

Online ISSN: 1521-4672 Print ISSN: 1547-9684

**INFORMING SCIENCE: THE INTERNATIONAL
JOURNAL OF AN EMERGING
TRANSDISCIPLINE**

**VOLUME NO. 27
ISSUE NO. 1
JANUARY - APRIL 2024**



ENRICHED PUBLICATIONS PVT. LTD

**S-9, IInd FLOOR, MLU POCKET,
MANISH ABHINAV PLAZA-II, ABOVE FEDERAL BANK,
PLOT NO-5, SECTOR-5, DWARKA, NEW DELHI, INDIA-110075,
PHONE: - + (91)-(11)-47026006**

Informing Science: The International Journal of an Emerging Transdiscipline

What is the transdiscipline of Informing Science?

What is Informing Science: here is an hour long video introduction by Prof. T. Grandon Gill, presented at InSITE 2011 in Novi Saad, Serbia, and two books that are available online for free viewing and downloading of their PDFs:

- Informing Science Volume One: Concepts and Systems, and
- Informing Science Volume Two: Design and Research Issues

Lastly, in 2009 I wrote the paper A Philosophy of Informing Science.

What is the journal Informing Science?

The journal Informing Science: the international journal of an emerging transdiscipline especially welcomes papers that bring together and cross the research heritage and epistemologies on finding better ways to inform from diverse fields including technology, psychology, brain science, information science, and other diverse disciplines and the application of these ways to finding better ways to inform to client disciplines such as health care, government, and education. The journal welcomes conceptual, theoretical and empirical contributions. The ideal paper builds on existing research not only in the author's own discipline but also from the transdiscipline of Informing Science.

All submissions and reviewing is done online using the Informing Science Institute Paper Review System. Manuscripts are submitted online and reviewed electronically using our article submission management system. For this reason, all authors and co-authors need to obtain an ISI colleague account, available at <http://Join.InformingScience.org>.

We provide our published authors with both a quality print publication and the widespread readership that comes from publishing all articles online within a few weeks of acceptance. This approach ensures that published works are read and cited by the widest possible audience.

Mission

Informing Science: the International Journal of an Emerging Transdiscipline is the principal channel for sharing knowledge about and encouraging interest in informing across a diverse body of researchers drawn from many disciplines and nations.

The academically peer refereed journal Informing Science endeavors to provide an understanding of the complexities in informing clientele. Fields from information systems, library science, journalism in all its forms to education all contribute to this science. These fields, which developed independently and have been researched in separate disciplines, are evolving to form a new transdiscipline, Informing Science.

Informing Science publishes articles that provide insights into the nature, function and design of systems that inform clients. Authors may use epistemologies from engineering, computer science, education, psychology, business, anthropology, and such. The ideal paper will serve to inform fellow researchers, perhaps from other fields, of contributions to this area.

Editors in Chief



Eli Cohen
Informing Science Institute,
United States

Editors



Kay Fielden
Unitec, New Zealand



Scott J. Lloyd
University of Rhode Island, United States



Grandon Gill (Guest Editor)
University of South Florida, United States
Lifetime Member



Dr Robert W Hammond
Guest Editor
University of South Florida, United States



Prof. Jiafeng Lu
Department of Mathematics, Zhejiang
Normal University, China



Prof. H. M. Srivastava
Department of Mathematics and Statistics,
University of Victoria, Canada

Reviewers



Prof. John Beachboard
Senior Reviewer
None, United States
Lifetime Member



Mr Mohd Helmy Abd Wahab
Reviewer
Universiti Tun Hussein Onn Malaysia,
Malaysia



Moloud Abdar
Reviewer
The university of Aizu, Japan



Mohammed Isam Mohammed Abdel-Magid
Reviewer
AlHawraa Hospital of Ummlujj, Oman



Prof. Ahmad A. Abu-Musa
Reviewer
Tanta University, Egypt

Isola Ajiferuke
Reviewer
Canada



Prof. Yavuz Akpinar
Reviewer
BOGAZICI UNV., Turkey



Saqib Ali
Reviewer
Sultan Qaboos University, Oman



Oberiri Destiny Apuke
Reviewer
Taraba State University, Jalingo, Nigeria.,



Dr Engr Muhammad Mujtaba Asad
Reviewer
Sukkur IBA University, Pakistan



Dr Gazala Yasmin Ashraf
Reviewer
amity, India



Mildred Atieno Ayere
Reviewer
Maseno University, Kenya



Prof. Akoramurthy B
Reviewer
Anna University, India



Penny Bassett
Reviewer
Victoria University, Australia

Informing Science: The International Journal of an Emerging Transdiscipline

(Volume No. 27, Issue No. 1, Jan-Apr 2024)

Contents

Sr. No.	Article / Authors Name	Pg. No.
1	APPLIED PSYCHOLOGY AND INFORMING SCIENCE: INTRODUCTION TO THE DEVELOPING SPECIAL SERIES <i>- Francesco Tommasi</i>	1 - 3
2	ADDICTION POTENTIAL AMONG IRANIAN GOVERNMENTAL EMPLOYEES: PREDICTING ROLE OF PERCEIVED STRESS, JOB SECURITY, AND JOB SATISFACTION <i>- Davide Giusino, Ferdinando Toscano, Federico Fraboni, Tayebe Rahimi Pordanjani</i>	4 - 15
3	EMBITTERMENT IN THE WORKPLACE: HOW DOES IT ASSOCIATE WITH BURNOUT AND WHAT TRIGGERS IT? <i>- Evie Michailidis</i>	16 - 27
4	THE PRESENCE OF COMPASSION SATISFACTION, COMPASSION FATIGUE, AND BURN-OUT AMONG THE GENERAL POPULATION DURING THE COVID-19 PANDEMIC <i>- Shivika Dutt, Vivek Arya</i>	28 - 39

APPLIED PSYCHOLOGY AND INFORMING SCIENCE: INTRODUCTION TO THE DEVELOPING SPECIAL SERIES

Francesco Tommasi

University of Verona, Department of Human Sciences, Verona, Italy

ABSTRACT

Aim/Purpose This is an introductory paper for the developing special series on applied psychology and informing science. It takes into account the spirit of informing science to launch the first of three articles in the series on applied psychology. The paper concludes by raising questions for future investigations.

Keywords *informing science, applied psychology, transdisciplinary*

THE SERIES

Informing about knowledge production represents a timeless challenge for an applied psychologist. Scientific papers previously focused exclusively on the complexities of theory-building and research conducting. The focus has been on disseminating knowledge and perspectives with only a soft focus on the client of the research. For psychologists, the prescriptive and descriptive norms are strongly rooted in the theme of knowledge production through compliance with agreed-upon research design, methods, and ethical practice. However, this approach severely limits useful research conducted outside the field of study. This a tricky question as it is not amenable to standard ways of scholarship in psychology. Psychologists are familiar with confronting the challenge of publication. Still, the limits of national evaluation systems, disciplinary boundaries, and the compliance of publication checklists make it difficult for psychologists to remain sensitive to social nuances of informing about their knowledge to the broader public.

This is exactly the challenge that the journal *Informing Science: The International Journal of an Emerging Transdiscipline (InformingSciJ)* is willing to address with a series devoted to applied psychology. *InformingSciJ* builds on a transdisciplinary character that puts forth occasions to provide a broad array of discussions from various and separate disciplines. Such research findings are written in ways to better inform a wider public. In addition to formal academic systems limiting the boundaries of scholars into sectorial and faculty structures, *InformingSciJ* draws on the idea that we can also prize research that provides the reader with a novel perspective on specific phenomena. Notably, the term novel refers to the reader's response, not the author's field. *InformingSciJ* welcomes articles that fall in the cracks of single-field-based research. We welcome submissions that cross the boundaries of a single field's research heritages and epistemologies. Its ultimate aim is to inform, that is, to enhance the useful knowledge of its readers.

The controversial and subverting perspective spirit of *InformingSciJ* can foster reflections in scholars from various disciplines. Recalling the above timeless question for applied psychology, such a spirit of *InformingSciJ* opens novel and inspiring ideas for psychologists willing to inform individuals, groups, communities, and institutions about knowledge and the use they make of it. Confronting this complex question, the spirit of *InformingSciJ* offers a holistic and scientifically rich basis for expanding ways of communication of applied psychology knowledge. It is precisely this last aspect that made the Editor-in-

Chief of InformingSciJ open the series of Applied Psychology and Informing Science.

The present introductory paper of the series presents the first three articles in this series. They advance ideas for future investigations that this developing special series would welcome. The authors have interpreted the spirit of informing science and attempted to inform about applied psychology pieces of knowledge. As later described, the articles tried to reach this goal by (a) connecting applied psychology with different fields (e.g., sociology, information technology) and (b) using a language to explain and illustrate their understanding of specific phenomena. The following overview of the articles follows the order of acceptance.

The initial paper (Sartori et al., 2023) addresses the phenomenon of employee resignation and adopts an applied psychology lens to empirically understand the role of organizations in reducing employee turnover intention. The article makes a compelling case to show how the traditional lens of work and organizational psychology can be extended to a macro-social approach. The paper displays the organization's crucial role in supporting its employees. The second paper by Aldukhayel (2023) supports the use of psychological paradigms in the school context and proposes an evaluation of teaching methods via traditional experimental methods. The author comments and discusses the results in a way that contributes to both psychological and educational literature.

The last paper by Morandini and colleagues (2023) clearly depicts the impact of technological development in the organizational context and for the labor market. Taking the license to use applied psychology, the authors of this last paper examine how artificial intelligence can support individuals in their upskilling for the future of work and employment. These papers and this introduction launch the new special series on applied psychology and informing science. These are examples of how applied psychology can intersect with other disciplines and research fields. Thanks to their interdisciplinary basis, the authors followed an unconventional writing style to generate an illustration of their cases of study. Notably, these are examples of how applied psychology can inform different readers or clients at the individual, community, organizational and institutional levels.

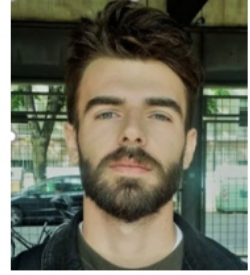
We welcome papers that investigate and address the core question of how to inform about applied psychology knowledge that intersects different disciplines. We endeavor to complete the longstanding gap between practitioner-knowledge and academic-knowledge. We particularly welcome submissions written by practitioners and studies engaging practitioners in academic-knowledge. We look forward to publishing papers in this special series based on the core idea that applied psychology can offer a particularistic lens in different disciplines and research fields.

REFERENCES

1. Aldukhayel, D. M. (2023). *The impact of vocabulary preteaching and content previewing on the listening comprehension of Arabic-speaking EFL learners*. *Informing Science: The International Journal of an Emerging Transdiscipline*, 26, 23-38. <https://doi.org/10.28945/5076>
2. Morandini, S., Fraboni, F., De Angelis, M., Puzzo, G., Giusino, D. & Pietrantoni, L. (2023). *The impact of artificial intelligence on workers' skills: Upskilling and reskilling in organisations*. *Informing Science: The International Journal of an Emerging Transdiscipline*, 26, 39-68. <https://doi.org/10.28945/5078>
3. Sartori, R., Ceschi, A., Zene, M., Scipioni, L., & Monti, M. (2023). *The relationship between perceived organizational support and turnover intention: The mediating role of job motivation and affective and normative commitment*. *Informing Science: The International Journal of an Emerging Transdiscipline*, 26, 5-21. <https://doi.org/10.28945/5070>

AUTHOR

Francesco Tommasi is a Postdoctoral Researcher in Work and Organizational Psychology, University of Verona, Department of Human Sciences, Italy, and Visiting Fellow in Critical Social, Work and Organizational Psychology at Europa-Universität Flensburg. He works on different topics within social, work and organizational psychology, and educational science issues. His work is supported by his collaboration with international research groups and his work as Associate Editor of the *Informing Science: The International Journal of an Emerging Transdiscipline* (InformingSciJ)



ADDICTION POTENTIAL AMONG IRANIAN GOVERNMENTAL EMPLOYEES: PREDICTING ROLE OF PERCEIVED STRESS, JOB SECURITY, AND JOB SATISFACTION

Davide Giusino, Ferdinando Toscano, Federico Fraboni, Tayebe Rahimi Pordanjani
University of Bologna, Bologna, Italy

ABSTRACT

Aim/Purpose To explore the incidence of addiction potential within the Iranian public work ing population, describing how many Iranian public employees fall within the diagnostic categories of low, moderate, and high addiction potential. Also, to investigate the predicting role of occupational variables such as perceived stress, job security, and job satisfaction on addiction potential and belonging to low, moderate, and high addiction potential diagnostic categories.

Background Substance addiction among employees can lead to several negative consequences at the individual and organizational levels. Also, it is the fourth cause of death in Iran. However, few studies have been conducted on the topic among employees, and non among Iranian employees.

Methodology The study participants were 430 employees working in governmental offices of the North Khorasan province, Iran. Descriptive statistical analysis and multiple linear regression analysis were conducted to explore the incidence of addiction potential within the analyzed population and to investigate whether occupational variables such as perceived stress, job security, and job satisfaction predicted low, moderate, or high addiction potential.

Contribution This paper suggests that perceived stress might act as a risk factor for developing addiction, whereas job security and job satisfaction might be protective factors against the likelihood of addiction development.

Findings More than half of the sample showed moderate to high addiction potential. Perceived stress was positively related to addiction potential. Job security and job satisfaction were negatively related to addiction potential.

Recommendations for Practitioners Managers and policymakers may find a valuable strategy to reduce employees' substance addiction risks in the design, development, and implementation of initiatives and interventions that prevent or reduce perceived stress and improve job satisfaction and job security.

Recommendations for Researchers When addressing the topic of substance addiction, researchers should focus on the preventative side of investigating it; that is, addiction risk rather than already unfolded addiction. Also, researchers should be mindful of the cultural context in which studies are conducted.

Impact on Society Substance addiction threatens the sustainability of communities and societies worldwide. Providing applied psychological findings, this paper can inform the broader public and help individuals, groups, communities, and institutions to address this issue in a science-based fashion.

Future Research Future research might investigate other relevant occupational predictors in relation to employee addiction potential, such as leadership style, work-life balance, and worktime schedule, or expand on the relevant causal chain by including personality traits such as neuroticism.

Keywords *substance addiction, addiction potential, public employees, stress, job security, job satisfaction, occupational health, Iranian employees*

INTRODUCTION

Substance addiction is the repetitive, excessive, and compulsive consumption of addictive psychotropic substances such as drugs, alcohol, or tobacco. It represents a threat to the person who suffers from it, and it is a psychological and behavioral disorder that seriously threatens the sustainability of communities and societies (Fontaine, 2007; Sadock et al., 2007). Furthermore, it represents a cost even in the workplace.

Substance addiction impairs both workers' well-being and performance since it leads to reduced attention and concentration, poor time management, and illegal behaviors in the workplace (De Beyer & Brigden, 2004; Evans, 2016; Frone, 2012). Previous literature shows that substance addiction has been linked to undesired business performance and workplace safety outcomes, such as decreased income and productivity, increased turnover, and severe injuries (De Beyer & Brigden, 2004; Evans, 2016; Frone, 2012; Ovuga & Madrama, 2006). The negative consequences of employees' substance addiction call for the relevant endeavor of elaborating strategies to reduce it within the working population.

Addiction potential is a person's tendency, likelihood, or risk to develop an addiction, encompassing a strong desire and preference for using drugs, alcohol, or tobacco over enacting other or different behaviors (Afshari, 2019; Amiri, Sadeghi et al., 2020; Goudarzian et al., 2017; Saadat et al., 2019; Weed et al., 1992; Zargar, 2006; Zargar & Ghaffari, 2009; Zargar et al., 2008). Previous literature (Amiri, Sadeghi et al., 2020; Weed et al., 1992; Zargar, 2006) has identified three diagnostic categories that can be used when assessing addiction potential, such as low, moderate, and high addiction potential, each of them corresponding to a specific level of risk of addiction. Amiri, Khosravi et al. (2021) found a statistically significant relationship between addiction potential status (i.e., low, moderate, high) and the tendency to use drugs, conceptualized as an individual attitude toward addiction, with people with high addiction potential being almost twice as likely to use drugs as people with low addiction potential.

The first purpose of the present study consists in estimating the extent to which a statistically representative random sample of the survey population falls into each of these three levels of substance addiction risk. While possibly linked to specific stable individual characteristics, like personality traits (Zargar, 2006), addiction potential may also be related to more modifiable variables, such as those from the occupational domain (e.g., Helbig & McKay, 2003). Hence, the second purpose of this study is to identify whether relevant occupational variables (i.e., perceived stress, job security, and job satisfaction) are related to employees' addiction potential. They were chosen as study variables because they represent the critical perceptions of any worker (e.g., Ettner & Grzywacz, 2001). We posit that perceived stress is a positive predictor of addiction potential, and job security and job satisfaction are negative predictors of the same outcome variable. In so doing, this paper aimed to produce applied psychological findings that can inform the broader public and help individuals, groups, communities, and institutions to address the issue of substance addiction within the working population in a science-based fashion (Tommasi, 2023).

The study was conducted in Iran, where the prevalence of substance use has been estimated between 3.9% and 11.9% within the general population older than 15 years (Moradinazar et al., 2020; Noorbala et

al., 2020), and between 9% and 60% depending on the province within the population of industrial workers (Damari et al., 2020). However, addiction is a worldwide problem, as the situation is comparable in other countries. For example, it is estimated that an annual average of 8.6% of full-time workers aged 16 to 64 in the United States use illicit drugs (Bush & Lipari, 2015).

First, perceived stress at work is conceived as a mismatch between the demands that employees face while carrying out their job (e.g., workload, time pressure, complexity, responsibility) and the resources which are available to face those demands (e.g., skills, organizational support; Bakker & Demerouti, 2017). Job demands are physical, psychological, social, or organizational aspects of the job that require physical or psychological effort from the worker. In contrast, job resources are physical, psychological, social, or organizational aspects that workers can use to counterbalance costs regarding physical, cognitive, and emotional energy (ibidem). The stress-induction and tension-reduction proposition — first introduced by Conger (1956), further developed by Cooper et al. (1995) and Khantzian (1997), and still used nowadays in several studies in the field of substance use (e.g., LauBarraco et al., 2023; Montal-Rosenberg et al., 2023) — suggests that people use addictive substances to reduce tensions deriving from stressors. This might also be true for perceptions of stressful situations at work, as noted, for instance, by Frone (2008), who found a positive relationship between work overload and consumption of drugs and alcohol. People perceiving higher stress levels revert more to a maladaptive coping strategy, such as consuming substances, to try and alleviate the harmful effects of stressful conditions in the short term. However, to our knowledge, the specific relationship between perceived stress and addiction potential has not been investigated within the population of workers. On this basis, we propose the following hypothesis:

H1: Perceived stress is positively related to addiction potential.

Job security can be defined as a perception of the stability of one's job. It can be conceived as the opposite of job insecurity, a set of subjective concerns about the continued existence of one's job (De Witte et al., 2015). As such, job insecurity can expose workers to relevant stress (Taheri Nakhost, 2011) and, following the stress-induction and tension-reduction proposition (Conger, 1956), can therefore be thought to be positively associated with addiction potential. Frone (2008) found a significant positive relationship between workers' perceptions of job insecurity and the use of drugs and alcohol, which was even more significant than that between work overload and consumption of drugs and alcohol. However, to our knowledge, no research has previously studied the relationship between job security and the specific construct of addiction potential among workers. So, we propose the following hypothesis:

H2: Job security is negatively related to employees' addiction potential.

Finally, job satisfaction, an overall favorable attitude towards one's job (Rafferty & Griffin, 2009), can also be hypothesized as a negative predictor of addiction potential. The underlying rationale is that addictive substances can be used as a coping strategy to reduce negative feelings toward one's job (Frone & Windle, 1997). At the same time, employees with higher job satisfaction might deploy their positive perceptions and feelings as individual-level job resources to cope with stress. In support of this argument, Moore and colleagues (2000) found that people who drink but have no alcohol addiction show significantly more favorable job attitudes than people with alcohol addiction. Also, Saari and Judge (2004) found that low levels of job satisfaction predict disruptive behaviors, among which was substance abuse. Hence, we propose the following hypothesis:

H3: Job satisfaction is negatively related to employees' addiction potential.

MATERIALS AND METHODS

The current paper reports on a cross-sectional study. The following sections provide information about

the sample, procedure, measures, and statistical analyses deployed to achieve the study's aims.

SAMPLE

Government employees from the North Khorasan province of Iran constitute the study's statistical population, meaning 8,565 individuals. North Khorasan has 50 government offices located all over the province. In the first stage of the sampling procedure, all the government offices with more than 100 employees were selected based on the targeted sampling method, meaning a total of 5,527 individuals. Then, to ensure the manageability and feasibility of the study procedure, a sample of 360 employees was further selected based on the stratified sampling method. However, to prevent the negative consequences of potential participants' dropout and ensure enough usable data, questionnaires were distributed among 500 employees from 22 different public departments of the municipality of Bojnord. Valid responses were collected from 450 participants, corresponding to a 90% response rate. After removing outliers using the Mahalanobis distance measure, a final sample of 430 employees was left and included in the subsequent statistical analyses. The sample comprised 366 men (85.1%) and 64 women (14.9%). Age ranged from 24 to 58 years ($M = 37.24$, $SD = 6.66$). Most of the sample reported holding a bachelor's degree ($n = 265$, 61.6%) and a fixed-term employment contract ($n = 181$, 42.1%). Job tenure ranged from 1 to 36 years ($M = 11.77$, $SD = 6.70$).

PROCEDURE AND MEASURES

A paper-and-pencil questionnaire, including four self-report psychometric measurement scales, was administered between March 2019 and October 2020. The questionnaires were filled in at the participants' workplaces and then returned to the researchers. The study's aims and the ethical principles of confidentiality and voluntary participation were explained and ensured to participants. The Persian validation by Zargar (2006) of the Addiction Potential Scale by Weed and colleagues (1992) was used to measure addiction potential. It is composed of 41 items and answers are given on a 5-point Likert scale ranging from "0 = strongly disagree" to "4 = strongly agree". The score ranges from 0 to 144 (0-36 = low addiction potential; 37-54 = moderate addiction potential; >54 = high addiction potential). Subdivision into three classes is part of the original versions of the scale (Weed et al., 1992; Zargar, 2006) and has been previously used by other Iranian studies (Amiri, Sadeghi et al., 2020). The validity and reliability of this instrument have been previously tested (Afshari, 2019; Amiri, Sadeghi et al., 2020; Goudarzian et al., 2017; Saadat et al., 2019; Zargar, 2006). In the present study, Cronbach's alpha was 0.88 and Spearman-Brown's coefficient was 0.85.

The Persian translation by Maroufizadeh and colleagues (2014) of the Perceived Stress Scale by Cohen and colleagues (1983) was used to measure perceived stress. This is a unidimensional 10-item instrument measuring individual perceptions of stress in terms of uncontrollability, unpredictability, and overload in one's life. Participants were instructed to provide the frequency to which they were experiencing stress due to work on a 5-point Likert-type scale ranging from "0 = never" to "4 = very often" (0 - 13 = low stress; 14 - 26 = medium stress; 27 - 40 = high perceived stress). The psychometric characteristics of this instrument were deemed suitable in previous studies (Maroufizadeh et al., 2014). Cronbach's alpha was 0.83, and Spearman-Brown's coefficient was 0.80.

The Iranian Job Security Questionnaire by Mahmodian and Naisi was used to measure job security. This is a 30-item instrument measuring factors that protect or threaten job security in the workplace. Answers are given on a 5-point Likert-type scale ranging from "0 = strongly disagree" to "4 = strongly agree". The psychometric characteristics of this instrument were deemed suitable in previous studies (Mahmodian & Naisi, 2002). Cronbach's alpha was 0.90 and Spearman-Brown's coefficient was 0.88.

Finally, the Persian translation by Ghadiri and colleagues (2013) of the Job Satisfaction Scale by Brayfield and Rothe (1951) was used to measure job satisfaction. This is a 5-item instrument measuring employees' satisfaction with their job. Answers are given on a 5-point Likert-type scale ranging from "1 = strongly disagree" to "5 = strongly agree". The psychometric characteristics of this instrument were considered satisfactory in previous studies (Ghadiri et al., 2013). Cronbach's alpha was 0.81 and Spearman-Brown's coefficient was 0.80.

STATISTICAL ANALYSIS

Confirmatory Factor Analysis (CFA) was conducted to assess the dimensionality of the administered questionnaire. We compared a one-factor model with a four-factor model, with each factor representing the main study variables: addiction potential, perceived stress, job security, and job satisfaction. Composite reliability (CR), Cronbach's alpha, and Spearman-Brown's coefficient were computed to evaluate the reliability of the deployed psychometric measures. For CR, we adopted the cut-off values indicated by Hair and colleagues (2018), namely >0.70 . After ensuring that normal distribution assumptions were met by running the Kolmogorov-Smirnov test ($p < .05$), two main statistical procedures, one per each study's aim, were conducted. First, descriptive statistics were used to report on frequencies, means, and standard deviations from low, moderate, and high addiction potential, used as one categorical variable. Second, Pearson's correlation analysis, dummy coding for categorical dependent variables, and multiple linear regression analysis with all continuous predictors entered in a single step were run to investigate the predicting role of the occupational variables under study. The thresholds of statistical significance were set at $p < .05$, $p < .01$, and $p < .001$. Data analysis was performed using the SPSS and Mplus statistical software.

RESULTS

CONFIRMATORY FACTOR ANALYSIS

CFA showed a better fit for the four-factor than the one-factor version of the administered questionnaire. The one-factor model showed the following fit indices: $\chi^2(3569) = 16673.96$, $\chi^2/\text{degrees of freedom (df)} = 4.67$, Root Mean Square Error of Approximation (RMSEA) = 0.09, Standardized Root Mean Square Residual (SRMR) = 0.11. The four-factor model showed the following fit indices, $\chi^2(3563) = 13272.92$, $\chi^2/\text{df} = 3.73$, RMSEA = 0.08, SRMR = 0.09. Thus, the dimensionality of the administered questionnaire was assessed favorably since the four-factor fit was better than the single factor fit. CR showed above-threshold values for addiction potential (0.89), job satisfaction (0.82), perceived stress (0.84), and job security (0.91). Thus, the model measures' goodness of fit, and the structural validity and reliability were supported.

INCIDENCE OF ADDICTION POTENTIAL WITHIN THE STUDY SAMPLE

The average addiction potential in the overall study sample was 41.11 (SD = 19.90). Table 1 shows that the low addiction potential diagnostic category ($n = 203$, 47.20%) was the most represented. However, more than half ($n = 227$, 52.80%) of the sample fell between the moderate ($n = 116$, 27.00%) and the high ($n = 111$, 25.80%) addiction potential diagnostic categories

Table 1. Frequencies and descriptives from addiction potential diagnostic categories

Diagnostic Category	N	%	Maddiction potential	Mperceived stress	Mjob security	Mjob satisfaction
Low	203	47.2	23.61	14.37	72.17	19.69
Moderate	116	27.0	46.38	18.32	66.70	18.54
High	111	25.8	67.61	20.28	61.72	16.45
Total	430	100				

Average perceived stress was lower among low-addiction potential employees ($M = 14.37$, $SD = 5.11$) than among moderate-addiction potential employees ($M = 18.32$, $SD = 5.35$). High-addiction potential employees showed the highest average level of perceived stress ($M = 20.28$, $SD = 6.03$). Also, average job security was higher among low-addiction potential employees ($M = 72.17$, $SD = 14.32$) than among moderate-addiction potential employees ($M = 66.70$, $SD = 15.52$). In contrast, high-addiction potential employees showed the lowest average level of job security ($M = 61.72$, $SD = 13.75$).

Finally, average job satisfaction was higher among low-addiction potential employees ($M = 19.69$, $SD = 4.43$) than among moderate-addiction potential employees ($M = 18.54$, $SD = 3.82$). In contrast, high-addiction potential employees showed the lowest average level of job satisfaction ($M = 16.45$, $SD = 4.21$).

Overall, these findings suggest that different degrees of addiction potential might have different associations with levels of perceived stress, job security, and job satisfaction. OCCUPATIONAL

PREDICTORS OF ADDICTION POTENTIAL AND ITS DIAGNOSTIC CATEGORIES

Table 2 shows the correlations among the examined variables. Among these results, we point out that the significant negative correlations between perceived stress and job security ($r = -.27$, $p < .01$) and job satisfaction ($r = -.21$, $p < .01$) were consistent with the theoretical propositions according to which being concerned about continuing to perform one’s job can be associated with a stressful experience and that a positive attitude toward one’s job can be used as a resource to cope with stressors (Frone & Windle, 1997; Taheri Nakhost, 2011).

Table 2. Correlations between variables

	N	M	SD	Perceived stress	Job security	Job satisfaction
Perceived stress	430	16.96	5.98	–		
Job security	430	67.99	15.11	-.27**	–	
Job satisfaction	430	18.54	3.97	-.21**	.55*	–
Addiction potential	430	41.11	19.90	.43**	-.33**	-.35**

As per the hypothesized regression model with addiction potential as the dependent variable, it was statistically significant ($R^2 = .26$, $F(3, 426) = 52.07$, $p < .001$). Specifically, perceived stress ($p < .001$), job security ($p < .05$), and job satisfaction ($p < .001$) all significantly predicted employees’ addiction potential. As expected, perceived stress ($\beta = .35$) was a positive predictor, thus supporting H1, whereas job security ($\beta = -.11$) and job satisfaction ($\beta = -.20$) were negative predictors, thus supporting H2 and H3 respectively.

Analyzing the regression models adopting the three levels of addiction risk as the dependent variable, low addiction potential as the dependent variable ($R^2 = .20$, $F(3, 426) = 37.17$, $p < .001$) was significantly related to perceived stress ($\beta = -.35$, $p < .001$) and job satisfaction ($\beta = .15$, $p < .01$). In contrast, job security ($\beta = .07$, $p = .14$) did not significantly predict low addiction potential.

Moderate addiction potential as the dependent variable ($R^2 = .02$, $F(3, 426) = 3.08$, $p < .05$) was significantly related to perceived stress ($\beta = .13$, $p < .01$), whereas job security ($\beta = -.04$, $p = .45$) and job satisfaction ($\beta = .05$, $p = .35$) were not significant predictors of moderate addiction potential.

Finally, high addiction potential as the dependent variable ($R^2 = .16$, $F(3, 426) = 28.90$, $p < .001$) was significantly related to perceived stress ($\beta = .26$, $p < .001$) and job satisfaction ($\beta = -.23$, $p = .001$), whereas job security ($\beta = -.04$, $p = .42$) was not a significant predictor of high addiction potential.

DISCUSSION AND CONCLUSION

The study findings revealed that more than half of the sample showed moderate or high potential for addiction. In addition, a pattern of different associations between addiction potential diagnostics categories and occupational factors was suggested. Results also suggested that the more employees feel stressed and the less they feel secure and satisfied about their job, the more likely they are to develop an addiction to substances. Conversely, if employees do not perceive the existence of overwhelming stress and feel secure and satisfied about their job, they have less potential for addiction.

These findings supported our H1, H2 and H3, proposing the perceived stress is positively related to addiction potential, whereas job security and job satisfaction are negatively related to employees' addiction potential.

The finding regarding the positive relationship between perceived stress and addiction potential can be explained by adopting the stress-induction and tension-reduction proposition (Conger, 1956; Cooper et al., 1995; Khantzian, 1997) as a theoretical reference. In this framework, substance use is understood as a coping strategy to reduce one's negative feelings from stress (Frone, 2008; Frone & Windle, 1997). A consistent interpretation can be given to the negative relationship between job security and addiction potential since job security is a condition in which employees do not worry about the continued existence of their job, thus avoiding a relevant source of stress (Zargar & Ghaffari, 2009; Zargar et al., 2008). The findings supported the role of job satisfaction concerning addiction potential. This result is in line with previous literature (Frone, 2008; Frone & Windle, 1997). However, it should be noted that Van Jaarsveld and Keyser (2018) found that employees reported lower levels of job satisfaction because they were using drugs. Thus, the relationship between job satisfaction and addiction might be considered bidirectional.

Stress was shown to be related to each level of addiction risk. It was negatively related to low conditions but positively related as early as the medium and high-risk levels. On the other hand, job satisfaction showed significant correlations only in the highest levels of addiction potential: a positive effect in the low-risk and a negative effect on the high-risk levels. Finally, when the risk categories of addiction potential and not the full scale were used, job security showed no significant relationships with the different potential risk levels. Results thus reveal how stress tends to bind more strongly and in more situations with addiction potential than job security and job satisfaction. There are at least two possible interpretations for this research evidence. First, the stress condition may relate to perceptions that are more likely to involve behaviors of reaction to it. In other words, participants are more likely to use substances to react to a momentary stressful situation rather than concerning issues that unfold from long-established, less momentary perceptions, such as job security and job satisfaction. A second interpretation might instead be found in the Conservation of Resources (COR) theory (Hobfoll et al., 2018), according to which it is more harmful to individuals to lose resources (i.e., stress), compared to

when there is a gain of resources (i.e., job security and job satisfaction). In other words, it would be primarily the negative effect of stress that would push toward addictive behaviors.

FUTURE RESEARCH

The present study has several limitations. Most of all, the gender imbalance within the study sample, the deployment of self-report measures, the use of cross-sectional data, and the peculiar Iranian contextualization of the study should be noted. These limitations prevent claiming generalizability of the study's findings. The cross-sectional nature of the data prevents us from making causal inferences about the relationships found among the variables under study. Future research may address these issues. Another limitation might be related to the use of the Perceived Stress Scale (Cohen et al., 1983; Maroufizadeh et al., 2014). Originally, this is a questionnaire that measures stressful life events, not directly occupational stress.

Further occupational predictors might be investigated in the future about employee addiction potentials, such as leadership, work-life balance, and worktime schedule. Moreover, it should be noted that, although it was out of the scope of the present study to gather empirical data regarding actual addiction or addictive behaviors that we could relate to the three levels of addiction potential (i.e., low, moderate, high), evidence is scarce even in the available literature, with Amiri, Khosravi et al. (2021) being an exception. Thus, it might be interesting for future studies to further establish the relationship between the three levels of addiction potential and actual addiction or addictive behaviors within the working population, to better understand what low, moderate, and high risk means for workers.

Finally, the causal chain of addiction potential could be expanded beyond the factors considered here, by including personality traits and dispositional factors. For instance, it is known that neuroticism is positively associated with perceived job stress (Bergomi et al., 2017; Mamcarz et al., 2019; Törnroos et al., 2013), so it might be that, in an introspective rating, people being more nervous about their job are also rating themselves as being more vulnerable to addiction. We propose this point as a final input to future research.

APPLIED IMPLICATIONS

Despite its limitations, the study's results hold relevant theoretical and practical implications for managers and policymakers. On the one hand, they advance the available knowledge about addiction potential within the specific population of public employees, thus shedding light on the relationships that the focused construct of addiction potential has with occupational predictors such as perceived stress, job security, and job satisfaction. Based on the study's findings, perceived stress might be understood as a risk factor for employees to develop an addiction. In contrast, job security and satisfaction might be considered protective factors. On the other hand, professionals and practitioners might exploit this knowledge to design, develop, and implement strategies and interventions that, to prevent or reduce addiction potential among employees, should reduce perceived stress and increase job security and job satisfaction. Employers might implement actions, for instance, designing, organizing, and managing jobs in a way that provides favorable working conditions, such as autonomy, flexibility, and job security. However, these actions might also be carried out at the national and international policymaking level, for example, by developing laws that ensure fair labor rights and a more stable labor market.

Finally, we suggest organizations carry out periodical surveys to investigate addiction among their employees and act upon it. Employee well-being surveys should be good practice in organizations around the world. We suggest, for the Iranian and international context, to make sure not only that these surveys are conducted, but also that they investigate the area of addiction potential, which is too often still taboo in organizations around the globe. Particularly, there is the risk that employees might be

reluctant to report the use of drugs due to social desirability (Johnson & Fendrich, 2005) so organizational surveys should guarantee that data are collected anonymously.

CONCLUSION

To conclude, substance addiction can be an issue facing both employers and employees. In this study, we have provided knowledge on the tendency to develop substance addictions, particularly focusing on the predicting role of stress, job satisfaction, and job security. Managers and practitioners can use it to inform preventative actions to be implemented at their workplaces. For instance, as indicated by recent literature (Frone et al., 2022), organizations may consider workplace-supported recovery actions to deal with substance use disorders among employees.

REFERENCES

1. Afshari, A. (2019). *Compare alexithymia and emotional intelligence among drug users, people at risk of addiction and non-drug users*. *ARC Journal of Psychiatry*, 4(2), 5-10. <https://www.arcjournals.org/pdfs/ajp/v4-i2/2.pdf>
2. Amiri, M., Sadeghi, Z., Sadeghi, E., & Khosravi, A. (2020). *Relationship between assertion and aggression with addiction potential: A cross-sectional study in 2019*. *Osong Public Health and Research Perspectives*, 11(4), 231. <https://doi.org/10.24171/j.phrp.2020.11.4.12>
3. Amiri, M., Khosravi, A., Chaman, R., Sadeghi, Z., Sadeghi, E., & Raei, M. (2021). *Addiction potential and its correlates among medical students*. *The Open Public Health Journal*, 14(1), 32-37. <https://doi.org/10.2174/1874944502114010032>
4. Bakker, A. B., & Demerouti, E. (2017). *Job demands–resources theory: Taking stock and looking forward*. *Journal of Occupational Health Psychology*, 22(3), 273-285. <https://doi.org/10.1037/ocp0000056>
5. Bergomi, M., Modenese, A., Ferretti, E., Ferrari, A., Licitra, G., Vivoli, R., Gobba, F., & Aggazzotti, G. (2017). *Work-related stress and role of personality in a sample of Italian bus drivers*. *Work*, 57(3), 433-440. <https://doi.org/10.3233/WOR-172581>
6. Brayfield, A. H., & Rothe, H. F. (1951). *An index of job satisfaction*. *Journal of Applied Psychology*, 35(5), 307-311. <https://doi.org/10.1037/h0055617>
7. Bush, D. M., & Lipari, R. N. (2015). *Substance use and substance use disorder by industry*. *The CBHSQ Report. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality*. <https://europepmc.org/article/NBK/nbk343542>
8. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). *A global measure of perceived stress*. *Journal of Health and Social Behavior*, 24(4), 385-396. <https://doi.org/10.2307/2136404>
9. Conger, J. J. (1956). *Reinforcement theory and the dynamics of alcoholism*. *Quarterly Journal of Studies on Alcohol*, 17(2), 296-305. <https://doi.org/10.15288/qjsa.1956.17.296>
10. Cooper, M. L., Frone, M. R., Russell, M., & Mudar, P. (1995). *Drinking to regulate positive and negative emotions: A motivational model of alcohol use*. *Journal of Personality and Social Psychology*, 69(5), 990-1005. <https://doi.org/10.1037/0022-3514.69.5.990>
11. Damari, B., Sarami, H., Alikhani, S., & Mirzaei, H. (2020). *A national survey on substance use among Iranian industrial workers*. *Medical Journal of the Islamic Republic of Iran*, 34, 20. <https://doi.org/10.47176/mjiri.34.20>
12. De Beyer, J., & Brigden, L. W. (Eds.). (2004). *Tobacco control policy: Strategies, successes, and setbacks*. *World Bank and Research for International Tobacco Control*. <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/33062/118483.pdf?sequence=1>

13. De Witte, H., Vander Elst, T., & De Cuyper, N. (2015). Job insecurity, health, and well-being. In J. Vuori, R. Blonk, & R. H. Price (Eds.), *Sustainable working lives: Managing work transitions and health throughout the life course* (pp. 109-128). Springer. https://doi.org/10.1007/978-94-017-9798-6_7
14. Ettner, S. L., & Grzywacz, J. G. (2001). Workers' perceptions of how jobs affect health: A social ecological perspective. *Journal of Occupational Health Psychology, 6*(2), 101-113. <https://doi.org/10.1037/1076-8998.6.2.101>
15. Evans, R. (2016). Identifying alcohol or drug abuse in the workplace is beneficial to both employers and employees. *Occupational Health Southern Africa, 22*(2), 6.
16. Fontaine, K. L. (2007). *Mental health nursing* (6th ed.). Pearson.
17. Frone, M. R. (2008). Are work stressors related to employee substance use? The importance of temporal context assessments of alcohol and illicit drug use. *Journal of Applied Psychology, 93*(1), 199-206. <https://doi.org/10.1037/0021-9010.93.1.199>
18. Frone, M. R. (2012). Workplace substance use climate: Prevalence and distribution in the US workforce. *Journal of Substance Use, 17*(1), 72-83. <https://doi.org/10.3109/14659891.2010.531630>
19. Frone, M. R., Chosewood, L. C., Osborne, J. C., & Howard, J. J. (2022). Workplace supported recovery from substance use disorders: Defining the construct, developing a model, and proposing an agenda for future research. *Occupational Health Science, 6*, 475-511. <https://doi.org/10.1007/s41542-022-00123x>
20. Frone, M. R., & Windle, M. (1997). Job dissatisfaction and substance use among employed high school students: The moderating influence of active and avoidant coping styles. *Substance Use & Misuse, 32*(5), 571-585. <https://doi.org/10.3109/10826089709027313>
21. Ghadiri, M., Beshlideh, K., Hashemi Shykhshabani, S., & Moshkelani, F. (2013). The relationship of ethical climate with job satisfaction, organizational commitment, and turnover intention in employees of a governmental company. *Ethics in Science & Technology, 17*, 17-25.
22. Goudarzian, A. H., Esmaeili, R., Alizadeh-Navaei, R., Yousefi, M., & Balouchi, A. (2017). Emotional intelligence training for reducing illicit drug use potential among Iranian nurses: A pilot study. *Iranian Journal of Psychiatry and Behavioral Sciences, 11*(3). <https://doi.org/10.5812/ijpbs.6676>
23. Hair, J., Black, W., Babin, B., & Anderson, R. (2018). *Multivariate data analysis: A global perspective* (8th ed.). Pearson Education.
24. Helbig, K., & McKay, E. (2003). An exploration of addictive behaviours from an occupational perspective. *Journal of Occupational Science, 10*(3), 140-145. <https://doi.org/10.1080/14427591.2003.9686521>
25. Hobfoll, S. E., Halbesleben, J., Neveu, J. P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior, 5*, 103-128. <https://doi.org/10.1146/annurev-orgpsych-032117-104640>
26. Johnson, T., & Fendrich, M. (2005). Modeling sources of self-report bias in a survey of drug use epidemiology. *Annals of Epidemiology, 15*(5), 381-389. <https://doi.org/10.1016/j.annepidem.2004.09.004>
27. Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry, 4*(5), 231-244. <https://doi.org/10.3109/10673229709030550>
28. Lau-Barraco, C., Stamatou, A. L., Ehlke, S. J., & Glenn, D. J. (2023). Differential pathways of risky drinking via coping motives in college and noncollege young adults. *Addiction Research & Theory, 31*(2), 127-136. <https://doi.org/10.1080/16066359.2022.2127693>
29. Mahmoodian, S. R., & Naisi, A. K. (2002). Investigating the effective factors in the feeling of job security, and its relationship with the mental health of Dezfoul Telecommunications Management

employees. *Islamic Azad University*.

28. Mamcarz, P., Drożdziel, P., Madleňáková, L., Sieradzki, A., & Drożdziel, P. (2019). Level of occupational stress, personality and traffic incidents: Comparative study of public and freight transport drivers. *Transportation Research Procedia*, 40, 1453-1458. <https://doi.org/10.1016/j.trpro.2019.07.201>

29. Maroufizadeh, S., Zareiyani, A., & Sigari, N. (2014). Reliability and validity of Persian version of Perceived Stress Scale (PSS-10) in adults with asthma. *Archives of Iranian Medicine*, 17(5), 361-365. <http://journalaim.com/Article/650>

30. Montal-Rosenberg, R., Bamberger, P. A., Nahum-Shani, I., Wang, M., Larimer, M., & Bacharach, S. B. (2023). Supervisor undermining, social isolation and subordinates' problematic drinking: The role of depression and perceived drinking norms. *Journal of Drug Issues*, 53(1), 37-60. <https://doi.org/10.1177/00220426221098981>

31. Moore, S., Grunberg, L., & Greenberg, E. (2000). The relationships between alcohol problems and well-being, work attitudes, and performance: Are they monotonic? *Journal of Substance Abuse*, 11(2), 183-204. [https://doi.org/10.1016/S0899-3289\(00\)00020-1](https://doi.org/10.1016/S0899-3289(00)00020-1)

32. Moradinazar, M., Najafi, F., Jalilian, F., Pasdar, Y., Hamzeh, B., Shakiba, E., Hajizadeh, M., Akbar Haghdooost, A., Malekzadeh, R., Poustchi, H., Nasiri, M., Okati-Aliabad, H., Saeedi, M., Mansour-Ghanaei, F., Farhang, S., Reza Safarpour, A., Maharlouei, N., Farjam, M., Amini, S., ... Mirzaei-Alavijeh, M. (2020). Prevalence of drug use, alcohol consumption, cigarette smoking and measure of socioeconomic-related inequalities of drug use among Iranian people: Findings from a national survey. *Substance Abuse Treatment, Prevention, and Policy*, 15, 1-11. <https://doi.org/10.1186/s13011-020-00279-1>

33. Noorbala, A. A., Saljoughian, A., Bagheri Yazdi, S. A., Faghihzadeh, E., Farahzadi, M. H., Kamali, K., Faghihzadeh, S., Hajebi, A., Akhondzadeh, S., & Mousavi, M. T. (2020). Evaluation of drug and alcohol abuse in people aged 15 years and older in Iran. *Iranian Journal of Public Health*, 49(10), 1940-1946. <https://doi.org/10.18502/ijph.v49i10.4697>

34. Ovuga, E., & Madrama, C. (2006). Burden of alcohol use in the Uganda Police in Kampala District. *African Health Sciences*, 6(1), 14-20.

35. Rafferty, A. E., & Griffin, M. A. (2009). Job satisfaction in organizational research. In D. A. Buchanan, & A. Bryman (Eds.), *The Sage handbook of organizational research methods* (pp. 196-212). Sage Publications. Saadat, S. H., Seyed Hashemi, S. G., Bafandeh Garamaleki, H., Pourseyed Mahdi, R., & Azimi, M. (2019). The explanation of students' addiction potential based on psychological dysregulation (behavioral, cognitive, and emotional): With perceived stress mediation. *Journal of Research in Medical and Dental Science*, 7(2), 116-121. <https://www.jrmds.in/articles/the-explanation-of-students-addiction-potential-based-on-psychological-dysregulation-behavioral-cognitive-and-emotional-.pdf>

36. Saari, L. M., & Judge, T. A. (2004). Employee attitudes and job satisfaction. *Human Resource Management*, 43(4), 395-407. <https://doi.org/10.1002/hrm.20032>

37. Sadock, B. J., Sadock, V. A., & Kaplan, H. I. (2007). *Kaplan and Sadock's synopsis of psychiatry: Behavioral sciences* (10th ed.). Lippincott Williams and Wilkins.

38. Taheri Nakhost, H. R. (2011). *Primary prevention of addiction with a focus on the workplace*. Iranian Drug Control Headquarters.

Tommasi, F. (2023). Applied psychology and informing science: Introduction to the developing special series. *Informing Science: The International Journal of an Emerging Transdiscipline*, 26, 1-3. <https://doi.org/10.28945/5087>

39. Törnroos, M., Hintsanen, M., Hintsala, T., Jokela, M., Pulkki-Råback, L., Hutri-Kähönen, N., & Keltikangas-Järvinen, L. (2013). Associations between Five-Factor Model traits and perceived job

- strain: A population based study. Journal of Occupational Health Psychology, 18(4), 492-500. <https://doi.org/10.1037/a0033987>*
40. Van Jaarsveld, D., & Keyser, E. (2018). *The moderating role of job satisfaction on workplace absenteeism and substance use amongst the employees at a power utility in Mpumalanga. Journal of Economics and Behavioral Studies, 10(2), 219-230. <https://doi.org/10.7868/s0869565218050249>*
41. Weed, N. C., Butcher, J. N., McKenna, T., & Ben-Porath, Y. S. (1992). *New measures for assessing alcohol and drug abuse with the MMPI-2: The APS and AAS. Journal of Personality Assessment, 58(2), 389-404. https://doi.org/10.1207/s15327752jpa5802_15*
42. Zargar, Y. (2006). *Developing the Iranian form of addiction potential scale. Proceedings of the Second Conference of Psychology Association of Iran (pp. 398-401).*
43. Zargar, Y., & Ghaffari, M. (2009). *Simple and multiple relationships between big-five personality dimensions and addiction in university students. Iranian Journal of Public Health, 38(3), 113-117. <https://ijph.tums.ac.ir/index.php/ijph/article/view/3180>*

EMBITTERMENT IN THE WORKPLACE: HOW DOES IT ASSOCIATE WITH BURNOUT AND WHAT TRIGGERS IT?

Evie Michailidis
University of Cyprus, Nicosia, Cyprus

ABSTRACT

Aim/Purpose *Embitterment comprises a stress-related response to unjust life experiences. Studies have found that it can have a toll on employees' well-being. However, research on this matter is still in its infancy.*

Background *Within the scope of the present study, I sought to investigate how embitterment relates to burnout – the prolonged consequence of stress. This study further explored whether breaches of psychological contracts can trigger embitterment. Methodology* *The study employed a cross-sectional design where two hundred and eight (N = 208) participants from the general population completed an online survey.*

Contribution *Findings suggest that the toll of embitterment might be much more than what research has suggested so far. Those who experience embitterment can become emotionally exhausted and cynical and these findings can be especially useful when identifying embitterment.*

Findings *It was found that embitterment related to higher burnout levels and more specifically emotional exhaustion and cynicism. No significant findings were revealed for the relationship between professional inefficacy and embitterment. Also, psychological contract breach was found to be a significant predictor of embitterment, supporting further the notion that perceptions of injustice can trigger feelings of embitterment. Results also showed that embitterment mediated the relationship between psychological contract breach and burnout.*

Recommendations for Researchers *The study highlights the notion that fairness is a key precursor of embitterment, and this finding is essential when developing interventions to prevent embitterment from arising.*

Future Research *Future research could use a longitudinal study design to unravel whether burnout represents a precondition or the consequence of embitterment. Future research should also include more objective measures. For example, it would be useful to pair self-report data with more objective measures on embitterment (e.g. clinical interviews).*

Keywords *posttraumatic embitterment disorder, embitterment, burnout, psychological contract*

INTRODUCTION

Linden (2003) defined embitterment as “an emotion encompassing persistent feelings of being let down, insulted and of being revengeful but helpless”. Embitterment reactions occur when important values, beliefs, and world-definitions or self-definitions are called into question by perceived injustice. Any life event can evoke feelings of embitterment; however, in one study, Linden et al. (2007) examined the

types of events that can provoke feelings of embitterment and revealed that such critical life events were, in most cases, work-related (72.9%). This is perhaps not that unsurprising as the workplace can be seen as an arena of events and experiences involving injustice and unfairness. Despite the high prevalence of embitterment in organizational settings (Dunn & Sensky, 2018; Michailidis & Cropley, 2017) and the plethora of symptoms associated with it, studies are only recently looking into embitterment in the workplace. The overall aim of this study is to shed some light on what might trigger embitterment in employees and what are the possible consequences of it on their well-being.

According to the just world hypothesis (Lerner, 1980), embitterment occurs when an individual's belief in justice is violated, resulting in negative effects on their mental health (such as chronic strain; Kühn et al., 2018), physical health (such as poor sleep quality; Michailidis & Cropley, 2019), and work-related attitudes (such as reduced job satisfaction; Michailidis & Cropley, 2018). Using Colquitt's (2001) four-dimensional approach to organisational justice, Michailidis and Cropley (2017, 2018), have indeed supported that perceptions of organisational injustice can significantly predict feelings of embitterment in employees, which in turn can make it difficult for them to recover from job demands during their time off. Previous studies have shed light on the importance of justice as a key factor in embitterment, and its impact on individuals, but the existing research is limited and does not provide a comprehensive understanding of all the factors that contribute to embitterment.

In the present study, I aim to expand the current understanding of workplace embitterment by addressing these research gaps. To this end, I integrate the conservation of resources theory (Hobfoll, 1989) and the just world hypothesis (Lerner, 1980) to determine significant workplace characteristics that explain justice violations leading to embitterment and, consequently, to employees' poor emotional state (i.e., burnout).

EMBITTERMENT AND BURNOUT

There is a growing body of research to support the adverse consequences embitterment has on the mental health of both a healthy population and inpatients in psychiatric units. For instance, the findings of a study by Linden and Noack (2018) strongly associated embitterment with suicidality and aggressive ideation. Moreover, in a sample of healthy older adults, Kühn et al. (2018) found a negative association between the Post Traumatic Embitterment Disorder (PTED) self-rating score and self-reported well-being, life satisfaction, and future time perspective and a positive association with loneliness, perceived stress, chronic strain, and external control beliefs. The concept of embitterment is a relatively recent topic in the field of occupational and organisational psychology, with various studies being conducted on the subject (Michailidis & Cropley, 2017, 2018, 2019; Muschalla & von Kenne, 2020). Given that embitterment is frequently experienced in the workplace (Linden et al., 2007), studies have also explored the consequences embitterment has on working adults. More specifically, studies have shown that employees who experience embitterment engage in intrusive, pervasive, recurrent thoughts about work that are negative in affective terms, known as affective rumination interfering thus with employees' ability to recover from work (Michailidis & Cropley, 2017). Working adults who experience embitterment at work also show sleep disturbances (Michailidis & Cropley, 2019). More recent studies have even tested the prevalence of embitterment in front-line health workers for COVID-19 control (Kang et al., 2022).

However, little is still known about the impact of embitterment on employees' emotional states. In this study, I argue that the fact that embitterment is accompanied by a stress response could suggest a possible connection with burnout. Interestingly, no study has yet investigated the relationship between burnout and embitterment. Burnout is a state of emotional, physical, and mental exhaustion caused by excessive and prolonged stress and is measured based on three dimensions (Maslach et al., 2001). Emotional exhaustion, meaning employees feel emotionally drained at the end of the day and whenever

they think of work; cynicism, meaning employees feeling disconnected and experiencing their own life as mere spectators; and reduced personal accomplishment and drive, with employees doubting the significance of their job and lacking confidence in what they can accomplish (Maslach et al., 2001). Among factors that could potentially lead to burnout, findings from a longitudinal study design have supported that experiences of inequity and injustice might also affect burnout and more specifically emotional exhaustion (Van Dierendonck et al., 2001).

In the context of the conservation of resources theory (Hobfoll, 1989), it makes theoretical sense to expect that feeling embittered could be associated with burnout. According to this theory, stress is a reaction to the potential loss of resources in the environment, including objects, conditions, personal characteristics, and energies. This theory suggests that people strive to acquire and maintain resources in order to reduce stress. These resources can be divided into four categories: objects (e.g., house), conditions (e.g., justice), personal qualities (e.g., fairness), and energies (e.g., financial security). Under the conditions outlined by this theory, burnout might emerge when justice and fairness beliefs are threatened or lost. In line with the just world hypothesis (Lerner, 1980), embitterment is seen as the aftermath of a violation of justice beliefs. As such, when employees experience embitterment they might feel that their resources, in this case conditions of justice and fairness, are depleted and as such might be more vulnerable to burnout.

Based on the theoretical analysis I hypothesise the following: Hypothesis 1a: Embitterment will associate positively with emotional exhaustion.

Hypothesis 1b: Embitterment will associate positively with cynicism.

Hypothesis 1c: Embitterment will associate negatively with the sense of personal accomplishment.

EMBITTERMENT AND PSYCHOLOGICAL CONTRACT BREACH

As mentioned, embitterment is triggered by the violation of basic beliefs. Basic beliefs can be conceptualized as value systems of what is important to each individual. These values and beliefs might differ from person to person and might encompass from religious or political beliefs to basic definitions of oneself and one's personal goals in life (Beck et al., 1979). According to Janoff-Bulman (1992), people tend to hold the belief that the world is a just place and that they can rely on their efforts being fairly rewarded. The experience of being treated in a fair manner contributes to the sense of being a valued individual and elicits positive emotions. However, when people experience a critical negative, unjust life event (e.g., unemployment), these core beliefs are often "shattered" (Janoff-Bulman, 1992), and feelings of embitterment can be triggered (Linden et al., 2008). Indeed, recent studies investigating predictors of embitterment in the workplace suggest that employees' perceptions of organisational injustice can predict employees' feelings of embitterment (Michailidis & Cropley, 2017; Sensky et al., 2015).

In workplace settings, employees and employers exchange implicit 'expectations' that the promises (e.g., advancement opportunities) made will be kept (Blau, 1964; Rousseau, 2001). Thus, an employee's perceived expectations of what they can gain from an organization, in exchange for providing something like loyalty or hard work, is known as a 'psychological contract' (Blau, 1964; Rousseau, 2001). A breach of this psychological contract occurs when an employee or employer perceives that the other party has failed to fulfill one or more obligations associated with perceived mutual promises (Gakovic & Tetrick, 2003).

Psychological contract refers back to the social exchange theories of social psychology. Social exchange theories view social interactions as transactional (cost-benefit) where one party believes that the other can and is willing to offer them something they value in return for their effort (Cropanzano et al., 2017). In the case of the employee-employer relationship, productivity, high performance, selfimprovement,

commitment, loyalty, and good conduct are often rewarded with highly competitive salaries, support, fringe benefits, recognition, opportunities for development, and promotions.

The employee-organisation relationship can be irreversibly affected when either the employee's or the employer's effort is much greater than the expected reward, or when an implicit or explicit promise is perceived as broken (Coyle-Shapiro et al., 2019). When an employee perceives that their psychological contract has been breached, the individual feels a sense of both deception and wrongdoing that can have pervasive implications for the relationship between the individual and their employer and also for the individual's wellbeing (Rousseau, 1989). In line with the just world hypothesis, people tend to believe that the world is inherently fair and that they get what they deserve. When an individual experiences a breach in their psychological contract at work, such as unfulfilled promises or expectations from their employer, it can lead to a violation of their belief in a just world. Within the scope of the present research, I sought to investigate whether perceptions of psychological contract breach significantly predict feelings of embitterment, in a sample of working adults.

Hypothesis 2: Perceptions of psychological contract breach will be significantly and positively associated with embitterment.

Embitterment as a mediator in the relationship between psychological contract breach and burnout Past research has supported the relationship between perceptions of psychological contract breach and burnout. In a study conducted by Chambel and Oliveira-Cruz (2010), it was found that breach of psychological contract influenced the burnout levels of a sample of military soldiers. Using Maslach's Burnout Inventory, Cantisano et al. (2007) found that perceptions of psychological contract breach in a sample of Spanish teachers predicted burnout. What remains unknown is the underlying mechanism by which perceptions of psychological contract breach led to burnout. In line with the just world hypothesis, a psychological contract breach can cause feelings of injustice, resentment, and embitterment in the employee. In turn, drawing upon the conservation of resources theory, embitterment that is triggered by perceptions of psychological contract breach could result in burnout. When employees experience a violation of their sense of justice in the workplace, such as perceived unfairness or a breach of their psychological contract, it can result in a loss of valuable resources.

This loss can lead to feelings of embitterment and a sense of powerlessness, as employees perceive that they have been treated unjustly and have lost something of value, which eventually could also lead to burnout.

Thus, the final aim of this study is to investigate whether embitterment acts as a mediator in the relationship between psychological contract breach and burnout.

Hypothesis 3a: Embitterment will mediate the relationship between psychological contract breach and emotional exhaustion.

Hypothesis 3b: Embitterment will mediate the relationship between psychological contract breach and cynicism.

Hypothesis 3c: Embitterment will mediate the relationship between psychological contract breach and reduced sense of professional efficacy

METHOD

PARTICIPANTS AND PROCEDURES

The researcher received approval from the University Ethics Committee for the study. To recruit employed individuals, convenience and network sampling strategies were implemented. More specifically, participants were recruited through the researcher's professional networks. Individuals who chose to participate were encouraged to forward the link to other colleagues who were over the age of 18 and working. Details of the study and a live link to the survey were also posted on professional networking

sites and information about the study was also distributed via human resource managers of organisations the researchers had contact with. This was done in order to ensure the sample was diverse and there was sufficient variance in the study variables (Demerouti & Rispens, 2014). Before signing the consent form, all participants were provided with details about the study and reassured that their responses would remain confidential and anonymous.

In total two hundred and eight (N = 208) employees in Cyprus took part in the study, with an average age of 34.2 (SD = 8.26), ranging from 18 years old to 60 years old (males = 96, 45%, females = 109, 52%, identified as another gender = 3, 0.5%). The majority of participants worked full-time (N= 161, 77.4 %) and worked between 31 and 40 hours per week (N = 82, 39%). Most respondents (N = 114, 55%) reported having a standard work pattern of 09:00 to 17:00 and have been working in their current position for one to three years (N = 52, 25%).

The participants worked in many industry sectors including business and management-related careers (15%), education (15%), IT and computer services (11%), research (10%), media production and marketing (10%), sales and customer service (8%), engineering (7%), healthcare (7%), and other (17%).

MEASURES

Data was collected with the use of an online questionnaire via a survey website distributed on various social media and professional networking sites. This ensured a heterogeneous and anonymised sample, and thus a high level of generalisability. Participants were asked to read the study information sheet, provide their consent, and then complete the questionnaire which consisted of the following scales.

Psychological Contract Breach

The Psychological Contract Breach Scale (PCBS), developed by Robinson and Wolfe Morrison (2000), was used to measure the employee’s perception of PCB. PCBS uses a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) to score 5 items (e.g., “My employer has broken many of its promises to me even though I’ve upheld my side of the deal”). High scores indicate that the individual has a high perception of PCB. Robinson and Wolfe Morrison reported Cronbach’s alpha coefficients of .87. Cronbach alpha for the present study can be found in Table 1.

Table 1. Means, (Standard Deviations), internal consistency (on the diagonal) and correlations among the study variables

	M(SD)	1	2	3	4	5
1 Psychological contract breach	2.85(0.87)	(.81)				
2 Embitterment	1.14(0.99)	.50**	(.96)			
3 Exhaustion	3.40(1.59)	.34**	.59**	(.90)		
4 Cynicism	3.37(1.75)	.36**	.55**	.73**	(.89)	
5 Professional efficacy	5.38(1.20)	-.05	-.11	-.25**	-.39**	(.84)

N = 208, **p<0.01. Cronbach’s alpha (on the diagonal)

Embitterment: PTED scale

This is a self-rating scale consisting of 19 items measuring post-traumatic embitterment (Linden et al., 2009) using a 5-item Likert scale from 0 (not true at all) to 4 (extremely true). As the present study explored embitterment in a sample of working adults, the scale began with “I have experienced one or more distressing events at work ...” and followed by statements such as “... that causes me to be extremely upset when I am reminded of it”. Previous studies have reported a Cronbach alpha of .96 (Michailidis & Cropley, 2017). The degree of embitterment is determined based on its relation to the mean score of the scale. Average scores, ≥ 2.5 , indicate clinically relevant embitterment levels while those above 1.5 translate to moderate levels of embitterment (Linden et al., 2009).

Burnout

The Maslach Burnout Inventory-General Survey (MBI-GS) is a scale that measures burnout based on three dimensions: exhaustion, cynicism (depersonalisation), and professional efficacy (personal accomplishment) (Maslach et al., 2001). The MBI-GS is similar to the original MBI scale, however, it measures burnout in every occupation, instead of just in human-services fields (i.e., healthcare, education, social work). High scores on exhaustion and cynicism and low scores on professional efficacy reflect high burnout levels. Cronbach’s alpha coefficients have been found to range on average from .75 to .83 (Michailidis & Banks, 2016).

All three dimensions of the MBI-GS scale were measured on a 7-point frequency scale: (1) never, (2) a few times a year or less, (3) once a month or less, (4) a few times a month, (5) once a week, (6) a few times a week, and (7) every day. The exhaustion scale consists of five statements, such as: “I feel tired when I get up in the morning and have to face another day on the job”. The cynicism scale also consists of five statements (i.e., “I have become less interested in my work since I started this job”), while the professional efficiency is scored on six statements, such as: “I feel I am making an effective contribution to what this organization does”.

RESULTS

Data analyses were performed using IBM SPSS Statistics 25 and the mediation analyses were performed using the dialog box PROCESS (Hayes, 2013) on SPSS. On average, the sample had a mean score embitterment of 1.14 (range 0 - 3.78, SD = 0.99). When embitterment was defined as a score of >2.5 , 12% of the sample would classify as clinically embittered. According to Linden et al. (2009), an average sum score of >2.5 indicates a clinically relevant degree of reactive embitterment. When embitterment was defined as a score of >1.5 , 32% of the sample would classify as showing a moderate degree of embitterment. Because the present study comprises a healthy working convenience sample, we treated PTED scores as a continuous indicator of embitterment and did not treat it as a discrete diagnosis. The mean and standard deviations for all study variables are presented in Table 1.

Bivariate correlation analysis was conducted using Pearson’s r correlation coefficient. As can be seen in the correlation matrix (Table 1), the correlations between all study variables were significant, except for the correlation between embitterment and professional efficacy.

Hypotheses 1 and 2 were further tested using regression analysis. A simple linear regression was calculated to predict emotional exhaustion, cynicism, and professional efficacy based on embitterment.

A significant regression equation was found for emotional exhaustion, $F(1, 206) = 107.229, p < .001$, with an $R^2 = .35$ and cynicism, $F(1, 206) = 89.569, p < .001$, with an $R^2 = .31$ respectively. Embitterment did not significantly predict a reduction in professional efficacy, $F(1, 206) = 2.69, p = .102$. Regression analysis further indicated that perceptions of psychological contract breach significantly predicted embitterment, $F(1, 206) = 67.92, p < .001$, with an $R^2 = .25$.

MEDIATION ANALYSIS

The mediation analysis showed that psychological contract breach indirectly influenced emotional exhaustion and cynicism through its effect on embitterment. A bias-corrected bootstrap confidence interval for the indirect effect of embitterment ($ab_1 = 0.501$; $ab_2 = 0.500$), based on 5,000 bootstrap samples was entirely above zero (95% CI[0.3426, 0.6703]; 95% CI[0.3256, 0.6841]), indicating a significant effect, respectively. There was no evidence that perceptions of psychological contract breach influenced exhaustion nor cynicism independent of its effect on embitterment because the direct pathway ($c_1 = 0.1068$; $c_2 = 0.2274$) was not statistically significant, respectively. These results represent a total mediation effect of perceptions of psychological contract breach through embitterment for its effect on emotional exhaustion and cynicism.

No mediation effect of perceptions of psychological contract breach through embitterment for its effect on professional efficacy was found. The model coefficients for all significant mediation analyses are presented in Table 2.

Table 2. Model coefficients for mediation analysis of emotional exhaustion and cynicism

	M (embitterment)					Y (emotional exhaustion)			Y (cynicism)					
		Coeff	SE	p	R2	F	Coeff.	SE	p	Coeff.	SE	p		
X (PCB)	a1	.567	.069	.000	.250	64.92	c1	.107	.112	.373	c2	.227	.135	.095
M1 (EMB)		-	-	-	-	-	b1	.899	.106	.000	b2	.883	.119	.000
Constant	i1	-.476	.205	.021	-	-	i	2.065	.312	.000	i	.172	.353	.000
						R2 = .3471 F(1,204) = 30.96, p = .000			R2 = .1300 F(1,204) = 30.49, p = .000					

EMB = Embitterment; PCB = Psychological contract breach

DISCUSSION

Within the scope of the present study, I aimed at investigating further the manifestations and triggers of embitterment, in a sample of healthy working adults. As the study sample was not clinical, I used embitterment as a continuous variable, not as a discrete clinical diagnosis. More specifically, in line with the conservation of resources theory, I sought to investigate whether embitterment relates to burnout (H1). Drawing upon the just world hypothesis I also anticipated that perceptions of psychological contract breaches will associate positively with embitterment (H2). Finally, this study also tested the mediating effects of embitterment in the relationship between psychological contract breach and burnout (H3). In line with the hypothesis, embitterment was found to predict emotional exhaustion and cynicism (Hypotheses 1a & 1b). However, Hypothesis 1c was not supported as no significant findings were revealed between embitterment and professional efficacy. With regards to

Hypothesis 2, findings indicated that perceptions of psychological contract breach can predict feelings of embitterment. Finally, when testing mediation models, results suggested that embitterment mediated the relationship between psychological contract breach and emotional exhaustion and cynicism, thus Hypotheses 3a and 3b were supported. Embitterment did not significantly mediate the relationship between psychological contract breach and professional efficacy, thus Hypothesis 3c was not met. The findings are discussed in more detail below.

Sensky (2010) argued that there are considerable similarities between embitterment and burnout. Both

burnout and embitterment are associated with work-related stress and are often both diagnosed after a long absence from work (Sensky, 2010). Furthermore, individuals whose personal values clash with those of the organisation are equally likely to experience feelings of embitterment and burnout (Sensky, 2010). Siegall and McDonald (2004) supported that burnout is more common when discrepancies exist between the values of the individual and the organisation they work for. When looking at the findings from the correlation analysis, it could be argued that, although embitterment correlates positively with exhaustion and cynicism, the correlation coefficient is of moderate level; $r = .59$, $r = .55$, respectively, thus multicollinearity is not present. These findings suggest an association between embitterment and the two dimensions of burnout, but one could not argue that they measure the same thing. Although similarities might exist between embitterment and burnout, still embitterment should be treated as an independent variable from burnout. Embitterment could be described as a state of mood distinct from burnout.

The fact that embitterment is associated with and can significantly predict emotional exhaustion and cynicism in working adults, makes theoretical sense. Using the conservation of resources theory, I argued that employees who experience a violation of their sense of justice in the workplace, such as perceived unfairness or a breach of their psychological contract, can result in loss of valuable resources and therefore experience burnout. The findings have indeed provided support for this argument but only for the two dimensions of burnout: emotional exhaustion and cynicism. Emotional exhaustion captures the stress dimension of burnout and constitutes the core symptom of burnout, as suggested in Maslach et al.'s (2001) conceptualisation of burnout. Kühn et al. (2018) have supported positive correlations between embitterment and self-reported stress measures in a sample of healthy older adults. The fact that embitterment correlates with stress also derives from the clinical definition of PTED. However, findings from this study may suggest that embitterment may not only lead to increased stress but is also associated with the prolonged effects of stress such as burnout.

Embitterment also significantly predicted cynicism. Cynicism describes the process whereby employees develop a feeling of indifference towards their work and coworkers. This finding fits the notion that those who experience embitterment withdraw from others and show aggression towards others (Linden et al., 2009).

Interestingly, the findings did not suggest that embitterment predicted a reduction in professional efficacy. Reduced levels of professional efficacy entail the tendency to assess one's work negatively, and it involves a reduced sense of competence and performance at work (Maslach et al., 2001). It can be suggested, therefore, that embitterment does not result in a crisis in one's efficacy and reduces confidence in one's competence. Rather, what the findings from this study suggest is that embitterment can lead to burnout only in the form of emotional exhaustion and cynicism.

A further finding of this study is that perceptions of psychological contract breach are associated with embitterment. These findings fit well with the definition of PTED, which comprises the experience of a negative event as "unjust". Experiencing a breach of the psychological contract in the workplace has been found to have an effect on employees' perceptions of organisational justice (Estreder et al., 2020). Findings from the present study are congruent with findings of previous studies indicating that the perceptions of unfairness and low organisational justice can eventually lead to embitterment (Michailidis & Cropley, 2017). This finding is also in line with previous studies on embitterment that indicate that a reduced sense of control over one's work performance significantly predicted embitterment. Some studies have shown that a breach of psychological contract threatens predictability and the sense of control that people believe they have over their work environment and thus becomes a source of workers' burnout (Gakovic & Tetrick, 2003; Topa & Morales, 2005).

Using both the conservation of resources theory (Hobfoll, 1989) and the just world hypothesis (Lerner, 1980), this study further proposed that breaches of psychological contract, such as unfulfilled promises

or expectations from their employer, would lead to a violation of their belief in a just world generating feelings of embitterment. Feelings of embitterment would consequently lead to burnout. Research so far has supported the association between breaches of psychological contract breach and burnout, especially with cynicism (Johnson & O’Leary-Kelly, 2003). However, the underlying mechanism with which perceptions of psychological contract breach led to burnout has not been studied extensively. In the present study, embitterment was found to be a significant mechanism through which perceptions of psychological contract breach exerted their effect on emotional exhaustion and cynicism. Experiencing breaches of psychological contract can generate feelings of embitterment leading to burnout expressed as emotional exhaustion and cynicism.

LIMITATIONS AND FUTURE RESEARCH

Although this study advances our understanding of what triggers embitterment and its impact on well-being, some key limitations should be acknowledged. Due to the cross-sectional nature of the study, causality cannot be inferred. Based on previous research my interpretation is that embitterment could lead to emotional exhaustion and cynicism. However, it is also possible that the direction of causality is reversed; one could argue that burnout could also lead to embitterment. Therefore, future research could use a longitudinal study design to unravel whether burnout represents a precondition or the consequence of embitterment. Another limitation of the study is that measurements were obtained with the use of self-report scales thus response bias could not be avoided. However, the online survey was anonymous, and this should have reduced respondents’ evaluation apprehension and made them less likely to respond in a more socially desirable manner (Podsakoff et al., 2003).

Future research should include more objective measures. For example, it would be useful to pair self report data with more objective measures on embitterment (e.g., clinical interviews). Burnout could also be measured with other indicators such as heart rate and blood pressure. Laboratory studies have indeed supported that burnout is associated with higher systolic and diastolic blood pressure as well as higher heart rate (De Vente et al., 2003). Such research could also shed some light on the physiological symptoms of embitterment.

Practical implications

Notwithstanding the general limitations inherent in the present study, this study is novel and furthers our understanding of embitterment. Unfolding further consequences of embitterment, such as emotional exhaustion and cynicism, has enabled a much deeper understanding of embitterment features, which could be used by clinicians for identifying embitterment. Additionally, the study has highlighted the notion that fairness is a key precursor of embitterment, and this finding is essential when developing interventions to prevent embitterment from arising. These findings also highlight the importance of maintaining a fair and supportive work environment, as well as providing employees with the resources they need to succeed, in order to prevent embitterment and burnout. Finally, although I did not treat embitterment as a discrete diagnosis but used the PTED score as a continuous indicator of embitterment, still the descriptive statistics stress the high prevalence of embitterment.

In the present sample, 32% of participants were classified as showing a moderate degree of embitterment. This figure highlights the need for further research on PTED, as although the high prevalence, research still remains scarce.

CONCLUSION

To conclude, within the scope of the present study, I sought to investigate how embitterment relates to burnout, i.e., the prolonged consequence of stress, whether breaches of psychological contract trigger

feelings of embitterment and the mediating role of embitterment in the relationship between psychological contract and burnout. Findings indicated that those who experience embitterment can become emotionally exhausted and cynical, and these findings can be especially useful when identifying embitterment. Findings also provide further evidence for the precursors of embitterment in the workplace and are aligned with previous research where embitterment is seen as the aftermath of a violation of justice beliefs. The knowledge gained from this research could be used by businesses to prevent experiences of embitterment and safeguard their employees' mental health.

REFERENCES

1. Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. Guilford.
2. Blau, P. M. (1964). *Exchange and power in social life*. Wiley.
3. Cantisano, G. T., Domínguez, J. F. M., & García, J. L. C. (2007). Social comparison and perceived breach of psychological contract: Their effects on burnout in a multigroup analysis. *The Spanish Journal of Psychology*, 10(1), 122-130. <https://doi.org/10.1017/S1138741600006387>
4. Chambel, M. J., & Oliveira-Cruz, F. (2010). Breach of psychological contract and the development of burnout and engagement: A longitudinal study among soldiers on a peacekeeping mission. *Military Psychology*, 22(2), 110-127. <https://doi.org/10.1080/08995601003638934>
5. Colquitt, J. A. (2001). On the dimensionality of organizational justice: a construct validation of a measure. *Journal of applied psychology*, 86(3), 386 - 400. <https://doi.org/10.1037/0021-9010.86.3.386>
6. Coyle-Shapiro, J. A. M., Pereira Costa, S., Doden, W., & Chang, C. (2019). Psychological contracts: Past, present, and future. *Annual Review of Organizational Psychology and Organizational Behavior*, 6, 145-169. <https://doi.org/10.1146/annurev-orgpsych-012218-015212>
7. Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review with theoretical remedies. *Academy of Management Annals*, 11(1), 479-516. <https://doi.org/10.5465/annals.2015.0099>
8. Demerouti, E., & Rispens, S. (2014). Improving the image of student-recruited samples: A commentary. *Journal of Occupational and Organizational Psychology*, 87(1), 34-41. <https://doi.org/10.1111/joop.12048>
9. De Vente, W., Olf, M., Van Amsterdam, J. G. C., Kamphuis, J. H., & Emmelkamp, P. M. G. (2003). Physiological differences between burnout patients and healthy controls: Blood pressure, heart rate, and cortisol responses. *Occupational and Environmental Medicine*, 60, i54-i61. https://doi.org/10.1136/oem.60.suppl_1.i54
10. Dunn, J. M., & Sensky, T. (2018). Psychological processes in chronic embitterment: The potential contribution of rumination. *Psychological Trauma: Theory, Research, Practice, and Policy*, 10(1), 7-13. <https://doi.org/10.1037/tra0000291>
11. Estreder, Y., Rigotti, T., Tomás, I., & Ramos, J. (2020). Psychological contract and organizational justice: The role of normative contract. *Employee Relations*, 42(1), 17-34. <https://doi.org/10.1108/ER-02-2018-0039>
12. Gakovic, A., & Tetrick, L. E. (2003). Psychological contract breach as a source of strain for employees. *Journal of Business and Psychology*, 18(2), 235-246. <https://doi.org/10.1023/A:1027301232116>
13. Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
14. Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513-524. <https://doi.org/10.1037/0003-066X.44.3.513>
15. Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. Free Press.

15. Johnson, J. L., & O'Leary-Kelly, A. M. (2003). *The effects of psychological contract breach and organizational cynicism: Not all social exchange violations are created equal*. *Journal of Organizational Behavior*, 24(5), 627-647. <https://doi.org/10.1002/job.207>
16. Kang, B. A., Kwon, S., You, M., & Lee, H. (2022). *Perceived sources of occupational burn-out and embitterment among front-line health workers for COVID-19 control in Gyeonggi province, South Korea: a qualitative study*. *Occupational and Environmental Medicine*, 79(4), 245-252. <https://doi.org/10.1136/oemed-2021-107635>
17. Kühn, S., Düzel, S., Drewelies, J., Gerstorf, D., Lindenberger, U., & Gallinat, J. (2018). *Psychological and neural correlates of embitterment in old age*. *Psychological Trauma: Theory, Research, Practice, and Policy*, 10(1), 51-57. <https://doi.org/10.1037/tra0000287>
18. Lerner, M. J. (1980). *The belief in a just world*. In M. J. Lerner, *The belief in a just world: A fundamental delusion* (pp. 9-30). Springer. https://doi.org/10.1007/978-1-4899-0448-5_2
19. Linden, M. (2003). *Posttraumatic embitterment disorder*. *Psychotherapy and psychosomatics*, 72(4), 195-202. <https://doi.org/10.1159/000070783>
20. Linden, M., Baumann, K., Lieberei, B., & Rotter, M. (2009). *The post-traumatic embitterment disorder Self-Rating Scale (PTED Scale)*. *Clinical Psychology & Psychotherapy*, 16(2), 139-147. <https://doi.org/10.1002/cpp.610>
21. Linden, M., Baumann, K., Rotter, M., & Schippan, B. (2007). *The psychopathology of posttraumatic embitterment disorders*. *Psychopathology*, 40(3), 159-165. <https://doi.org/10.1159/000100005>
22. Linden, M., Baumann, K., Rotter, M., & Schippan, B. (2008). *Posttraumatic embitterment disorder in comparison to other mental disorders*. *Psychotherapy and Psychosomatics*, 77(1), 50-56. <https://doi.org/10.1159/000110060>
23. Linden, M., & Noack, I. (2018). *Suicidal and aggressive ideation associated with feelings of embitterment*. *Psychopathology*, 51(4), 245-251. <https://doi.org/10.1159/000489176>
24. Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). *Job burnout*. *Annual Review of Psychology*, 52(1), 397-422. <https://doi.org/10.1146/annurev.psych.52.1.397>
25. Michailidis, E., & Banks, A. P. (2016). *The relationship between burnout and risk-taking in workplace decision making and decision-making style*. *Work & Stress*, 30(3), 278-292. <https://doi.org/10.1080/02678373.2016.1213773>
26. Michailidis, E., & Cropley, M. (2017). *Exploring predictors and consequences of embitterment in the workplace*. *Ergonomics*, 60(9), 1197-1206. <https://doi.org/10.1080/00140139.2016.1255783>
27. Michailidis, E., & Cropley, M. (2018). *Investigating the predictors of workplace embitterment using a longitudinal design*. *Occupational Medicine*, 68(8), 523-529. <https://doi.org/10.1093/occmed/kqy121>
28. Michailidis, E., & Cropley, M. (2019). *Testing the benefits of expressive writing for workplace embitterment: A randomized control trial*. *European Journal of Work and Organizational Psychology*, 28(3), 315-328. <https://doi.org/10.1080/1359432X.2019.1580694>
29. Muschalla, B., & von Kenne, J. (2020). *What matters: Money, values, perceived negative life events? Explanative factors in embitterment*. *Psychological Trauma: Theory, Research, Practice, and Policy*. 14(6), 1007-1015. <https://doi.org/10.1037/tra0000547>
30. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). *Common method biases in behavioral research: A critical review of the literature and recommended remedies*. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
31. Robinson, S. L., & Wolfe Morrison, E. (2000). *The development of psychological contract breach and violation: A longitudinal study*. *Journal of Organizational Behavior*, 21(5), 525-546. [https://doi.org/10.1002/1099-1379\(200008\)21:5<525::AID-JOB40>3.0.CO;2-T](https://doi.org/10.1002/1099-1379(200008)21:5<525::AID-JOB40>3.0.CO;2-T)
32. Rousseau, D. M. (1989). *Psychological and implied contracts in organizations*. *Employee*

Responsibilities and Rights Journal, 2(2), 121-139. <https://doi.org/10.1007/BF01384942>

33. Rousseau, D. M. (2001). *Psychological contract inventory: Technical report*. British Library. Sensky, T. (2010). *Chronic embitterment and organisational justice*. *Psychotherapy and Psychosomatics*, 79(2), 65-72. <https://doi.org/10.1159/000270914>

34. Sensky, T., Salimu, R., Ballard, J., & Pereira, D. (2015). *Associations of chronic embitterment among NHS staff*.

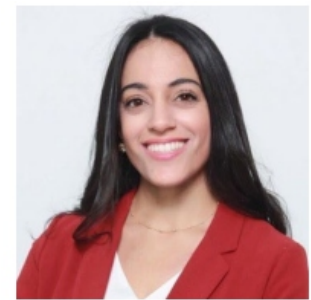
35. *Occupational Medicine*, 65(6), 431-436. <https://doi.org/10.1093/occmed/kqv089> Siegall, M., & McDonald, T. (2004). *Person-organization value congruence, burnout and diversion of resources*. *Personnel Review*, 33(3), 291-301. <https://doi.org/10.1108/00483480410528832>

36. Topa, G., & Morales, J. (2005). *Determinantes específicos de la satisfacción laboral, el burnout y sus consecuencias para la salud: Un estudio exploratorio con funcionarios de prisiones [Specific determinants of job satisfaction, burnout and its health consequences: An exploratory study with prison officers]*. *International Journal of Psychology and Psychological Therapy*, 5(1), 73-83. <https://dialnet.unirioja.es/servlet/articulo?codigo=1180948>

37. Buunk, B. P. (2001). *Burnout and inequity among human service professionals: A longitudinal study*. *Journal of Occupational Health Psychology*, 6(1), 43-52. <https://doi.org/10.1037/1076-8998.6.1.43>

AUTHOR

Evie Michailidis, PhD, is an Organisational Psychologist practitioner and Visiting Lecturer in both Public and Private Universities in Cyprus. She holds a BSc in Psychology, an MSc in Occupational and Organizational Psychology, and a PhD in Psychology – all from the University of Surrey, UK. As an Organisational Psychologist practitioner, Evie works with private and public organizations in order to help them better understand issues and challenges faced, using social scientific research methods, and then designs and delivers solutions that improve employees' working life and organisational performance. She is also an active researcher, and her research focuses mainly on employees' wellbeing and mental health. She has published articles in high quality peer reviewed journals and has also presented in various European and international conferences. Evie is a member of the British Psychological Society and the European Association of Work and Organizational Psychology and is also an accredited BPS test user for Ability & Personality/Psychometric tests.



THE PRESENCE OF COMPASSION SATISFACTION, COMPASSION FATIGUE, AND BURN-OUT AMONG THE GENERAL POPULATION DURING THE COVID-19 PANDEMIC

Shivika Dutt*, Vivek Arya

Assistant Professor, School of Business, University of Petroleum and Energy Studies, Dehradun, India

Assistant Professor, Department of ECE, FET, Gurukula Kangri (Deemed to be University) Haridwar, India

ABSTRACT

Aim/Purpose This paper aimed to explore the impact of compassion fatigue, compassion satisfaction, and burn-out among the general population during the pandemic.

Background The paper has attempted to explore compassion fatigue, compassion satisfaction, and burn-out among the population at large, especially during the pandemic. This area has not been explored as yet. **Methodology** A simple random sample of 98 males and 88 females was collected anonymously through a Google form survey. Part A collected demographic data and Part B comprised of 15 statements with 5 each for compassion fatigue, compassion satisfaction, and burn-out, adapted from a Compassion Fatigue/Satisfaction Self-Test. ANOVA single factor was employed for the three variables of compassion fatigue, compassion satisfaction, and burn-out using a 0.05 significance level. Correlations among the variables were also analyzed.

Contribution The present paper contributes to covering the research gap of investigating the presence of compassion fatigue, compassion satisfaction, and burn-out among the population at large comprising the age group of 18 to 60+ and from different professions.

Findings The findings revealed significant differences in the levels of compassion fatigue, compassion satisfaction, and burn-out in the population at large during the pandemic.

Impact on Society The paper addresses issues in society at large.

Future Research The findings can be further strengthened by extending it to a larger sample size across different nations and, specifically, studying gender differences during such adverse pandemic situations.

Keywords compassion fatigue, compassion satisfaction, burn-out, general population, pandemic (COVID-19)

INTRODUCTION

“All of us who attempt to heal the wounds of others will ourselves be wounded; it is, after all, inherent in the relationship” (Figley, 2002).

Compassion fatigue depicts a feeling of exhaustion on all levels – physical, emotional, and spiritual – as stated by Braunschneider (2013). Compassion fatigue is defined by Figley (1995), world-renowned traumatologist, as “the cost of caring” and “the deep physical, mental, and spiritual toll of

caring”, resulting from rigorous day-to-day working in a care-giver environment. Nearly three decades ago, the term “compassion fatigue” was introduced by Joinson (1992), in the context of studying burnout in nurses and came up with the term to explain the “loss of the ability to nurture” among nurses. Long-term exposure implies a continuous sense of duty for the care of the sufferer and the distressed over a prolonged length of time writes Figley (1995, p. 6) in his landmark work. Compassion fatigue is considered to be a consequence of secondary traumatic stress, according to Stamm (2009), a well-known professor and researcher in the area of traumatic stress and burn-out. Compassion satisfaction and burn-out are two more related notions to compassion fatigue. The phrase “compassion satisfaction” was introduced by Stamm (2002, 108) to explain the feelings of increased motivation and satisfaction which arise from aiding those who are struggling. The concept of “burn-out” was worked on in the 1970s by American psychologist Freudenberg (Fontes, 2020), who explained how stress and high ethics in “assisting” occupations like nurses and doctors, who devote themselves to others and eventually wind up “burned-out”. Demerouti et al. (2001) suggested that stressful job demands lead to physical and emotional fatigue, whereas low job resources cause disengagement and low motivation in the workplace. Compassion fatigue differs from burn-out in that the former occurs as a result of working with trauma victims, whereas the latter occurs as a result of being overworked and experiencing occupational stress.

This paper reviews the research on compassion fatigue, compassion satisfaction, and burn-out, as well as the implications from a transdisciplinary perspective for the general public during a pandemic. It examines the incidence of compassion fatigue, compassion satisfaction, and burn-out among the public at large, which includes men and women in the age group of 18 and above from different professions. A Google survey was randomly distributed to individuals in different professions. The intention was to study the general population during the pandemic, as COVID-19 has affected each individual, and not only the frontline workers or individuals from the medical and mental health profession. The findings will give insight for researchers to explore this area of research further and how to work on compassion fatigue, compassion satisfaction, and burn-out in the population at large.

This paper attempts to explore compassion fatigue, compassion satisfaction, and burn-out among the general population, especially during the pandemic, making it trans-disciplinary in nature, involving medicine, social psychology, and public health. Transdisciplinary emerged with Informing Science in the late 1990s to enhance collaboration and communication among different disciplines. Informing Science: The International Journal of an Emerging Transdiscipline has been actively involved in collaborating with different disciplines as discussed by Gill (2015). The pandemic has made the general population serve as caregivers for their family members due to the paucity of trained medical support staff. Figure 1 shows the compassion fatigue process, which is a model for predicting and preventing compassion fatigue.

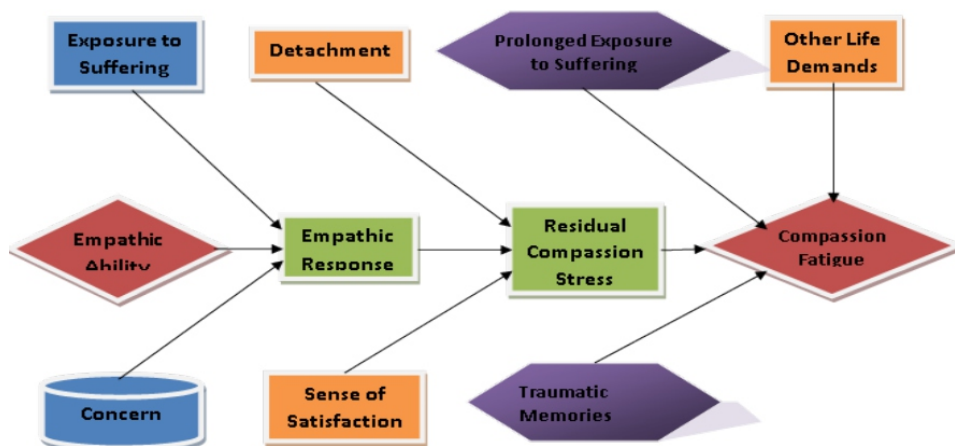


Figure 1. The compassion fatigue process (Figley & Roop, 2006)

REVIEW OF THE LITERATURE

Empathy, or the ability to comprehend others, and compassion, or knowledge of others' pain and wish to alleviate it (Oxford Learner's Dictionary, n.d.), are both common and required skills for people working in health care settings. Trying to understand others in distress, on the other hand, can be emotionally exhausting for mental health professionals (Thompson et al., 2014). Compassion fatigue is caused by the negative effects of caring. Figley (2013) reviewed traumatology literature and found out that people who treat trauma patients also become traumatized resulting in compassion fatigue. Franza et al. (2020) undertook a study on the influence of compassion fatigue, burn-out, and hopelessness in health care experiences during COVID-19. The Compassion Fatigue Scale, Care-giver

Burden Inventory, Professional Quality of Life Scale, and Beck Hopelessness Scale evaluation questionnaires were used to assess stress levels, compassion fatigue, burn-out, and hopelessness in 102 health workers from various disciplines. In various groups, high compassion fatigue and burn-out percentages were discovered. Higher educational levels may shield workers from developing high levels of work stress, whereas some professional figures have the highest degrees of hopelessness. The higher scores in the data were obtained during the pandemic. Cirčenis and Millere (2011) used quantitative approaches to determine the presence of compassion fatigue and burn-out syndrome, as well as other contributing factors, in the working environment of Latvian nurses. Demographic questionnaire, Professional Quality of Life Scale, Compassion Satisfaction and Fatigue Version 5 (ProQOL R-V), Maslach Burnout Inventory, and questionnaire on contributory elements in the working environment of nurses were utilized as data collection instruments. The study sample consisted of 129 female nurses from several hospitals in Latvia, employing descriptive statistics and Pearson's correlation to come up with a solution. A p-value of $p \leq 0.01$ was set and SPSS was used for data analysis. The presence of compassion fatigue and burn-out was indicated in the findings.

Compassion fatigue and compassion satisfaction among psychologists were investigated by Dehlin and Lundh (2018). Two criteria were highlighted in the research as potentially protecting against the development of compassion fatigue and facilitating the development of compassion satisfaction: (i) availability to supervision, and (ii) a reflective perspective. An online survey was sent to two restricted Swedish Facebook groups of psychologists, and 383 professional psychologists (320 women and 63 men) responded with complete data. Both variable-oriented and person-oriented analyses were performed. The findings revealed that reflective stance and compassion fatigue have a nonlinear and multidimensional relationship, as indicated in correlational and cluster analyses.

Hansen et al. (2018) investigated whether feelings and empathy result in compassion fatigue or satisfaction. The study included 253 nursing and behavioral students (211 women, 41 men, and one unidentified). The first section of the questionnaire concentrated on the short-term implications of empathy, while the second portion focused on the long-term consequences. With time perspective and

Weintraub et al. (2016) investigated compassion fatigue, burn-out, and compassion satisfaction to determine their prevalence in neonatologists in the United States and identify predictors for these phenomena. A modified compassion fatigue and self-satisfaction exam was emailed to 1,258 neonatologists across the United States with 433 completed replies being used as a sample. With compassion fatigue, compassion satisfaction, and burn-out as potential predictors, multivariable logistic and linear regression models were built. The prevalence rates for compassion fatigue, compassion satisfaction, and burn-out were 15.7, 20.8, and 21.9 respectively, indicating that compassion fatigue and burn-out may have an impact on emotional well-being and mental health, revealing that compassion fatigue and burn-

out influenced both emotional well-being and professional work output of the neonatologists.

Burnett and Wahl (2015) studied the relationships among resilience and compassion fatigue, burn out, and compassion satisfaction in a convenience sample of 159 disaster behavioral health and emergency responders. The researchers used a 30-item Professional Quality of Life Scale, a 14-item Resilience Scale, and a demographic questionnaire. Of the individuals, 72% felt compassion fatigue, 19% suffered burn-out, and 22% had high resilience, according to the data. Compassion fatigue and burn-out showed a substantial negative correlation, while compassion satisfaction and resilience showed a significant positive correlation. The results of the mediation analysis indicated that resilience plays a moderate yet important role in compassion fatigue and burn-out.

Park et. al. (2021) explored burn-out and psychological distress among 62 psychology graduate students. The findings indicated that 60% of the participants met the criteria for burn-out and 1 in 3 students met the criteria for psychological distress. The participants also reported high levels of social support and its importance in well-being enhancement. The impacts of work stress, compassion fatigue, compassion satisfaction, and burn-out in clinical nurses were studied by Lee and Yom (2013). Data were evaluated using frequencies, mean, SD, t-test, ANOVA, correlation, and multiple regression on 268 nurses from two general hospitals in Seoul and Gyunggi province. The findings revealed that compassion fatigue had a substantial positive effect on burn-out, compassion satisfaction had a negative effect, and burn-out was caused by work stress and compassion fatigue.

Ray et al. (2013) studied compassion fatigue, compassion satisfaction, work-life balance, and burn-out among frontline mental health professionals (FMHP). This study used a non-experimental, predictive survey design. A convenience sample of 430 FMHP was selected and sent a survey form. The goal of this cross-sectional, non-experimental study was to see how compassion satisfaction, compassion fatigue, work-life situations, and burn-out affect FMHPs. The Areas of Work Life Survey, the Professional Quality of Life Revision IV (ProQOL), and the Maslach Burnout Inventory along with demographic information were filled by 169 FMHPs. Low burn-out and a high level of compassion satisfaction were indicated in FMHPs along with low levels of compassion fatigue. Huggard and Dixon (2011) carried out research to investigate if doctors suffer from compassion fatigue. An anonymous questionnaire containing the ProQOL measure was completed by a self-selected sample of 253 doctors working in four locations across New Zealand and training in a variety of specialties. The tool assesses compassion fatigue, burn-out, and compassion satisfaction. According to the findings, 17.1% of the participants were at risk for compassion fatigue, as indicated by a high score on the ProQOL's compassion fatigue subscale, and 19.5% were at risk for burn-out.

These findings indicate that clinicians should use prudence towards the demanding emotional areas of patient care following the September 11, 2001, terrorist attack on the World Trade Center. Adams et al. (2006) conducted a survey on a randomly selected sample of 600 social workers in New York City to assess the psychometric properties of a compassion fatigue scale and to examine the predictive validity of the scale. The questionnaires were mailed, and 286 responses were generated.

The scale's predictive value was determined using a 10-point Likert scale. The predictive efficacy of the compassion fatigue measures, burn-out, and secondary trauma were studied in a multivariate model. The regression analysis indicates decreased burn-out, secondary trauma, and compassion fatigue. Psychological distress was evident despite controlling demography, exposure to stress, and psychological factors.

RESEARCH GAP

The review of the literature reveals several studies have been conducted using doctors by Huggard and Dixon (2011), health workers by Franza et al. (2020), and nurses by Circenis and Millere (2019). Dehlin

and Lundh (2018) explored compassion fatigue in professional psychologists and Weintraub et al. (2016) investigated compassion fatigue, compassion satisfaction, and burn-out in neonatologists. Similarly, counselors, caregivers, mental health workers, and frontline workers also were studied by various researchers as mentioned in the review of the literature. All the above studies indicate an obvious need to cover the research gap of investigating the presence of compassion fatigue, compassion satisfaction, and burn-out among the population at large comprising the age group of 18-60+ and from different professions such as students, workers, housewives, businessmen, and retired people and not only belonging to medical or associated areas, especially during the COVID-19 pandemic. The present study will pave the way for further research in this area.

METHODOLOGY

The objective of this research was to analyze the presence of compassion fatigue, compassion satisfaction, and burn-out among the general population during the COVID-19 pandemic.

HYPOTHESIS

H0: There is no significant difference in the levels of compassion fatigue, compassion satisfaction, and burn-out among the general population during the pandemic.

H1: There is a significant difference in the levels of compassion fatigue, compassion satisfaction, and burn-out among the general population during the COVID-19 pandemic.

VARIABLES

The independent variables were compassion fatigue, compassion satisfaction, and burn-out. Participants' responses formed the dependent variable in this study.

SAMPLING

The study used a random sample of 98 Indian males and 88 females, collected anonymously through a Google form survey, sent via an electronic medium. Part A collected the demographic details such as age, gender, and profession. Part B comprised 15 statements with 5 each for compassion fatigue, compassion satisfaction, and burn-out, adapted from the Compassion Fatigue/Satisfaction Self-Test (Figley & Stamm, 1996). A six-point Likert scale was employed (ranging from 0=never to 5=very often), which is the same as used in the Compassion Fatigue/Satisfaction Self-test (CFST). Figley and Stamm (1996) more fully developed the CFST with the addition of a series of positively oriented questions paralleling the negative orientation of the compassion fatigue items, resulting in a 66-item instrument. The addition of positively oriented items was intended to measure compassion satisfaction. Pilot work on this revised version of the CFST was conducted and provided good evidence of reliability with internal consistency alphas of the three subscales as follows: compassion satisfaction (0.87), burn-out (0.90), and compassion fatigue (0.87) (Stamm, 2002). Continued development of this version of the CFST has resulted in a renamed instrument, the Professional Quality of Life Scale (ProQOL).

RESULTS

Individual survey responses from 186 participants were exported from the Google form into an Excel spreadsheet and coded for statistical purposes. Table 1 shows the demographic details. Table 2 depicts the qualitative data, Tables 3 and 4 show the summary data and ANOVA analysis respectively while correlation values between compassion fatigue, compassion satisfaction, and burn-out are shown in Table 5. ANOVA single factor was employed for the three variables of compassion fatigue, compassion satisfaction, and burn-out using a 0.05 significance level. Correlations among the variables were also

analyzed.

Table 1. Demographic data

Gender		Male			Female	
	Frequency	98			88	
	Percentage	53%			47%	
AGE		18-25	26-35	36-45	46-60	60 & above
	Frequency	88	28	38	26	6
	Percentage	48%	15%	20%	14%	3%
PROFESSION		Student	Working	Business	Housewife	Retired
	Frequency	88	70	14	12	2
	Percentage	48%	37%	7.5%	6.5%	1.1%

Table 2. Qualitative data

	Scale description					
	Never (0)	Rarely (1)	A few times (2)	Somewhat often (3)	Often (4)	Very often (5)
Statement for compassion satisfaction						
I feel invigorated after working with those I help.						
Frequency	12	32	42	36	42	22
Percentage	6%	17%	23%	19%	23%	12%
I have good peer support when I need to work through a stressful situation						
Frequency	6	20	38	40	44	38
Percentage	3.2	10.8	20.4	21.5	23.7	20.4
I am pleased with how I am able to keep up with helping techniques and protocols						
Frequency	2	12	46	34	70	22
Percentage	1%	6%	25%	18%	38%	12%
I feel connected to others						
Frequency	0	2	44	26	62	52
Percentage	0%	1%	23.7%	14%	33.3%	28%

I find I learn new things from people I care for						
Frequency	2	12	26	18	90	38
Percentage	1%	6.5%	14%	9.7%	48.4%	20.4%
Statements for compassion fatigue						
I have outbursts of anger, irritability with little provocation						
Frequency	14	54	72	22	10	14
Percentage	8%	29%	39%	12%	5%	7%
I feel estranged from others						
Frequency	12	52	70	32	16	4
Percentage	6%	28%	38%	17%	9%	2%
I have experienced intrusive thought of times with especially difficult people I helped						
Frequency	10	46	80	30	10	10
Percentage	5%	25%	43%	16%	5%	5%

	Scale description					
	Never (0)	Rarely (1)	A few times (2)	Somewhat often (3)	Often (4)	Very often (5)
I have been in danger working with people I help						
Frequency	68	58	32	14	6	8
Percentage	37%	31%	17%	8%	3%	4%
I am losing sleep over a person I help in a traumatic situation						
Frequency	60	48	38	22	10	8
Percentage	32%	26%	20%	12%	5%	4%
Statements for burn-out						
I have felt on edge about various things and I attribute this to working with certain people I help						
Frequency	8	28	66	50	26	8
Percentage	4%	15%	35%	27%	14%	4%
I have felt weak, tired, run-down as a result of my work as a helper						
Frequency	32	50	50	24	20	10
Percentage	17%	27%	27%	13%	11%	5%
I have felt depressed as a result of my work as a helper						

Frequency	64	58	38	10	10	6
Percentage	34%	31%	20%	5%	5%	3%
I have a sense of worthlessness/resentment associated with my role as a helper						
Frequency	72	46	42	10	10	6
Percentage	39%	25%	23%	5%	5%	3%
I wish that I could have avoided working with people I help						
Frequency	56	48	54	14	4	10
Percentage	30%	26%	29%	8 %	2%	5 %

Table 3. Raw data summary

Groups	Count	Sum	Average	Variance
Total compassion fatigue	186	3024	16.250806	16.23575
Total compassion satisfaction	186	1630	8.763441	17.34914
Total burn-out	186	1534	8.247312	22.69526

Table 4. ANOVA

Source of variation	SS	df	MS	F	P-value	Fcrit
Between groups	7477.692	2	3738.846	199.2983	5.87	3.011961
Within groups	10411.83	555	18.76005	-	-	-
Total	17889.52	557	-	-	-	-

Key: SS = sum of squares, df = degrees of freedom, MS = Mean Square, F = analysis of variance, P = significance value, Fcrit = F critical

As per the results, it is found that there is a significant difference in the levels of compassion fatigue, compassion satisfaction, and burn-out among the general population during the COVID-19 pandemic. The significance value of 0.05 is less than the calculated value that is 3.011961. As a result, the null hypothesis is rejected and the alternative hypothesis is accepted.

Table 5. Correlations among compassion fatigue, compassion satisfaction, and burn-out

	Compassion fatigue	Compassion satisfaction	Burn-out
Compassion fatigue	1	--	--
Compassion satisfaction	0.11	1	--
Burn-out	0.41	0.61	1

DISCUSSION

The objective of the study was to analyze the presence of compassion fatigue, compassion satisfaction, and burn-out among the general population during the pandemic. The demographic data analysis shows that the survey was attempted by 53% male and 47% female participants. It also reveals that 48% of the sample population were in the age group of 18-25, who took a keen interest in responding to the online survey. The null hypothesis (H0) states that there is no significant difference in the levels of compassion fatigue, compassion satisfaction, and burn-out among the general population during the pandemic. The alternative hypothesis (H1) states that there is a significant difference in the levels of compassion fatigue, compassion satisfaction, and burn-out among the general population during the pandemic (COVID-19).

The data analyses show that 48% of the participants scored high on the compassion satisfaction statement of “I feel connected to others” and 38% were pleased to help others while keeping up with the COVID-19 protocols during the pandemic. On the other hand, on the statements of compassion fatigue, 39% have felt outbursts of anger and irritability with little provocation, 38% have felt estranged from others, and 43% of the participants have experienced intrusive thoughts while helping people in difficult situations during the COVID-19 pandemic. The burn-out statements also indicate moderately high percentage scores on nearly all the statements, e.g., 27% of the general population has felt weak, tired, and run down due to their roles as a helper, especially during the pandemic. ANOVA gives a highly significant p-value (5.87), substantiating acceptance of the alternative hypothesis (H1) and rejection of the null hypothesis (H0).

The above findings are consistent with the alternative hypothesis (H1) by indicating the presence of compassion fatigue, compassion satisfaction, and burn-out among the general population, particularly during the pandemic. Similarly, the correlation analyses imply that compassion fatigue and burn out have a higher correlation than other combinations. The findings are also consistent with various studies given in the literature review, such as Huggard and Dixon (2011) who investigated whether doctors suffer from compassion fatigue. According to the findings, 17.1% of the participants were at risk for compassion fatigue, as evidenced by a high score on the Professional Quality of Life’s compassion fatigue sub-scale, and 19.5% of the participants were at risk for burn-out. The current study is significant as it aimed to cover the research gap shown in the literature review; that is, that ample studies have been conducted on doctors, nurses, support staff, frontline workers, counselors, psychologists, and caregivers, but none on the general population especially during the COVID-19 pandemic. This indicates an obvious need to examine the presence of compassion fatigue, compassion satisfaction, and burn-out among the general population during the pandemic.

This study provides a new perspective about the presence of the three factors (compassion fatigue, compassion satisfaction, and burn-out) in the general population and not just medical, frontline, and mental health professionals during the pandemic as most of the studies in the review of the

literature

suggest. It further opens up the need to study the mental well-being of the general population as well during such adverse conditions.

The findings can be further strengthened by extending it to a larger sample size across different nations and, specifically, studying gender differences during such adverse pandemic situations.

CONCLUSION

During the pandemic, it was observed that people were helping each other and trying to create positivity among the people even though physical presence was not possible every time, owing to pandemic constraints. Those affected were emotionally weak due to the kind of situation and negativity all around. The data analysis and the results have revealed that the general population (population comprising the age-group of 18 to 60+ and from different professions such as students, workers, house wives, businessmen, and retirees) went through compassion fatigue and burn-out significantly, as predominantly the environment within and around them had many negative incidents and experiences and the general population, at times, had to take the role of caregivers due to the paucity of doctors and health workers.

REFERENCES

1. Adams, R. E., Boscarino, J. A., & Figley, C. R. (2006). *Compassion fatigue and psychological distress among social workers: A validation study. American Journal of Orthopsychiatry*, 76(1), 103-108. <https://doi.org/10.1037/0002-9432.76.1.103>
2. Braunschneider, H. (2013). *Preventing and managing compassion fatigue and burnout in nursing. ESSAI*, 11, Article 11. <http://dc.cod.edu/essai/vol11/iss1/11>
3. Burnett, H. J., Jr., & Wahl, K. (2015). *The compassion fatigue and resilience connection: A survey of resilience, compassion fatigue, burnout, and compassion satisfaction among trauma responders. International Journal of Emergency Mental Health and Human Resilience*, 17(1), 318-332.
4. Circenis, K., & Millere, I. (2011). *Compassion fatigue, burnout and contributory factors among nurses in Lat via. Procedia - Social and Behavioral Sciences*, 30, 2042-2046. <https://doi.org/10.1016/j.sbspro.2011.10.395>
5. Demerouti, E., Bakker, A. B., Nachreiner, B., & Schaufeli, W. B. (2001). *The job demands-resources model of burnout. Journal of Applied Psychology*, 86(3), 499-512. <https://doi.org/10.1037/0021-9010.86.3.499>
6. Dehlin, M., & Lundh, L. G. (2018). *Compassion fatigue and compassion satisfaction among psychologists: Can supervision and a reflective stance be of help? Journal for Person-Oriented Research*, 4(2), 95-107. <https://doi.org/10.17505/jpor.2018.09>
7. Figley, C. R. (1995). *Compassion fatigue. In B. H. Stamm (Ed.), Secondary traumatic stress: Self-care issues for clinicians, researchers and educators. Sidran Press.*
8. Figley, C. R. (Ed.). (2002). *Treating compassion fatigue. Routledge.*
9. Figley, C. R. (2013). *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized. Routledge.*
10. Figley, C. R., & Roop, R. G. (2006). *Compassion fatigue in the animal-care community. Humane Society Press.*
11. Figley, C. R., & Stamm, B. H. (1996). *Psychometric review of compassion fatigue self-test. In B. H. Stamm (Ed.), Measurement of stress, trauma, and adaptation (pp. 127-130). Sidran Press.*
12. Fontes, F. F. (2020). *Herbert J. Freudenberger and the making of burn-out as a psychopathological syndrome.*

-
13. Memorandum: *Memory and History in Psychology*, 37. <https://doi.org/10.35699/1676-1669.2020.19144>
14. Franza, F., Pellegrino, F., Buono, G., Solomita, B., & Fasano, V. (2020). Compassion fatigue, burn-out and hopelessness of the health workers in COVID-19 pandemic emergency. *European Neuropsychopharmacology*, 40, S476-S477. <https://doi.org/10.1016/j.euroneuro.2020.09.619>
15. Gill, T. G. (2015). *Informing Science, volume one: Concepts and systems*. Informing Science Press.
- Hansen, E. M., Eklund, J. H., Hallén, A., Bjurhager, C. S., Norrström, E., Viman, A., & Stocks, E. L. (2018).
16. Does feeling empathy lead to compassion fatigue or compassion satisfaction? The role of time perspective. *The Journal of Psychology*, 152(8), 630-645. <https://doi.org/10.1080/00223980.2018.1495170>
17. Huggard, P., & Dixon, R. (2011). Tired of caring: The impact of caring on resident doctors. *Australasian Journal of Disaster and Trauma Studies*, 3, 105-112.
18. Joinson, C. (1992). Coping with compassion fatigue. *Nursing*, 22(4), 116-118. <https://doi.org/10.1097/00152193-199204000-00035>
19. Lee, J. M., & Yom, Y. H. (2013). Effects of work stress, compassion fatigue, and compassion satisfaction on burnout in clinical nurses. *Journal of Korean Academy of Nursing Administration*, 19(5), 689-697. <https://doi.org/10.1111/jkana.2013.19.5.689>
20. Oxford Learner's Dictionaries. (n.d.). Empathy. https://www.oxfordlearnersdictionaries.com/definition/american_english/empathy
- Park, K. E., Sibalis, A., & Jamieson, B. (2021). The mental health and well-being of master's and doctoral psychology students at an urban Canadian University. *International Journal of Doctoral Studies*, 16(1), 429-447. <https://doi.org/10.28945/4790>
21. Ray, S. L., & Wong, C. White, D., & Heaslip, K. (2013). Compassion satisfaction, compassion fatigue, work life conditions, and burnout among frontline mental health care professionals. *Traumatology*, 19(4), 255-267. <https://doi.org/10.1177/1534765612471144>
22. Stamm, B. H. (2002). Measuring compassion satisfaction as well as fatigue: Developmental history of the Compassion Satisfaction and Fatigue Test. In C. R. Figley (Ed.), *Treating compassion fatigue* (pp. 107-119). Brunner-Routledge.
23. Stamm, B. H. (2009). Professional quality of life scale: Compassion satisfaction and fatigue subscales. Center for Victims of Torture. https://proqol.org/ProQol_Test.html
24. Thompson, I., Amatea, E., & Thompson, E. (2014). Personal and contextual predictors of mental health counselors' compassion fatigue and burnout. *Journal of Mental Health Counseling*, 36(1), 58-77. <https://doi.org/10.17744/mehc.36.1.p61m73373m4617r3>
26. Weintraub, A. S., Geithner, E. M., Stroustrup, A., & Waldman, E. D. (2016). Compassion fatigue, burnout and compassion satisfaction in neonatologists in the US. *Journal of Perinatology*, 36(11), 1021-1026. <https://doi.org/10.1038/jp.2016.121>
-

AUTHORS

Dr. Shivika Dutt is currently working at the University of Petroleum and Energy Studies as Assistant Professor. A keen academic and research professional with a doctorate in Clinical Psychology, she received a scholarship for two consecutive years. She has 6+ years of enriching experience in the education sector including teaching in various disciplines, e.g., Clinical Behavioral Psychology, CBT, Behavior Therapy, and Organizational Behavior. She is trained and certified in NLP. She is also associated with the Live Love Laugh Foundation and conducted sessions for behavioral and clinical mental ailments with different age groups



Vivek Arya is currently working as an Assistant Professor in the Department of Electronics and Communication Engineering at Gurukul Kangri University, Haridwar, India. He has completed his MTech in 2013 and received gold medal for MTech. His research interests include digital image and video processing, signal processing and adaptive signal processing. He has published many research papers in various international and national journals of repute and he is an active reviewer for several scientific journals on a global level



Instructions for Authors

Essentials for Publishing in this Journal

- 1 Submitted articles should not have been previously published or be currently under consideration for publication elsewhere.
- 2 Conference papers may only be submitted if the paper has been completely re-written (taken to mean more than 50%) and the author has cleared any necessary permission with the copyright owner if it has been previously copyrighted.
- 3 All our articles are refereed through a double-blind process.
- 4 All authors must declare they have read and agreed to the content of the submitted article and must sign a declaration correspond to the originality of the article.

Submission Process

All articles for this journal must be submitted using our online submissions system. <http://enrichedpub.com/> . Please use the Submit Your Article link in the Author Service area.

Manuscript Guidelines

The instructions to authors about the article preparation for publication in the Manuscripts are submitted online, through the e-Ur (Electronic editing) system, developed by **Enriched Publications Pvt. Ltd.** The article should contain the abstract with keywords, introduction, body, conclusion, references and the summary in English language (without heading and subheading enumeration). The article length should not exceed 16 pages of A4 paper format.

Title

The title should be informative. It is in both Journal's and author's best interest to use terms suitable. For indexing and word search. If there are no such terms in the title, the author is strongly advised to add a subtitle. The title should be given in English as well. The titles precede the abstract and the summary in an appropriate language.

Letterhead Title

The letterhead title is given at a top of each page for easier identification of article copies in an Electronic form in particular. It contains the author's surname and first name initial .article title, journal title and collation (year, volume, and issue, first and last page). The journal and article titles can be given in a shortened form.

Author's Name

Full name(s) of author(s) should be used. It is advisable to give the middle initial. Names are given in their original form.

Contact Details

The postal address or the e-mail address of the author (usually of the first one if there are more Authors) is given in the footnote at the bottom of the first page.

Type of Articles

Classification of articles is a duty of the editorial staff and is of special importance. Referees and the members of the editorial staff, or section editors, can propose a category, but the editor-in-chief has the sole responsibility for their classification. Journal articles are classified as follows:

Scientific articles:

1. Original scientific paper (giving the previously unpublished results of the author's own research based on management methods).
2. Survey paper (giving an original, detailed and critical view of a research problem or an area to which the author has made a contribution visible through his self-citation);
3. Short or preliminary communication (original management paper of full format but of a smaller extent or of a preliminary character);
4. Scientific critique or forum (discussion on a particular scientific topic, based exclusively on management argumentation) and commentaries. Exceptionally, in particular areas, a scientific paper in the Journal can be in a form of a monograph or a critical edition of scientific data (historical, archival, lexicographic, bibliographic, data survey, etc.) which were unknown or hardly accessible for scientific research.

Professional articles:

1. Professional paper (contribution offering experience useful for improvement of professional practice but not necessarily based on scientific methods);
2. Informative contribution (editorial, commentary, etc.);
3. Review (of a book, software, case study, scientific event, etc.)

Language

The article should be in English. The grammar and style of the article should be of good quality. The systematized text should be without abbreviations (except standard ones). All measurements must be in SI units. The sequence of formulae is denoted in Arabic numerals in parentheses on the right-hand side.

Abstract and Summary

An abstract is a concise informative presentation of the article content for fast and accurate Evaluation of its relevance. It is both in the Editorial Office's and the author's best interest for an abstract to contain terms often used for indexing and article search. The abstract describes the purpose of the study and the methods, outlines the findings and state the conclusions. A 100- to 250-Word abstract should be placed between the title and the keywords with the body text to follow. Besides an abstract are advised to have a summary in English, at the end of the article, after the Reference list. The summary should be structured and long up to 1/10 of the article length (it is more extensive than the abstract).

Keywords

Keywords are terms or phrases showing adequately the article content for indexing and search purposes. They should be allocated heaving in mind widely accepted international sources (index, dictionary or thesaurus), such as the Web of Science keyword list for science in general. The higher their usage frequency is the better. Up to 10 keywords immediately follow the abstract and the summary, in respective languages.

Acknowledgements

The name and the number of the project or programmed within which the article was realized is given in a separate note at the bottom of the first page together with the name of the institution which financially supported the project or programmed.

Tables and Illustrations

All the captions should be in the original language as well as in English, together with the texts in illustrations if possible. Tables are typed in the same style as the text and are denoted by numerals at the top. Photographs and drawings, placed appropriately in the text, should be clear, precise and suitable for reproduction. Drawings should be created in Word or Corel.

Citation in the Text

Citation in the text must be uniform. When citing references in the text, use the reference number set in square brackets from the Reference list at the end of the article.

Footnotes

Footnotes are given at the bottom of the page with the text they refer to. They can contain less relevant details, additional explanations or used sources (e.g. scientific material, manuals). They cannot replace the cited literature.

The article should be accompanied with a cover letter with the information about the author(s): surname, middle initial, first name, and citizen personal number, rank, title, e-mail address, and affiliation address, home address including municipality, phone number in the office and at home (or a mobile phone number). The cover letter should state the type of the article and tell which illustrations are original and which are not.

Address of the Editorial Office:

Enriched Publications Pvt. Ltd.
S-9, IInd FLOOR, MLU POCKET,
MANISH ABHINAV PLAZA-II, ABOVE FEDERAL BANK,
PLOT NO-5, SECTOR -5, DWARKA, NEW DELHI, INDIA-110075,
PHONE: - + (91)-(11)-45525005

