Does Burnout hurt Performance? Experimental Evidence[*]

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Abstract: Burnout is a phenomenon that has received significant attention in the past several decades, with meta-analyses indicating its adverse consequences for performance. However, a major limitation of the current literature is that it is exclusively correlational. In this study, we conduct a laboratory experiment to acquire the first causal evidence regarding the effect of burnout on performance. We study the performance of students on a standardized test. In the treatment group, burnout is induced with a recall task, while in the control group it is not. The data show that inducing burnout *improves* performance on the test. At the same time, we replicate the commonly observed negative correlation between burnout and performance. Together, these results suggest that the observed correlation is driven by the effect of poor performance on feelings of burnout. We conjecture that feelings of burnout are a reaction that serves to partially offset poor performance.

Keywords: Burnout, performance, experiment

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1. Introduction

Feelings of burnout are commonplace in modern society. The World Health Organization defines burnout in the following manner (WHO, 2019): "Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: (1) feelings of energy depletion or exhaustion; (2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and (3) reduced professional efficacy." Efficacy is defined as a decrease in one's sense of competence and ability to achieve in the workplace. Beyond its traditional definition as a workplace phenomenon, the term burnout is now very commonly used to describe feelings of low energy, mental distance, negativism, cynicism and low efficacy in other areas of individuals' lives, such as academic studies (Schaufeli et al., 2002a), personal relationships (Lin and Huang, 2014) or extracurricular

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activities such as sport or performance (e.g., Snibbe et el., 1989).

Individuals are reporting feelings of burnout at shockingly high rates. A 2022 survey of 15,000 workers in 15 countries conducted by McKinsey found that a quarter of employees reported symptoms of burnout (McKinsey Health Institute, 2022). This has important implications for workplace productivity in that burnout has been linked to poor individual job performance (e.g., Bakker and Heuven, 2006; Wright and Bonett, 1997) and reduced team-level performance (e.g., Bakker et al., 2008). Burnout has also been linked to absenteeism (e.g., Yaniv, 1995; Schaufeli et al., 2009), increased employee turnover (Blackburn et al., 2023), lower safety in the workplace (e.g., Nahrgang et al., 2011), and reduced labor income (Nekoei, Sigurdsson, and Wehr, 2025). In addition to these relationships with productivity, burnout has also been associated with adverse individual health outcomes, such as depression, anxiety, sleep disturbance, and physical health complaints (Peterson et al., 2008), as well as lower fertility and child human capital (Nekoei, Sigurdsson, and Wehr, 2025).

The economic burden of burnout is significant. It is estimated that an organization spends $3,400 for every $10,000 of salary on disengaged employees (Wigert and Agrawal, 2018), and in the US alone, the healthcare cost of job-related burnout is between $125 and $190 billion (Wigert and Agrawal, 2018). In Sweden, it has been estimated that clinical burnout, which captures mainly the exhaustion dimension of burnout, reduces national labor income by 3.6% through sick leave, transition to part-time employment, and labor market exit (Nekoei, Sigurdsson, and Wehr, 2025). Globally, it is estimated that turnover and lost productivity due to employee burnout cost businesses around $322bn in 2022 (Gallup and Workhuman, 2022).

The economic burden of burnout is clear, but the relationship between burnout and performance is not. Understanding this relationship is essential for developing appropriately targeted interventions to prevent or remediate burnout. While the existence of a correlation between feelings of burnout and poor workplace performance is firmly established (see, e.g., Corbeanu et al., 2023; Wright and Bonett, 1997; Garden, 1991), the direction of causality in the relationship is not.[1] The literature to date seems to suggest that burnout is a *cause* of poor job performance, and it is plausible that such a relationship is at work. However, there is no actual

[1] The literature linking burnout to performance relies on indirect measures, such as reduced income, absenteeism, transitions to part-time work, or labor market exits, rather than direct assessments of productivity or work quality. See Section 2 for a more detailed discussion.

firm evidence that the causality runs from burnout to lower performance. It is also quite reasonable to propose that poor performance itself, or the anticipation of poor future performance, may trigger the feelings of burnout. Indeed, both burnout and poor performance might be caused by a third variable, such as lack of sleep, poor nutrition, adverse life events or tension in relationships. Indeed, many companies report concern about burnout among their *top* performers (Plummer, 2018; Murphy, 2018; Kroon et al., 2009). Furthermore, burnout has been associated with perfectionism (Hill and Curran, 2016). These last two relationships suggest that a feeling of burnout might not necessarily lead to worse job performance.

Among students, a large body of research establishes that feelings of burnout are correlated with lower academic performance. Madigan and Curran (2021) conducted a meta-analysis of 29 studies with over 100,000 students in secondary and tertiary education and found a clear negative correlation between measures of burnout and test performance of $r = -0.24$. Furthermore, they observed that the correlation was negative and significant for each of the three components of burnout (Maslach, 1982): exhaustion (-0.15), cynicism (-0.24), and reduced efficacy (-0.39). This relationship also holds if we consider only university students (Kljajic et al., 2017; Palos et al., 2019; Thi and Duong, 2024). However, every one of the studies conducted to date is correlational in nature, and none have studied the causal impact of burnout on academic performance. There are studies that have used longitudinal designs (e.g., Palos et al., 2019), which provide a better estimate of the correlation between a self-reported measure of burnout and academic performance, but do not establish a causal link since they do not account for the potential endogeneity of burnout.

In this paper, we consider the *causal* impact of feelings of burnout on the academic performance of university students. To measure performance, we administer tests constructed from recent Scholastic Aptitude Tests (SATs). To exogenously modulate the level of burnout, we employ the method of recall, which is widely used to create emotional states. We ask participants in our *Burnout* treatment to recall and write about past experiences that made them feel burned out. In a *Control* treatment, they are asked to recall what they do in a typical day, a task known to have no effect on emotional state. We conduct a manipulation check using the Copenhagen protocol (Kristensen et al., 2005) and the PANAS survey (Watson et al., 1988) to verify that our induction had the effect of inducing a feeling of burnout without inducing any other emotional states.

Our research design allows us to decompose overall burnout into the three different

dimensions listed in the first paragraph: (1) energy depletion or exhaustion, (2) feelings of negativism or cynicism, and (3) reduced efficacy. To varying degrees, the correlation between these dimensions of burnout and academic achievement has been explored. In particular, reduced efficacy has been associated with poor academic performance (Schneider and Preckel, 2017; Richardson et al., 2012). Breso et al. (2011) report that interventions in the form of therapy to increase efficacy also decreased feelings of exhaustion and cynicism and improved test performance.[2] Our analysis also includes an exploration of the anatomy and demographic correlates of burnout by utilizing the narratives of the participants about their actual burnout experiences, providing some additional insights into the antecedents, causes, and consequences of burnout. In our view, this provides a more reasoned foundation for identifying and designing potential interventions to either prevent or remediate burnout that are directly applicable to, and more likely to be adopted by, university students.

Our findings were surprising to us. Contrary to our prior expectations, inducing feelings of burnout significantly *improved* test performance. In our Burnout Treatment, test performance is better than in our Control treatment. The effect is particularly strong for women, who according to our measures experience greater burnout generally, and among those students with relatively high levels of burnout.

How can we reconcile a robust negative correlation between feelings of burnout and test performance, while also establishing that burnout has a causal effect in improving performance? Our conjecture is the following: There is a causal relationship present in the field that poorer performers tend to experience greater burnout, with the causality running from performance to burnout. Thus, taking a snapshot of a group, we would find that poorer performers report higher burnout. However, the feeling of burnout may be an adaptative response that actually improves performance in times of stress. Thus, the same individuals may have performed even more poorly had they not experienced a burnout response.

The paper is organized as follows. Section 2 reviews related literature and Section 3 describes the experimental design. Section 4 presents the results. Section 5 provides a description of the anatomy of burnout among students and relates it to the conceptualization of student burnout in the existing literature. In Section 6 we discuss our findings and their policy implications.

[2] At first glance, this may suggest that the reduction of measures of burnout had a causal effect on test scores. However, it is possible that the intervention had a direct effect on test scores as well as on the measures of burnout, with no causal relation between the burnout and the test scores.

2. Related literature and Contributions

The concept of "burnout" was introduced to the academic literature by Freudenberger (1974) who used the term to describe a profile of physical signs and behavioral patterns observed among clinical staff people. Maslach and Jackson (1976, 1981) proposed that burnout comprised three distinct dimensions: exhaustion, cynicism, and low efficacy.[3] Most conceptualizations of burnout hypothesize that it has a negative effect on performance (e.g., Maslach, 1982; Snibbe et al., 1989). However, the existence of this hypothesized effect is far from being clear due to several conceptual and methodological challenges.

First, a distinction must be made between perceived performance (Cherniss, 1980; Maslach, 1982) and actual performance (Farber, 1983; Carroll and White, 1982; Nagi, 1985) when studying the effect of burnout. Using data on ninety-five mid-career MBA students, Garden (1991) finds that higher energy depletion (a measure of the exhaustion dimension of burnout) is positively correlated with more negative feelings about one's own performance (a measure of perceived performance). In contrast, Garden finds no significant corresponding correlation with examination scores of the students (a measure of actual performance).[4] Related studies have found significant negative correlation between burnout and self-ratings of performance, but no significant negative correlation with their actual performance as rated by the person's supervisor (Roelens, 1983; Lazaro, Shinn, and Robinson, 1985).

Second, there is some disagreement about the dimensions of burnout. In some studies, the feeling of reduced personal accomplishment is a part of the definition of burnout (Maslach, 1982), for some only the emotional exhaustion and depersonalization are the constituents of burnout (Jayaratne and Chess, 1983), and for others only the emotional exhaustion is the core aspect of burnout (Gaines and Jermier, 1983; Shirom, 1989; Hobfoll et al., 2000). Another related issue regarding the effect of burnout on performance is the degree of severity or stage of burnout (Golembiewski and Munzenrider, 1983; Golembiewski et al., 1987), which raises the possibility

[3] Other conceptualizations of burnout, including clinical burnout, are based on the Conservation of Resources (COR) theory, which is a general theory of psychological stress (Hobfoll, 1989). In this construct, burnout reflects a state of depletion of physical, cognitive, and emotional resources (Hobfoll et al., 2000).

[4] Garden (1991) finds a complex association between the indicators of negative perceived performance and actual performance. More specifically, "worrying about one's performance", "forget what you have been taught," and "not as quick as before" have significant negative correlation with examination score (actual performance). However, perceived performance indicators such as "feeling helpless" and "finding fault with yourself" have insignificant correlations with actual performance.

that the relationship between burnout and performance may not be linear.[5] It has been suggested that burnout acts in such a way that circumvents an actual decline in performance. For example, a negative effect of burnout on performance may be mitigated by the role of leisure (Garden, 1991) taken in response to the feeling of burnout.

Third, another source of ambiguity is that actual performance is usually not measured.[6] This is the case, for instance, in studies of the effect of burnout on job performance. This can be partly attributed to the difficulty in measuring the quality of work (Garden, 1991) in many field settings. Another related issue in these studies is the appropriateness of particular measures of actual performance. For the purpose of studying the effect of burnout on performance of students, as we do in this study, examination and test scores are clearly measures of actual performance.

Last but not least, as we noted earlier, a major limitation of the empirical literature on the effect of burnout on performance is that all of the studies are correlational (Maslach and Schaufeli, 1996).[7] This also applies to recent studies on the effects of burnout on job and academic performance, respectively (Corbeanu et al., 2023; Madigan and Curran, 2021).[8] Such studies do not permit causal estimates of the effect of burnout on performance. Identification of the effect of burnout on performance may be further complicated by the potential endogeneity of burnout. For example, burnout can be a process within which the person starts to work harder and for longer hours as performance deteriorates, thereby leading to performance level being maintained (Freudenberger, 1980; Pelletier, 1984). To the best of our knowledge, there is no study estimating the causal effect of burnout on either perceived or actual performance.

Our study advances this literature in the following way. First, unlike previous studies, we randomly assign individuals to a Burnout or a Control condition, enabling us to establish a clear causal connection between burnout and performance. This causal identification is critical because it overcomes endogeneity concerns that have limited the interpretability of earlier findings.

[5] Related psychological and neurobiological studies on stress suggest that whereas mild and transient stress enhances productivity, intense and prolonged stress impairs job performance (Yerkes and Dodson, 1908; Broadhurst, 1957; Calabreze and Baldwin, 2002; and Calabrese, 2008).

[6] It is indirect measures of performance at the workplace or in academic work such as reduced income and earnings, sick leave, absence from work, transition to part-time jobs, and labor market exits that have typically been linked to burnout or occupational stress.

[7] In Schaufeli, W.I.B. (Ed.). (1996). Professional Burnout: Recent Developments in Theory and Research (1st ed.). CRC Press.

[8] Corbeanu et al. (2023) provide a meta-analysis of 45 out of 126 studies, of which 105 studies were conducted during 2000-2020, on the link between burnout and job performance. Madigan and Curran (2021) conduct a meta-analysis of 29 studies, conducted during 1996-2019, on the effect of student burnout on academic achievement.

Notably, we find that, surprisingly, burnout *improves* performance, with the effect being especially pronounced for individuals with a relatively high level of initial burnout, highlighting burnout's nonlinear positive effect.

Second, we induce burnout experimentally and conduct a manipulation check to verify that a state of burnout was indeed induced in the treatment group without inducing any of a number of other emotional states. That is, we are able to clearly identify a higher level of burnout in the treatment group as compared to the control group and can attribute the higher performance of the treatment group directly to a higher level of burnout, as opposed to other emotional states. This kind of attribution was not possible in previous studies.

Third, we utilize a measure of actual performance (as opposed to perceived performance). Therefore, unlike the previous studies that collected subjective, self-report cross-sectional or longitudinal data, our objective measure of performance is not subject to selection and reporting biases, providing more reliable and generalizable insights.

Fourth, while the emerging economic literature on burnout has mainly focused on its indirect consequences—such as increased healthcare costs, employee turnover, and diminished patient satisfaction (Blackburn et al., 2023)—and related research on the economic burden of chronic stress (i.e., clinical burnout, defined by emotional exhaustion) has focused on reduced earnings, lower fertility, and diminished children's human capital via increased sick leave, transitions to part-time work, and labor market exit (Nekoei, Sigurdsson, and Wehr, 2025), our study breaks new ground by focusing on burnout's **direct** effect on individual performance in an academic setting. By doing so, we initiate a novel line of economic inquiry that connects burnout to broader themes in the economics of mental health, including the impact of health shocks on labor market outcomes (McClellan, 1998; Fadlon and Nielsen, 2021), the interplay between mental well-being and economic conditions (Paul and Moser, 2009; Dahl, 2011; Bach et al., 2023), and career effects of mental illness (Bartel and Taubman, 1986; Biasi et al., 2021).

In addition to these contributions, we also delve into the multifaced nature of burnout by examining its three recognized dimensions (i.e., exhaustion, low efficacy, and cynicism) and their differential correlations with performance. We also characterize the students who are most and least likely to experience burnout, enriching our understanding of risk factors, and conduct a qualitative analysis of the Treatment group's writing texts to provide additional insights into the anatomy of burnout. While the literature typically conceptualizes student burnout as resulting from

study demands, cynical attitudes toward study, and feelings of incompetence (see, e.g., Schaufeli et al., 2002a), our qualitative analysis of students' narratives reveals that burnout is more often caused by a complex interaction of factors, many of which are unrelated to their academic work. This nuanced understanding deepens our insight into the experience and etiology of burnout beyond traditional conceptualizations.

3. Experimental Design

3.1. Procedures common to treatments

The experiment was conducted in person at the Economic Science Laboratory (ESL) at the University of Arizona between February 2023 and September 2023. The 161 participants were University of Arizona undergraduate students, who were recruited from the laboratory's subject pool. Between five and eleven subjects participated in each session and no subject participated in more than one session. Their demographic profile is described in Table 1. The sample has a roughly equal number of females and males, as well as a roughly equal number of members of each academic cohort from freshmen to seniors. The ESL has a large room equipped with computers where participants in any experiment are spaced well apart and isolated with partitions, so it was impossible for them to communicate with each other.

[Table 1: About Here]

The recruited subjects were instructed to report to the ESL by a fixed time to be able to participate in a session. When they reported to the ESL, their student identifications were verified and then they were assigned and instructed to sit at a desk until further instruction. No subjects were admitted into a session if they arrived late. At the beginning of a session, subjects were explained the experimental protocol (see Appendix B). More specifically, they were instructed to use unique IDs throughout the session that they were assigned to, and that the experiment involved them participating in a series of tasks. The incentive structure was explained to them: they received US$5 for participating in the experiment and an opportunity to earn up to another $24 dollars based on their scores on 24 SAT mathematics questions ($1 for each correct answer). Therefore, subjects understood that they could earn between the minimum of $5 and the maximum of $29.

The experiment involved subjects participating in the following sequence of tasks (see Appendix B1). First, they were asked to read and sign a consent form. Second, they filled out a

PANAS questionnaire (Watson et al., 1988) to measure their emotional state before they participated in any substantive task (see Appendices B2 and B3). Third, they were asked to complete one of the two writing tasks, each requiring them to write at least three hundred words in 15 minutes. One-half of participants were assigned to the *Burnout* condition and the other half to the *Control* condition. This third task is the only one that differed by condition and is described in detail in the next subsection.

Fourth, they were asked to fill out the Copenhagen survey (Kristenesen et al., 2005), which provided a measure of their current level of burnout (see Appendix B5). The survey includes separate measures for Short-term, Long-term, and Overall Burnout. The survey served as a manipulation check, and we verify that individuals in the Treatment condition reported a greater degree of burnout than those in the Control condition. Fifth, they were asked to fill out the PANAS questionnaire again. The responses are compared to those at the beginning of the experiment to check that our burnout induction protocol did not induce any unintended changes in emotions that might serve as confounds for the effect of burnout.

Sixth, subjects were asked to answer 24 SAT mathematics questions in 30 minutes. The questions were taken from old SAT tests published in a SAT preparation book. These questions were displayed on their respective computer screens, where each page contained exactly one question. Subjects were again reminded that for each correct answer they would earn $1. Each subject was provided with a pencil and scratch paper to use for doing calculations. They had to record their answer on a designated answer sheet that was provided to them. Seventh, subjects filled out a demographic questionnaire on Qualtrics.[9] Finally, each subject was paid the money that they earned, signed a payment sheet, and then left the session.

3.2. The writing tasks

In the Burnout condition, the writing task required subjects to write for 15 minutes about a time in the last five years in which they experienced feelings of burnout (see Appendix B4). Specifically, they were asked about a time in which they had feelings "resulting from chronic stress

[9] The demographic questionnaire in Qualtrics was the last task in the sequence of the tasks in the experiment. This was intentional for two reasons. First, it is possible that answering demographic questions could affect one's emotional state. The sequencing of tasks in the experiment was designed to minimize confounding the effect of writing tasks on a subject's performance on the SAT mathematics test. Second, the risks of preceding tasks in the sequence affecting answers to demographic questions is extremely low since demographic questions are factual matters about the subjects (e.g., gender, race, nationality, financial health, hobbies, social interactions, social media use, among other items).

that has not been successfully managed, characterized by three dimensions: feelings of energy depletion or exhaustion; increased mental distance from one's studies or jobs, or feelings of negativism or cynicism related to one's studies or job; and reduced effectiveness in studies or job." If a subject had never experienced such a situation, they were asked to imagine a situation that would cause them to feel burnout and then to write about it. This burnout writing task had three parts.

In part 1, subjects were asked to describe a situation that caused them to feel burnout. In part 2, they had to write about the particulars of the situation that made them feel the burnout. Finally, in part 3, they had to write about the effects of the burnout on their everyday life, for example, health, relationships, and studies. In total, they had 15 minutes to complete the writing task.[10] The recall period was five years.[11] In each part, they had to write at least one hundred words to be able to submit their write-up into Qualtrics. They could not continue with the session unless they submitted the required number of words. These requirements were intended to ensure that subjects thought about their burnout experience enough for it to have an effect on their current emotional state. Moreover, the three-part writing task required the participants to report on the causes, the particular circumstances, and the effects of their burnout. We study the content of the text in Section 5.

In the Control condition, subjects were instead asked to write about a typical day in their life at the University of Arizona. As in the Burnout treatment task, the subjects had 15 minutes to write at least three hundred words. Whether burnout worsens the performance of subjects was tested by comparing the SAT scores of the Burnout Treatment and Control groups.

We tested whether the sample is balanced across the Burnout and Control conditions with respect to demographic characteristics. The results are shown in Table 2. We find that the two samples are highly similar with the exception that there are significantly more freshmen in the Control condition and more sophomores in the Burnout condition. Thus, in the model specifications reported in Section 3, we control for those two characteristics.

[10] Autobiographical recall tasks to induce emotions typically vary from 4 – 12 minutes (D'Mello and Mills, 2014) and such time horizons are typically effective in inducing the intended emotional state. Our 15-minute task was chosen so that we could be confident that it was long enough to achieve the intended effect. This is confirmed by the results of the manipulation check reported in Section 4.

[11] Kjellsson et al., (2014) argue that the optimal recall window varies with the objective of the analysis. In our case, the 5-year horizon reflected a tradeoff between specifying a time period long enough to be likely to contain an experience associated with a feeling of burnout, and short enough that the experiences recalled were not too far in the distant past.

[Table 2: About Here]

4. Results

Our empirical analysis is organized in the following manner. First, we conduct a manipulation check in which we assess whether the writing task induced feelings of burnout as intended. We then consider whether the burnout changes the emotional state of the participants in other ways that might confound the effect of burnout. The results of these checks are reported in Section 4.1. Second, in Section 4.2 we consider the correlation between burnout and performance and replicate the negative correlation produced in the literature. Third, in Section 4.3 we provide causal estimates of the effect of burnout on performance. We find that the induction of burnout significantly *improves* performance. Fourth, in Section 4.4 we characterize the participants who are more and less likely to experience burnout. We observe that the only consistently significant variable is gender, with women more likely to experience burnout than men.

4.1. Manipulation Checks

As described in Section 3, we use a modified Copenhagen survey to collect data to construct measures of burnout both in the present and during the last few weeks. To measure burnout in the present, the participants were asked to indicate how strongly they agreed or disagreed on a scale of 1 (strongly disagree, which means the lowest level of burnout) to 5 (strongly agree, the highest level of burnout) with six different statements each reflecting an aspect of burnout. Adding the scores across six indicators, we arrive at an index of burnout in the present that takes on integer values between 6 and 30 (a higher value means greater burnout). See the first 6 items in Appendix B5. Similarly, to measure the feeling of burnout during the last few weeks, the survey asked the participants to indicate how frequently they agreed on a scale of 1 to 5 with ten different statements reflecting burnout (drawn from items 7 – 20 on the survey in Appendix B5). Using data from these responses, we construct an index of burnout during the past few weeks that takes on integer values between 10 and 50 (a higher value means greater burnout).[12] Finally, we add the scores of the two indices to arrive at the overall index of burnout of between 16 and 80.

[12] From the 14 indicators (see Appendix B5), we included only 10 indicators, leaving out the following 4 indicators: "I felt burnt out because of studies", "I felt like I had too many things to do in a day", "I felt lonely", and "I felt like I was doing badly in school.", because they were somewhat redundant given the other questions in the survey. We scored the included indicators such that a higher value meant greater burnout.

Then, as a manipulation check for our burnout induction, we estimate the following linear regression model:

$$B_{ij} = \pi_{0j} + \pi_{1j} * T_i + \mu_{ij} \quad (1)$$

where B denotes score (or value) of a burnout index; i indexes participants, and j specifies one of the three indices of burnout (in the present, during the past few weeks, and overall), respectively. T_i is binary treatment indicator that takes on a value of 1 for an individual in the Burnout treatment, and 0 otherwise. To show that the writing task induced burnout, π_{1j} must be positive and statistically significant.

We first consider whether our manipulation was successful in generating a feeling of burnout. Table 3 reports regressions in which the Burnout Treatment is the independent variable. The estimates in the table verify that the treatment produced greater values of the Overall and Long-Term Copenhagen indices, while the effect on the Short-Term Index was positive but not significant.

[Table 3: About Here]

An equally important consideration for our identification of the causal effect of burnout on test performance is ensuring that the treatment writing task did not change other dimensions of the emotional state of the participants while inducing burnout. Otherwise, they would confound the estimated treatment effect. To check this, we utilize the PANAS instrument (see Appendix B2), which consists of sixty words and phrases that describe different feelings and emotions (Watson et al., 1988). Participants were instructed to read each item and mark their answer in the space next to that item, capturing the extent to which they felt the emotion at the time on a scale of 1 to 5, where 1 indicates "not at all" and 5 indicates "extremely". Using the responses, we construct indices of general positive emotion, general negative emotion, fear, hostility, guilt, sadness, joviality, self-assurance, attentiveness, shyness, fatigue, serenity, surprise, basic positive affect (average of joviality, self-assurance, and attentiveness), and basic negative affect (average of sadness, guilt, and fear).[13]

We collected PANAS data twice in each session. The first round was administered as soon

[13] The calculations of the indices are described in Appendix B3.

as the participants arrived to participate in the experiment. This round is intended to capture the emotional states of the participants before they were influenced by any of the activities in the experiment. The second round of PANAS was administered immediately after participants were done with one of the writing tasks (treatment or control) and completed the Copenhagen survey. The purpose of the second administration of the PANAS questionnaire is to capture the corresponding emotional states of the participants under the influence of having completed either the treatment writing task that is intended to induce burnout or the control writing task, and to check whether unintended emotional states were induced.

To check whether inducing burnout changes the emotional state of the participants, we first calculate changes in the scores of these indices between the two rounds (round 2 minus round 1). Then we compare and assess the statistical significance of the changes in these scores between the Burnout and Control groups. More specifically, we estimate the following linear regression model:

$$\Delta E_{ij} = \alpha_j + \beta_j * T_i + \varepsilon_{ij} \qquad (2)$$

where ΔE denotes the difference in the scores of an emotion j of a participant i between the two rounds and ε_{ij} is stochastic error. We expect that the estimated β_j to be statistically insignificant to establish that the writing tasks did not alter the emotional states of the participants while inducing burnout in the treated group.

Table 4 contains our estimates. The estimates show that there is no effect of the treatment on overall positivity or negativity or on the specific emotions that the PANAS protocol measures with one exception. There is significantly more Guilt among participants in the Burnout than in the Control condition. While we view the significant relationship as likely to be a false positive in view of the large number of tests that we have conducted in this analysis, it requires us to control for the effect of the change in guilt in the regressions we run later when we consider the effect of treatment on test performance.

[Tables 4 and 5: About Here]

The second type of effect to check for is whether the Treatment manipulation did not last long enough to affect responses on the post experimental survey, including on the question asking specifically about burnout (question 15 on the survey, see Appendix B6). This would indicate that, as intended, the effect of the treatment manipulation wore off by that point in the session. This is

important because we use the responses to the end-of-session survey as measures of individual traits and characteristics. The estimates in the last column of Table 5 indicate that responses on the burnout question were not different between treatments. This gives us confidence that the responses on the post-experimental survey were not affected by the treatment.

Another indication that the manipulation was successful emerges from analysis of what participants wrote down during the writing task. Figure 1 lists the ten most common words used in each of the two writing tasks and shows that participants took the burnout induction task seriously. The words also offer insight into what aspects of participants' lives cause a feeling of burnout. Panel (a) in the histogram contains the data from the Burnout Treatment and panel (b), the data from the Control Treatment.

By far the most common word among the treatment group is *Burnout*, and among the top ten are the words *Stress*, *Exhaustion*, *Energy*, *Sleep*, and *Feeling.* These all relate to the notion of fatigue. Also among the top ten is *Motivation,* which can reflect cynicism or low efficacy. The other three words in the top ten, *College*, *School* and *Semester*, refer to general status of students. Notably, terms referring to specific academic activities such as exams, homework, term papers, or grades are absent from the top ten. These patterns suggest that factors unrelated to studies are also important contributors to the feeling of burnout, with exhaustion emerging as the dominant dimension rather than cynicism or low efficacy. Panel (b) shows the most common words in the text in the Control condition. They consist of concepts central to the life of a college student, with the most common terms being *Lunch*, *Breakfast*, and *Dorm*. The contrast between the Burnout and the Control conditions is therefore striking.

[Figure 1: About Here]

4.2. The correlation between burnout and performance

We now consider whether the various measures of burnout that we have correlate with test performance. We find a strong pattern, highly consistent with received prior results, of higher levels of burnout associated with poorer performance on a correlational basis. Table 6 reports the estimates of a number of regression specifications in which SAT score is the dependent variable.[14]

[14] It is a count variable, taking discrete values between 0 to 24. Therefore, we tested the suitability of Poisson and Negative Binomial models for our data and determined that Poisson model was more suitable because the mean of our dependent variable, the test score, was approximately equal to its variance (which is an assumption of the Poisson

The measure of burnout considered here, *Burnout Level*, is the response to the question "You often feel burned out" question 15 on the post experimental survey. Recall that this survey is taken after the effect of the burnout recall task has worn off and thus only reflects burnout from sources outside the laboratory. This is confirmed with a t-test of the difference in mean response in the Burnout and Control Treatments. Responses vary from 1 (lowest burnout) to 5 (highest burnout). In all specifications we control for the level of guilt from the PANAS measure, as well as dummy variables for freshman and sophomore years since these variables differ significantly by treatment. In some specifications, we control for gender with a dummy variable for Female and for each year of study, and in others we add General Positivity and Negativity of emotional state.

[Table 6: About Here]

The pattern is clear. In each specification, for both the complete data and the subsample with relatively high burnout, the coefficient of Burnout Level is negative in all estimated equations and significantly so at $p < .05$ in three of four specifications. That is, greater burnout is correlated with poorer performance.

As mentioned earlier, the literature on burnout has identified its three dimensions (Maslach and Jackson, 1981a; Maslach and Jackson, 1981b): emotional exhaustion, cynicism (or depersonalization), and professional efficacy (or personal accomplishment). While the three measures are likely to be correlated, and potentially reinforcing each other, they capture different dimensions of burnout. Therefore, their individual effects on test performance may vary. To examine this possibility, we construct indices of emotional exhaustion, efficacy, and cynicism utilizing the responses from the post-experimental survey. We then estimate their individual correlations with test performance with the following specification:

$$SAT_i = \alpha + \beta_j * DB_{ij} + \delta * Identity_i + \gamma * STEM_i + \theta * Z_i + \varepsilon_i \qquad (3)$$

where SAT_i is the SAT score of participant i, and DB_{ij} indicates dimension j (i.e., emotional exhaustion, low efficacy, and cynicism) of burnout of participant i. The remaining notation is the same as defined earlier. We estimate a separate regression for each dimension of burnout. The

model). Unless mentioned otherwise, all the regression results presented here and in subsequent sections are estimates from Poisson models. For comparisons, we also estimate the corresponding regression models with OLS (not reported here). The results are highly consistent between the Poisson, Negative Binomial and OLS models.

corresponding results are presented in Appendix Tables A1-A3.

While the correlations between each of the three measures and test performance are typically negative, they are generally not significant on their own. However, from the data reported in this subsection, it is clear that we are able to replicate the negative correlation between burnout and performance documented in previous studies. An observational study of our participants would conclude that there is a negative correlation between burnout and performance. We turn to the causal effect of the treatment in the next subsection.

4.3. Causal Relationship between Burnout and Performance

Figure 2 shows the distribution of test scores in the two experimental conditions. The figure gives the impression that scores under the Burnout treatment are higher than under the Control. Indeed, there are over twice as many scores of 75% and greater (18/24 answers correct) under Burnout than in the Control. Regression analysis confirms this impression. To measure the effect of our treatment, we estimate a model in which the variation in test performance of the participants is explained by their treatment assignment:

$$SAT_i = \alpha + \beta * T_i + Controls + \varepsilon_i \qquad (4)$$

where SAT_i denotes test score of a participant i, taking discrete values between 0 and 24; and T_i is the binary treatment indicator. Given the random assignment of the treatment to the participants, it is assumed that the two groups are balanced in their characteristics except that one receives the treatment and the other does not. This is also corroborated by the randomization check reported in Table 2. Thus, β is the average treatment effect (ATE). As in section 3.2, we control for the change in Guilt between the two PANAS measurements, as well as include dummy variables for Freshman and Sophomore status.

[Tables 7a and 7b: About Here]

The results show that the Treatment has a significantly *positive* effect on performance (columns 1-4, Tables 7a). Sophomores perform better than seniors, the baseline year in the regression. Performance is negatively correlated with positive affect (columns 3-5). The results presented in columns 5-6 are from the estimation of models for female and male participants separately. Unlike the specifications in columns 1 to 4 which are Poisson count models, the

specifications in columns 5-6 have been estimated with Ordinary Least Squares. The use of OLS facilitates the interpretation of the coefficients in terms of test scores. For women, the effect of recalling burnout was 2.084 more questions correct out of 24 (or 8.7 percentage points out of 100). The results presented in Table 7b are from the estimation of the causal effects when the sample is limited to the participants with relatively high burnout scores (Copenhagen Burnout Index greater than 50), and they further confirm our findings that the inducement of burnout improves test performance. Moreover, this causal effect is stronger among the participants with high burnout. This can be observed from the fact that the coefficients of Treatment in Table 7b exceed those in Table 7a.

Overall, the results show that the negative correlation between measured burnout level and test performance that we observed in Section 3.2 masks a positive causal relationship whereby the burnout is actually causing an improvement in test performance.

4.4. Demographics of burnout and its effect on performance

Who experiences more burnout? To answer this, we consider burnout as a function of the demographic characteristics that we have available: gender, ethnicity, and STEM Major. The measures of burnout we study are (i) the response to the burnout question on the post-experimental survey, (ii) the overall Copenhagen burnout index, and (iii) indices of each of the three components of burnout derived from the post-experimental survey. Table 8 presents the results, from which we observe that women report significantly more burnout than men on the direct question and on the overall Copenhagen inventory. On the exhaustion dimension, women have much higher scores than men. This finding is along the line of the finding among the Swedish labor force, where women are more likely to be diagnosed with clinical burnout (which mainly captures emotional exhaustion) than men (Nekoei, Sigurdsson, and Wehr, 2025). African-Americans report greater burnout on the dimensions of efficacy and exhaustion.

[Table 8: About Here]

5. The Anatomy of Burnout

5.1. Description of Analysis

Since Maslach (1982) proposed exhaustion, cynicism, and inefficacy as three dimensions of burnout, a large literature has emerged on their measurement and validation in work and

academic settings. There is a general agreement that the dimension of exhaustion is at the heart of burnout. Does this finding hold for undergraduate student populations at universities? In addition, what are the antecedents of burnout among the students? What are the causes of their burnout? Finally, what are the consequences of their burnout?

To shed light on these questions, we utilize the narratives of the participants on their burnout experiences. As described in Section 3.2, the participants were asked to recall any occurrence of burnout in the last five years and then describe the situation that caused them to feel the burnout, describe the specifics of the situation that made them feel burnout, and describe how the burnout affected their everyday life. Thus, we can characterize burnout as it was experienced by the participants, which has several advantages. First, our method does not assume that the circumstances of burnout among the students are the same, although they may well have common characteristics. Second, it allows the possibility that burnout among students may have less to do with their studies *per se*, which has often been assumed in prior studies. Third, it provides more nuanced insights into the antecedents of burnout. Fourth, it can yield insights into the potential mechanisms through which burnout may be affecting the everyday life of the participants, and more importantly, deeper insights into why burnout may be affecting performance. Finally, given the insights into the experienced circumstances of burnout, our method may give some guidance as to potential interventions to remediate burnout among students.

Our qualitative evidence is based on the narratives of 87 students in the Burnout Treatment who wrote about at least one episode of burnout experienced in the five years preceding the time of this data collection. To analyze the data, we created a codebook that was used to capture the information in the burnout narratives. To create this codebook, we carefully read the narratives one by one. We read the first narrative and created variables to codify the information contained that we deemed relevant for the anatomy of burnout. Then we read the second narrative and if there was new information that was not in the first narrative, an additional variable was created. Likewise, we read the remaining narratives, and accordingly additional variables were created. Creation of this codebook is structured around the three questions regarding burnout, described earlier, that the participants were asked to write about. More specifically, the themes (or categories) of information that we gathered were as follows: dimensions of burnout, sources/reasons for burnout, feelings associated with burnout, social relationships, routines and habits, reactions to burnout, and actions to escape burnout.

Afterward, a team of three coders used the codebook to independently identify the prevalence of the themes described above. The team was given instruction to record "1" if a particular attribute (variable) was mentioned in the burnout narrative of a participant. The team was also instructed to avoid making inferences from the narratives. Therefore, if a particular attribute is not mentioned, the particular cell was left empty. In other words, the constructed attributes are not binary variables, where a value of "0" would have denoted the absence of a particular attribute, which we do not assume here. For our analysis, we first calculate the frequency distribution of the attributes (or variables) for each coder, and then we take the average of the corresponding frequency distributions. We supplement this data with the results from the analysis of the burnout narratives utilizing a large language model (LLM), Claude AI.

5.2. Dimensions and causes of burnout

The responses show several key factors that lead to burnout. These include workload, time pressure and deadline stress, loss of meaning and purpose in activities, conflicting responsibilities without clear priorities, lack of control over schedules and demand, exhaustion without recovery time, and diminished self-efficacy from repeated setbacks. Consistent with the literature, we find that exhaustion is the most commonly reported dimension of burnout (59%), followed by low efficacy (29%) and cynicism (10%). Approximately 18% of the participants report having their first burnout experience in college, 14% in high school, and approximately 15% report to have experienced burnout several times. We reproduce a few quotes here to reveal the dimensions of burnout.

> "When I feel burnout, all I ever want to do is sleep. I don't even have enough energy to feed myself sometimes. I carry all these burdens on my own because I don't want to let anyone down... However, as burnout as I am, I can't afford to take a break or a day off. The world doesn't stop moving just because I am having problems. This is a true, but tough fact that I have to live with. No matter how burnout I am, I have to keep pushing."

This illustrates the energy depletion dimension of burnout, showing how chronic stress from financial pressures (working while going to school) leads to physical and emotional exhaustion. The student describes the basic inability to care for themselves (eating, adequate rest) while being trapped in a cycle where they cannot stop despite being depleted. However, the quote also illustrates a determination to persevere despite the feeling of burnout.

> "I was used to just sit in classes and listen, walk in and do well no studying or notes, I could just do it. Now I take paper notes until I realized that I was not listening to whatever has been said. I study for days and do poorly on exams... I feel like I'm approaching a turning point of who I am and who I want to be. I just don't know if I trust myself to make the right decision when I get there... I'm in limbo with reality and the fever dream that is existence."

This quote reveals the low efficacy dimension of burnout. The student describes the collapse of abilities they once took for granted, leading to a condition where they no longer trust their own judgment.

The reported main causes of burnout are academic overload, work-related pressure, mental health, relationship challenges, time management, and a decline in motivation and interest.[15] Among these, the most commonly reported cause is academic overload. Eighty-one students (93% of the subsample) mention academic-related stressors using terms like "homework," "exam," "class," "school," and "studying." Students frequently describe feeling overwhelmed by coursework demands, particularly during high-stress periods like final exams or when taking multiple challenging courses simultaneously. Nearly as prevalent as academic stressors are work-related pressures, with 91% of students mentioning job-related terms. Many students report experiencing burnout while trying to balance employment with their studies. Several students describe working multiple jobs or long hours to support themselves financially while attending school. These themes are reflected in the following quotes.

> "I never really began to experience burnout until I reached college and my responsibilities piled up and attending class seemed overwhelming. When I began my current job as a financial ambassador this year, I was excited to take on role as an educator for students at local Tucson high schools... However, as time has passed and semester has progressed, I found that all I now had time to do was be in schools, whether that be in my own classes or when I was teaching at high schools."

> "I am constantly working because I work two jobs so that I can support myself. On top of paying back tuition, I also pay the rent for my apartment, credit card bills, loans, etc. It often becomes too much to handle and I feel very overwhelmed."

[15] The literature on burnout has identified demographic (i.e., age, gender), personality (i.e., hardy personality, external locus of control, neuroticism, type-A behavior), and workplace (i.e., manageable workload, control, reward, community, fairness, and values) factors as correlates of burnout. But work environment is usually considered to be of greater significance than personal characteristics in the development of burnout.

> "I had a fairly heavy courseload and it felt like my tasks were nonstop. It felt like I never had a break because each time I finished an assignment or studying for an exam, I immediately had to tackle the next task."

Mental health issues are reported prominently by 75% of participants, with students frequently mentioning "stress," "anxiety," "exhaustion," and feeling "tired." These challenges have often emerged as consequences of other stressors that then contribute to burnout themselves. Social issues appear in 70% of responses, with students referencing challenges in their relationships with friends, family, and peers, and reflecting the cynicism dimension of burnout. Some describe how burnout has damaged their social connections, while others mention how social pressure or problems contributed to their burnout. Time management emerges as an important factor, with the word "time" appearing in 87% of responses. Many students struggle to balance competing demands on their time, including balancing coursework with employment, managing extracurricular activities alongside academics, and maintaining social relationships while meeting academic obligations. Finally, loss of motivation is mentioned in 29% of responses, with students describing decreasing interest in subjects they previously enjoyed. Many report reaching a point where activities that once brought satisfaction became chores.

What led these situations into burnout experiences is a disconnect between effort and reward. Students feel that their work does not lead to meaningful outcomes or personal growth. Another situation that leads to feelings of burnout is the tension between work and school. What makes this situation particularly difficult is the absence of support in prioritizing conflicting responsibilities. Students describe feeling torn between financial needs (requiring work) and academic demands. Lack of autonomy is another situation that contributes to burnout, where students feel that external forces dictate every aspect of their lives without any ability to adjust or negotiate demands, and this in turn intensifies feelings of burnout.

In addition, fatigue from long hours of activity combined with mental exhaustion creates situations where students cannot recover between demanding periods. This situation leads to feelings of burnout because of insufficient opportunities to rest and recharge before facing the next challenge. Lastly, students describe how experiencing repeated failures or setbacks despite their best efforts erodes their sense of competence. This turns into burnout because of the psychological impact of feeling increasingly ineffective despite working harder, creating a negative spiral of decreasing motivation and increasing exhaustion.

In other words, burnout is not simply caused by difficult situations, but rather by specific characteristics of those situations such as their chronic nature, the lack of control, the absence of meaningful reward for effort, insufficient recovery time, and the erosion of self-efficacy.

5.3. Reported effects of burnout on daily life

The reported main effects of burnout on daily life include adverse effects on both physical and mental health, relationships, and academic work, among others. Students frequently report deterioration in their physical health. Sleep disruption is one of the most common physical effects, with the word "sleep" appearing in 32% of reports. Many students describe either sleeping excessively as an escape mechanism or suffering from insomnia due to anxiety. To give an example, this is how a student reports the effects of burnout.

> "When I feel burnout, all I ever want to do is sleep. I don't even have enough energy to feed myself sometimes. I carry all these burdens on my own because I don't want to let anyone down."

Poor eating habits appear to be another attribute, with students skipping meals or relying on unhealthy convenience foods when exhausted. Several students mention developing physical symptoms of chronic stress, including headaches and digestive issues. Regarding mental health, students report experiencing increased anxiety and panic attacks, especially when facing deadlines or exams; symptoms of depression, including persistent sadness and hopelessness; emotional numbness and detachment from activities previously enjoyed; irritability and mood swings affecting interactions with others; difficulty concentrating and impaired cognitive function; and feelings of helplessness and being overwhelmed by even small tasks.

Students report an impact of burnout on their social relationships, manifesting in withdrawal from social interactions; increased conflict with roommates, friends, and family members; neglecting important relationships because academic or work demands took priority; losing connections with peers due to isolation and reduced social engagement; and difficulty being emotionally present even when physically with friends or family. Regarding daily functioning, students report difficulty maintaining basic self-care, decreased ability to plan and organize daily activities, neglect of personal spaces, increased reliance on coping mechanisms such as screen time or substance use, and loss of interest in hobbies and recreational activities. This is how one student describes their situation:

> "My life for a couple months was on auto-pilot, going out, drinking, girls, no feeling of anything. My body was a mess, my mind was a wreck. I just didn't know what to do in a sense of it. Everyone was concerned with me. I was being a drag to everyone."

Finally, with respect to the reported effect of burnout on school-related activities, a focus of our study, students report decreased motivation to attend classes or complete assignments, difficulty concentrating during lectures and study sessions, increased procrastination, and a tendency to miss deadlines or to submit incomplete work. Many describe a paradoxical situation in which they spend more time worrying about academic tasks yet accomplish less, thereby intensifying their anxiety about performance. As one student describes it:

> "I was exhausted all the time, I was going to school but I had no energy to concentrate on the class. I would only go from home to school and back. Every night I couldn't do my homework, when I was at home I would only sit on my bed with no energy to do anything. I felt completely empty and it was more than just mentally but it was also physically."

Overall, the narratives are consistent with the notion that burnout is a symptom of low performance, but participants themselves misperceive the symptom of burnout as a cause. They are also consistent with the notion that a third variable, such as difficulty in a relationship or a lack of sleep, is causing both poor academic performance and the feeling of burnout.

6. Conclusion and Policy Implications

This paper has shown that a feeling of burnout can actually *improve* performance. More specifically, we find that students assigned to a burnout treatment perform significantly better on SAT math questions than those in the control group. At first glance, this result appears inconsistent with the widely observed negative correlation between burnout and performance in the literature, which consists primarily of observational studies. We began by replicating this negative correlation between burnout levels and academic performance. Then we showed that the *causal effect* runs in the opposite direction: when experimentally induced, burnout improves performance. In other words, it is poor performance that causes a feeling of burnout, not vice versa. We therefore conjecture that burnout may be an adaptive psychological mechanism that helps improve performance during stress. Students who perform poorly may actually do even worse without experiencing feelings of burnout.

While women in our sample experience significantly more burnout than men, the positive performance-enhancing effect of burnout is particularly strong for women. Academic overload is the most commonly reported cause of burnout (mentioned by 93% of participants who report having experienced burnout). Work-related pressures are nearly as prevalent (91%) - many students struggle when balancing employment with studies. Mental health issues, relationship challenges, and time management are other major contributors. Participants' responses indicate that exhaustion is the dominant dimension of burnout (59% of students), followed by low efficacy (29%) and cynicism (10%).

Our findings suggest that effective burnout prevention requires a fundamental shift from treating burnout as purely detrimental to understanding it as a complex adaptive response that signals underlying performance and stress management issues. This calls for comprehensive approaches to wellbeing that address root causes rather than just symptoms. We focus our remarks here on the student population that we have studied, but we believe that they have broader applicability.

First, we need to rethink the target population for interventions. Burnout prevention programs typically focus on poor performers, but our study shows that high-performing students are also at risk. Since burnout is associated with improvements in performance, high achievers experiencing burnout may be overlooked. Thus, current approaches may be improved by including top performers in burnout screening and support programs.

Second, the support programs should prioritize female students who experience burnout at higher rates, including development of targeted interventions that recognize women's particular susceptibility to burnout.

Third, contrary to the existing literature's focus on burnout being caused by workplace issues, we find that student burnout stems from complex interactions between academic, work, and personal factors. Therefore, burnout remediation programs must move beyond academic-only (for students) and workplace-only (for employees) interventions. Such programs may include integrating financial support services with academic interventions, and guidance on how to balance studies with employment. Addressing time management, mental health, and relationship factors together rather than in isolation is more likely to be effective.

Fourth, strategies for early detection and prevention of burnout are required. For example, better screening tools that recognize burnout as potentially adaptive rather than purely pathological

can be developed. These can focus on preventing the underlying causes (poor performance, overwhelming demands) rather than just treating burnout symptoms. The emphasis should be on implementing proactive academic or professional support to prevent the poor performance that may trigger feelings of burnout.

Fifth, in addition to interventions that target students, institutional level interventions are needed that can address workload management, financial support, mental health resources, and time management training. For example, academic overload can be addressed through better course scheduling and assignment coordination, which would reduce the need for the excessive part-time work that contributes to burnout. Counseling services can be expanded to address the complex factors contributing to student stress, and support could be provided for students struggling with competing demands.

Last but not least, the manner in which we understand burnout should be reframed. This may involve educating employers, faculty and academic staff about the complex relationship between burnout and performance, destigmatizing high achievers who report burnout symptoms, and recognizing burnout as a signal of underlying issues rather than simply a problem to address.

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Table 1: Sample Characteristics

	Mean	Std. Dev
Male	0.478	0.501
Female	0.484	0.501
Other Gender	0.037	0.190
White	0.522	0.501
African-American	0.056	0.230
Asian	0.248	0.433
Hispanic	0.130	0.338
Other Race	0.037	0.190
Freshman	0.292	0.456
Sophomore	0.242	0.430
Junior	0.248	0.433
Senior	0.199	0.400
Other Class	0.019	0.136

Notes: All variables are indicator variables, N = 161

Table 2: Demographic balance check

Characteristic	Control[1]	Treatment[1]	Difference[2]	95% CI[23]	P-value[2]
Male	0.46 (0.50)	0.49 (0.50)	-0.03	-0.19, 0.12	0.66
Female	0.51 (0.50)	0.46 (0.50)	0.05	-0.10, 0.21	0.50
Other Gender	0.03 (0.16)	0.05 (0.21)	-0.02	-0.08, 0.04	0.52
White	0.58 (0.50)	0.47 (0.50)	0.11	-0.05, 0.27	0.17
African-Amer	0.04 (0.20)	0.07 (0.25)	-0.03	-0.10, 0.04	0.43
Asian	0.24 (0.43)	0.25 (0.44)	-0.01	-0.15, 0.13	0.89
Hispanic	0.08 (0.27)	0.17 (0.38)	-0.09	-0.19, 0.01	0.080
Other Race	0.04 (0.20)	0.03 (0.18)	0.01	-0.05, 0.07	0.84
Freshman	0.38 (0.49)	0.22 (0.42)	0.16	0.02, 0.30	**0.028**
Sophomore	0.16 (0.37)	0.31 (0.47)	-0.15	-0.28, -0.02	**0.026**
Junior	0.24 (0.43)	0.25 (0.44)	-0.01	-0.15, 0.13	0.89
Senior	0.19 (0.39)	0.21 (0.41)	-0.02	-0.14, 0.11	0.78
Other Class	0.03 (0.16)	0.01 (0.11)	0.02	-0.03, 0.06	0.49
N	74	87			

[1]Mean (Standard deviation). [2]Welch Two Sample t-test. [3]CI = Confidence Interval. All variables are indicator variables. p-values are for tests of equality of mean values between Burnout and Control conditions

Table 3. Copenhagen Burnout Index as a function of treatment

	Short Term	Long Term	Overall
Treatment	0.035	2.824*	3.868*
	(0.028)	(1.471)	(2.135)
Constant	0.493***	-16.283***	52.500***
	(0.020)	(1.039)	(1.492)
#Observations	161	161	161
R^2	0.009	0.022	0.020
Adj, R^2	0.003	0.016	0.014

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Treatment is a binary indicator of Burnout treatment. p-values are one-sided because of the hypothesis that the Treatment would yield a higher level of burnout. The Short-Term Index is derived from the first six questions on the Copenhagen survey given in Appendix B5. The Long-Term Index is calculated from 10 of the items among the 7^{th} – 20^{th} items in the Copenhagen survey. The Overall Index is calculated from the 6 Short-Term and 10 Long-Term questions.

Table 4: Balance check of emotions as measured in PANAS-X inventory

Emotions	Control[1]	Treatment[1]	Difference[2]	95% CI[23]	P-value[2]
ΔFear	-0.028 (0.119)	-0.013 (0.083)	-0.01	-0.05, 0.02	0.38
ΔHostility	-0.011 (0.081)	0.000 (0.063)	-0.01	-0.03, 0.01	0.31
ΔGuilt	-0.018 (0.094)	0.010 (0.059)	-0.03	-0.05, 0.00	**0.028**
ΔSadness	-0.020 (0.086)	-0.005 (0.075)	-0.02	-0.04, 0.01	0.24
ΔJoviality	-0.050 (0.100)	-0.043 (0.109)	-0.01	-0.04, 0.03	0.65
ΔSelf-Assurance	-0.030 (0.095)	-0.047 (0.086)	0.02	-0.01, 0.05	0.24
ΔAttentiveness	-0.030 (0.131)	-0.037 (0.103)	0.01	-0.03, 0.04	0.71
ΔShyness	-0.024 (0.077)	-0.037 (0.095)	0.01	-0.01, 0.04	0.34
ΔFatigue	-0.018 (0.151)	0.024 (0.113)	-0.04	-0.08, 0.00	0.051
ΔSerenity	-0.031 (0.139)	-0.020 (0.112)	-0.01	-0.05, 0.03	0.60
ΔSurprise	-0.017 (0.096)	0.012 (0.107)	-0.03	-0.06, 0.00	0.077
ΔGen Positive	-0.046 (0.104)	-0.048 (0.085)	0.00	-0.03, 0.03	0.91
ΔGen Negative	-0.023 (0.105)	0.000 (0.068)	-0.02	-0.05, 0.01	0.12
ΔBasic Positive	-0.037 (0.090)	-0.042 (0.081)	0.01	-0.02, 0.03	0.68
ΔBasic Negative	-0.019 (0.078)	-0.002 (0.045)	-0.02	-0.04, 0.00	0.091
N	74	87			

[1]Mean (SD). [2]p values are from a Welch Two Sample t-test of the equality of sample means. [3]CI = Confidence Interval. Δ indicates the difference between Round 2 and Round 1 emotion scores as measured by the PANAS-X inventory. Round 1 of the PANAS-X inventory was implemented as soon as the subjects arrived to participate in the experiment. They completed it immediately after filling out the consent form. Round 2 was implemented after the subjects had completed the writing task.

Table 5: Emotions and responses on end-of-session burnout question as a function of treatment

	ΔFear	ΔHostility	ΔGuilt	ΔSadness	ΔGen Positive	ΔGen Negative	Burnout Question
Treatment	0.015	0.012	0.028*	0.015	-0.002	0.022	-0.292
	(0.016)	(0.012)	(0.013)	(0.013)	(0.015)	(0.014)	(0.182)
Constant	-0.028*	-0.011	-0.018	-0.020*	-0.046***	-0.023+	2.595***
	(0.014)	(0.009)	(0.011)	(0.010)	(0.012)	(0.012)	(0.133)
#Obs.	161	161	161	161	161	161	160
R^2	0.005	0.007	0.032	0.009	0.000	0.016	0.016
Adj. R^2	-0.001	0.000	0.026	0.003	-0.006	0.010	0.010

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The emotions are measured with the PANAS-X Inventory. See Appendix B4 for the calculation of the scales. Δ denotes the change in an emotion between Round 1 and Round 2. Round 1 of PANAS-X inventory was implemented before the Treatment and Control writing tasks. Round 2 was administered after the Treatment and Control writing tasks were completed. *Treatment* is a binary indicator equaling 1 in the Burnout treatment and 0 in the Control treatment. In the last column, the variable "Burnout Question" is the response to question 15 of the post-experimental questionnaire, and greater burnout is indicated by higher value of the variable (see Appendix B6). Each individual participant is a unit of observation.

Table 6. Relationship between self-reported burnout on post-experimental survey and SAT score

	(1) Score	(2) Score	(3) Score	(4) Score
Burnout Level	-0.048*	-0.038*	-0.039+	-0.045*
	(0.019)	(0.019)	(0.020)	(0.021)
ΔGuilt	-0.546*	-0.491+	-0.470+	-0.357
	(0.251)	(0.252)	(0.279)	(0.282)
Freshman	0.023	0.043	0.066	0.090
	(0.051)	(0.062	(0.062)	(0.063)
Sophomore	0.044	0.077	0.085	0.094
	(0.053)	(0.063)	(0.063)	(0.064)
Junior		0.062	0.050	0.073
		(0.064)	(0.064)	(0.064)
Female		-0.115**	-0.136**	-0.117*
		(0.0.045)	(0.045)	(0.046)
Gen Positive			-0.008**	-0.009**
			(0.003)	(0.003)
Gen Negative			-0.006	-0.006
			(0.005)	(0.005)
Other Controls				YES
Constant	2.480***	2.528***	2.817***	2.805***
	(0.054)	(0.0724)	(0.120)	(0.123)
Chi Square	15.28**	22.81***	35.00***	54.43***
Pseudo R^2	0.017	0.025	0.038	0.059

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Poisson count specification. *Burnout Level* varies from 1 (lowest burnout) to 5 (highest burnout). *ΔGuilt* is the difference between guilt scores from the second and first rounds of PANAS. The second round was implemented after the subjects had completed the writing task. *Gen Positive* and *Gen Negative* are the scores of general positive and general negative emotion indices from the second round of PANAS. See Appendix B3 for calculation of the indices. *Other controls* are dummies for African-American, Asian, and Hispanic individuals. Data on Burnout Level was collected in question 15 on the post-experimental survey. N = 160 is all regressions.

Table 7a. The Treatment (Burnout) Effect on SAT Score

	(1) Score	(2) Score	(3) Score	(4) Score	(5) Women Only	(6) Men Only
Treatment	0.095*	0.082*	0.076*	0.104*	2.084*	.734
	(0.045)	(0.045)	(0.045)	(0.047)	(.886)	(1.091)
ΔGuilt	-0.794**	-0.680**	-0.593*	-0.542+	-14.381	-3.986
	(0.252)	(0.257)	(0.289)	(0.295)	(8.823)	(5.962)
Freshman	0.043	0.057	0.077	0.109+	1.146	1.490
	(0.051)	(0.062)	(0.063)	(0.063)	(1.188)	(1.441)
Sophomore	0.041	0.072	0.081	0.087	1.414	.677
	(0.054)	(0.064)	(0.064)	(0.064)	(1.194)	(1.453)
Junior		0.059	0.048	0.074	.859	1.042
		(0.064)	(0.064)	(0.065)	(1.148)	(1.539)
Female		-0.131**	-0.153***	-0.136**		
		(0.044)	(0.044)	(0.045)		
Gen Positive			-0.007*	-0.007**	-.116**	-.079
			(0.003)	(0.003)	(.053)	(.062)
Gen Negative			-0.007+	-0.007	-.121	-.081
			(0.004)	(0.004)	(.940)	(.088)
Other Controls				YES	YES	YES
Constant	2.537***	2.579***	2.865***	2.854***	15.369***	16.649***
	(0.041)	(0.059)	(0.107)	(0.108)	(2.096)	(2.411)
#Observations	161	161	161	161	78	77
Chi-Square	13.34**	23.17	33.85***	53.91***	R2:.32	R2:.18
Pseudo R^2	0.014	0.025	0.037	0.058	Adj R2:.21	Adj R2:.05

Columns 1 – 4 Poisson Count regression specification, Columns 5 -6 OLS.. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001. *Treatment* is the binary indicator equaling 1 under Burnout treatment. One-tailed test on Treatment variable, all other tests two-tailed. *ΔGuilt* is the difference between guilt scores from the second and first rounds of PANAS. The second round was implemented after the subjects had completed the treatment and control tasks, respectively. *Gen Positive* and *Gen Negative* are the scores on general positive and general negative emotion indices from the second round of PANAS. See Appendix B3 for calculation of indices. *Other controls* are dummies for African-American, Asian, and Hispanic.

Table 7b. The Treatment (Burnout) Effect on SAT Score in high burnout sample

	(1) Score	(2) Score	(3) Score	(4) Score
Treatment	0.120*	0.112*	0.096+	0.173**
	(0.063)	(0.064)	(0.065)	(0.676)
ΔGuilt	-.606	-0.607	-0.098	-0.358
	(0.438)	(0.444)	(0.529)	(0.541)
Freshman	0.047	0.117	0.113	0.173+
	(0.069)	(0.091)	(0.093)	(0.094)
Sophomore	0.125+	0.201*	0.192*	0.189*
	(0.073)	(0.092)	(0.094)	(0.095)
Junior		0.122	0.086	0.186*
		(0.874)	(0.092)	(0.095)
Female		-0.105+	-0.141*	-0.081
		(0.057)	(0.059)	(0.061)
Gen Positive			-0.007*	-0.010*
			(0.004)	(0.004)
Gen Negative			-0.010+	-0.006
			(0.006)	(0.006)
Other Controls				YES
Constant	2.494***	2.479***	2.856***	2.713***
	(0.058)	(0.088)	(0.164)	(0.176)
Chi-Square	9.60*	14.56*	22.56**	46.08***
Pseudo R^2	0.018	0.027	0.042	0.086

Poisson Count regression specification. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001. *Treatment* is the binary indicator equaling 1 under Burnout treatment, and 0 otherwise. One-tailed test on Treatment variable, all other tests two-tailed. *ΔGuilt* is the difference between guilt scores from the second and first rounds of PANAS. The second round was implemented after the subjects had completed the treatment and control writing tasks, respectively. *Gen Positive* and *Gen Negative* are the scores of general positive and general negative emotions from the second round of PANAS (see Appendix B3). *Other controls* are dummies for African-American, Asian, and Hispanic. High burnout subsample: Copenhagen burnout index score >50. N = 92.

Table 8. Demographics of Burnout

	(1) Self-Reported Burnout	(2) Overall Cop. Index	(3) Efficacy Index	(4) Exhaustion Index	(5) Cynicism Index
Female	.578**	4.881*	1.040	1.564***	.541
	(.185)	(2.230)	(.962)	(.465)	(.554)
Freshman	-.097	1.409	1.307	.279	.060
	(.255)	(3.089)	(1.246)	(.653)	(.750)
Sophomore	-.195	-1.767	.179	-.500	-1.418^{+}
	(.262)	(3.402)	(1.381)	(.691)	(.770)
Junior	.215	4.798	1.040	.722	.926
	(.274)	(3.296)	(1.365)	(.689)	(.881)
African-American	.140	4.858	4.998**	1.590**	-.570
	(.369)	(4.067)	(1.875)	(.670)	(.997)
Hispanic	.016	1.901	2.168	1.172^{+}	.211
	(.301)	(3.237)	(1.412)	(.656)	(.819)
Asian	.198	2.962	1.642	.632	.669
	(2.46)	(2.593)	(1.102)	(.548)	(.703)
STEM Major	.216	3.213	.027	.556	.044
	(.230)	(2.443)	(1.124)	(.491)	(.640)
Constant	2.183***	48.86***	27.34***	7.465***	16.17***
	(.249)	(3.26)	(1.26)	(.624)	(.763)
#Observations	161	161	161	161	161

OLS regressions. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001. All independent variables are binary indicators. Self-Reported Burnout, Self-Efficacy Index, Exhaustion Index, and Cynicism Index constructed from post-experimental survey. See Appendix B6. Self-Report Burnout (question 15). Low-Self-Efficacy Index (questions 2, 3, 4, 7, 10, 11, 13, 18, 25, 39). Exhaustion Index (questions 17, 19, 20), Cynicism Index (questions 23, 36, 40, 41, 42, 43). Overall Copenhagen Index constructed from Copenhagen protocol administered after writing task.

Figure 1. Ten Most Common Words Employed in Writing Task in Treatment (Upper Panel) and Control (Lower Panel) Conditions (Vertical axis indicates number of participants using each word)

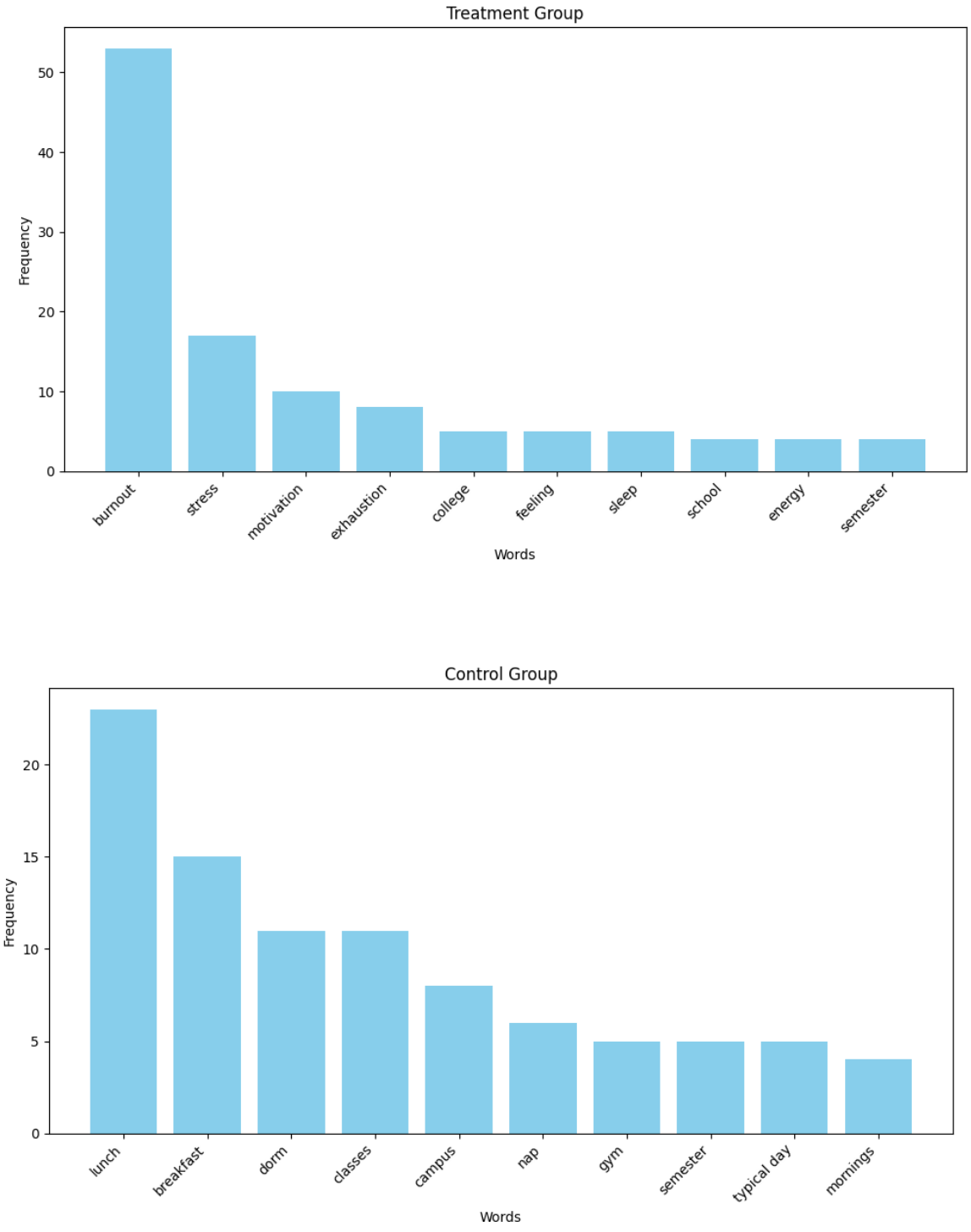
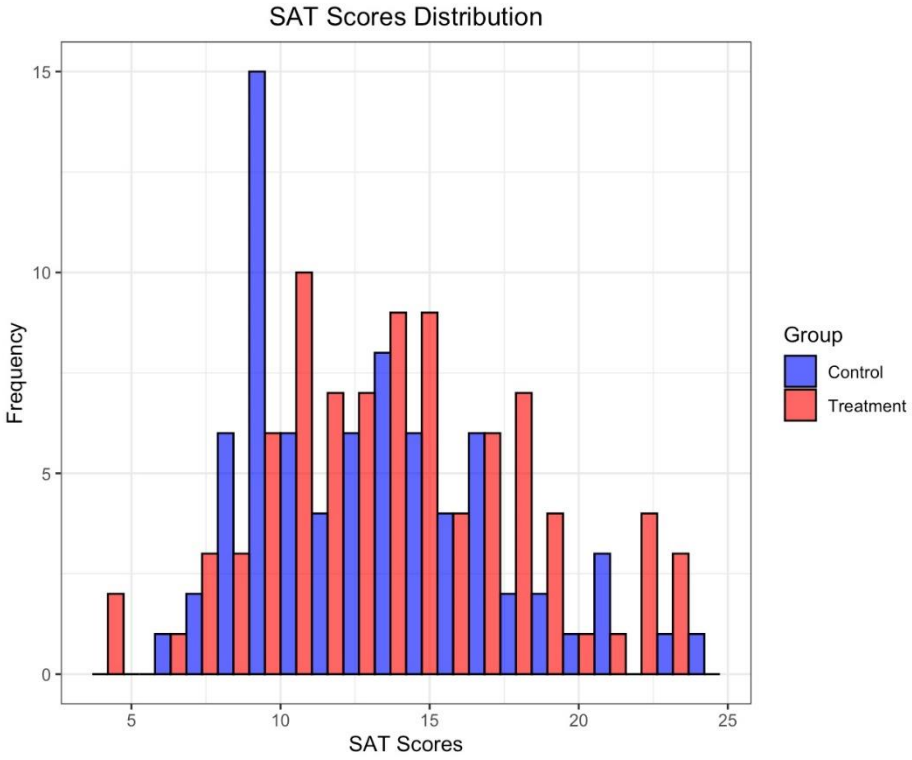


Figure 2. Histogram of SAT Scores in the Treatment and Control Conditions



Notes: Scores range from 0 – 24. Vertical axis indicates number of participants attaining each score

Appendix A: Additional Tables

This Appendix contains a number of tables in which the correlational relationship between different dimensions and measures of burnout with SAT score is estimated**.**

Table A1. Relationship between Exhaustion and SAT Score

	(1) Score	(2) Score	(3) Score	(4) Score
Exhaustion	-0.009	-0.004	-0.004	-0.002
	(.008)	(0.008)	(0.008)	(0.009)
ΔGuilt	-0.655**	-0.603*	-0.553*	-0.413
	(0.253)	(0.254)	(0.281)	(0.286)
Freshman	0.020	0.042	0.063	0.084
	(0.051)	(0.062)	(0.062)	(0.062)
Sophomore	0.044	0.082	0.089	0.099
	(0.054)	(0.063	(0.063)	(0.064)
Junior		0.074	0.0641	0.078
		(0.064)	(0.065)	(0.065)
Female		-0.140**	-0.163***	-0.147**
		(0.045)	(0.045)	(0.046)
Gen Positive			-0.007**	-0.007**
			(0.003)	(0.003)
Gen Negative			-0.007	-0.008+
			(0.005)	(0.005)
Other Controls				YES
Constant	2.675***	2.664***	2.958***	2.941***
	(0.076)	(0.082)	(0.119)	(0.121)
Chi-Square	10.88*	21.97***	33.60***	48.72
Pseudo R^2	0.012	0.024	0.036	0.053

Poisson Count regressions. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001 *Exhaustion* calculated from questions 17, 19, and 20 on the post-experimental survey. *ΔGuilt* is the change in Guilt between the two PANAS surveys. *Gen Positive* and *Gen Negative* are the scores of general positive and general negative emotions from the second round of PANAS. *Other controls* are dummies for African-American, Asian, and Hispanic. N = 160 in all regressions.

Table A2. The relationship between Low Efficacy and SAT score

	(1) Score	(2) Score	(3) Score	(4) Score
Low Efficacy	-0.007+	-0.006	-0.006	-0.005
	(0.004)	(0.004)	(0.004)	(0.004)
ΔGuilt	-0.632**	-0.539*	-0.484+	-0.367
	(0.246)	(0.249)	(0.279)	(0.283)
Freshman	0.035	0.050	0.070	0.089
	(0.0507)	(0.062)	(0.062)	(0.062)
Sophomore	0.057	0.085	0.094	0.101
	(0.054)	(0.064)	(0.064)	(0.064)
Junior		0.063	0.051	0.072
		(0.064)	(0.064)	(0.064)
Female		-0.136**	-0.158***	-0.141**
		(0.044)	(0.044)	(0.045)
Gen Positive			-0.007**	-0.007**
			(0.003)	(0.003)
Gen Negative			-0.007	-0.008+
			(0.004)	(0.005)
Other Controls				YES
Constant	2.787***	2.805***	3.081***	3.051***
	(0.114)	(0.118)	(0.145)	(0.146)
Chi-Square	12.08*	22.59***	33.40***	50.55***
Pseudo R^2	0.013	0.025	0.036	0.055

Poisson Count regressions + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001. *Low Efficacy* is calculated from the responses to questions 2, 3, 4, 7, 10, 11, 13, 18, 25, 39 on the post-experimental survey. *ΔGuilt* is the difference between guilt scores from the second and first rounds of PANAS. *Gen Positive* and *Gen Negative* are the scores of general positive and general negative emotions from the second round of PANAS. *Other controls* are dummies for African-American, Asian, and Hispanic. N = 160 in all regressions.

Table A3. The Relationship between Cynicism and SAT Score

	(1) Score	(2) Score	(3) Score	(4) Score
Cynicism	-0.008	-0.007	-0.008	-0.009
	(0.006)	(0.006)	(0.007)	(0.007)
ΔGuilt	-0.648**	-0.551*	-0.482+	-0.374
	(0.246)	(0.249)	(0.279)	(0.282)
Freshman	0.025	0.040	0.0604	0.084
	(0.051)	(0.062)	(0.062)	(0.062)
Sophomore	0.042	0.073	0.060	0.086
	(0.055)	(0.064)	(0.062)	(0.064)
Junior		0.063	0.051	0.074
		(0.064)	(0.064)	(0.065)
Female		-0.137**	-0.159***	-0.142**
		(0.044)	(0.044)	(0.045)
Gen Positive			-0.007**	-0.008**
			(0.003)	(0.003)
Gen Negative			-0.007+	-0.008+
			(0.004)	(0.004)
Other Controls				YES
Constant	2.723***	2.751***	3.054***	3.080***
	(0.113)	(0.117)	(0.149)	(0.152)
Chi-Square	10.36*	21.17**	32.54***	51.03***
Pseudo R^2	0.011	0.023	0.035	0.055

Poisson Count regressions + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001. *Cynicism* is calculated from the responses to questions 23, 36, 40, 41, 42, 43, on the post-experimental survey. *ΔGuilt* is the difference between guilt scores from the second and first rounds of PANAS. *Gen Positive* and *Gen Negative* are the scores of general positive and general negative emotions from the second round of PANAS. *Other controls* are dummies for African-American, Asian, and Hispanic. N = 161 in all regressions.

Appendix B: Experimental Protocol

B1. Sequence of activities in the experiment

S1. Participants arrive at a fixed time

S2. Complete sign-in sheet and assign computers

S3. Complete Consent form: Displayed on computer and consent recorded on Qualtrics

S4. PANAS-X questionnaire (first round): completed on paper

S5. Writing task (Treatment or Control tasks): completed on Qualtrics

S6. Copenhagen Survey: completed on paper

S7. PANAS-X questionnaire (second round): completed on paper

S8. SAT Math test: display on computer, and answer recorded on a sheet of paper

S9. Demographic Questionnaire: Completed on Qualtrics

S10. Payment Sheet: completed on paper

B2. PANAS questionnaire

ID#_____

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now. Use the following scale to record your answers:

1	2	3	4	5
Not At All	A Little	Moderately	Quite A Bit	Extremely

1. ____ cheerful	16. ____ sad	31. ____ active	46. ____ angry at self
2. ____ disgusted	17. ____ calm	32. ____ guilty	47. ____ enthusiastic
3. ____ attentive	18. ____ afraid	33. ____ joyful	48. ____ downhearted
4. ____ bashful	19. ____ tired	34. ____ nervous	49. ____ sheepish
5. ____ sluggish	20. ____ amazed	35. ____ lonely	50. ____ distressed
6. ____ daring	21. ____ shaky	36. ____ sleepy	51. ____ blameworthy
7. ____ surprised	22. ____ happy	37. ____ excited	52. ____ determined
8. ____ strong	23. ____ timid	38. ____ hostile	53. ____ frightened
9. ____ scornful	24. ____ alone	39. ____ proud	54. ____ astonished
10. ___ relaxed	25. ____ alert	40. ____ jittery	55. ____ interested
11. ___ irritable	26. ____ upset	41. ____ lively	56. ____ loathing
12. ___ delighted	27. ____ angry	42. ____ ashamed	57. ____ confident
13. ___ inspired	28. ____ bold	43. ____ at ease	58. ____ energetic
14. ___ fearless	29. ____ blue	44. ____ scared	59. ____concentrating
15. ___disgusted	30. ____ shy	45. ____ drowsy	60. ____ dissatisfied with self

B3. Construction of PANAS Emotional Indices

Fear = Average of afraid, scared, frightened, nervous, jittery, shaky

Hostility = Average of angry, hostile, irritable, scornful, disgusted, loathing

Guilt = Average of guilty, ashamed, blameworthy, angry at self, disgusted with self, dissatisfied with self

Sadness = Average of sad, blue, downhearted, alone, lonely

Joviality = Average of happy, joyful, delighted, cheerful, excited, enthusiastic, lively, energetic

Self-Assurance = Average of proud, strong, confident, bold, daring, fearless

Attentiveness = Average of alert, attentive, concentrating, determined

Shyness = Average of shy, bashful, sheepish, timid

Fatigue = Average of sleepy, tired, sluggish, drowsy

Serenity = Average of calm, relaxed, at ease

Surprise = Average of amazed, surprised, astonished

Gen Positive = Average of active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, strong.

Gen Negative = Average of afraid, scared, nervous, jittery, irritable, hostile, guilty, ashamed, upset, distressed

Basic Positive = Average of joviality, self-assurance, attentiveness

Basic Negative = Average of fear, hostility, guilt, sadness

B4. WRITING TASKS

(A. Treatment Group)

ID#_____

Burnout results from chronic stress that has not been successfully managed. It is characterized by three dimensions:

- feelings of energy depletion or exhaustion;
- increased mental distance from one's studies or job, or feelings of negativism or cynicism related to one's studies or job; and
- reduced effectiveness in studies or job

In 15 minutes please write about a time in the last 5 years in which you experienced feelings of burnout, as described above. If you did not experience such a situation, please imagine a situation that would cause you to feel burnout.

Your responses are completely confidential and anonymous, and there is no way to link your personal details to what you write.

1. Describe the situation that caused you to feel burnout (min 100 words).

2. What was it about this situation that made you feel burnout? (Min 100 words)

3. What were the effects of this burnout on your everyday life? For example, your health, relationships, and studies (Min 100 words).

(B. Control Group)

ID# _____

Please write about a typical day in your life at the University of Arizona (min 300 words).

B5. Copenhagen Survey

ID:_____

Please indicate how strongly you agree or disagree with the following statements about how you are feeling right now:

1	2	3	4	5
Strongly Disagree	Disagree	Neither	Agree	Strongly Agree

I feel tired. ____

I feel physically exhausted. ____

I feel emotionally exhausted. ____

I can't take it anymore. ____

I feel worn out. ____

I feel weak and susceptible to illness. ____

Now please indicate how frequently the following statements describe how you have felt during the last few weeks:

1	2	3	4	5
Always	Often	Sometimes	Seldom	Never

I felt worn out at the end of a typical day of classes. ____

I was exhausted in the morning at the thought of another day at school. ____

I felt that every hour spent studying was tiring for me. ____

I had enough energy for family and friends during leisure time. ____

My studies were emotionally exhausting. ____

My studies frustrated me. ____

I felt burnt out because of my studies. ____

I had as much time as I would have liked to go out for fun. ____

I had as much time as I would have liked to pursue my hobbies. ____

I felt like I got enough sleep. ____

I felt like I had too many things to do in a day. ____

I felt lonely. ____

I felt like I had friends with whom I could discuss my problems. ____

I felt like I was doing badly in school. ____

Note: The first six items constitute the Short-Term index. The seventh through 20th items are the Long-Term index. All 20 items make up the Overall Index.

B6: Post Experimental Survey

BURNOUT STUDY

Demographic Questionnaire (draft)

1. ID#

2. You are able to pay your rent and all your utility bills on time. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

3. Sometimes, you buy cheaper food because you need to save money. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

4. You often have to cook at home even though you would prefer not to because it is economical -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

5. You own a car worth: -- at least $30k/ between $10k and $30k/ Between $2k and $10k/ Less than $2k/ No car

6. Do you own the following items? Check all that apply. Car, Smartphone, Laptop and/or Tablet, Smartwatch?

7. There are campus clubs or campus activities you do not take part in because dues/ fees and associated expenses are too high. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

8. If you needed $100 for an emergency, you would be able to arrange for it in a few hours. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

9. You feel that you can pursue any career track you want. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

10. You have to work part time to make ends meet. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

11. You can afford the clothes you need -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

12. You can afford sports or concert tickets for any event you want. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

13. If you want to buy an ipad or a game console you would have to okay it with your parents. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

14. You often make use of Campus Pantry and Campus Closet. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

15. You often feel burned out. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

16. You have as much time as you would like to pursue your hobbies. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

17. You feel like you get enough sleep. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

18. You feel like you are not qualified to be at this university. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree.

19. You often feel too physically tired to do the things you have to do. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

20. You often feel too emotionally drained to do the things you have to do. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

21. You often feel like you have too many things to do in a day. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

22. You are often lonely. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

23. You have friends with whom you can discuss your problems. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

24. You feel pressure to eat less than you want to. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

25. You feel that your English skills are good enough for your classes. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

26. You feel pressure to dress in a certain way. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

27. You feel like you are doing badly in school. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

28. You feel like you are less involved on campus than other students. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

29. Your partner gets upset when you go out with friends without your partner. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

30. If your parents asked you to end your relationship with your partner, you would do so. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

31. You go out with your friends (almost) every weekend. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

32. Your parents get upset when you tell them about how you spend your time in college. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

33. Your parents get upset if you get grades they view as low. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

34. The social group(s) (e.g., Greek Life, clubs, friend groups) you are part of make you wear your hair/ clothes a certain way. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

35. You spend too much money on things your social group(s) want(s) you to buy, which you would not buy otherwise. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

36. You feel that some people in your social group(s) are unfriendly. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

37. You feel safe at college parties. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

38. You feel comfortable going to a Professor's office hours. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

39. You feel comfortable asking questions in class. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

40. You feel more comfortable interacting with an instructor who identifies as the same gender as you do. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

41. You feel like you can post what you want on social media without being judged. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

42. You can express divergent political views to your friends and not have them get upset. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

43. You feel like people respect your religious views. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

44. You often refrain from participating in team sports because people will think you are not good enough. -- Strongly Agree/ Agree/ Neutral/ Disagree/ Strongly Disagree

45. What is your gender identity? – male/ female/ other/ prefer not to say

46. What is your class standing? – freshman/ sophomore/ junior/ senior/ other (specify)

47. What is your major? If undeclared, please write “undeclared.”

48. Which category best describes you? – White/ Black or African American/ American Indian or Alaska Native/ Asian/ Native Hawaiian or Pacific Islander/ Hispanic, Latino, or Spanish origin/ Middle Eastern or North African/ Other/ Prefer not to say

49. Which category most accurately describes you? – Domestic student, international student