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Can Social Support Ameliorate Burnout?

Timothy Wayne Finney *

Advisor Professor Dr. Alessandra Cassar PhD

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1 Abstract

Mental health provides different areas of interest compared to physical health when looking at general health. Social support decreases the negative impacts of burnout while positively influencing productive components of the economy. Social sciences other than economics such as sociology and psychology take notice of the impact of social support on burnout. Pronto Soccorso e Medicina d' Urgenza Azienda Ospedaliero-Universitaria in Parma, Italy provides high quality health care services before and throughout the COVID-19 pandemic while anticipating continuing to administer care well into the future. Here we show social support effecting workers in the health care industry. Work colleagues influencing burnout continues to match mainstream literature. Creating incentive structures to manage and oversee relationships to minimize burnout promotes development. Generating novel ways to measure social support expands the way economists implement and interpret policy addressing burnout, anxiety, and depression. As many health related lessons are learned during the COVID-19 pandemic, focusing on burnout reveals the equilibrium between work and other areas of life. Neighbors contribute more significant effects to ameliorating burnout and anxiety while other variables of interest such as receiving support from a partner contribute more to ameliorating depression. Colleague support at work reducing burnout, anxiety, and depression contributes to noncognitive and cognitive development which provides hope for better outcomes. Encouraging specialization while incorporating work life balance places a spotlight on the delicate equilibrium for economic growth, price stability, and maximum employment.

*University of San Francisco, Department of Economics, International and Development Economics, Econ 699, College of Arts & Sciences.

2 Introduction

Focusing on lowering burnout at the margin compared to eliminating burnout completely follows current economic theory. Working on the margin allows for the identification of specific characteristics and trends that are of interest. Contextualizing burnout in terms of healthcare focuses on the occupational phenomenon of burnout instead of the medical condition. Legal and psychological definitions of burnout make comparisons to depression by focusing on how exhaustion prohibits optimal efficiency. The COVID-19 pandemic continues contributing to how people experience work. Changing the factors that contribute to burnout include the social support systems in place designed for thriving social and economic development.

Social support ameliorating burnout provides an opportunity for individuals and firms to contribute to the development of one another. Family, friends, coworkers, and neighbors contributing to the well being of one another in a quantifiable manner constructs the workplace environment. Maximizing mental health well-being along with other health indicators takes on a multifaceted approach. Minimizing negative mental health outcomes allows for contributions from multiple stakeholders. Economists focusing on the entire labor market for supply and demand with human resources considering the technical specifications of the nuance changes that occur when the presence of burnout impacts labor outcomes occur simultaneously.

Different tools for scaling and measuring health, mental health, and burnout allow economists to manage outcomes differently. Allocating resources based on results takes on a variety of approaches. While some economists take on the traditional approach of allocating more resources for those who exhibit positive signs of noncognitive development, others advocate for a more equitable distribution by addressing the needs of those who are most vulnerable for bad outcomes. Often times citations are used to indicate that by taking care of those most at risk for burnout, negative secondary and spillover effects forecasted and projected are more likely to be eliminated along with unwanted externalities.

Explaining noncognitive behaviors and traits provides clarity by using concrete examples from previous research (Farkas, 2003). Conscientious work habits and effort include industriousness and perseverance. Categorizing together organization, discipline, and attendance nests them with conscientious work habits. Participation and enthusiasm complete the conscientious group of traits for work habits and effort. Other

behaviors and traits include locus of control, openness to experience, leadership, self-confidence, social sensitivity, impulsiveness, self-esteem, vigor, aggressiveness, disruptiveness, and high culture. Emotional stability includes calmness while sociability includes extraversion. These noncognitive skills resulting in following rules and procedures while conforming to external authority are highly valued for education and employment at lower levels with greater initiative under control of internalized norms of behavior being valued at higher levels of employment. Prioritizing the task at hand while producing energetic and efficient work encompasses the positive benefit of noncognitive development. Considering culture as a part of the general skill set compared to tastes and preferences requires additional time, energy, and resources to maximize well-being. Bowles and Gintis looking at the correlation between schooling and various desirable work related noncognitive traits provides a foundation for later work in this area. Family contribution to early education such as preschool differ based on family norms and values. Work family balance determines the capability of how much parents contribute to the development of their children. The fact that both cognitive and noncognitive measures can be tested allows for debate about the different traits to be narrowed and refined. Identifying individual actions and behaviors while separating them from habits that are formed brings clarity for understanding the impact of skills over time. A multifaceted approach to human capital allows for discussing and merging the different areas of development.

Burnout impacting the performance of cognitive work using combinations of labor and capital in a department such as the emergency department in a hospital gains further investigation (Austin et al., 2022). The complexity of emergency room departments rely on interactions rooted in both social and technological foundations. Maintaining the resiliency of health care workers allows for biomedicine, telemedicine and precision medicine to thrive in an environment designed for the successful implementation of new best practices being maintained with eHealth records. Using a 543 bed study hospital in New South Wales, Australia an abstraction hierarchy identified 14 object related processes with critical functions: patient arrival and transfer (internally/externally), clinical and diagnostic assessment, care decision and pathway allocation, trauma/musculoskeletal/wound care(treat/manage), medication administration and supply, patient management, communication, infection control, audits and data reports, incident investigation, unit management and administration, recruitment, education and training, security and environment safety, non-clinical staff

and external collaborators. The workflow includes human agents, nurses, medical doctors, specialist medical doctors, security guards, clerks, cleaners, paramedics, ward's people and porters, as well as hospital executives as part of the leadership team. Observations occurred during two months in the winter. Non-human agents include computers, phones, printers, diagnostic test equipment, patient accessibility, beds and chairs, treatment equipment, infection control equipment, and hospital infrastructure. Accounting for restrooms and refreshments is also considered.

Unpredictable demands that arise in the emergency room create an environment where cognitive functioning and good relationships allows for tasks to be accomplished in a professional manner. Enabling resilient performance in response to threats that may prevent the emergency room department from accomplishing the goal of providing compassionate care to their community is at the heart of the objective. Unlike cost benefit analysis, cognitive work analysis has five phases instead of nine. The five phases of cognitive work analysis account for why a system exists, what activities can be conducted and where, how to achieve the different activities within the system, who performs the tasks, and measuring the different levels of cognition required. Positive components of the work look at how the system operates while the normative aspects look at the possibilities of what can be accomplished based on the constraints of cognitive availability. Spaces within the Emergency Department include: waiting room; assessment and consultation room; treatment and procedure rooms; sub-acute area and fast track; acute area; isolation rooms; resuscitation bays; staff station and flight deck; storage; and tutorial room and offices.

Formative analysis includes clarifying roles and tasks that are separate for different roles such as nurses charting interventions and medical doctors prescribing treatment. Strategy analysis models the manner different activities are carried out based on constraints. Health-care workers perform activities that are mandated and guided by policy, guidelines or standard operating procedures which often limits the strategies available to different agents. Performance variability is then seen more as a deviation from best practices and less as an opportunity for growth. Workflow maps serve a similar function to directed acyclical graphs or structural equation models for providing a visual representation on the importance of the relationships that exist within the emergency department. Performing an electrocardiogram is one example used to present specific data to show sociotechnical interactions. Charting out from the request to the completion shows six different strategies to complete the process.

For nurses finding an electrocardiogram machine that works occurs before finding the patient or finding room to perform the test. Using imaging equipment can be prioritized based on the seniority of nurses and doctors. Battery life and storage requires many devices to stay plugged in or have a limited useful life when mobilized. The conclusion reached is the current work distribution between human and nonhuman agents in the emergency department is not sustainable. Focusing on safe, timely, and quality care should be prioritized over advancing technology. Automation and limiting search are ways to reduce the workload to allow more time to focus on patients. Understanding the value of physical presence has to be considered when looking for a technological solution to be dynamically sustainable. When a nonhuman agent requires a human to operate then the physical, social, and emotional accessibility of the human agent is constrained. Mobile technologies make human agents more adaptable but potentially less efficient. Under certain circumstances mobility lowers efficiency. Putting an electrocardiogram on wheels can make it more difficult to find when needed.

Distinguishing the difference between mental health at work and at home requires care and due diligence, especially when considering hybrid presentations. As firms promote a positive work environment, making sure that the decisions and behavior of the firm are the main cause of the change in outcomes is important. Demographic differences such as religion, race, and gender provide different perspectives on how people interpret and respond to unique incentive structures around minimizing burnout. While some people are formally titled and responsible for identifying and addressing burnout, others feel that their own natural ability gravitates them toward this outcome as an innate instinct.

Identifying intimate and romantic partners for contributing to improved productivity shows signs of real scientific endeavor. Creating good homes, neighborhoods, and communities allows families to thrive and flourish. Positive economic benefits from stability and growth create good incentives for people to foster healthy intimate relationships. Bringing in additional children through birth and adoption further shifts the dynamics of families, households, and communities. The use of intimacy at work and school is often discouraged so finding an alternative for social support is needed.

The Maslach Burnout Inventory serves as a gold standard for measuring burnout while looking at social support. Different versions of the Maslach Burnout Inventory are implemented throughout the literature to accommodate for different

industries and circumstances. The Hospital Anxiety and Depression Scale provides a good complement to the Maslach Burnout Inventory in the health care setting. Adding social support indicators to questionnaires provide the type of depth being demanded by those who truly care about improving the work environment.

3 Literature Review

People living with romantic partners and children are much like the rest of the population in the sense that they experience mental health challenges (Sisson et al., 2020). People with specific demographics are attracted to the ability to start and raise a family as an amenity within their community. Anything that interferes with accomplishing the task of raising a family raises attention. Measuring differences of influence based on the people one lives with and mental health captures an important correlation. The assumption that people who live together effect each other's mental health is a concept that gains further scrutiny. Introducing the additional stress of the COVID-19 pandemic brings some people closer together while driving other people apart. Using two samples of participants from the United States of America on Amazon Mechanical Turk provides a platform to collect time sensitive data on mental health. To be eligible the participants need a 95 percent or greater approval rating along with United States residency and completion of at least 100 human intelligence tasks on the platform. Compensation was about 9 dollars per hour and approved by the University of Toronto Research Ethics Board. Considering race and political affiliation for demographic information further separates the parent and child or children of various ages influence along with relationships with and without an intimate partner. To properly account for the combinations and interactions a false-discovery-rate correction with Benjamini and Hochberg allows for comparison. All the groups experienced a decline in mental health at the beginning of the pandemic. Measuring mental health on a monthly basis with a group of 656 participants and 544 participants over six months and seven waves during the COVID-19 pandemic produced the results. The Satisfaction With Life Scale and parts of the Meaning in Life Questionnaire were used to create a composite measure. Ill-being is assessed using the Center of Epidemiological Studies Depression Scale and the anxiety items from the Hospital Anxiety and Depression Scale by creating a composite measure.

Physician burnout reported in more than one out of every two practicing clinicians opens the discussion about the demands of a world class health care system

(Dahle et al., 2019). High levels of financial debt contribute to burnout and radiation oncologists are not an exception. 33% of residents report high levels of burnout symptoms. A full session at the 2018 American Society for Radiation Oncology Annual Meeting was devoted to burnout focusing on resident and junior radiation oncologists. Burnout also shows close association with financial debt. Healthy financial practices may facilitate professional freedom with the goal of mitigating burnout-associated stressors. A summary of tenets for financial health include a debt strategy, behavior strategy, investment strategy, asset protection strategy, and education. A debt strategy includes a debt management plan while minimizing debt accrual. A behavior strategy includes a budget, setting financial goals and a savings rate, calculating net worth, minimizing spending, and staying on course. An investment strategy requires the paying down of high-interest debt, portfolio diversification and rebalancing, and asset allocation while navigating multiple city, state, national, and international tax rules and regulations to optimize taxes paid over time. An asset protection strategy includes insurance against catastrophic events, disability, death, illness, injury, liability, and expensive property while establishing an emergency fund and developing an estate plan which includes a trust and a will. Education includes both initial financial education as well as continuing education which is comparable to the continuing education that is required to maintain the ability to practice medicine. Accomplishing these goals allow for the opportunity for financial independence in a similar manner to the goal of retirement where no more compensated work is needed to maintain a comfortable lifestyle. The preference of moving work from a necessity to a choice maintains strong popularity.

Completing a fully endogenous growth model allows for the formalization of human capital (Romer, 1989). Looking at the theoretical perspective of human capital development places the empirical research into a more appropriate perspective. Providing social support is not a given and requires the development of skills over time. As concerns such as antiracism, diversity, equity, and inclusion gain more attention, this theoretical framework becomes more relevant. Looking at a baseline characteristic such as literacy allows for comparisons across different groups. Quantifying the impact on investment and growth provides an incentive structure to value the accumulation of knowledge which can then be shared with others. Formal structured education relies on the production of knowledge that can then be disseminated by others. Focusing on growth allows for a holistic approach to understanding the variables that contribute to the development process. By improving the general well-being, increasing access to a

greater quantity and higher quality of goods and services becomes less burdensome.

During the Middle Ages many Northern Italian cities viewed earthquakes as acts of God as supposed to acts of nature (Belloc et al., 2016). The political structure of the culture often changed significantly as a result of an earthquake and the related trauma. Establishing a new social order after an earthquake took on a different form based on the decision between exercising an Episcopal and non-Episcopal structure. When a Bishop receives the authority of leading the social order then enabling others in the society to provide social support becomes less relevant. Developing a commune based society often went against the desires of those who did take control of the actions and relationships of the community. This type of centralized control is seen in the Pharaohs of Egypt, Papal State of central Italy, Han Dynasty of China, Meiji empire of Japan, the Roman empire, and Ayatollah of Iran. Machiavelli stated how religiosity allows for those who oversee the social order to maintain popularity by appeasing their followers. Political and secular leaders were given more authority and opportunity to shape social customs and provide social support when the religious order did not consolidate decision making. After catastrophic events, such as an earthquake, reestablishing social order often took priority over other tasks at hand such as rebuilding properties. Rebuilding a church or cathedral could take priority in the case when significant property damage took place based on a linear probability model using time and city fixed effect. Often times the amount of physical damage was insignificant when considering the type of social change that occurred after an earthquake. The desire for people to feel confident in their relationships providing value encouraged action and behavior confirming social support systems. Distinguishing between an act of God and an act of nature divides the way in which people align their relationships and political affiliations. Believing that one experiences an act of God impacts the way in which people practice religion by navigating toward others who share a greater appreciation for religiosity. Focusing on the context of the Middle Ages allows the technology of the time to influence the timing and nature of the decision making process across the social spectrum.

4 Research Design and Methods

The World Health Organization made the topic of burnout official in 2019. All research done prior to 2019 was done on a basis that did not meet the current guidelines of the World Health Organization. Current findings are still lagging as aggregation for the comprehensive sources of data on the topic of burnout continue processing. The

Occupational Safety and Health Administration and the Bureau of Labor Statistics limit data on the topic of burnout while providing important labor market information. Ivan Comelli et. al. provide a detailed data set used for the thesis project from Pronto Soccorso e Medicina d' Urgenza Azienda Ospedaliero-Universitaria in Parma, Italy. The rest of the paper supports the findings created during the data generating process.

Merging questions and questionnaires places the research within best practices for the economics discipline. Participants are invited to complete a questionnaire regarding the perception of burnout during the COVID-19 pandemic as it relates to social support networks. The objective of the study project is to collect and enhance the experiences of professionals working in healthcare facilities during the COVID-19 pandemic which is considered at the core of addressing the problem of burnout. Participants are encouraged to fill out the questionnaire completely anonymously and voluntarily. The questionnaire consists of multiple choice questions including the Maslach Burnout Inventory (M.B.I.) scaling from -6 to 6 and the Hospital Anxiety and Depression Scale (HADS) scaling from 0 to 21. Participation requires filling out the online questionnaire by clicking on the provided link. The average time to fill out the questionnaire is no more than 10 minutes. To be in compliance with European Regulation 2016/679 on privacy (so-called GDPR) the participants are informed of the following:

-The data, including demographic information such as age and sex, is collected in a completely generic fashion with the express consent of the participants and will be kept only for the time strictly necessary to process the research for the EXCLUSIVE scientific purposes described above.

-The data will not be disclosed to third parties or disseminated to operators unrelated to the process of scientific investigation in question.

-Once the questionnaire has been completed, it will not be possible in any way to trace it back to its compiler as the questionnaire is totally anonymized, therefore it will not be possible to request changes, corrections or deletion of data entered (no e-mail address will be processed, nor the IP address of the computer/cell phone/tablet through which the questionnaire will be completed).

-The data will be processed only in aggregate form so as to allow a complete

spontaneous and free expression of their perceptions.

-Participating in the compilation of the questionnaire will provide its consent to the use of the answers formulated, in full compliance with current legislation on privacy.

Adding an additional data set before the pandemic provides a counterfactual to compare participants. Requiring surveys on an ongoing basis to make sure that a counterfactual is readily available provides forward guidance on how to maintain the research. Testing for burnout on an ongoing basis shares many characteristics with testing for COVID-19 consistently. While there may be resistance and people who gravitate toward noncompliance and never participating, having access to reliable mental health data has benefits for health and safety for both the health care labor market and society as a whole.

5 Data

A total of 332 observations are obtained in the new novel data source for this study from Pronto Soccorso e Medicina d' Urgenza Azienda Ospedaliero-Universitaria. Creating a time stamp allows for each observation to be ordered and ranked based on completion of the questionnaire. Education, place of employment within the health care setting and the length of service in which a person is employed provides contextual information. Changes to the business structure because of the pandemic along with reorganization of work explains how COVID-19 impacts people differently. Expressing the difference between having to change company structure and wanting the business to change company departments details the dynamic economic movement during the COVID-19 pandemic. Colleague support at work shows one dynamic of the social support network. Separating questions from the Maslach Burnout Inventory into exhaustion, depersonalization, and personal accomplishment allows measurement of burnout across demographics. Interacting burnout, anxiety, and depression questions is limited with a focus on social support. Placing burnout in an econometric model followed by an economic model is presented as:

$$\text{Burnout} = \alpha + \beta(\text{atworkmycolleaguessupportme}) + \epsilon$$

$$\text{Burnout} = f(\text{at work my colleagues support me})$$

Colleague Support	#
0 Not Applicable	5
1 Never	10
2 Rarely	36
3 A Few Times	97
4 Often	126
5 Always	58
Total	332
Mean (327)	3.568807
Median (327)	4
Standard Deviation (327)	1.003371

Figure 1: Summary Table

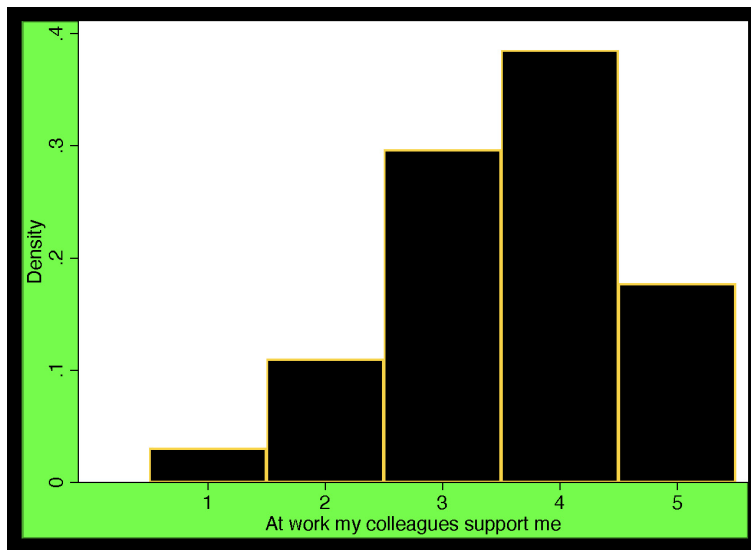


Figure 2: Histogram

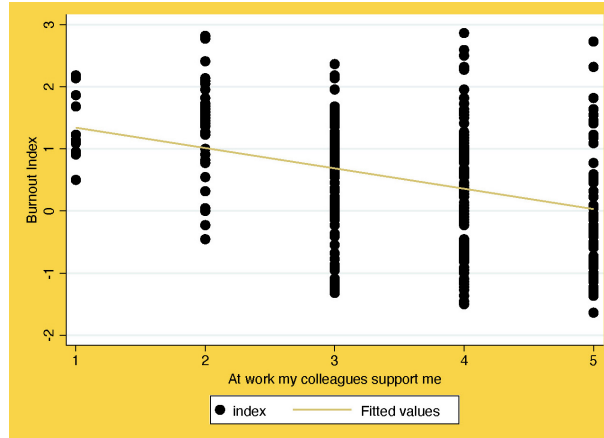


Figure 3: Scatter Plot

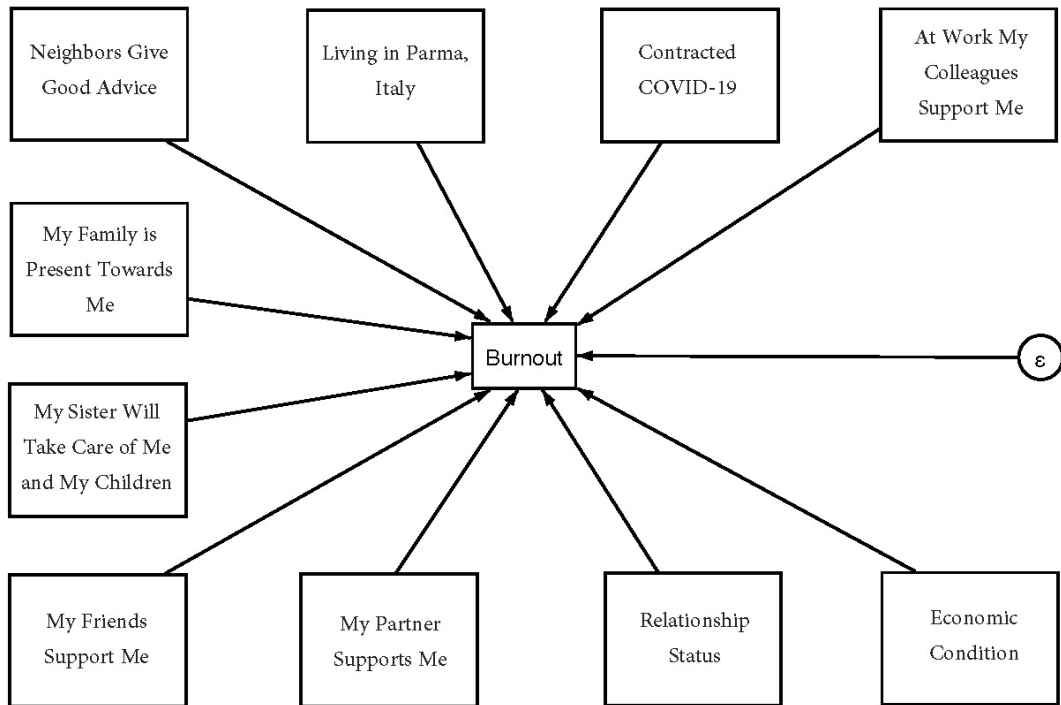


Figure 4: DAG

6 Results

Ordinary least squares and quantile regression equations provide valuable unique interpretations of the relationship between social support and burnout. Quantile regression better explains outlying data points compared to ordinary least squares by relying on the median instead of the mean. Hospital workers in Parma, Italy who feel that colleagues provide support at work explains 11% of the variation of burnout based on ordinary least squares regression as shown in Table 1. Colleague support at work explains 6% of the variation of anxiety and 7% of the variation of depression from working in the hospital. Expanding the regression including categories for different levels of social support from colleagues at work better describes the data in Table 2. Having social support from colleagues at work a few times serves as the baseline value. Both never and rarely receiving support are positive and statistically significant using ordinary least squares for burnout, anxiety, and depression. Always having social support from colleagues at work is statistically significant at the 5% and 1% levels with ordinary least squares and quantile regression.

Adding the variable indicating that a healthcare worker contracted COVID-19 does not indicate statistical significance. Using robust standard errors when including the additional independent variable accounts for heteroskedasticity. Living in the city of Parma, Italy shows little signs of statistical significance on burnout, anxiety or depression. Regardless of the city of origin, the ability for neighbors to give advice on topics such as care, health and work shows signs of reducing burnout. Specifically, burnout is statistically significant at the 1% level using ordinary least squares and the 5% level using quantile regression. Similar impacts are seen with family support lowering burnout with statistical significance at least at the 1% level using both estimators. Knowing that a sister or sisters is willing to take care of you or your children if needed lowers burnout at the 1% statistical significance level based on ordinary least squares and 5% level using quantile regression. All other relationships based on this variable for sisters providing care are not statistically significant.

Having good friends who provide support lowers signs of depression but comes at the cost of the ability for colleagues to provide support at work based on quantile regression. Expanding relationships to include being single, in a de facto relationship, married, separate, or other shows the negative impact of being in a de facto relationship has on anxiety and depression when using ordinary least squares. Showing the difference between being in economic difficulty and sufficiently affluent displays both practical and

statistical significance across multiple levels by increasing the amount of burnout, anxiety and depression. Clarifying if the casual relationship of being affluent causes burnout, anxiety and depression to increase or if people who experience burnout, anxiety, and depression exhibit behavior which makes them affluent allows for further investigation.

Table 1: At Work My Colleagues Support Me

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work	-0.33*****	-0.41*****	-1.20*****	-1.67*****	-1.32*****	-2.00*****
my colleagues support me	(0.05)	(0.07)	(0.26)	(0.43)	(0.26)	(0.29)
Intercept	1.67*****	2.00*****	13.05*****	14.33*****	11.85*****	14.00*****
	(0.19)	(0.26)	(0.98)	(1.55)	(0.96)	(1.09)
R-squared	0.11		0.06		0.07	
Observations	327	327	327	327	327	327
Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%						

Both the intercept and independent variable are statistically significant at the .01% level using ordinary least squares for all three dependent variables of burnout, anxiety, and depression. Going from ordinary least squares to quantile regression reduces the statistical significance of colleague support at work on anxiety from .01% to 1%.

Table 2: Colleague Support At Work

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
Never	0.86***	0.64*	3.61**	4.00	3.45**	4.00*
	(0.31)	(0.35)	(1.59)	(2.89)	(1.55)	(2.36)
Rarely	0.76*****	0.82*****	1.98**	2.00	2.82***	3.00**
	(0.18)	(0.21)	(0.93)	(2.19)	(0.91)	(1.38)
Often	-0.10	-0.18	-0.51	-1.00	-0.80	-1.00
	(0.13)	(0.18)	(0.65)	(0.96)	(0.63)	(0.96)
Always	-0.44***	-0.64**	-1.94**	-3.00**	-1.70**	-3.00***
	(0.16)	(0.25)	(0.79)	(1.18)	(0.78)	(1.00)
Intercept	0.51*****	0.59*****	8.99*****	9.00*****	7.35*****	7.00*****
	(0.10)	(0.12)	(0.49)	(0.72)	(0.47)	(0.72)
R-squared	0.13		0.06		0.08	
Adjusted R-squared	0.12		0.05		0.07	
Observations	327	327	327	327	327	327
Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%						

Categories for never, rarely, a few times, often, and always create an indicator variable that separates the impact of colleague support at work. The intercept term and category for always are statistically significant at least at the 5% level using ordinary least squares with burnout as the dependent variable of interest.

Table 3: Colleague Support At Work And COVID-19

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.33***** (0.05)	-0.38***** (0.08)	-1.19***** (0.27)	-1.50***** (0.40)	-1.31***** (0.27)	-2.00***** (0.31)
COVID-19	-0.12 (0.12)	-0.15 (0.17)	-0.56 (0.63)	-0.50 (0.83)	-0.30 (0.63)	-1.00 (0.85)
Intercept	1.70***** (0.17)	1.91***** (0.29)	13.18***** (1.00)	14.00***** (1.47)	11.92***** (0.97)	14.00***** (1.16)
R-squared	0.11		0.06		0.07	
Adjusted R-squared	0.11		0.06		0.07	
Observations	327	327	327	327	327	327
Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%						

The impact of contracting Covid-19 does not shows signs of statistical significance when added with colleague support at work using ordinary least squares and quantile regression. Introducing Covid-19 contraction increase the statistical significance of colleague support on anxiety to .01% significance with quantile regression from 1% in Table 1.

Table 4: Colleague Support At Work And Parma

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.33***** (0.05)	-0.41***** (0.07)	-1.17***** (0.27)	-1.33***** (0.38)	-1.30***** (0.26)	-2.00***** (0.32)
Parma	-0.07 (0.10)	0.00 (0.16)	0.40 (0.54)	1.33* (0.77)	0.32 (0.52)	1.00 (0.65)
Intercept	1.73***** (0.18)	2.00***** (0.28)	12.73***** (1.06)	12.33***** (1.52)	11.59***** (1.03)	13.00***** (1.39)
R-squared	0.11		0.06		0.08	
Adjusted R-squared	0.10		0.06		0.07	
Observations	327	327	327	327	327	327
Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%						

The impact of living in Parma, Italy shows statistical significance at the 10% level using quantile regressions and anxiety as the dependent variable while colleague support at work continues to show strong statistical significance.

Table 5: Colleague Support At Work And Neighbors

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.33***** (0.06)	-0.36***** (0.07)	-0.99** (0.38)	-1.50*** (0.50)	-1.32***** (0.37)	-1.67***** (0.44)
Neighbors [Do they give you good advice?]	-0.15*** (0.05)	-0.11** (0.05)	-0.48 (0.29)	-0.88** (0.34)	-0.41 (0.30)	-0.42 (0.37)
Intercept	1.91***** (0.22)	1.98***** (0.27)	12.98***** (1.32)	14.88***** (1.96)	12.43***** (1.32)	13.08***** (1.60)
R-squared	0.19		0.07		0.10	
Adjusted R-squared	0.18		0.06		0.09	
Observations	183	183	183	183	183	183

Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%

Neighbors giving good advice is statistically significant at the 1% level for reducing burnout using ordinary least squares. Neighbors giving good advice is significant at the 5% level for burnout and anxiety using quantile regression.

Table 6: Colleague Support At Work And Family

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.28***** (0.05)	-0.30***** (0.07)	-1.12***** (0.28)	-1.64***** (0.47)	-1.21***** (0.28)	-1.67***** (0.39)
My family is present towards me	-0.17**** (0.05)	-0.20*** (0.07)	-0.25 (0.26)	-0.09 (0.47)	-0.40 (0.25)	-0.67* (0.37)
Intercept	2.20***** (0.22)	2.44***** (0.34)	13.84***** (1.35)	14.64***** (2.43)	13.17***** (1.32)	15.33***** (1.92)
R-squared	0.13		0.06		0.08	
Adjusted R-squared	0.13		0.05		0.07	
Observations	325	325	325	325	325	325

Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%

Family being present is statistically significant at the .1% level for burnout using ordinary least squares. Family being present is statistically significant at the 1% level for burnout using quantile regression. Family being present does not show statistical significance for anxiety or depression using ordinary least squares.

Table 7: Colleague Support At Work And Sisters

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.29***** (0.06)	-0.31*** (0.11)	-1.40**** (0.38)	-1.50** (0.65)	-1.29**** (0.35)	-1.33** (0.54)
Sisters [Would she/they take care of you or your children?]	-0.14*** (0.05)	-0.16** (0.08)	-0.30 (0.29)	0.00 (0.51)	-0.47 (0.28)	-0.67 (0.41)
Intercept	2.01***** (0.24)	2.24***** (0.43)	15.14***** (1.49)	14.00***** (2.90)	13.59***** (1.35)	14.00***** (2.15)
R-squared	0.17		0.11		0.12	
Adjusted R-squared	0.16		0.10		0.10	
Observations	156	156	156	156	156	156
Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%						

Sisters willingness to take care of a person and their children is significant at the 1% level for burnout using ordinary least squares. Sisters willingness to take care of a person and their children is statistically significant for burnout at the 5% level using quantile regression.

Table 8: Colleague Support At Work And Friends

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.27***** (0.06)	-0.27*** (0.08)	-1.00*** (0.33)	-1.50*** (0.46)	-0.93*** (0.33)	-1.00** (0.42)
I have good friends who support me	-0.09 (0.06)	-0.21*** (0.07)	-0.37 (0.29)	-0.25 (0.48)	-0.67** (0.29)	-1.00*** (0.34)
Intercept	1.83***** (0.19)	2.30***** (0.28)	13.78***** (1.08)	14.75***** (2.01)	13.02***** (1.03)	14.00***** (1.49)
R-squared	0.12		0.07		0.09	
Adjusted R-squared	0.11		0.06		0.08	
Observations	323	323	323	323	323	323
Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%						

Having good friends who provide social support is statistically significant to depression at the 1% level on burnout using quantile regression. Having good friends who provide support is statistically significant to depression at the 1% level using quantile regression. Colleague support is statistically significant at the 5% level using quantile regression.

Table 9: Colleague Support At Work And Partner

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.31***** (0.05)	-0.30***** (0.08)	-1.15***** (0.31)	-2.00***** (0.49)	-1.12***** (0.31)	-1.50***** (0.43)
My partner supports me	-0.04 (0.06)	-0.11 (0.09)	-0.45 (0.31)	0.00 (0.48)	-0.60* (0.32)	-0.67 (0.43)
Intercept	1.78***** (0.28)	2.05***** (0.44)	14.64***** (1.50)	15.00***** (2.47)	13.55***** (1.58)	14.33***** (2.26)
R-squared	0.11		0.07		0.08	
Adjusted R-squared	0.10		0.07		0.07	
Observations	265	265	265	265	265	265

Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%

Having partner support is statistically significant at the 10% level for depression using ordinary least squares. Partner support is not statistically significant for burnout or anxiety.

Table 10: Colleague Support At Work And Marriage

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.32***** (0.05)	-0.34***** (0.07)	-1.22***** (0.27)	-1.50***** (0.42)	-1.33***** (0.27)	-1.75***** (0.31)
Single	-0.16 (0.13)	-0.30 (0.18)	0.75 (0.66)	0.50 (1.06)	-0.04 (0.64)	-0.25 (0.70)
In A De Facto Relationship	0.11 (0.15)	0.02 (0.21)	1.48** (0.71)	1.50 (1.05)	1.14* (0.69)	1.50* (0.83)
Separate	-0.36 (0.23)	-0.52 (0.33)	-0.76 (1.93)	-2.50 (3.03)	1.37 (1.76)	1.75 (2.59)
Other	0.19 (0.27)	0.30 (0.26)	0.16 (0.93)	0.50 (1.10)	1.47 (1.25)	3.25 (2.14)
Intercept	1.68***** (0.19)	1.89***** (0.28)	12.51***** (1.09)	13.00***** (1.63)	11.53***** (1.02)	12.25***** (1.30)
R-squared	0.13		0.08		0.09	
Adjusted R-squared	0.11		0.06		0.07	
Observations	327	327	327	327	327	327

Statistical Significance *****<.01%, ****<.1%, ***<1%, **<5%, *<10%

Being married is removed to avoid perfect collinearity. A de facto relationship is statistically significant at the 10% level for depression.

Table 11: Colleague Support At Work And Economic Condition

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.33***** (0.05)	-0.32***** (0.07)	-1.18***** (0.27)	-1.50***** (0.32)	-1.34***** (0.26)	-1.75***** (0.32)
In Economic Difficulty	-0.73***** (0.17)	-0.73**** (0.22)	-2.79*** (0.89)	-3.00***** (0.68)	-1.72* (0.92)	-2.00* (1.14)
Sufficiently Affluent	-0.62***** (0.16)	-0.59*** (0.22)	-1.98** (0.80)	-2.50***** (0.62)	-1.74** (0.81)	-1.25 (0.97)
Intercept	2.26***** (0.21)	2.23***** (0.31)	14.99***** (1.19)	16.00***** (1.32)	13.48***** (1.21)	14.00***** (1.48)
R-squared	0.15		0.09		0.09	
Adjusted R-squared	0.15		0.08		0.08	
Observations	327	327	327	327	327	327

Statistical Significance ***** <.01%, **** <.1%, *** <.05%, ** <.10%

Being in economic difficulty has the same practical significance for both ordinary least squares and quantile regression. Being in economic difficulty is statistically significant at the 10% level for burnout using both ordinary least squares and quantile regression.

Table 12: Economic Condition For Doctors

	(OLS Burnout)	(Quantile Burnout)	(OLS Anxiety)	(Quantile Anxiety)	(OLS Depression)	(Quantile Depression)
At work my colleagues support me	-0.33***** (0.05)	-0.39***** (0.07)	-1.22***** (0.27)	-1.50***** (0.35)	-1.35***** (0.26)	-1.67***** (0.31)
In Difficulty	-0.55** (0.22)	-0.43 (0.28)	-1.35 (1.21)	-1.50 (1.51)	-1.31 (1.28)	-2.33** (1.04)
A Doctor In Difficulty	-0.65*** (0.20)	-0.80*** (0.24)	-2.57** (1.02)	-4.50***** (0.96)	-1.25 (1.04)	-1.67* (1.00)
Sufficiently Affluent	-0.51*** (0.18)	-0.41* (0.24)	-1.19 (0.92)	-2.00** (0.94)	-1.32 (0.93)	-0.67 (0.70)
A Sufficiently Affluent Doctor	-0.51*** (0.19)	-0.61*** (0.23)	-1.64 (1.02)	-3.50***** (0.94)	-1.26 (1.00)	-1.00 (0.94)
An Affluent Doctor	0.58* (0.30)	0.36 (0.55)	3.35** (1.41)	3.00 (2.78)	2.28 (1.74)	5.00 (3.40)
Intercept	2.16***** (0.22)	2.36***** (0.31)	14.48***** (1.22)	16.00***** (1.50)	13.06***** (1.25)	13.33***** (1.27)
R-squared	0.16		0.10		0.09	
Adjusted R-squared	0.15		0.08		0.07	
Observations	327	327	327	327	327	327

***** p<.0001, **** p<.001, *** p<.01, ** p<.05, * p<.1

7 Conclusion

Intensive care units (ICU) in Saudi Arabia create high demands on nurses (Alzailai et al., 2021). These high demands result in nurses experiencing burnout and low job satisfaction. Working as a part of a team, ICU nurses in Saudi Arabia are highly specialized allowing them to perform greatly complex tasks. Caregiving, health educating, researching, and unit managing are all responsibilities in which these nurses embrace. Nurses of Saudi origin are in a shortage of supply for the Kingdom of Saudi Arabia(KSA) as the Vision 2030 programme works toward improving healthcare delivery, nursing, education, trade, communication, technology, and science. As the demand for nurses is expected to double, managing and measuring key factors that contribute to turnover, such as burnout, gain more attention. Factors contributing to burnout are categorized into interpersonal factors, intrapersonal factors, and extra-personal. Interpersonal factors include leadership style and the relationship among colleagues, patients, and their families. Intrapersonal factors include age, marital status, and medical history. Extra-personal factors are decomposed into work related and organizational categories. Work-related factors include dealing with death, the nature of the work, and work overload. Organization factors include support, pay, and other types of compensation such as rewards and promotion.

Three key takeaways present themselves in the research originating in Parma, Italy. Establishing the relationship between colleague support at work and burnout emphasizes the sacred relationship people have with their work. Considering the religious context of Parma, Italy as well as the amount of involvement in health care creates an environment that shines light on the importance of quality communication and high moral character. The second key insight provided is that introducing friends as a form of social support to the work place is costly. Taking away the ability from work colleagues to provide social support threatens the capitalist system of firms having impact. Lastly, understanding the place of poverty and development provides clarity of how social support ameliorates burnout. While the United Nations promotes zero poverty as the top sustainable development goal, research indicates that burnout, anxiety, and depression may be an unwanted side effect to achieve the goal of zero poverty.

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Student Name Finney Timothy Wayne
Last Name First Name Middle Name

USF Student ID # 11308336 Program International and Development Economics

Thesis Chairperson's Name Professor Alessandra Cassar

Thesis/Project Title Can Social Support Ameliorate Burnout?

Home Telephone Number (310)-701-8914

Email Address (long term) (Area Code) timothy.w.finney@icloud.com

Mailing Address 341 Anza Street Apt 104B

Street Address San Francisco California 94118

City United States of America State Zip/Postal Code

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