted to firstly explore the general associations highlighted by the literature. This aspect does not affect the implications of our results per se. However, it may limit the extensiveness of their interpretation with possible changes in the long term of mental illness symptoms and doctoral achievement.

CONCLUSION

This study is unique as it proposes a first investigation on the potential effects of the current neoliberalization of universities on doctoral students, their well-being, and intentions. Firstly, it offers an initial frame of orientation around managerial, and organizational conditions, and doctoral students by which further critical investigation can be advanced. Furthermore, we offer a conceptual background for theorizing and testing possible interventions at the organizational and individual levels for an optimal functioning in the dynamic environment of academia. Ultimately, the contribution of the present article rests in its originality and the potential for further critical discussions on the themes of

doctoral students' and supposedly generally researchers' urge for meaning, linked well-being, (PhD) achievement. Voices and concerns over academic mental health have increased over the past years. In this paper, we suggest the detrimental effects of neoliberal academic environment on doctoral students' mental health and intentions. Moreover, it would be also worth questioning whether and how the neoliberal ideology affects research practices (i.e., questionable research practices) due to the push to scientific production.

CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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APPENDIX – TABLES AND FIGURES

Table A1: Demographic data of doctoral student participants

Characteristic	N	%
Gender		
Male	76	37.3
Female	128	62.7
Other	-	-
Nationality		
Italian	190	93.1
Other	14	6.9
Highest degree awarded		
Master's degree	137	67.2
Specialization courses	55	27.1
Other	11	5.4
Year of PhD		
First year	24	11.8
Second year	59	28.9
Third year	116	56.9

Table A2: Correlation matrix of the demographics and the variables involved in the study.

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Gender													
2	Age	.058												
3	Year of PhD	.125	.014											
4	PhD support	-.105	-.203*	.092										
Features of meaningful work														
5	Coherence	-.008	-.133	-.128	-.432**									
6	Significance	.039	.031	-.060	-.286**	.403**								
7	Purpose	.028	-.104	-.057	-.557**	.330**	.310**							
8	Belonging	-.053	-.085	-.029	-.436**	.216**	.142*	.317**						
9	Meaningful	.073	-.034	-.122	-.368**	.545**	.576**	.390**	.146*					
10	Meaningless	-.072	.100	.071	.431**	-.553**	-.403**	-.395**	-.270**	-.664**				
Mental Health														
11	Anxiety	.112	.012	-.004	.309**	-.245**	-.158*	-.358**	-.293**	-.264**	.431**			
12	Depression	-.023	.115	.054	.403**	-.300**	-.146*	-.279**	-.354**	-.330**	.533**	.672**		
13	Intent. to quit	-.007	.098	.110	.458**	-.426**	-.181**	-.419**	-.179*	-.332**	.457**	.341**	.374**	-

Note. *p < .05; **p < .01, ***p < .001. Numbers across the top correspond to the numbers of the first column, e.g., 1 = Gender.

Table A3: Estimates of indirect effects of the models tested in the study.

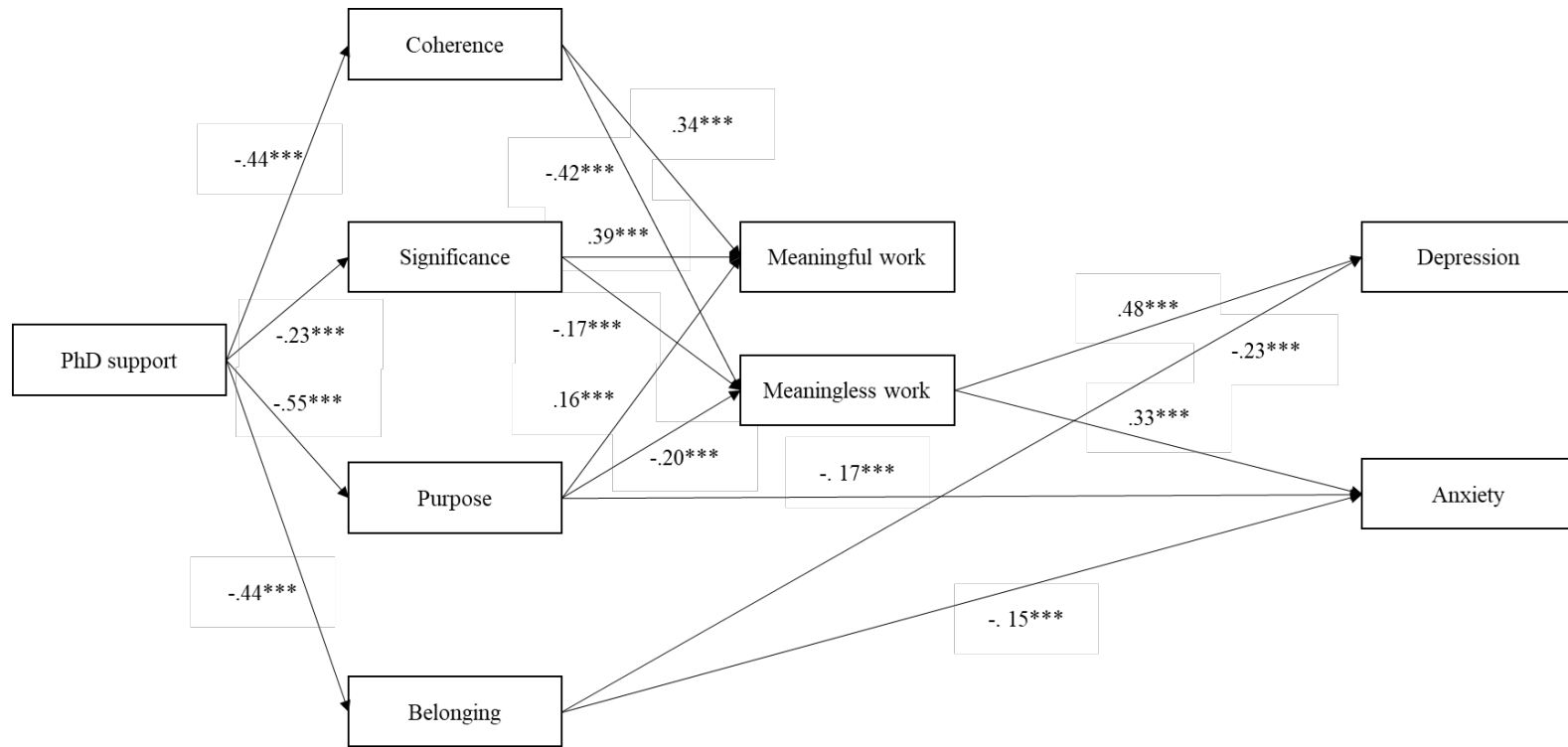|	Standardized estimates	Lower 95% CI	Upper 95% CI
MODEL 1			
Anxiety			
PhD support	-0.03	−0.05	−0.01
Coherence	-0.01	0.03	0
Significance	-0.04	−0.06	−0.01
Purpose	-0.04	−0.06	−0.01
Depression			
PhD support	-0.06	−0.06	−0.01
Coherence	-0.04	−0.05	−0.01
Significance	-0.06	−0.06	−0.01
Purpose	-0.07	−0.10	−0.04
MODEL 2			
Intention to quit			
PhD support	-0.04	−0.06	−0.01
Coherence	-0.04	−0.06	−0.01
Significance	-0.04	−0.05	−0.01
Purpose	-0.03	−0.05	−0.01
Belonging	-0.03	−0.05	−0.01

Figure A1. Final path model predicting anxiety and depression frequency.
*p<0.05; **p<0.01; ***p < .001. χ² (13) = 16.53, p=.222; CFI = 0.994; TLI = 0.981; RMSEA = .037; SRMR = 0.014
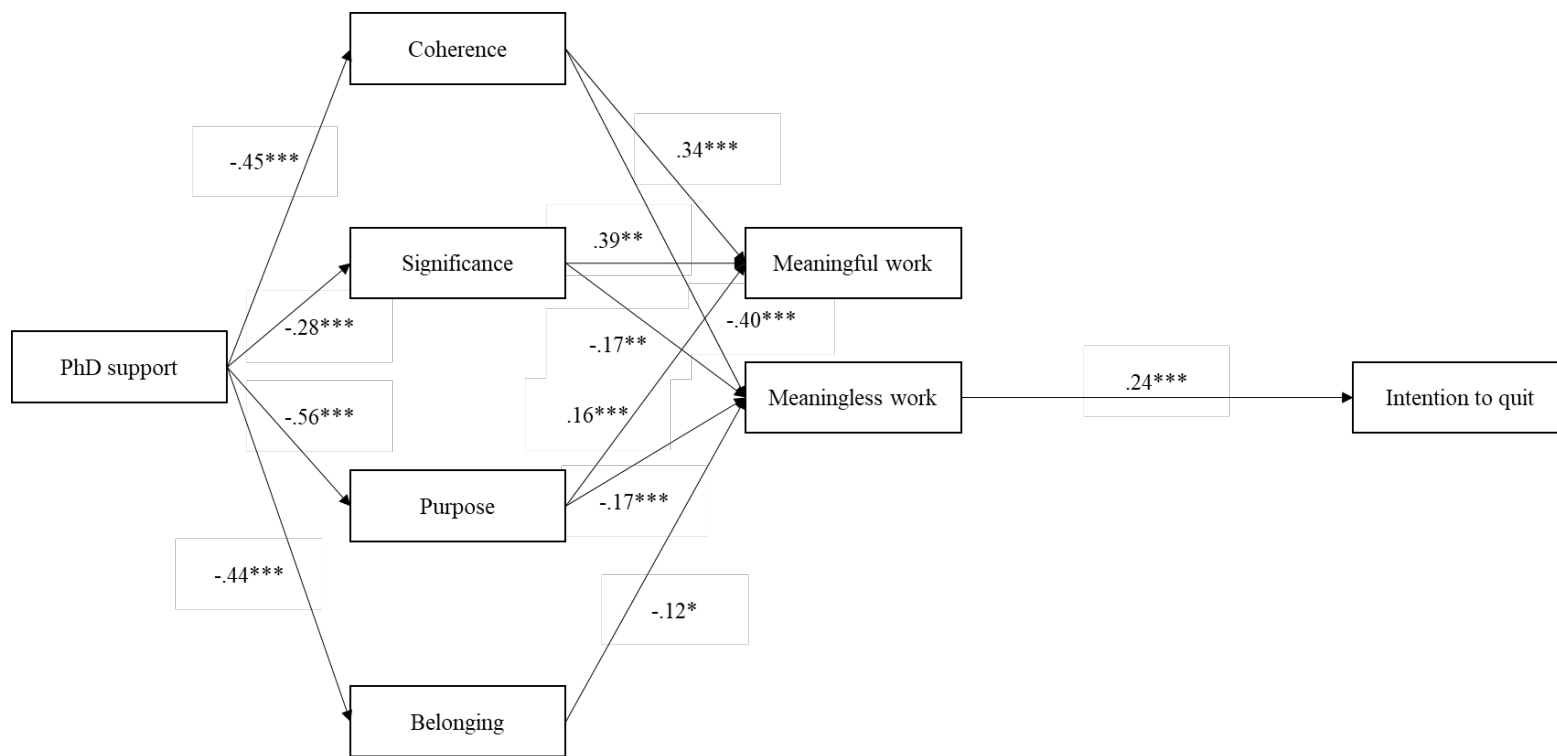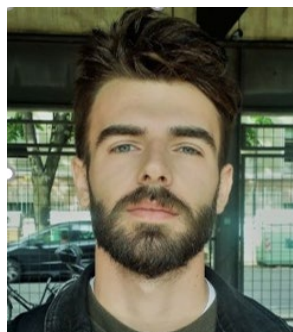Only variables with a significant path coefficient to anxiety and depression are shown.

Figure A2. Final path model predicting intention to quit.
*p<0.05; **p<0.01; ***p < .001. χ² (10) = 11.104, p=.349; CFI = .998; TLI = .992; RMSEA = .023; SRMR = 0.012
Only variables with a significant path coefficient to intention to quit are shown.

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