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Conceptualization and Measurement of Helping-Related Stress in Peer Support Specialists

By

Stephania Lyn Hayes

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Social Welfare

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Jennifer L. Skeem, Chair

Professor Eileen Gambrill

Professor Joan Bloom

Summer 2020

Abstract

Conceptualization and Measurement of Helping-Related Stress in Peer Support Specialists

by

Stephania Lyn Hayes

Doctor of Philosophy in Social Welfare

University of California, Berkeley

Professor Jennifer Skeem, Chair

Objective: Peer support specialists (PSs) have personal experience in mental health recovery and are hired by service agencies to assist others struggling with similar challenges. Stress impacts work performance among helping professionals, and work-related stress is thought to be particularly detrimental to PSs' performance given their history of mental illness. However, this topic has received little empirical attention. Furthermore, different forms of stress may be closely related, casting doubt on the utility of work-specific stress measurement. This dissertation examines severity of work-related and general stress in a large sample of active PSs (N=738), and, while accounting for psychiatric symptom severity, addresses their potential differential susceptibility to stress by comparing their responses to samples of clinicians and non-referred adults. The structure of stress-related phenomena is also examined to reveal shared variance among stress measures and their differential impact on work satisfaction and performance.

Method: This is cross-sectional, online survey of adult PSs in mental health service settings nationwide. Participants completed stress-related measures validated for use with health professionals and the general public: the Maslach Burnout Inventory-Human Services Survey, the Secondary Traumatic Stress Scale, and the Perceived Stress Scale. Confirmatory factor analyses were applied to assess internal structure and scores were summarized and compared with samples of mental health service providers and non-referred adults. Comparisons were then stratified by level of psychological distress. Participants answered questions about work absences, job satisfaction, turnover likelihood, and self-rated performance. Correlations between these work outcomes and original stress measures are compared to correlations between outcomes and randomized measures created from the stress instruments. Regression analyses revealed incremental utility of specialized stress measures on outcomes above the contribution of general stress.

Results: PSs experience low to moderate levels of work-related and general stress, though not all measures were suitable for use. Secondary trauma affects less than 15% of the sample, while 51.2% report a moderate or high level of emotional exhaustion. General stress scores were normally distributed. Though effect sizes were small, compared with other mental health providers, peer support specialists experienced less secondary trauma ($d = -0.15$) and general stress ($d = .15$), and more emotional exhaustion ($d = .20$). However, the subset of

specialists with active psychological distress experienced much greater stress than comparison groups. Work-specific stress measures strongly associate with general stress and one another. General stress accounts for 43.4% of the variance in secondary trauma, and 38.7% of emotional exhaustion. Secondary trauma explains 47.2% of the variance in emotional exhaustion. Correlations between stress measures and work outcomes were weak to moderate. When compared to original measures, randomized stress measures often showed no difference or stronger associations with outcomes. Regression analyses revealed that turnover likelihood, job satisfaction, and absenteeism were best predicted by general stress and emotional exhaustion. Self-rated performance was impacted by general stress only.

Conclusion: The findings, while supporting links between stress and psychiatric symptoms, help allay concerns about peer support specialists' "unique" susceptibility to different forms of stress. Despite their commonalities, specific forms of stress somewhat differentially associate with adverse employment outcomes and these measures may demonstrate some utility in planning the focus of remedial efforts.

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Dedication

In the last half of 2012, I escaped my job at a failing non-profit, moved my small family into a tense living situation, barely completed my first semester as a PhD student, and married. By December, I hadn't caught my breath; in fact, I was still running on empty, months after my previous work experience. But I was inspired by the energy of our campus climate and felt ready to make an impact, as a scientist, on the social justice movements entwined with the field of mental health care. After the wedding, my partner and I honeymooned in a northern mountain range, during which time I worked to resolve an "incomplete" from fall semester's least challenging class. It was only the beginning, and I was already woefully behind schedule.

On one of the high points of that trip, we sat down in a sled, tethered to a dozen of the happiest dogs I'd ever seen. Clearly, they were ecstatic about the mere idea of dragging three large primates through the snow. Behind us, a middle-aged man stepped on and mushed the dogs forward. We took off, engaging in small talk about what we did (for work, of course). Watching his dogs run, I told the musher that I had just begun my studies.

"I spent time in Berkeley," he reminisced. "A group of us were there to protest the Vietnam War. Yeah, we were there to change the world! And...we didn't. But I changed my own world, and it turns out that's all that mattered."

Then, quiet resonance among the fifteen of us. What wisdom could I add? The dogs pulled on, reluctant to pause. I remarked on how happy they seemed as they performed this work; the musher told us about their care and their adaptation—how they're bred for this task, and how they're fed a natural, carnivorous diet and thrive in the cold.

I think back on that day as a seed planted. I was only beginning to realize the follies of my own adaptation, and how I had committed to a culture of overachievement in a way that benefitted no-one but those at the very top. My noble, albeit delusional, aim was to offer a meaningful service to society, while advancing enough in the ranks to finally know what it's like to earn a living wage. But the imbalances I maintained to get even as far as I did weren't working. I knew my lifestyle was already hurting me, and no reprieve was in sight, but it would be a few years before I started changing my own world, so to speak.

Theories of work stress often present burnout as incongruence between task demands and the resources available to execute them. The world of mental health services and peer support led me to the academic subject of stress, and my own burnout kept my interests there. But in fact, as I conducted this study, I found myself focusing beyond peer specialists, to the demands thrust upon humans in their quest to eke out a basic standard of living in "developed" nations such as ours. Indeed, when I talk about my work to laypeople, it does not seem to matter where they're employed—fascinatingly, nearly everyone I talk to relates to burnout, and usually from personal experience. What does this suffering say about our culture?

Halfway through my doctoral program, my partner and I led a typical, yet unsustainable American middling-class existence: Uncomfortably high expenses subsidized by debt, multiple jobs with no hope of security, side hustles, soul-deadening commutes, solace in movies and

takeout food. We were supposedly up-and-coming, and yet barely treading water. It became clear that we could not continue this lifestyle without significant consequences to our health. So, we abruptly changed course, pooling the last of our resources to finance a foreclosed, undeveloped property in the Sierra foothills, three hours from campus. After my qualifying exam, we moved into a '94 Winnebago Adventurer to begin new lives homesteading, off the grid. The entirety of my dissertation research was conducted here, half of it under what some would call austere circumstances—camping in the woods, with none of the creature comforts, little protection from the elements, and only enough electricity to intermittently power a laptop.

In the world of statistics, there's a saying—"garbage in, garbage out"—meaning that the quality of output depends upon the quality of the input. In my rapidly changing world, and through many painful shocks and setbacks, I learned parallel lessons: When the soil is devoid of nutrients and life, we don't get vegetables. When we consume garbage, we get illness. It is cathartic to realize that under this emerging order, my ability to produce nutritious food largely depends upon the quality time and energy I spend on its direct inputs, *not* on how much I exhaust myself to bolster someone else's bottom line. And, feeding myself no longer requires the level of self-depletion that late-stage capitalism demands, especially within the context of natural support systems, sustainable infrastructure, and responsible consumption. My "dirt dissertation," as this homesteading effort is affectionally called, therefore serves as my recovery, my resistance, and my renaissance. Nature has her whims; she generally provides for those who care for her, but promises nothing tangible—only a lifetime of hope, purpose, and learning (though when it's going well, the onions are pretty great).

Whether my doctoral degree yields such a return on investment remains to be seen, but my uncertain career prospects are no longer distressing. If nothing else, I hope that my research on helping-related stress honors peer support specialists and their service recipients. The process of generating this knowledge was important to me as a way to give back to workers that I have witnessed as authentic, generous, and passionate, yet are regularly misunderstood and undervalued. Further, this work awakened in me a class consciousness which forever alters my perspective of mental illness and its treatment. I'm grateful to have had the opportunity.

I file this dissertation in the opening throes of a period tentatively referred to as the Greater Depression, during which, so far, we have experienced unprecedented unemployment, the largest GDP drop in recorded history, civil uprising long in the making, and an unsettling illumination of the value of "essential" labor and those who perform it—all while wealth is increasingly concentrated among the people who need it the least. These issues cannot be unpacked here, but are mentioned as a testament to our time and a context for the dedication.

I dedicate this work—every last bit of it—to a vision: A new world order of thriving micro-economies and life-affirming interdependence among citizens and entities, where harmony between the demands and returns of daily life is readily accessed, observable, and sustainable. Our work doesn't make sense until we recreate and nourish the environments where we are best adapted. I hope you also find your niche, rare reader!

August 14th, 2020

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It took 7 years, 11 months, 30 days, and the support of a virtual village to realize the end of this project. I'd like to recognize the following people who made it possible.

For always encouraging my growth as a scientist and professional, I thank my committee:

- Jen Skeem, UC Berkeley School of Social Welfare
- Eileen Gambrell, UC Berkeley School of Social Welfare
- Joan Bloom, UC Berkeley School of Public Health

For statistical and academic support throughout the PhD program:

- Maureen Lahiff, UC Berkeley School of Public Health
- Claudia Waters, UC Berkeley School of Social Welfare
- Steve Segal, UC Berkeley School of Social Welfare

For their insight and support during early research planning:

- Rita Cronise and Steve Harrington of the National Association of Peer Supporters
- Members of the “Users & Survivors in Academia” network

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- Chaz Longwell, Arizona Health Care Cost Containment System
- The peer support programs of the Veterans Health Administration, nationwide
- Members of the National Certified Peer Support Specialist Network on social media
- And of course, the 1000+ peer support specialists who volunteered time and energy to further understanding of work stress. Whether you qualified for the study, e-mailed me your thoughts, or shared the study with others—the project wasn't possible without you.

For generous review of manuscripts and presentations, as well as peer support:

- Beckie Child, Portland State University

Remote workspaces provided by:

- Workplace Sonora (Sonora, CA)
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- Johanna Atman (Murphys, CA)

Finally, paragraphs of verbal thanks go to:

- Lisa Stenmark and Dorothy Fernandez
- Jenny Martinez and Alexander Alschuler
- Victor Cizankas
- John Lytle

STEPHANIA L. HAYES

Curriculum Vitae

EDUCATION

PhD	University of California, Berkeley Social Welfare <i>Conceptualization and Measurement of Helping-Related Stress in Peer Support Specialists</i> Jennifer Skeem (chair), Eileen Gambrill, Joan Bloom Examination Fields: Adult Mental Health, Consumer-Oriented Mental Health Services, Organizational Theory	2020
MA	University of Southern California Occupational Therapy Focus in Psychosocial Practice	2010
BA	University of Florida Health Science, <i>summa cum laude</i> Focus in Pre-Occupational Therapy, Rehabilitative Services	2008

SKILLS & INTERESTS

Adult mental health treatment	User-driven health services & research
Measure development	Survey methods
Big data wrangling (SPSS)	Program management, evaluation & planning
Scientific writing for general audiences	Creative arts & holistic health

PUBLICATIONS

Peer-reviewed journals

- Hayes, S. L.**, & Skeem, J. (in review). Do peer support workers experience disproportionate general stress or occupational stress?
- Hayes, S. L.**, & Skeem, J. (in preparation). Do measures of work-related stress uniquely predict peer specialist employment outcomes?
- Segal, S. P., Rimes, L., & **Hayes, S. L.** (2019). The utility of outpatient commitment: Reduced risks of victimization and crime perpetration. *European Psychiatry*. doi: 10.1016/j.eurpsy.2018.12.001
- Segal, S. P., **Hayes, S. L.**, & Rimes, L. (2018). The utility of outpatient commitment: Access to medical care and protecting health. *Social Psychiatry and Psychiatric Epidemiology*. doi: 10.1007/s00127-018-1510-5
- Segal, S. P., **Hayes, S. L.**, & Rimes, L. (2017). The utility of outpatient commitment: I. A need for treatment and a least restrictive alternative to psychiatric hospitalization. *Psychiatric Services*, *68*(12), 1247-1254. doi: 10.1176/appi.ps.201600161
- Segal, S. P., **Hayes, S. L.**, & Rimes, L. (2017). The utility of outpatient commitment: II. Mortality risk and protecting health, safety, and quality of life. *Psychiatric Services*, *68*(12), 1255-1261. doi: 10.1176/appi.ps.201600164

Peer-reviewed journals, continued

- Hayes, S. L., & Segal, S. P.** (2017). Fear of adverse mental health treatment experiences: Initial psychometric properties of a brief self-report measure. *Psychological Assessment, 29*(5), 509. doi: 10.1037/pas0000362
- Segal, S. P., & **Hayes, S. L.** (2016). Consumer-run services research and implications for mental health care. *Epidemiology and Psychiatric Sciences, 25*(5) 1-7. doi: 10.1017/S2045796016000287
- Ostrow, L., & **Hayes, S. L.** (2015). Leadership and characteristics of nonprofit mental health peer-run organizations nationwide. *Psychiatric Services, 66*(4): 421–425. doi: 10.1176/appi.ps.201400080
- Hayes, S. L.,** Storch, E. A., & Berlanga, L. (2009). Skin picking behaviors: An examination of prevalence and severity in a community sample. *Journal of Anxiety Disorders, 23*(3), 314-319. doi: 10.1016/j.janxdis.2009.01.008

Book sections

- Hayes, S. L., & Segal, S. P.** (2020). Fear of adverse mental health treatment experiences: Initial psychometric properties of a brief self-report measure. Instrument referenced in J. Fischer, K. Corcoran, & D. W. Springer (Eds.), *Measures for Clinical Practice and Research: A Sourcebook (Vol. 2, 6th ed.)*. Oxford University Press.
- Pitts, D. & **Hayes, S. L.** (2014). Chapter 6: Assessments. *Best practices in psychiatric rehabilitation (2nd ed.)*. McLean, VA: Psychiatric Rehabilitation Association.

PRESENTATIONS***Peer-reviewed presentations***

- Hayes, S. L., & Skeem, J.** (2019, January). *Factorial Validity of the Maslach Burnout Inventory in Peer Support Providers*. Paper presented at the 23rd Annual Conference of the Society for Social Work and Research in San Francisco, CA.
- Hayes, S. L., & Segal, S. P.** (2019, January). *Fear of adverse mental health treatment experiences: Initial psychometric properties of a brief self-report measure*. Poster presented at the 23rd Annual Conference of the Society for Social Work and Research in San Francisco, CA.
- Taguchi Meyer, J., Wilson, N. G., Lien Margetis, J., Hayes, E. W., Lee, J., **Hayes, S. L.,** & Nakasuji, B. J. (2013, April). *OT Students with Disabilities in Fieldwork: Perspectives and Lessons Learned*. Workshop presented at the 93rd Annual American Occupational Therapy Association Conference in San Diego, CA.
- Lopez, E. A., Curry, R., & **Hayes, S. L.** (2011, April). *Community-Based Mental Health Practice: The OT Student Experience*. Poster presented at the 91st Annual American Occupational Therapy Association Conference in Philadelphia, PA.
- Hayes, S. L.,** Storch, E. A., & Berlanga, L. (2008, August). *Skin picking behaviors: An examination of prevalence and severity in a community sample*. Poster presented at the 15th Annual Obsessive Compulsive Foundation Conference in Boston, MA.

Other selected presentations

- Pitts, D. & **Hayes, S. L.** (2014, May). *Assessment Best Practices for the Recovery-Oriented Practitioner*. Webinar presented as part of the CPRP Domain-Focused Webinar Series.
- Hayes, S. L.** (2010, March). *Meaningful engagement for board and care dwellers*. Poster presented at the Los Angeles Schweitzer Fellowship Symposium, "Barriers to Care: Marginalized in Los Angeles."
- Hayes, S. L.**, Storch, E. A., & Berlanga, L. (2008, May). *Skin picking behaviors: An examination of prevalence and severity in a community sample*. Poster presented at the Malcom Randall VA Medical Center Annual Research Fair in Gainesville, FL.
- Hayes, S. L.**, Storch, E. A., & Berlanga, L. (2008, April). *Skin picking behaviors: An examination of prevalence and severity in a community sample*. Poster presented at the University of Florida Psychology Undergraduate Research Forum in Gainesville, FL.
- Hayes, S. L.**, Storch, E. A., & Berlanga, L. (2008, April). *Skin picking behaviors: An examination of prevalence and severity in a community sample*. Poster presented at the University of Florida College of Public Health & Health Professions Research Fair in Gainesville, FL (winner of Outstanding Research Award).
- Hayes, S. L.**, Storch, E. A., & Berlanga, L. (2008, March). *Skin picking behaviors: An examination of prevalence and severity in a community sample*. Poster presented at the University of Florida Undergraduate Research Symposium in Gainesville, FL.
- Hayes, S. L.** (2007, April). *Meeting the Needs: Traffic Art and Dance Exchange*. Panel discussion at the Annual Conference of the Sickle Cell Disease Association of Florida, North Central Florida Chapter in Gainesville, FL.
- Kedar, A., Sonke-Henderson, J., Adams, C., Robinson, G., **Hayes, S. L.**, & Bryant, E. (2007, March). *Traffic art and dance exchange: Assessing the effects of a performance-based dance program on self-esteem and self-worth in adolescents and young adults with sickle cell disease*. Poster presented at the University of Florida College of Medicine Annual Research Day in Gainesville, FL.
- in absentia (peer-reviewed)***
- Segal, S. P., **Hayes, S. L.**, & Rimes, L. (2020, January). *Outpatient Civil Commitment Reduces Safety-Risks Associated with Episodes of Severe Mental Illness*. Paper presented by Dr. Segal at the 24th Annual Conference of the Society for Social Work and Research in Washington, DC.
- Segal, S. P., **Hayes, S. L.**, & Rimes, L. (2018, January). *The Utility of Outpatient Commitment: A Need for Treatment and a Least Restrictive Alternative to Psychiatric Hospitalization*. Paper presented by Dr. Segal at the 22nd Annual Conference of the Society for Social Work and Research in Washington, DC.
- Segal, S. P., **Hayes, S. L.**, & Rimes, L. (2015, July). *Hospital and Emergency Department Utilization: The Role of Community Treatment Orders*. Paper presented by Dr. Segal as part of the symposium "Improving the Use of Involuntary Care" at the XXXIV International Congress of Law and Mental Health, Vienna, Austria.
- Kedar, A., Sonke-Henderson, J., Adams, C., Robinson, G., **Hayes, S. L.**, & Bryant, E. (2007, September). *Traffic art and dance exchange: Assessing the effects of a performance-based dance program on self-esteem and self-worth in adolescents and young adults with sickle cell disease*. Poster session presented by lead authors at the 35th Annual Convention of the Sickle Cell Disease Association of America, Inc in Washington, DC.

SELECTED HONORS & AWARDS

James and Khadija Midgley Doctoral Dissertation Award	2020
UC Berkeley School of Social Welfare	
Mentored Research Award	2014 – 2015
UC Berkeley Office of the President	
Departmental Fellowship	2012 – 2015
UC Berkeley School of Social Welfare	
Leadership Award	2008 & 2010
USC Division of Occupational Science & Occupational Therapy	
Fellow	2009 – 2010
The Albert Schweitzer Fellowship, Los Angeles	
Academic Merit Scholarship	2008 – 2009
USC Division of Occupational Science & Occupational Therapy	
Outstanding Research Award	2008
UF College of Public Health & Health Professions	
Undergraduate Research Fellow	2007 – 2008
UF University Scholars Program	

RESEARCH EXPERIENCE

Graduate Research Assistant	2012 – 2016
Mack Center on Mental Health and Social Conflict, Berkeley, CA	
<p>Data analyst / programmer and co-author in longitudinal study of health outcomes for Australians placed on Community Treatment Orders (outpatient commitment). Using SPSS, synthesized several administrative databases capturing 12 years of health, mental health, criminal justice and death records of mental health service users, 11,424 of whom were placed on CTOs. Responsibilities included standardization of coding, data transformation, creation of metadata, descriptive and regression analyses, and summary reports. Balanced the discussion of this controversial subject matter with service user-centered perspectives.</p>	
Network Member	2013 – 2014
Lived Experience Research Network, Baltimore, MD	
<p>Led the design and successful grant writing effort for the mixed methods project <i>Sharing Experience Learned Firsthand</i>, awarded \$20,000 through SAMHSA's BRSS TACS funding mechanism.</p>	
Research Assistant	2008 – 2009
USC Division of Occupational Science & Occupational Therapy, Los Angeles, CA	
<p>Managed database, intake and cleaning of qualitative data (largely interview transcriptions and artifacts) for the multimethod ethnographic study <i>Boundary Crossing: Resituating Cultural Competence</i>.</p>	

Evaluation Point Person

2008

Washington University's Brown School of Social Work, St. Louis, MO

UF Center for the Arts in Healthcare Research & Education, Gainesville, FL

Provided logistic support for the Florida arm of the NIH-funded *Vital Visionaries* project, which facilitated artistic and cultural activities for medical students and elders with an aim to reduce negative stereotypes toward the aged. Recruited participants, administered assessments, and archived data.

Research Assistant

2007 – 2008

North Florida Foundation for Research and Education, Inc., Gainesville, FL

Was instrumental in the synthesis of successful DoD grant proposals (over \$200,000 awarded). Coordinated submission of Institutional Review Board and regulatory forms for clinical drug trials at Malcom Randall VA Medical Center; recruited and trained research assistants.

Research Assistant

2007 – 2008

University of Florida Department of Psychiatry Research Lab, Gainesville, FL

Under the mentorship of Dr. Eric Storch (Baylor College of Medicine), designed and executed all aspects of an undergraduate Honors Thesis on the prevalence and severity of body-focused repetitive behaviors and their relationships to affective distress; secured \$2500 in intramural funding for project.

To date, the resultant manuscript has been cited nearly 200 times and is reported as the first known epidemiological study of skin picking behaviors.

Research Assistant

2006 – 2008

UF Center for the Arts in Healthcare Research & Education, Gainesville, FL

Assisted with study protocol development for the qualitative research project *Traffic Art and Dance Exchange: Assessing the Effects of a Performance-based Dance Program on Self-esteem and Self-worth in Adolescents and Young Adults with Sickle Cell Disease*. Co-facilitated weekly dance program and mentored another undergraduate researcher on her related Honors Thesis.

PROFESSIONAL EXPERIENCE**Creative Arts Director**

2011 – 2012

Jefferson Transitional Programs/Recovery Innovations, Riverside, CA

Responsible for the design, implementation, budgeting and evaluation of recovery-oriented arts programs for adults seeking mental health support, including:

- Mobile unit of contracted Peer Artists facilitating art and recovery education throughout Riverside County (MHSA Innovation-funded);
- Supportive programming at the Art Works Gallery, including on-site classes, peer support, opportunities for displaying and selling art;
- Special events to raise funds and promote community mental health initiatives.

Oversaw the program's largest budget to date, a regular staff of nine, and several volunteers.

Fellow 2009 – 2010

The Albert Schweitzer Fellowship, Los Angeles, CA

Partnered with Project Return Peer Support Network to address occupational deprivation in board and care homes. Enhanced peer-led support groups with recovery-oriented concepts and activities focused on inclusion, empowerment, physical health, resource access, leisure interests, social skills, and vocation.

Student Fieldwork Assistant 2009

USC Division of Occupational Science & Occupational Therapy, Los Angeles, CA

Secured fieldwork placements for occupational therapy students.

Residential Supervisor, Habilitation Technician 2006

ARC of Alachua County, Gainesville, FL

Supervised the implementation of individualized behavioral programs; provided behavioral intervention in a group home for teens with Prader-Willi Syndrome and other developmental disabilities; supported ADLs and community inclusion; trained in medication administration and aggression management.

Caregiver 2004

Comfort Keepers, Altamonte Springs, FL

Provided companionship, health monitoring, ADL assistance, and recreational opportunities for clients with advanced age or chronic illnesses.

TEACHING EXPERIENCE**Reader** 2013

UC Berkeley School of Social Welfare, Berkeley, CA

Graded and critiqued Master's-level student essays in "Human Behavior in the Social Environment."

Interim Supervisor of Occupational Therapy Training Program 2011 – 2012

Jefferson Transitional Programs/Recovery Innovations, Riverside, CA

Oversaw Level 1 OT fieldwork students, introducing them to holistic, person-centered care within the context of a community-based, peer-driven mental health setting. Motivated students to pursue mental health practice upon graduation; supported their successful application to related post-graduate fellowship.

Curriculum Assistant 2002 – 2003

Valencia Community College, Winter Park, FL

Instructed less-advantaged community members in computer skills and résumé development, supervised computer facilities, maintained databases and supported grant writing efforts.

Tutor 2002 – 2003

Valencia Community College, Orlando, FL

College-level English, algebra, biological sciences, and humanities.

TRAINING & CERTIFICATIONS

Registered Occupational Therapist (OTR) 2011

National Board for Certification in Occupational Therapy
Initial Certification: August 12th, 2011, #287268 (current)

Certified Peer Support Specialist 2011

Jefferson Transitional Programs/Recovery Innovations, Riverside, CA
Built skills in peer support, recovery education, and partnering with service providers in this 80-hour program developed by Recovery Innovations International.

Evidence-Based Practice Field Unit 2009 – 2010

USC School of Social Work/Pacific Clinics, Pasadena, CA
Two-semester course focused on implementation and dissemination of manualized, evidence-based psychosocial interventions; built skills in Motivational Interviewing, Illness Management and Recovery, and Seeking Safety.

Arts in Healthcare Summer Intensive at the University of Florida 2007

UF Center for the Arts in Healthcare Research & Education, Gainesville, FL
Completed a two-week program focused in the history and philosophy of art and healing, as well as visual and performing arts as applied to healthcare. Facilitated arts at the bedsides of patients at Shands Hospital.

OCCUPATIONAL THERAPY EXPERIENCE

Level II Fieldwork:

UC Irvine Neuropsychiatric Center, Orange, CA 2010 – 2011

Practice Area: Psychosocial, physical disabilities, inpatient.

Population: Medically complex adults diagnosed with serious mental illnesses.

Regularly conducted psychosocial and functional assessments, screened for fall and feeding risks, addressed occupational needs in discharge planning, assisted patients with ADLs and functional mobility. Led daily treatment groups tailored to patient interests and recovery goals, including topics on social support, community and resource access, medication management, symptom awareness, coping strategies, goal setting, and relapse prevention.

Pacific Clinics Portals Division, Los Angeles, CA 2009 – 2010

Practice Area: Psychosocial, community-based.

Population: Adults diagnosed with serious mental illnesses.

As sole OT provider, coordinated with multidisciplinary ACT team to provide comprehensive, member-centered case management and group therapy services based in psychosocial rehabilitation and evidence-based practices. Supported members' residential goals as related to hoarding behaviors, home management, and meaningful occupations in group living facilities. Facilitated Member Council, advocated for environmental adaptations in the clinic setting, organized recreational and educational outings, arranged informational meetings about legal and housing rights.

Level I Fieldwork:

- Welch & McLoy Therapy Services, New Port Richey, FL 2009
Practice Area: Psychosocial, physical disabilities, sensory integration.
Population: Children with developmental delays, emotional dysregulation, physical disabilities.
- Casa Pacifica Adult Day Health Care, San Diego, CA 2008
Practice Area: Psychosocial, physical disabilities.
Population: Adults diagnosed with serious mental illnesses and/or developmental disabilities.

CONSULTING

-
- Exam Content Developer** 2016
 Mental Health America/Florida Certification Board, Tallahassee, FL
 Wrote and tested items for the first national peer specialist certification exam.
- Writing Consultant** 2013
1. Lived Experience Research Network, Baltimore, MD
 Translated research findings into attractive, publicly accessible reports.
 2. Clear Data Consulting, Sacramento, CA
 Assisted with technical writing for healthcare record software manual.
- Executive Consultant** 2012
 Jefferson Transitional Programs, Riverside, CA
 Facilitated leadership transition during company acquisition.

SERVICE

-
- Community Scientist** 2019
 Calaveras County Office of Education
 Rated projects in the behavioral and cognitive sciences for the Calaveras County Science Fair, mentored winner in preparation for state competition.
- Peer Reviewer** 2018
 Social Work in Mental Health
 For content expertise in recovery-oriented services.
- Doctoral “Buddy”** 2014 – 2019
 UC Berkeley School of Social Welfare, Berkeley, CA
 Mentored early-year students in the doctoral program.
- Chairperson** 2008 – 2010
 Active Minds @ USC, Los Angeles, CA
 Founded the USC chapter of Active Minds, a national organization which aims to remove stigma surrounding mental health issues on college campuses. Hosted educational film screenings and stress management events; contributed to fundraising initiatives by NAMI and NARSAD.

Introduction

Peer support specialists are people with mental health recovery experiences who assist others in need of support for similar life circumstances. They differ from mental health professionals in that peer specialists are hired based on their personally “lived” experience rather than professional mental health training; their supportive services are theoretically non-clinical and rooted in their own experiential learning as mental health service users (Deegan, 2017). Though peer support providers are increasingly called upon to reduce shortages and strain in the mental health workforce (Coffman, Bates, Geyn, & Spetz, 2018; Health Resources & Services Administration, 2018; O'Connor, Muller Neff, & Pitman, 2018; Rossler, 2012), societal stigma linked to mental illness (Corrigan & Watson, 2002) reinforces assumptions about the limited competency and capacity of peer support workers to fulfill their duties. This complicates understanding of their potential vulnerability to stress-related conditions such as burnout and secondary trauma. The Peer Provider Stress Survey was designed to estimate how common stress conditions are in this population, while accounting for measurement validity, interplay of psychiatric symptoms, and associations with work performance issues.

The practice of peer support, as it is known today, has changed considerably since its grassroots beginnings in psychiatric survivor/ex-patient circles. It is now seen as an essential, monetized mental health service (Myrick & Del Vecchio, 2016). However, its modern integration with more traditional, medicalized settings introduces new stressors and strain to organizations, providers of peer support services, and factions of the mental health consumer/survivor movement. For better and for worse, there have been increasing efforts nationwide toward professionalization of peer support (El Enany, Currie, & Lockett, 2013; Kaufman, Brooks, Steinley-Bumgarner, & Stevens-Manser, 2012), and today, peer support has found a niche within traditional as well as progressive mental health service organizations (Goldstrom et al., 2006; Ostrow & Hayes, 2015), with providers serving in disparate paid and volunteer positions (Cronise, Teixeira, Rogers, & Harrington, 2016). Although prospects for gainful work may be welcomed by peer support providers who have struggled to maintain employment, these opportunities can bring unique challenges and responsibilities.

Professional integration in mental health care settings is a challenge for peer support providers. Miyamoto and Sono (2012) conducted a narrative review of the literature on consumer-operated services to find lessons within the international discourse on peer support, and shed light on many programmatic and personnel issues, including role conflict, poor interpersonal boundaries, confusion about self-disclosure of psychiatric history, role ambiguity, and low compensation—all of which may contribute to on-the-job strain. Despite the potential rewards of providing support (Johnson et al., 2014; Salzer et al., 2013), peer providers may be susceptible to increased general stress (DeVylder et al., 2016; Staufenbiel, Penninx, Spijker, Elzinga, & van Rossum, 2013), heavy emotional demands due to the personal nature of their work (Evans, 2018), and/or burnout (Park, Chang, Mueller, Resnick, & Eisen, 2016). Not only do peer providers manage their own wellness, but they strive to maintain a caring presence for service recipients during crises, which depending on the provider's skill and experience can elicit feelings of distress.

The prevalence of occupational burnout among clinically trained mental health providers is estimated at 40% (O'Connor et al., 2018), but it is unclear if that statistic generalizes to peer support providers because the problem has not been thoroughly researched in a direct way. The

literature on peer supporter working conditions tends to address job satisfaction (Chang, Mueller, Resnick, Osatuke, & Eisen, 2016; Davis, 2014; Grant & Dziadkowiec, 2012; Lapidos et al., 2018), which is a related but separable concept. What little research on stress conditions has been found, while useful, is based on small samples and is limited to certain organizational and provider types (Bride & Kintzle, 2011; Park et al., 2016).

It is unclear which form of stress relates most strongly to the demands of peer support work, but three variants emerge most clearly in the literature. Burnout is perhaps the most readily understandable, described by The American Institute of Stress (2017) as a “cumulative process marked by emotional exhaustion and withdrawal associated with increased workload and institutional stress.” Another stress-related construct, compassion fatigue, is used as a catch-all term to describe exhaustion related to work in the helping professions. Least convincing as a standalone construct, compassion fatigue seems to have been a nascent conceptualization of helping-related stress; it intertwines with certain representations of burnout (Stamm, 2010)—albeit questionably—and has facilitated a modern understanding of secondary trauma (Figley, 1995; Newell & MacNeil, 2010; Thomas & Wilson, 2004), though their synthesis is not well-substantiated. In practice, secondary trauma is a more diagnostically-rooted term, and when conceptualized as a parallel to post-traumatic stress disorder (Bride, 2007; Bride, Robinson, Yegidis, & Figley, 2004), it is a more distinct phenomenon, conceptually. Secondary trauma could have interesting implications for peer support providers who often have a history of their own trauma (Cronise et al., 2016).

As part of their “lived experience,” peer support providers typically report receiving a psychiatric diagnosis and/or treatment for mental health concerns (Cronise et al., 2016); they are no strangers to stress. However, given their disclosed histories, they are additionally burdened by cultural assumptions about their vulnerability to relapse, predisposition to distressed states, and competency in performing mental health services that are helpful for people in crisis. Even in organizations touting recovery-oriented principles—such as hope “that people can and do overcome the internal and external challenges, barriers, and obstacles that confront them” (Substance Abuse and Mental Health Services Administration, 2014)—exacerbation of symptoms is assumed with relapse only a matter of time. Peer support providers themselves may experience internalized stigma and self-limiting beliefs based on their history of mental illness, particularly in organizations which do not afford empowering opportunities to people with such histories (Segal, Silverman, & Temkin, 2013). Assumptions about vulnerability to stress could result in self-fulfilling prophecies regarding work performance, or lack of opportunities for peer workers to advance in the field and become more professionally, and financially, independent. Stigma, therefore, serves as an underlying motivation for examining differential susceptibility to stress, and may additionally be a unique source of stress for these workers.

Negative attitudes about the resiliency and capacity of peer support providers are not readily recorded, especially as mental health programs undergo ideological shifts in favor of more person-centered, recovery-oriented care which, theoretically, should only be empowering to such workers. In any given service agency, peer support providers, who publicly self-identify as having history of mental illness or service use, unwittingly find themselves in the crossfire of competing paradigms. Organizational cultures struggle to blend recovery ideology with vestigial beliefs originating in medical models of mental illness, as reflected in healthcare practitioners’ views toward diagnosed persons (Grey, 2016; Henderson et al., 2014; Knaak, Mantler, & Szeto, 2017; Schulze, 2007). For administrators and staff to admit to limiting beliefs about peer support

providers, while at the same time becoming increasingly reliant on their labor, is a difficult dynamic to empirically capture. Nevertheless, peer support providers may experience workplace microaggressions (Firmin, Bellamy, & Davidson, 2018), suggesting that implicit stigma is real. Assumptions about peer worker resiliency, including their experience of stress, can and should be addressed directly since vulnerability to on-the-job challenges has implications for training, hiring, retention, and advancement. Fostering understanding of stress pertinent to peer support providers and precisely where to intervene may reduce risk of employment failure, allows for common ground between peer-identified and non-peer-identified workers, and delegitimizes stigmatizing beliefs. Whether peer support providers are more “stressed” than clinicians, and whether this predicts job performance and other outcomes of interest to organizations, are topics in dire need of research.

Given the lack of empirical attention given to peer support workers’ experience of stress, designing a study to measure burnout and related conditions at first seemed like a straightforward problem. It made sense to find instruments to represent the most familiar terms used in the realm of helping-related stress, i.e., compassion fatigue, burnout, and secondary trauma, and then assess prevalence and severity of these issues in the population. However, the quest to select valid tools to operationalize these constructs revealed serious ongoing challenges in how stress-related issues are defined and measured, particularly around their conflation with other forms of stress and psychological distress (Cieslak et al., 2014). Further review of the literature raised questions about the validity of available instruments—not only with peer specialists, but with workers broadly. Because of rampant conceptual imprecision in stress research, it was unclear whether any special benefit could be gained by measuring any one form of stress over another. Consequently, if stress is indeed a legitimate problem impacting the important work of peer support providers, it is a challenge to discern where intervention is warranted.

Therefore, it became necessary for the dissertation to address a multi-fold problem. We care about work-related stress largely because it can compromise occupational performance of peer support providers, and the need to address this issue motivates the work. But this journey could not begin without an examination of measurement validity and determination of instruments’ suitability for use in the population of peer support providers. Only then would it be defensible to move into other questions regarding prevalence, contributing factors to stress conditions, and how variants of stress impact job performance. Better still would be a method to utilize job performance issues as a way to bolster the validity of stress assessment.

The dissertation is designed to address several aims, organized into two papers. The first examines how commonly peer support providers experience stress-related phenomena (i.e. burnout, secondary trauma, and general stress). It also addresses the far-reaching assumption about differential susceptibility to stress by comparing the results of peer support providers to samples of clinicians and non-referred adults. This answers the question of how much of a problem work-related stress is for peers generally, and how it compares to stress experienced by other types of service providers. Finally, rather than deferring to professional “peer” identity or role as a proxy for stress susceptibility, this paper clarifies the relationship between current psychological distress and the experience of work-related and general stress by incorporating a measure of current psychiatric symptoms. Secondary considerations include measurement validity issues inherent to work-related stress research in peer support providers, since instruments have yet to be validated in this population.

The second paper builds upon our understanding of stress-related constructs (i.e., general stress, emotional exhaustion and secondary trauma) in peer support providers, and goes further to address their potentially unique predictive power over adverse employment outcomes. Different forms of stress co-mingle within individuals, and their corresponding measures most certainly are associated with each other. But theoretically, specific helping-related stress measures—tailored to occupational settings—should perform superiorly as predictors of employment outcomes such as turnover likelihood, job satisfaction, work performance and absenteeism. We test predesigned measures against each other, as well as against randomized stress measures, to better understand the validity and utility of assessment. Most importantly, an examination of the incremental utility of helping-related stress measures, in predicting adverse employment outcomes, has implications for targeted support strategies. Taken together, this paper answers the question of whether specific, “brand name” measures have value in capturing the experience of stress, and if specific helping-related measures improve the prediction of work-related outcomes. The two papers will now appear, followed by a general discussion.

Do Peer Support Workers Experience Disproportionate General Stress or Work Stress?¹

Abstract

Objective: Peer support specialists (PS) have experience in mental health recovery and are hired to assist others struggling with similar challenges in often-overburdened behavioral healthcare settings. This study's objective is to characterize the severity of general stress and work-related stress in a large sample of active PSs (n=738), compared to data on other groups. The role of current symptom severity is considered in the comparison of stress levels.

Method: A sample of 738 adult PSs working in mental health service settings were recruited to complete a cross-sectional online survey that included the Maslach Burnout Inventory, the Secondary Traumatic Stress Scale, and the Perceived Stress Scale. Participants' scores are described and compared with samples of mental health service providers and non-referred adults. Comparisons are stratified by PSs' current level of psychological distress, as assessed by the Brief Symptom Inventory.

Results: As a group, PSs experienced low to moderate levels of general stress and work-related stress. Compared with norms for community residents, PSs endorsed modestly lower levels of perceived general distress ($d = -.25$). PSs endorsed levels of secondary trauma ($d = -.15$) that approximate social workers—and endorsed only modestly greater emotional exhaustion ($d = .20$) than clinicians. However, a small subgroup of PSs (21.6%) were experiencing clinically significant levels of psychiatric symptoms and endorsed substantially greater general stress, secondary trauma, and emotional exhaustion than comparison groups ($d = 0.76, 1.09$ & 1.43 , respectively), despite having caseloads, work hours, pay, and tenure similar to that of PSs without clinically significant symptoms.

Conclusion: As a group, PSs appear no more susceptible to general stress and work-related stress than relevant comparison groups of community residents and clinicians. However, a small subgroup of PSs experience both significant stress and symptoms—in keeping with a well-established association between stress and psychological distress. Implications for supporting PSs and other clinicians with periods of work stress are discussed.

¹ This manuscript is co-authored with Prof. Jennifer L. Skeem at the School of Social Welfare and the Goldman School of Public Policy at the University of California, Berkeley. Select, abbreviated interpretations of preliminary study data were presented at the 23rd Annual Conference of the Society for Social Work and Research, included on a brief internal report for Veterans Health employees, and shared on a study website from October 2018 to October 2019.

Do peer support workers experience disproportionate general stress or work stress?

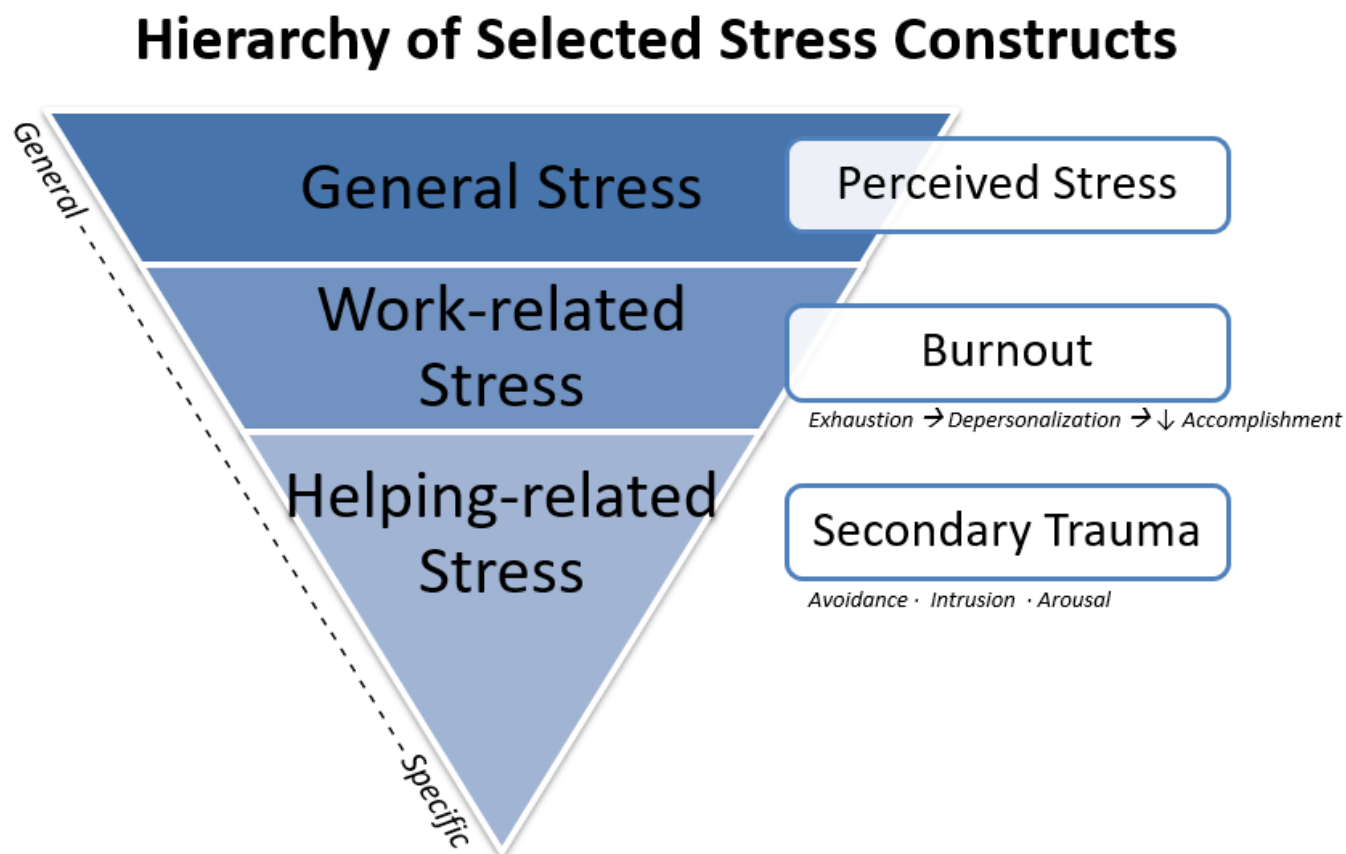
Peer support specialists (PSs) are people with mental health recovery experiences who are hired to help others with similar conditions on their own journeys toward recovery. They work in settings that have long been neglected and struggle to meet demand for mental health services. Situated within the growing problem of chronic occupational stress on health and wellbeing worldwide (International Labour Organization, 2016), PSs are doubly burdened. First, they experience stress endemic to mental health professions, where workers are in high demand, must navigate challenging legal and medical contexts, and are charged with helping distressed individuals who may be at risk of hurting themselves or others (Rossler, 2012). Second, given their self-disclosed histories, PSs face stigma that may include an untested assumption that they are particularly vulnerable to stress, burnout, and compromised work performance. Although there is a well-documented relationship between psychiatric symptoms and stress (Arborelius, Owens, Plotsky, & Nemeroff, 1999; Onan et al., 2015; Sinha, 2001; Staufenbiel, Penninx, Spijker, Elzinga, & van Rossum, 2013), few studies have directly tested this important assumption.

In the present study, we recruited a large national sample of PSs to address three aims. First, we describe the levels of general stress, secondary trauma, and occupational burnout among PSs. Second, we test whether PSs are especially vulnerable to stress, compared to normative groups of community residents and of mental health care providers. Third, we repeat these cross-group comparisons with the subgroup of PSs who are currently experiencing clinically significant levels of psychiatric symptoms. People's levels of symptoms and general psychological distress ebb and flow over time. Psychological distress—including symptoms like anxiety and depression—is robustly associated with stress (Arborelius, Owens, Plotsky, & Nemeroff, 1999; Onan et al., 2015; Sinha, 2001; Staufenbiel et al., 2013), and this association may be especially important for PSs. Pronounced stress and distress sometimes signal ill-fitting workload demands that require adjustment.

Relevant Stress Constructs

In this study, we assess three variants of stress that are most relevant to peer support work. As shown in Figure 1, these constructs vary in their level of specificity. Burnout is a widely recognized term implying sharply dwindled energy after a period of sustained, personally-depleting occupational effort. It is commonly characterized in terms of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981, 1984). When classifying stress conditions based on their specificity, burnout is an intermediary construct, a stress-related condition resulting from any kind of work or occupation (not necessarily helping-related). Burnout is situated underneath a broader, negative manifestation of “stress,” what Selye (1936, 1956) describes as a biological concept—a “non-specific response of the body to any demand for change.” Below burnout is a more specific helping-related construct of secondary trauma, a distinct, PTSD-like effect of working with people who have been acutely traumatized (Bride et al., 2004). Each of these conditions are theoretically related and share a host of measurement and validity concerns (Cieslak et al., 2014; Thomas & Wilson, 2004). Measurement across levels may be necessary to fully assess and understand PSs work-relevant stress experiences.

Figure 1. *Models of General and Work-Specific Stress*



Note. Moving from general to specific constructs, perceived stress is measured in this study by the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1994), which equates distress with feelings of unpredictability, being overwhelmed, and lack of control. Under Maslach’s framework (Maslach & Leiter, 2016), burnout is characterized by emotional exhaustion, which is thought to lead to depersonalization (a way of interpersonal distancing), and finally, reduced personal accomplishment at work. Secondary traumatic stress is specific to helping professionals exposed to secondhand accounts of traumatic experiences. It is regularly conceptualized as a parallel to PTSD, defined by avoidance of traumatic stimuli, intrusive thoughts about client accounts, and arousal, i.e. anxiety and hypervigilance (Bride et al., 2004).

Peer Support Workers, Work Demands, and Potential Stress Susceptibility

Peer support services are rooted in the mental health consumer movement and have become embraced as integral by organizations that endorse recovery-oriented approaches to mental health treatment (Myrick & Del Vecchio, 2016). PSs are typically hired based on their personal experience; their services are rooted in their own learning as mental health service users, are supportive but theoretically non-clinical, and may involve unique demands (Deegan, 2017). PSs may be relatively susceptible to increased general stress (DeVylder et al., 2016; Staufienbiel et al., 2013), heavy emotional demands due to the personal nature of their work (I. Evans, 2018), and exhaustion (Park et al., 2016).

Work-related stress may vary across PSs as a function of their level of recovery, their work demands, or both. First, there is abundant empirical evidence that stress is robustly associated with psychological distress, including symptoms of anxiety and depression

(Arborelius et al., 1999; Belsky & Pluess, 2009; DeVlyder et al., 2016; Sinha, 2001; Staufenbiel et al., 2013). This link may invite assumptions about PSs' vulnerability to work-related stress. Although little is known about levels of stress and psychological distress among PSs, PSs enter the workforce self-identified as having history of mental distress, which many healthcare providers—ostensibly their colleagues—believe is likely to recur (Grey, 2016; Henderson et al., 2014; Knaak et al., 2017; Schulze, 2007). The perceived ever-looming threat of symptom relapse may invite doubt about PSs' capacity to reliably provide supportive services.

Second, poor working conditions can lead to both stress and an increase in symptoms. Given fundamental differences between peer support and clinical services, PSs may experience more stressful work demands than clinicians. For example, PSs receive less formal training than their clinically-oriented colleagues—and training may boost confidence and resiliency in demanding settings. As a group, PSs rate excessive workload, poor compensation, and lack of organizational support as major stressors (Miyamoto & Sono, 2012).

Few studies have examined stress among PSs, and the extent to which stress is associated with psychiatric symptoms or work demands. Two studies are relevant and notable. With respect to differential susceptibility to stress and psychiatric symptoms, Park et al. (2016) prospectively studied burnout among Veterans Health-affiliated PSs. The authors found that PSs' levels of burnout were comparable to those of non-peer-identified VA staff, although PSs' with increased psychiatric symptoms manifested higher levels of burnout. Recent findings, though in a small sample, support the notion that PSs do not have significantly different levels of burnout from other mental health workers (Scanlan et al., 2020). Given that the prevalence of professional burnout among clinical mental health providers is 40% (O'Connor et al., 2018), one might expect similar levels of burnout for PSs, with burnout more pronounced for those with greater symptoms. Shifting to the topic of work demands, Cieslak et al. (2013) studied a sample of mental health providers (N=224)—not PSs—and found that secondary trauma was associated with higher caseloads, higher proportions of traumatized patients, paperwork demands, personal trauma history, and perceived negative impact of indirect trauma exposure. This suggests that workload demands are relevant to stress among PSs, particularly given that PSs often work with large caseloads and/or have personal histories of trauma.

Without directly studying PSs, it is difficult to isolate the effects of current psychiatric challenges, work demands, and their combination on stress. Little is known about PSs' vulnerability to work-related stress, or the personal and environmental factors that contribute to it. Whether PSs are feeling particularly strained at work, especially in the presence or absence of mental health challenges and disproportionate work demands, is a question with implications for remedial efforts and organizational culture.

Aims and Hypotheses

The aims of this paper are to first assess levels of general stress, secondary trauma, and occupational burnout in a large sample of active PSs, using widely used measures validated for helping professionals and non-referred adults. Next, the paper addresses the possible issue of PSs' differential susceptibility to stress by comparing their responses on stress-related measures to those of non-referred adults and clinicians. For this aim, PSs' occupational stress is tested against samples representative of their colleagues in the field—i.e., mental health providers—and their general stress is tested against that of a normative non-referred sample of adults. Given the

heterogeneity of employing organizations represented in this sample, there are no *a priori* hypotheses about PSs' relative vulnerability to stress, compared to norms.

Last, this paper clarifies the relationship between active psychological distress and the experience of work-related and general stress by incorporating a measure of current psychiatric symptoms. Cross-group comparisons on the occupational and general stress measures are repeated in a subgroup of PSs who are experiencing clinically significant levels of current symptoms. In line with previous findings in this population (Park et al., 2016), it is expected that clinically significant psychiatric symptoms will be associated with higher levels of stress when tested against comparison groups, and with higher work demands.

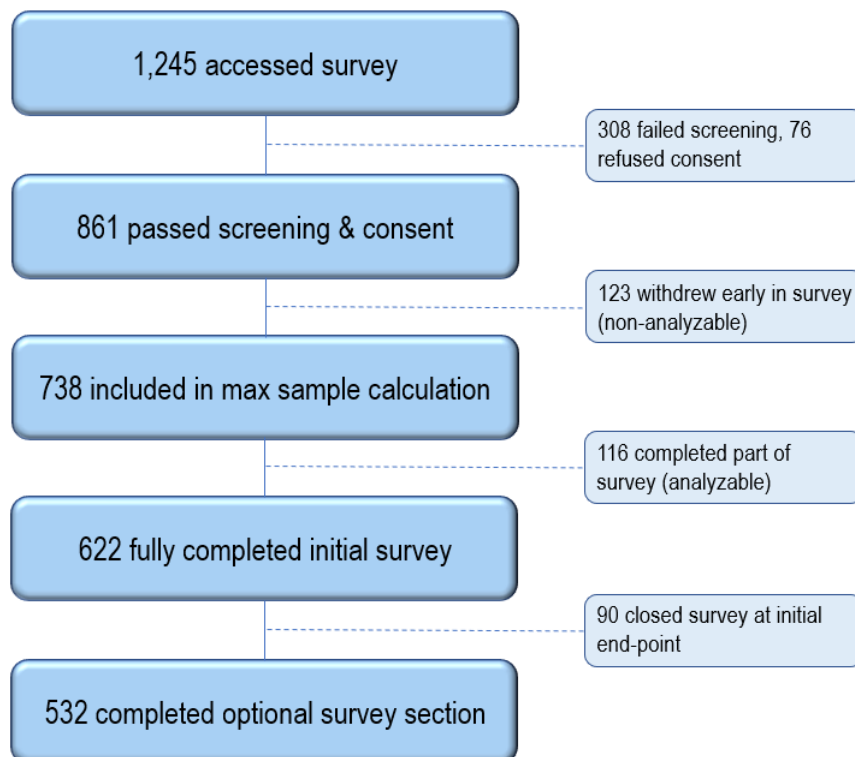
Method

Participants and Procedure

This cross-sectional study utilizes online survey responses from a large sample of adult (aged 18+) PSs in U.S. mental health service settings. PSs included in this study were employed in formal roles, either paid or unpaid (e.g. through internship), providing predominantly uni-directional support for adult mental health service recipients within recovery-oriented organizations or traditional mental health service organizations. Their work roles shared a common eligibility criterion in that workers were hired based on their lived experience of mental health distress or service use. *Excluded* were PSs who had core job responsibilities far in addition to direct peer support services (e.g. executives, clinicians), were solely engaged in mutual aid or self-help groups, and/or served as family support providers.

Recruitment for the study occurred from October 2017 to May 2018 via mass-mailings to mental health service organizations and online discussion groups for PSs. The response increased as agencies shared study information with others. The online Qualtrics survey was accessed 1,245 times (Figure 2), and each potential participant provided informed consent following screening for five inclusion criteria: 1. provision of direct peer support services to people in recovery from mental health challenges; 2. employment conditional on personal experience with mental health challenges and/or service use; 3. training received to provide peer support services; 4. U.S.-based employment; and 5. legal adult age. The survey was well-tolerated, with no adverse events reported and a 72% completion rate among those who began the study. Of the 239 respondents who discontinued participation at some point after qualifying and providing consent, 51.2% (n=123) did so before answering questions that permit tests of selection bias. The other 116 participants, referred to as "partial completers," provided demographic data and completed some analyzable portion of the survey. The sample size therefore varies, to a maximum of 738, depending on available data and analyses performed. Based on a comparison of the 116 partial completers with those who fully completed the survey, there were no significant differences in age and gender. Compared to those who fully completed the survey, partial completers were significantly more likely to identify as non-white, non-Hispanic ($\chi^2(2, N = 737) = 11.75, p=.003$), more specifically African American ($\chi^2(1, N = 737) = 14.64, p<.001$). Finally, 532 participants completed the entire survey and volunteered to answer optional questions related to organizational support and feelings about service recipients (though these instruments were not utilized in the current study).

Figure 2. *Flowchart of Attrition in the Peer Provider Stress Survey*



The total sample of 738 participants had a mean age of 48.21 (range 18-74). Most identified as female (64.8%) and white, non-Hispanic (77.5%). See Table 1 for demographic, clinical, and employment characteristics. Most respondents obtained peer specialist certification ($n=642$, 87.0%), worked full-time in paid positions ($n=552$, 74.8%) for an average of 33.4 hours weekly, and worked solely as direct providers of peer support (93.6%). The hourly pay rate was \$15.80 (SD 4.71) among the 447 workers who provided this information. There was high variability in weekly caseload with a median of 16 peers served ($n=711$, IQR 10-30)². Modeled after the 2014 Survey of Education, Compensation, and Satisfaction (Cronise et al., 2016), participants reported on general life experiences informing their work, which are described in Table 1 along with self-reported diagnoses.

² Future studies should reframe this question as number of peers served in given contexts—e.g. in group support or educational settings, in one-on-one encounters, or served agency-wide—as well as inquire about service intensity, which is difficult to glean from the available metrics in the current study.

Table 1. Sample Characteristics

	N	%
Demographic Characteristics		
Age (mean±SD)	729	48.21±11.9
Gender		
Female	478	64.8
Male	251	34.0
Non-conforming/Trans*/Other	9	1.2
Race/ethnicity		
Caucasian/White	572	77.5
Hispanic/Latino	116	15.7
African American/Black	83	11.2
Other ^a	112	15.2
Clinical Characteristics		
Lived experience with...		
Substance use condition	446	60.4
Loss of employment	425	57.6
Loss of home	303	41.1
Arrest, incarceration, or probation	288	39.0
Involuntary mental health treatment	146	19.8
Diagnosis (n=502) ^b		
Trauma- and stress-related disorders ^c (n=736)	385	52.3
Depressive disorders ^c	262	52.2
Anxiety disorders	202	40.2
Bipolar and related disorders	188	37.5
Schizophrenia and psychotic disorders	42	8.4
Substance-related and addictive disorders	33	6.6
Personality disorders	28	5.6
Obsessive-compulsive and related disorders	26	5.2
Other ^c	57	11.4
BSI-18 Global Severity Index (mean±SD)	635	11.88±11.6
Work Characteristics		
Peer support certification	642	87.0
Time status ^d		
Full time, paid	552	74.8
Part time, paid	161	21.8
Full time, volunteer	7	0.9
Part time, volunteer	45	6.1
Hours worked (mean±SD)	729	33.4±12.0
Hourly salary, in dollars (mean±SD)	447	15.80±4.7
Months of service (mean±SD)	731	40.59±38.3
Caseload median (IQR)	711	16(10-30)

Note. Characteristics calculated on all available data provided by the maximum analyzable sample (N=738). Some data are missing due to attrition or skipped items.

^a Other ethnicities include Asian, Pacific Islander, Native American, multi-ethnic and/or other unspecified ethnicity.

^b Two questions asked about diagnosis; 502 participants volunteered this information through open-ended text-entry and results were coded according to recognized DSM-V disorders. More people answered a specific question about PTSD, which accounts for the higher sample size.

^c Trauma and stressor-related disorders: PTSD, adjustment disorders, and reactive attachment disorder. Depressive disorders: seasonal affective disorder and premenstrual dysphoric disorder, excludes bipolar disorders. Other conditions: neurodevelopmental disorders (ADHD and autism), feeding/eating disorders, dissociative disorders, sleep-wake disorders, and somatic symptom and related disorders.

^d Percentages total over 100% when multiple selections were possible. Time status was reported for each position held—in some cases PSs work in paid and volunteer positions.

Instruments

Burnout. The 22-item Maslach Burnout Inventory – Human Services Survey (MBI-HSS; (Maslach & Jackson, 1981, 1984) is a widely used measure of burnout among human service professionals (Schaufeli & van Dierendonck, 1993). Reliability and validity have been assessed as acceptable in samples of mental health professionals (Chao, McCallion, & Nickle, 2011); Maslach, Jackson, & Leiter, 1997). The instrument has been used to distinguish psychiatric outpatients who are experiencing occupational burnout, as well as between burnout and psychiatric conditions such as anxiety and depression (Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001).

The MBI-HSS is designed to assess burnout by asking about frequency of feelings associated with three factors: *Emotional exhaustion* refers to overextension and emotional depletion, *Depersonalization* involves detached or negative reactions to other people, and *reduced personal accomplishment* is characterized by low self-efficacy and feelings of inadequacy at work. Items are scaled from 0-6, according to how often feelings are experienced (e.g., 0=never, 1=a few times a year or less, 6=every day), and then totaled by subscale. A systematic review of 17 major studies on the structure of the MBI-HSS (Loera, Converso, & Viotti, 2014) found that most factor analyses align with Maslach’s three-factor structure, with the most common modification being elimination of two items.

In the present study, we applied confirmatory factor analyses using SPSS-AMOS (Arbuckle, 2017) and follow-up analyses in FACTOR (Lorenzo-Seva & Ferrando, 2006) to test the fit of this three-factor model—and found inadequate fit³ ($\chi^2/df = 5.741$, RMSEA = .080, CFI = 0.836). As detailed in Appendix 4, the Depersonalization and Personal Accomplishment subscales performed poorly (with cross-loaded items) and manifested poor internal consistency ($\alpha = .67$ & $.74$, respectively).

Based on these results, we emphasize the nine-item Emotional Exhaustion subscale in our comparisons. This scale clearly emerged in exploratory factor analyses, showed excellent internal consistency ($\alpha = .92$), and is justifiable for use in ongoing analyses. Although we provide descriptive results for the other two subscales, we do not interpret them and believe they should be referenced with caution.

We compare our sample’s scores on Emotional Exhaustion with the original normative sample for the MBI-HSS. The sample consists of 730 mental health workers, including psychologists, psychiatrists, therapists, counselors, and other staff (Maslach, Jackson, & Leiter, 1997).

Secondary traumatic stress. The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) is a 17-item measure of vicarious trauma over the last week. Reliability and validity have been assessed in samples of social workers, and with alpha ranging from .83 to .89, the total STSS and its three subscales show very good internal consistency (Bride et al., 2004).

³ Fit indices were considered acceptable within the following thresholds: The chi-square value (CMIN/DF) between 1.0 and 5.0, and ideally non-significant, though chi-square is sensitive to large sample size (Iacobucci, 2010); the comparative fit index (CFI) greater than or equal to 0.9; and RMSEA with 90% CI less than or equal to 0.08, ideally less than 0.05.

Secondary traumatic stress (STS) is most clearly interpreted as secondary PTSD (Bride et al., 2004), where in a typically acute response to indirectly experienced trauma, a helper develops their own cluster of less-severe symptoms paralleling PTSD as it was recognized in the DSM-IV (American Psychiatric Association, 2003). Therefore, STSS is organized into three subscales or factors—Intrusion, Avoidance, and Arousal—and can be analyzed as a total scale. Total scores of 38 or higher indicate clinically significant levels of STS; Bride also broke scores into five percentile groups to grade severity (see Appendix 3). Convergent and factorial validity of the STSS have been reported in a national sample of 275 mental health social workers (Ting, Jacobson, Sanders, Bride, & Harrington, 2005) with high intercorrelations between factors suggesting unidimensionality.

In PSs, the original three-factor model and a unidimensional model were tested in SPSS-AMOS (Arbuckle, 2017) with their relative fit found satisfactory (see Appendix 4). Slight advantages were noted in the three-factor model ($\chi^2/df = 4.692$, RMSEA = .071, CFI = 0.920 vs. $\chi^2/df = 5.490$, RMSEA = .085, CFI = 0.900), with correlations ranging from 0.84 to 0.97; however, the high correlation between Arousal and Avoidance subscales suggests a common factor. Due to this ambiguity and the context potentially added by reporting on subscales, both the three-factor and unidimensional models are used in comparative analyses. Internal consistency for the 17-item STSS was excellent ($\alpha = .93$), and acceptable for each subscale (Intrusion, five items, $\alpha = .76$; Avoidance, seven items, $\alpha = .87$; Arousal, five items, $\alpha = .84$).

We compare our sample's scores on the STSS total and subscales with an earlier sample consisting of 282 master's level social workers; 70.2% of whom experienced at least one STS symptom in the previous week, and 15.2% meeting the core criteria for PTSD (Bride, 2007).

Perceived general stress. The ten-item Perceived Stress Scale (PSS; Cohen et al., 1994) is a widely-used instrument for measuring stressful feelings or thoughts over the last month. The PSS has acceptable reliability and validity, with superior psychometric properties reported in the ten-item version of the instrument ($\alpha > 0.70$; E. Lee, 2012). Total scores correlate with depression and anxiety, with lower scores seen in participants hypothesized to have lower levels of stress (e.g. young, white, married, employed, and higher SES; E. Lee, 2012).

Designed for use in general populations, the PSS is presented as a unidimensional scale, and alternate factor structures have been suggested (E. Lee, 2012; Roberti, Harrington, & Storch, 2006), including the grouping of positive and negatively-worded items. Improved fit in these cases is likely a methodological artifact (Spector, Van Katwyk, Brannick, & Chen, 1997).

The unidimensional model of perceived general stress initially appeared to inadequately fit data from PSs ($\chi^2/df = 9.026$, RMSEA = .104, CFI = 0.887); an alternative two-dimensional model separated positive and negative items and improved the fit ($\chi^2/df = 5.415$, RMSEA = .077, CFI = 0.939). However, an exploratory approach was also utilized due to multivariate non-normality. These analyses, in FACTOR (Lorenzo-Seva & Ferrando, 2006), supported unidimensionality (see Appendix 4). Since fit indices were nearly adequate, and the two factors are more methodological than substantive, the single-factor model is used to address the aims of this paper. The ten-item PSS has good reliability ($\alpha = 0.88$).

We compare our sample's scores on the PSS with a normative sample (N=2,000) representative of the general population (Cohen & Janicki-Deverts, 2012), with a mean age of

44.6 (SD 15.5). In the normative sample, general stress was found to be higher among women and people at lower age, education, and income levels.

Psychiatric Symptoms. The 18-item Brief Symptom Inventory (Derogatis & Melisaratos, 1983) measures psychological distress in clinical and community populations. One of the more prominent measures of psychological distress, psychometric properties of the BSI have been tested and show good internal reliability and test-retest reliability (Derogatis & Spencer, 1993). The BSI-18 is a reduced form of the original BSI, which was developed from the SCL-90-R and shows convergence with dimensions of the Minnesota Multiphasic Personality Inventory (Derogatis & Melisaratos, 1983). This Likert response format questionnaire assesses three dimensions of psychological symptoms: Somatization, Depression, and Anxiety, as well as a Global Severity Index (GSI) derived from the total score which is said to indicate overall emotional adjustment or psychopathologic status (Derogatis, 2001). While not a diagnostic tool, clinical significance of symptoms is suggested by a GSI T-score of 63 or higher. The clinical “case rule” outlined by Derogatis (2001) suggests that about 90% of individuals from the general population score below this threshold, and the remaining 10% who exceed this cutoff are at significant risk of psychopathology warranting further clinical investigation. Using this “case rule,” 21.6% of PSs (n=137) reach significant levels of distress on the BSI-18 and comprise the subsample for additional comparisons on measures of stress.

Analyses

Preliminary analyses characterize associations among measures of occupational stress, general stress, and psychiatric symptoms. To address the first aim, descriptive statistics on the level of general stress, secondary trauma, and occupational burnout are reported. Next, to test whether PSs overall are especially vulnerable to stress, Z-tests for means compare their scores on measures of occupation-related and general stress to comparison groups, with effect sizes emphasized above statistical significance due to the large sample size. Finally, to examine the relationship between psychiatric symptoms and different forms of stress, PSs are divided into two subgroups based on their current level of psychological distress. In the subgroup of PSs who are currently experiencing clinically significant levels of symptoms, cross-group analyses of occupation-related and general stress are repeated. Employment characteristics (i.e. caseload, pay, and work hours) are also examined for differences between distressed and non-distressed PSs, using t-tests for means.

Results

Preliminary Analyses: Overlap Among Measures of Occupational and General Stress

Total scores for scales demonstrating sound psychometric properties (i.e. the Secondary Traumatic Stress Scale and its subscales, the Emotional Exhaustion subscale of the MBI-HSS, and the Perceived Stress Scale) were entered into correlational analyses, shown in Table 2. These were significant at the $p < 0.01$ level with expected directionality. There is some shared variance in these measures as correlations were moderate to strong (J. Evans, 1996), with the strongest between unique measures found in the MBI Emotional Exhaustion subscale and the STSS total scale. STSS subscales are highly correlated with each other, and there is substantial shared variance between perceived general stress and helping-related stress measures, with correlations ranging from .499 - .659. Notably, STSS indices were very strongly associated with symptoms as assessed by the BSI-18.

Table 2. Correlations Among Measures of General Stress, Work-Related Stress and Psychiatric Symptoms

STSS - Total	1						
STSS - Avoidance	.96	1					Pearson's <i>r</i>
STSS - Intrusion	.85	.74	1				.50 -.59
STSS - Arousal	.93	.83	.67	1			.60 -.69
MBI - Emotional Exhaustion	.69	.68	.59	.63	1		.70 -.79
Perceived Stress	.66	.65	.50	.66	.62	1	.80 -.89
BSI-18	.81	.79	.63	.79	.62	.71	.90 -.99
	STSS - Total	STSS - Avoidance	STSS - Intrusion	STSS - Arousal	MBI - Emotional Exhaustion	Perceived Stress	

Note. STSS=Secondary Traumatic Stress Scale; MBI=Maslach Burnout Inventory; BSI-18=Brief Symptom Inventory-18.

** all correlations significant at $p < .001$, 2-tailed.

Comparing Peer Support Workers' Occupational Stress to Data on Clinicians

Z-tests were used to compare the scores of the present sample with those of the comparison groups, for all stress measures. Results are summarized in Table 3.

Table 3. *Differences in Stress Between PS and Comparison Samples*

Construct	Measure	Comparison Sample		PS Sample		Diff.	Z	d
		N	Mean (SD)	N	Mean (SD)			
General Stress	Perceived Stress Scale	2,000	15.84 (7.51)	632	13.97 (6.72)	-1.87	-6.27	-0.25
	MBI - EE	730	16.89 (8.90)	647	18.69 (11.90)	1.80	5.14	0.20
Burnout	MBI - DP	730	5.72 (4.62)	643	3.81 (4.52)	-1.91	-10.48	-0.41
	MBI - PA	730	30.87 (6.87)	642	40.72 (6.44)	9.85	39.18	1.55
Secondary Trauma	STSS - Intrusion	282	8.18 (3.04)	620	7.36 (2.75)	-0.82	-6.72	-0.27
	STSS - Avoidance	282	12.58 (5.00)	624	11.42 (4.79)	-1.16	-5.80	-0.23
	STSS - Arousal*	282	8.93 (3.56)	620	9.23 (4.05)	0.30	2.10	0.08
	STSS - Total	282	29.69 (10.74)	616	28.03 (10.70)	-1.66	-3.83	-0.15

Note. PS=Peer Support Specialists; MBI=Maslach Burnout Inventory; EE=Emotional Exhaustion; DP=Depersonalization; PA=Personal Accomplishment; STSS=Secondary Traumatic Stress Scale.

*All p-values significant at the $p < .001$ level except STSS Arousal ($p = .036$).

In the comparison of MBI-HSS subscale scores with mental health professionals, results were all statistically significant at the $p < .001$ level (two-tailed), with PSs endorsing higher levels of emotional exhaustion ($z = 5.14$). This is indicative of higher burnout; however, the magnitude of this effect was small ($d = .20$). Overall, PSs scored within average limits indicated by Maslach et al. (1997), though 51.2% report a moderate or high level of emotional exhaustion.

Sample means for the total STSS and its subscales were compared to mean values in a sample of 282 social workers (Bride, 2007). PSs scored modestly lower on the total STSS ($z = -3.83$, $p < .001$, $d = -.15$). Using Bride's (2007) scoring strategy, nearly 15% of the sample has a clinically significant level of post-traumatic stress through secondary traumatization.

Comparing Peer Support Workers' General Stress to a Normative Adult Sample

For the Perceived Stress Scale, the normative population includes 2,000 non-referred adults nationwide (Cohen & Janicki-Deverts, 2012), with results summarized in Table 3. Compared with the normative sample, PSs endorsed significantly lower levels of perceived general stress ($M = 15.84$, $SD = 7.51$, $z = -6.27$, $p < .001$), however, the magnitude of this effect was small ($d = -0.25$).

Examining Stress Among PSs with Clinically Significant Current Symptoms

Shifting focus from the whole group of PSs to the subgroup with clinically-significant scores on the BSI-18 ($n = 137$, 21.6% of sample); this distressed subgroup scored significantly higher than comparison groups on all measures of stress (Table 4). Although the largest contrast was on the measure of emotional exhaustion ($d = 1.43$), differences in mean STSS and PSS scores were also large ($d = 1.09$ and 0.76 , respectively). Figure 3 illustrates the contrast between PSs and comparison groups in their responses to the three stress measures, stratified by clinical significance of their distress as measured by the BSI-18.

As noted earlier, PSs may experience greater stress not only in conjunction with greater symptoms—but also as a function of greater work demands. To address this issue, we statistically compared the more distressed group of PSs ($n = 137$) with those who scored below the BSI clinical cutoff on several work characteristics. Results indicate no significant differences between these groups in weekly caseload ($t_{616} = 0.659$, $p = .51$), work hours ($t_{630} = 0.731$, $p = .47$), hourly pay ($t_{415} = -0.980$, $p = .33$), or months of service ($t_{628} = -0.240$, $p = .81$). This suggests that pronounced stress levels of distressed PSs are more connected with symptoms than these particular work characteristics.

Summary

In a large sample of PSs, we measured three variants of stress relevant to their work; perceived stress served as a general construct, while burnout and secondary trauma applied to work, the latter being most specialized (Figure 1). When compared to clinicians, PSs tend to experience less (or similar) levels of work-related stress as measured within the frameworks of burnout and secondary trauma, and when compared to a normative non-clinical adult sample, PSs experience similar levels of general stress. Except for emotional exhaustion, which to some degree affects over half the sample, PSs do not typically report high levels of work-related or general stress. When considered as one group, PSs are not disproportionately affected by either of the forms of stress measured. However, the experience of work-specific and general stress increases with elevated levels of psychiatric symptoms, and on each of the measures there is a stark contrast between the distressed group of PSs and comparison groups. There were no differences in employment characteristics (i.e. caseload, work hours, pay, or tenure) noted between the distressed and non-distressed groups.

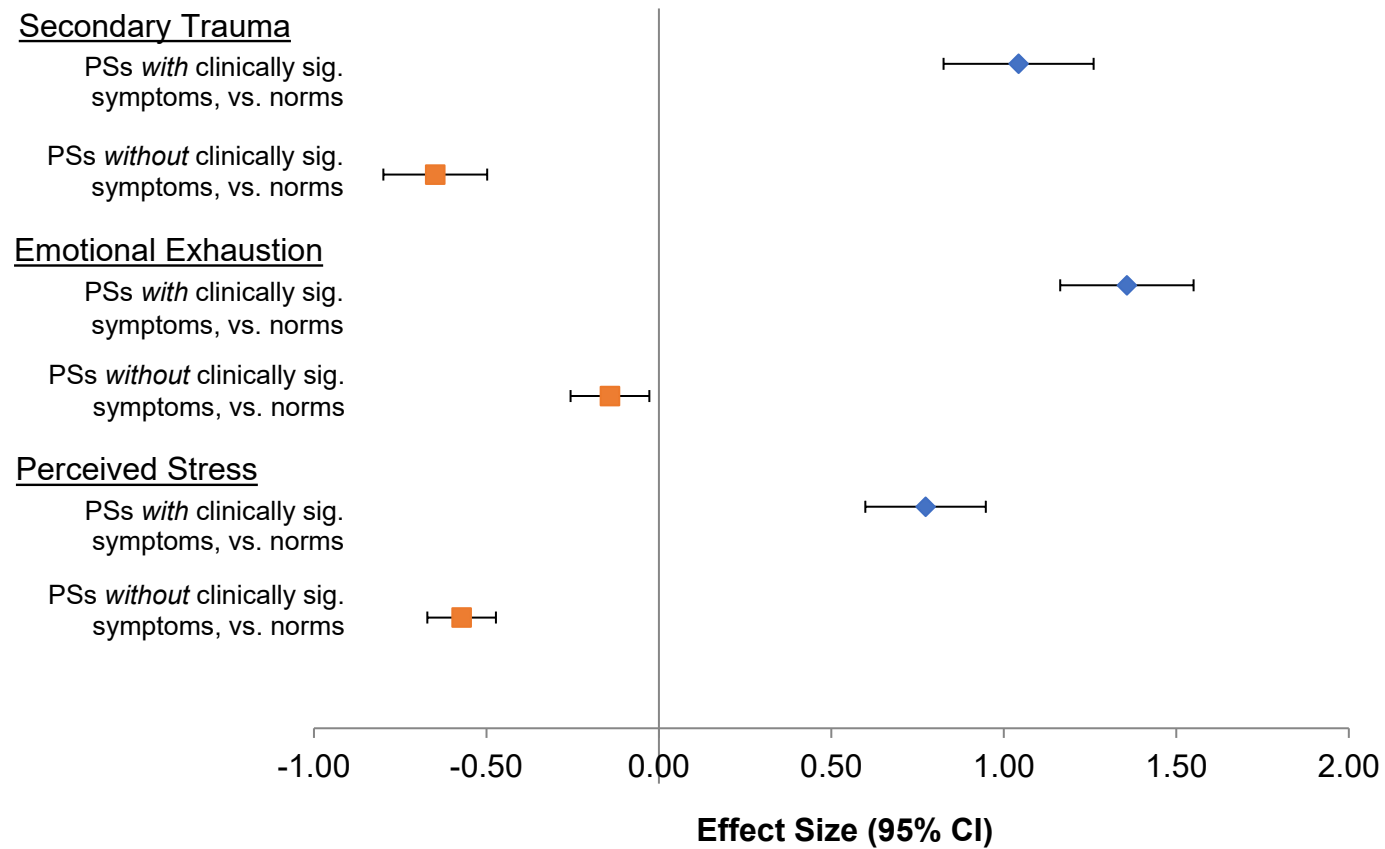
Table 4. Differences in Stress Between PS and Comparison Samples, Stratified by Clinical Significance of PSs' Current Symptoms

Measure	Comparison Sample		PSs Without Clinically Significant Symptoms (n=635)					PSs With Clinically Significant Symptoms (n=137)				
	n	Mean (SD)	n	Mean (SD)	Diff.	z	d	n	Mean (SD)	Diff.	z	d
STSS - Intrusion	282	8.18 (3.0)	485	6.64 (1.8)	1.54	-11.16	-0.51	135	9.96 (3.8)	-1.78	6.80	0.59
STSS - Avoidance	282	12.58 (5.0)	488	9.81 (3.0)	2.77	-12.24	-0.55	136	17.24 (5.5)	-4.66	10.87	0.93
STSS - Arousal	282	8.93 (3.6)	485	7.87 (2.7)	1.06	-6.56	-0.30	135	14.1 (4.4)	-5.17	16.87	1.45
STSS – Total	282	29.69 (10.7)	482	24.31 (6.4)	5.38	-11.00	-0.50	134	41.41 (12.2)	-11.72	12.63	1.09
Perceived Stress	2000	15.84 (7.5)	498	11.75 (5.5)	4.09	-12.15	-0.54	137	21.55 (5.2)	-5.71	8.90	0.76
EE	730	16.89 (8.9)	496	15.56 (10.0)	1.33	-3.33	-0.15	137	29.58 (11.4)	-12.69	16.69	1.43
DP*	730	5.72 (4.6)	492	3.05 (3.9)	2.67	-12.82	-0.58	137	6.58 (5.4)	-0.86	2.18	0.19
PA	730	30.87 (6.9)	493	41.21 (6.5)	-10.34	36.04	1.62	135	39.05 (6.3)	-8.18	14.92	1.28

Note. STSS=Secondary Traumatic Stress Scale; BSI=Brief Symptom Inventory-18; EE=Emotional Exhaustion subscale; DP=Depersonalization subscale; PA=Personal Accomplishment subscale.

*All p-values significant at the $p < .001$ level except PA ($p = .029$)

Figure 3. Differences in Stress Between PS and Comparison Samples, Stratified by Clinical Significance of PSs' Current Symptoms



Note. Only 21.6% of the sample of PSs score at a clinically significant level of psychological distress on the BSI-18.

Discussion

This study was largely designed to estimate the level of work-related stress in actively employed PSs, compared with data on samples of clinicians and community residents. Our principal findings can be organized into two points. First, emotional exhaustion, secondary trauma, and perceived general stress are moderate to low among PSs—with scores that approximate those found in comparative samples (in keeping with Park et al., 2016). This challenges general assumptions that PSs are more susceptible to stress than other professional mental health providers. Second, the small subset of PSs (21.6%) who currently experience clinically significant symptoms also manifest substantial stress.

Before unpacking these findings, we note this study's measurement lessons. Although we found that Maslach's burnout assessment as a whole was of limited utility with PSs, measures of emotional exhaustion, secondary trauma, and general stress manifested relatively strong psychometric properties and appear suitable for use with this population. Strong associations among these measures, however, raise questions about the extent to which they assess separable constructs.

As a Group, Peer Support Workers Are Not Disproportionally Stressed

There may be implicit doubts in the field regarding PSs' resiliency, competency, and capacity to reliably provide effective services for people with serious mental illness (Gibson-Leek, 2003; Jaffe, 2017; Meagher, 2002). As a requirement for employment, PSs have experience with mental health challenges and/or service use. They may have a wealth of knowledge in recovery, they may still struggle with challenges, and they may live with some balance of these.

Nevertheless, it is clear from our data and prior studies that PSs are working in various mental health service environments, often on a full-time basis, and report high rates of personal satisfaction (Cronise et al., 2016). This speaks to some extent of their foundation in recovery, motivation to succeed, and ability to withstand demanding service settings. The opportunity to "give back" via meaningful service may additionally buffer against work-related stress (Johnson et al., 2014; Salzer et al., 2013; Solomon, 2004).

The principal results of this study indicate that stress levels among PSs should be as concerning as those experienced by other mental health providers—no more, no less. As a group, PSs endorse levels of general stress similar to the general population. Nevertheless, the relatively personal nature of peer support work may justify a unique approach to alleviating stress in this population. Next, we consider PSs experience of helping- and work-related stress.

Secondary trauma. In this study, the vast majority (85%) of PSs endorsed no symptoms or mild symptoms of secondary trauma (see Appendix 3). Secondary trauma was a relevant concern for this group, since peer support work runs the risk of re-activating old wounds in service providers, and entry to the workforce does not depend on whether or how personal traumas have been addressed. It is possible that PSs are not exposed to traumatic material in their day-to-day work, since PSs serve in a variety of direct service roles, as seen in this sample and others (Cronise et al., 2016; Salzer, Schwenk, & Brusilovskiy, 2010). It is also possible that PSs experience secondary trauma, but under-report it to avoid stigma or adhere to a workplace culture of empowerment and resilience (for an example with military health providers, see

Kintzle, Yarvis, & Bride, 2013). Finally, personal history with adversity may protect against work-related stress, perhaps because of desensitization to stressful events over time (for better or for worse), or prioritization of one's own recovery work.

Emotional exhaustion. Burnout was not widely reported by PSs. Though the magnitude of the effect was small, PSs scored significantly higher on the Emotional Exhaustion subscale of the MBI compared to comparison groups of mental health providers. Emotional exhaustion is a core feature of burnout most closely aligned with the stress experience (Tijdkink, Vergouwen, & Smulders, 2014)—and was the most psychometrically-sound subscale of the MBI in the present sample.

Of the three domains of burnout, emotional exhaustion is the first to appear in response to work demands; theoretically, sustained exhaustion is followed by depersonalization and finally, reduced accomplishment (Maslach & Leiter, 2016). Keeping with this theory, in their study of VA-affiliated PSs, Park et al. (2016) assessed burnout at three timepoints over one year, and found increases in emotional exhaustion and depersonalization only during the first six months of employment. Participants in the present study had been employed for a median of three years, but the response distribution was significantly skewed and kurtotic, and nearly a third (28.2%) had worked a year or less. While acknowledging the validity concerns associated with the MBI as a whole, it is possible that end-stage exhaustion/burnout was rarely observed in this sample due to the more severe ramifications of the syndrome—job loss—disqualifying them from participation in this study. Longitudinal analysis with follow-up for terminated employees can shed light on the interaction of valid burnout dimensions (perhaps using other measures) and consequences.

The Small Subgroup of PSs with Clinically Significant Symptoms Experience Substantial Stress

The strong association we observed between scores on measures of psychiatric symptoms and stress is consistent with past research (Arborelius et al., 1999; Belsky & Pluess, 2009; DeVlyder et al., 2016; Sinha, 2001; Staufenbiel et al., 2013) and with Park et al.'s (2016) finding that emotional exhaustion was linked with psychiatric symptom severity in their sample of PSs. Until the present study, this was the furthest extent to which the association between work-related stress and psychiatric symptoms in PSs had been studied.

We found that a small subgroup of PSs are currently symptomatic and also experiencing disproportionate work-related stress. We hope this finding does not promote stigma, but instead spurs conversation about how and when to provide PSs with support to reduce stress and whether the approach should differ from those used with other mental health professionals. Although PSs are not generally or continually at risk of acute distress, the 21.6% who currently are may benefit from tailored supports.

In this study, symptom scores were strongly associated with secondary trauma scores. Since the directionality of the relationship between secondary trauma and psychiatric symptoms is not known, it would be prudent for employers to consider whether acute distress is linked to exposure to traumatized clients. For the 14.9% of PSs with clinically significant levels of secondary trauma, future studies should account for other correlates such as work setting demands and details about trauma history. In a sample of mental health providers, Cieslak et al. (2013) found that secondary trauma was associated with higher caseload, higher proportion of

traumatized patients, paperwork demands, personal trauma history, and perceived negative impact of indirect trauma exposure. In contrast, we found little association between symptom scores and workload demands in the present study. Because of the high variability of roles performed by PSs, future investigations of STS should incorporate measures such as the Secondary Trauma Exposure Scale (Cieslak et al., 2013) to more straightforwardly explain the link between demanding roles and psychological sequelae. Employers can take a cue from these findings to assess, with their employees, whether the quantity or quality of assignments should be adjusted to support continued engagement in work. PSs often have insight into their own trauma history; when applicable they might consider a self-assessment of their experiences, resilience and/or post-traumatic growth to proactively inform conversations about needed accommodations.

It seems important to consider the present study's second finding—that a small subgroup of PSs experience both pronounced symptoms and stress—against its primary finding, that, as a group, PSs are no more or less stressed than other groups. Rather than assess PSs symptoms and assume performance deficits, it is important to recognize that the former may not translate to the latter. Furthermore, symptoms are transient and can affect anyone regardless of professional identity; conclusions about PSs' clinical risk and job performance would be harmful without a parallel assessment of clinical risk in groups of non-peer-identified colleagues. Finally, we found no significant differences between the workloads, hourly pay rates, and tenure of distressed and non-distressed groups of PSs. If there is an ideal work assignment that facilitates PSs work through times of stress and/or crisis, it likely requires individualized assessment and supports rather than lump recommendations.

Limitations

This study has limitations related to study design and measurement. Mainly, it is unclear how representative this sample is of the greater population of PSs due to potential selection bias, which may have resulted from decreased response from eligible PSs who were distressed. Though the completion rate was high, there may have also been some level of attrition bias, as we did find survey discontinuation more likely among those identifying as non-white, non-Hispanic. To ascertain whether the final sample's characteristics approximated previous population estimates in PSs, their characteristics were compared with results from the nationwide Peer Specialist Survey of Education, Compensation, and Satisfaction (Cronise et al., 2016). The two samples were similar demographically, but this study sample has a higher hourly salary and less homogeneity of job titles, which may reflect increases in wages and differentiation of roles over time⁴. Nevertheless, our sample consists primarily of middle-aged white individuals who had been working full-time, and it is important to interpret results in light of these characteristics. Though worker roles and employing organizations are highly variable in ways that may impact stress, this paper offers descriptive statistics on stress-related phenomena in a large, carefully screened sample of active PSs, and is a foundation for understanding severity of these issues while noting limitations in their measurement in the greater population.

⁴ The iNAPS sample (N=597) was 75.4% white, 15.4% black/African American, 9.4% Hispanic, .5% Asian (vs. 77.5%, 11.2%, 15.7%, 1.6%, respectively); 64.3% (vs. 64.8%) female; 67.2% over age 45 vs. current sample mean age of 48.2.

Conclusion

The present study represents one of the first and largest examinations of work-related stress among PSs. We explicitly compared work-related stress and general stress of PSs with service providers who are more established in the industry and are identified professionally as clinicians instead of by challenging mental health histories. Our results indicate that just one in five PSs at a given time may benefit from tailored supports to address pronounced stress. As a group, PSs do not experience disproportionately high levels of stress—work-related or generally. This new finding can inform efforts to combat the problem of stress and burnout in mental health service organizations.

Transition

The first installment of the dissertation is now complete. The previous paper introduced key analyses from the Peer Provider Stress Survey: It offered an estimate of the level of stress-related phenomena in a large sample of peer support providers, allowing comparison to other groups and initial assessment of instrument validity. Through correlational analysis, we saw that ostensibly different stress instruments overlap considerably. There are unanswered questions about these measures' specificity and differential utility in predicting important outcomes.

The next paper addresses such questions by examining commonalities between stress conditions and their measures, and testing their external validity by incorporating work-related outcomes of interest such as turnover likelihood, low job satisfaction, work performance and absenteeism. Theoretically, specific helping-related stress measures should better predict adverse employment outcomes than measures of general stress. The paper addresses the extent to which these measures overlap in their prediction of the same basic construct, in the process identifying which original measures have greater predictive power relative to each other, as well as to randomly-structured or "mixed stress" scales created from the combined item pool. This answers the question of whether specific, "brand name" measures really matter in capturing the experience of stress, and if (within the limitations of cross-sectional study design) specific helping-related measures incrementally improve the prediction of adverse employment outcomes above and beyond the contribution of general stress.

Do Measures of Work-Related Stress Uniquely Predict Peer Specialists' Employment Outcomes?⁵

Abstract

Objective: Stress can impair work performance among helping professionals, including peer support specialists (PSs). Although measures of helping-related stress constructs are available, their relative utility in predicting adverse employment outcomes is unclear; particularly for PSs. This study examines the extent to which measures of helping-related stress have “special powers” in predicting such outcomes, compared with measures of general stress and mixed forms of stress.

Method: A sample of 738 PSs working in the U.S. was recruited to complete an online survey. PSs completed validated measures of general stress and work-related stress (i.e., Emotional Exhaustion [EE] and Secondary Traumatic Stress [STS])—along with indices of work absenteeism, turnover likelihood, job satisfaction, and self-rated performance. “Mixed” stress measures were created for comparison by randomly drawing items from the validated measures of EE, STS, and general stress. Sequential regression was used to test the incremental utility of work-related stress measures in predicting work performance, after controlling for general stress.

Results: First, measures of work-related stress (EE & STS) were strongly associated with general stress (GS; $r=.62-.66$). Second, mixed stress measures predicted most indices of work performance as strongly as—or more strongly than—the original, validated measures (EE, STS). Third, these measures of work-related stress added modest incremental utility to general stress in predicting turnover likelihood, absenteeism, and satisfaction—but not self-rated performance.

Conclusion: Helping-related stress—particularly EE—shares common ground with general stress and only modestly improves the prediction of adverse employment outcomes. In resource-strained work environments that risk promoting stigma, measures of general stress are useful and can inform supports.

⁵ This manuscript is co-authored with Prof. Jennifer L. Skeem at the School of Social Welfare and the Goldman School of Public Policy at the University of California, Berkeley.

Do Measures of Work-Related Stress Uniquely Predict Peer Specialists' Employment Outcomes?

Employment in the helping professions can be personally challenging—ask a behavioral healthcare worker about burnout, and they probably have a story to tell. Whether the worker is a clinician hired on the basis of their professional training or a peer support specialist (PS) hired on the basis of their personal experience, stress levels can run high (Hayes & Skeem, 2020). In overburdened systems of mental health care, stress affects about 40% of clinical providers (O'Connor et al., 2018). Stress can impair performance, reduce job satisfaction, and cause absenteeism or turnover—which in turn can compromise the quality and continuity of client services (Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012). Over time, stressed workers may develop negative attitudes or limited empathy, which could derail clients' recovery efforts (Morse et al., 2012). In theory, measures of work-related stress could be applied to avoid such adverse outcomes by identifying workers when they are experiencing acute distress and informing the provision of extra supports. In reality, there are questions about the distinctness of these measures and the extent to which they have special powers in predicting work outcomes, compared to measures of general stress.

In the present study, we examine such questions with a large sample of PSs. With the exception of a small subgroup who currently experience significant psychiatric symptoms and stress, PSs generally endorse levels of work-related stress and general stress that are similar to those of clinicians and community residents, respectively (Hayes & Skeem, 2020). Identifying workers who are currently experiencing acute stress is a necessary first step for providing employment supports, including supports that can be tailored to specific forms of stress.

Two forms of helping-related stress—emotional exhaustion and secondary trauma—appear the most relevant, promising, and conceptually distinct. Emotional exhaustion is a component of burnout—the most widely recognized form of stress related to employment—and is defined by feelings of overextension or depletion due to work demands. Although burnout is typically considered a multidimensional syndrome and associated with sustained, personally-depleting occupational effort under resource constraints (Maslach & Leiter, 2016), emotional exhaustion is the dimension most linked to job performance issues. In a meta-analysis of 16 studies, (Taris, 2006) found that burnout and specifically exhaustion was associated with impaired work performance (typically in samples of teachers and health workers). Of special concern to organizations, certain forms of absenteeism are linked to emotional exhaustion (Bakker, Demerouti, De Boer, & Schaufeli, 2003).

Secondary traumatic stress (STS) is a more “pathologized” construct that affects roughly 15% of social workers (Bride, 2007) and PSs (Hayes & Skeem, 2020). STS is understood as the distress human service professionals experience as a result of exposure to secondhand accounts of traumatic events, such as while providing support to clients in acute emotional crisis. It is regularly conflated with “compassion fatigue” (Van Mol, Kompanje, Benoit, Bakker, & Nijkamp, 2015), but when distinguished as a parallel to post-traumatic stress disorder, STS is characterized by avoidance of stimuli, hyperarousal, and intrusive thoughts related to their clients' experiences. Perhaps as a consequence of its muddling with compassion fatigue, primary occupational trauma, and general work stress (Graham, 2012), relatively little has been reported on the direct relationship between secondary trauma and adverse employment outcomes. However, Bride and Kintzle (2011) found in substance abuse counselors (N=216)

that STS significantly predicted both job satisfaction and commitment to work (though satisfaction fully mediated the relationship between STS and commitment).

We focus on the value of measurement specificity in this paper, and question whether purpose-built measures of work stress have special powers in predicting adverse employment outcomes, compared to measures of general stress. As a construct, “stress” is ambiguous at best, and though it was originally described as a “non-specific response of the body to any demand for change (1936, 1956),” ongoing theoretical debates center on differences between stressors and strain (Epel et al., 2018), and the demarcation point where “good” stress turns bad (Fevre, Matheny, & Kolt, 2003). Though perceived general stress and helping-related stress share some common ground (Jaracz, Gorna, & Konieczna, 2005; Schwarzkopf, Straus, Porschke, Znoj, & von Känel, 2019; Ting, Jacobson, & Sanders, 2011), and may relate to each other hierarchically, we are most interested in measures tailored to helping-related stress, since they presumably have powers to predict employment outcomes. As Strauss and Smith (2009) note, more general measures can obscure predictive relationships between constructs (such as work-related stress) and criteria deemed theoretically relevant to them.

But taken alone, general stress appears related to lowered job satisfaction (Alexopoulos, Palatsidi, Tigani, & Darviri, 2014) and other indices of performance. Furthermore, general stress, as we understand it, may be a practical, low-stakes target for workers in need of support, given that stress reduction techniques are relatively inexpensive and highly accessible. In terms of workplace identification and support strategies, and for PSs in particular, general stress seems less stigmatizing to address than secondary trauma and, to a lesser extent, emotional exhaustion. Whether general or specific measures go further to predict adverse employment outcomes underscores the value of examining different forms of stress concurrently.

Aims of Present Study

Specific helping-related stress measures are likely associated with each other, as well as with general stress, but the degree to which they overlap and relate to adverse employment outcomes—thereby warranting unique remedial approaches—is unclear. This study adapts a strategy that has been used with success in a different field (Kroner, Mills, & Reddon, 2005) to identify commonalities among ostensibly different measures and test their unique predictive powers for adverse employment outcomes. This study has the following three aims, the last of which is most important:

1. To test the degree of association between measures of general stress and helping-related stress, specifically, emotional exhaustion and secondary trauma. We expect there will be significant overlap between these ostensibly different measures of stress.
2. To compare the utility of measures of helping-related stress vs. mixed stress in their prediction of adverse employment outcomes. Measures of helping-related stress have been carefully designed to represent constructs that presumably are uniquely relevant to employment outcomes. Emotional exhaustion and secondary trauma may even be framed as potential predictors of poor employment outcomes that can guide support and interventions. Measures of mixed stress that randomly sample different stress constructs (i.e., emotional exhaustion, secondary trauma, and general stress) are theoretically less specifically relevant to employment outcomes.

3. To test the incremental utility of helping-related stress measures in predicting adverse employment outcomes, after controlling for the effect of general stress. We hypothesize that specialized, helping-related stress instruments offer some unique benefit in the assessment of adverse employment outcomes.

Potential Implications of Present Study

Addressing these aims has implications for both theory and clinical practice. With respect to theory, we address a problem of construct validity known as “jingle jangle” fallacies (Kelley, 1927; Lilienfeld et al., 2015; Pedhazur & Schmelkin, 2013). In “jingle fallacies,” disparate manifestations of stress are captured under a uniform, yet imprecisely-defined term. This may be common in practice, where workers use any number of terms to describe their on-the-job strain (Graham, 2012). “Jangle fallacies” seem more common in the academic literature on helping-related stress, where scholars may be promoting the use of different terms to describe the same experience, impeding collaboration across research groups and/or disciplines. Our approach to remediate conceptual imprecision considers the associations between, and differential utility of, stress measures in their ability to predict employment outcomes.

Targeting the most salient predictors of adverse employment outcomes has implications for program management. To broach the topic of intervention, overburdened healthcare settings demand simplicity; specific measures to identify work-related stress may prove most economical for tailoring supports in resource-strained environments, assuming remedial strategies differ depending on the form of stress experienced. Relatively few studies, however, have focused on prevention or treatment of specific stress conditions in mental health workers (Morse et al., 2012).

Efficient measures require administrative sensitivity to the needs of those surveyed, and screening for stress conditions (particularly secondary trauma) risks further stigmatization of PSs who already experience prejudice due to their disclosed history with psychiatric illness and/or treatment (Walker & Bryant, 2013). Moreover, stigma delays help-seeking behaviors for stress-related conditions among mental health providers, generally (Clough, Hill, Delaney, & Casey, 2020). When contextualized alongside the unique working environments in which PSs function, the contribution of stress variants to employment outcomes facilitates identification of efficient screening measures to distinguish workers who need supports, and the supports that may be most helpful to provide.

Method

Participants

Participants were 738 adult PSs actively employed in mental health service settings nationwide. This is a cross-sectional study utilizing online responses to the Peer Provider Stress Survey, a study approved by the UC Berkeley Committee for Protection of Human Subjects (CPHS #2016-04-8658). At the time of the survey (October 2017-May 2018), participants had been hired as PSs based on their own personal experience with mental health challenges and/or service use, trained to provide peer support services, and, as their primary role, directly supported service utilizers in recovery from mental health challenges. Participants were recruited indirectly through posts to mental health service organizations and social media discussion groups for PSs. The average age was 48.21 (range 18-74), and most identified as

female (64.8%) and white, non-Hispanic (77.5%). See Table 5 for sample characteristics; additional descriptive details and analyses for selection bias can be found in a prior publication (Hayes & Skeem, 2020). Most (n=602) completed the stress-related measures in their entirety and are included in the presented analyses.

Table 5. *Sample Characteristics and Response to Stress-Related Measures*

Demographic Characteristics		N	%
Age (mean±SD)		729	48.21±11.9
Gender	Female	478	64.8
	Male	251	34.0
	Non-conforming/Trans/Other	9	1.2
Race/Ethnicity	White/Caucasian	572	77.5
	Hispanic/Latino	116	15.7
	African American	83	11.2
	Other	74	10.0
	Native American	24	3.3
	Asian	12	1.6
	Pacific Islander	2	0.3
Stress Characteristics		N	mean±SD
EE		647	18.69±11.9
STSS		616	28.03±10.7
PSS		632	13.97±6.7

Note. EE = Total score on the Maslach Burnout Inventory, Emotional Exhaustion subscale; STSS = Total score on the Secondary Traumatic Stress Scale; PSS = Total score on the Perceived Stress Scale.

Instruments

Measures of Stress Constructs

Emotional Exhaustion (EE). Characterized by overextension and emotional depletion related to one's work, EE is measured via the Maslach Burnout Inventory – Human Services Survey (MBI-HSS; Maslach & Jackson, 1981, 1984), which is a widely-used measure of burnout among human service professionals (Schaufeli & van Dierendonck, 1993). Reliability and validity of the MBI-HSS have been assessed as acceptable in samples of mental health professionals (Chao et al., 2011; Maslach, Jackson, & Leiter, 1997), and it has been used to distinguish psychiatric outpatients that are experiencing occupational burnout, as well as between burnout and psychiatric conditions such as anxiety and depression (Schaufeli et al., 2001). The MBI-HSS asks about frequency of burnout-related feelings, ranging from “never” or “a few times a year,” to “every day.” It assesses burnout according to three scales or factors, which are separately summated, however only EE is linked closely to the stress experience and clearly emerged in confirmatory and exploratory factor analyses with this sample of PSs (see Hayes and Skeem, 2020). The nine-item EE subscale showed excellent internal consistency ($\alpha = .92$), and is justifiable for use in ongoing analyses with PSs.

Secondary traumatic stress. The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) is a 17-item measure of vicarious trauma over the last week.

Reliability and validity have been assessed in samples of social workers, and with alpha ranging from .83 to .89, the total STSS and its three subscales show very good internal consistency (Bride et al., 2004).

The STSS is organized into three subscales or factors—Intrusion, Avoidance, and Arousal—and can be analyzed as a total scale. Based on a national sample of 275 mental health social workers (Ting et al., 2005), associations among factors are high enough to suggest unidimensionality. In the present sample (Hayes & Skeem, 2020), both the original three-factor model and a unidimensional model were found to have satisfactory fit in tests using SPSS-AMOS (Arbuckle, 2017). Based on the principle of parsimony, we use the unidimensional model in the present study. Internal consistency for the 17-item STSS was excellent ($\alpha = .93$).

Perceived general stress. The ten-item Perceived Stress Scale (PSS; Cohen et al., 1994) is a widely-used instrument for measuring stressful feelings or thoughts over the last month. The PSS has acceptable reliability and validity, with superior psychometric properties reported in the ten-item version of the instrument ($\alpha > 0.70$; E. Lee, 2012). Total scores correlate with depression and anxiety, with lower scores seen in participants hypothesized to have lower levels of stress (e.g. young, white, married, employed, and higher SES; E. Lee, 2012). Designed for use in general populations, the ten-item PSS has good reliability ($\alpha = 0.88$) and is analyzed as a unidimensional scale to address the aims of this paper (see Hayes and Skeem, 2020 for additional psychometric findings on each instrument used with this sample).

Mixed Stress Measures

We adapted the approach Kroner et al. (2005) used to compare the predictive utility of measures as originally designed (detailed above) versus measures comprised of randomly selected items from those original scales. To construct these “mixed stress” measures, we numbered each item of the MBI-EE, PSS, and STSS; wrote the corresponding numbers on 36 identical 1 x 1-inch pieces of cardstock; placed the 36 cards in a coffee can; and sealed the can. We shook the can to ensure the cards were mixed and then randomly drew cards without replacement. We recorded the first four numbers corresponding to each original measure. We returned the numbers to the can and examined the quality of the cards to ensure they hadn’t been damaged, potentially affecting the random nature of the drawing. We repeated this procedure two more times, resulting in three lists—each with twelve items from the item pool of original stress instruments. The mixed stress measures are shown in Table 6 (organized for reading ease).

For consistency between mixed stress measures, items from the PSS and STSS were transformed to correspond to the 7-point Likert format of the MBI-HSS. Then, reverse-worded items on the PSS were recoded for ease of interpretation. After the transformation, higher scores on all measures signify higher levels of stress. The mixed stress measures were then summated and reported as total scores, with descriptive statistics reported in Table 6.

Table 6. *Mixed Measure Composition and Descriptive Statistics (N=602)*

	Mixed Stress Measures		
	#1	#2	#3
	MBI 1	MBI 6	MBI 2
	MBI 3	MBI 8	MBI 13
	MBI 16	MBI 13	MBI 14
	MBI 20	MBI 20	MBI 16
	PSS 2	PSS 1	PSS 1
	PSS 4	PSS 2	PSS 4
	PSS 6	PSS 5	PSS 7
	PSS 10	PSS 8	PSS 9
	STSS 5	STSS 7	STSS 1
	STSS 7	STSS 9	STSS 3
	STSS 10	STSS 14	STSS 10
	STSS 15	STSS 16	STSS 12
Mean	20.12	19.60	20.22
Standard Dev.	12.77	12.37	11.10
Range	0-66.50	0-64.00	0-55.00

Note. MBI=Maslach Burnout Inventory-Human Services Survey item; STSS = Secondary Traumatic Stress Scale item; PSS = Perceived Stress Scale item.

Employment Outcomes

Turnover Likelihood. Four questions, modeled after the iNAPS Survey of Education, Compensation, and Satisfaction (Cronise et al., 2016), address self-perceived likelihood of remaining in one's current work circumstances. The questions include: 1) Have you considered finding a new job in the past 6 months?; 2) Have you considered leaving the field of peer support in the past 6 months?; 3) Do you wish to leave your current job as a peer support worker?; and 4) Will you likely have the same job as a peer support provider in a year? These questions were rated on a two- or four-point scale, forcing participants toward a positive or negative response direction to suggest likelihood of leaving. The four items have good reliability ($\alpha = 0.76$). Responses to the four questions are aggregated into regression component scores (DiStefano, Zhu, & Mindrila, 2009) for use in correlational and regression analyses.

Job Satisfaction. Originally developed for use with community nurses, the Measure of Job Satisfaction (MJS; Traynor & Wade, 1993) has high reliability and validity in community settings, with Cronbach's alpha at .93; test-retest reliability .89, and perhaps the best content validity among job satisfaction measures (van Saane, Sluiter, Verbeek, & Frings-Dresen, 2003). The 43 items, rated in a five-point Likert scale format, are organized into seven subscales indicating satisfaction with: 1) Workload; 2) Professional Support; 3) Pay; 4) Prospects; 5) Training; 6) Standards of Care; and 7) Personal Satisfaction. A final item asks about perceived overall satisfaction. Higher scores indicate higher satisfaction in each domain. On average, PSs endorse moderate to higher levels of satisfaction across all measured domains, with the most satisfaction derived from professional support, and the least from pay (see Appendix 3). The MJS is also assessed as a single total score, which is used in this study for correlational and regression analyses. Reliability for the total MJS is similarly high in this sample ($\alpha = .97$).

Absenteeism. Adapted from Parker and Kulik (1995), unplanned absences in the previous month were measured in days. Respondents noted whether absences were for physical health reasons, mental health reasons, or other reasons. On average, PSs missed under two days of work in the last month due to any reason, with a median of one missed day (see Appendix 3). Total absences are treated as a continuous variable for correlational analyses, and transformed to three ordinal categories for regression analyses: 1. No unplanned absences, 2. One day absent, and 3. Two or more days absent.

Self-Rated Work Performance. Respondents rated their own current levels of job performance consistent with a method used in Parker and Kulik's (1995) study of burnout and job performance in nurses. Included in this measure are knowledge of procedures, interaction with coworkers, dedication to work, quality of care provided to peers, and overall rating of job performance. Each item is rated on a 5-point Likert scale from 1 (poor) to 5 (outstanding). Comparable to Parker and Kulik's work, these items were shown to be reliably related to each other in this sample ($\alpha = .77$) and for the purposes of our analyses are collapsed into a single index of self-reported job performance, though with a KMO value of .79, dimension reduction is merely acceptable. For the most part, PSs rated their own performance highly, with average scores between 4 and 5 on all items suggesting "good" to "outstanding" work performance (see Appendix 3).

Analyses

To address Aim 1, we calculated correlations among the measures of work-related stress (EE, STSS) and general stress (PSS). For Aim 2, we statistically compared the degree of association between employment outcomes and original measures of work-related stress, versus mixed stress measures. If mixed measures—composed of items randomly selected from measures of work-related and general stress—are as relevant to employment outcomes as originally-designed measures, it raises questions about the specificity and usefulness of the original measures and their target constructs. For this aim, we randomly paired one "mixed measure" with an original measure and tested the difference in their degree of association with outcomes using a t-statistic for dependent samples (I. Lee & Preacher, 2013; Steiger, 1980).

For Aim 3, we used sequential regression analyses to assess the incremental value of each work-related stress measures (MBI-EE and STSS) in predicting outcomes, above and beyond the contribution of general stress (PSS). Regression models involved systematic entry of individual stress variables, regressed on each of three employment outcomes: turnover likelihood, job satisfaction, and self-rated job performance. Step one of each regression model entered general perceived stress, and step two added a helping-related stress variable as a predictor—either emotional exhaustion or secondary trauma. The significance of each coefficient was assessed as well as each variables' contribution to the model, as indicated by R^2 change values. Ordinal logistic regression was used to assess, also in a sequential manner, the relationship between stress variables and three levels of absenteeism.

Results

Aim 1: Overlap between measures of work-related stress and general stress.

Table 7 shows the intercorrelations between original stress instruments: the MBI-EE subscale, STSS total scale, and PSS. Helping-related stress measures are strongly associated with

general stress (PSS) and with one another, with correlations ranging from .622 - .687. R^2 values suggest that perceived general stress accounts for 43.4% of the variance in secondary trauma, and 38.7% of the variance in emotional exhaustion. Secondary trauma explains nearly half (47.2%) of the variance in emotional exhaustion.

Table 7. *Pearson's Correlations Between General and Helping-Related Measures of Stress*

		STSS	EE	PSS
STSS	Corr.	1	–	–
	N	630		
EE	Corr.	.687	1	–
	N	628	647	
PSS	Corr.	.659	.622	1
	N	630	643	645

Note. All correlations are significant at the 0.01 level (2-tailed). STSS = Total score on the Secondary Traumatic Stress Scale; EE = Total score on the Maslach Burnout Inventory, Emotional Exhaustion subscale; PSS = Total score on the Perceived Stress Scale.

Aim 2: Predictive utility of measures of work-related stress (emotional exhaustion and secondary trauma) versus mixed stress (randomly drawn item sets) for employment outcomes.

To compare the predictive power of original vs. randomized measures, we assessed their associations with job satisfaction, absenteeism, and self-rated work performance. Bivariate correlations between all stress measures (original and randomized) and outcome variables were significant ($p < .001$), but weak to moderate overall. In testing for differences between dependent correlations, the randomized measures typically demonstrated stronger associations with the outcomes when compared to original measures (Table 8). While emotional exhaustion was more strongly associated with likelihood of turnover and job satisfaction than its paired mixed stress measure, these differences were not statistically significant (at $\alpha=.01$). All other comparisons failed statistical significance at the $\alpha=.01$ level.

Table 8. Association Between Original Stress Measures (vs. Mixed Measures) and Employment Outcomes

Outcome	Measure	N	Corr.	MSM	N	Corr.	Z	p
Turnover likelihood	PSS	599	.392	1	599	.480	4.43	<.001
	STSS	599	.407	2	599	.524	6.15	<.001
	MBI – EE	599	.518	3	599	.480	2.35	.019
Job satisfaction	PSS	602	-.443	1	602	-.496	-2.73	.006
	STSS	602	-.371	2	602	-.520	-7.80	<.001
	MBI – EE	602	-.519	3	602	-.492	1.68	.093
Absenteeism	PSS	602	.223	1	602	.244	-0.97	.332
	STSS	602	.225	2	602	.258	-1.56	.119
	MBI – EE	602	.204	3	602	.204	0	1
Self-rated work performance	PSS	600	-.275	1	600	-.247	1.30	.193
	STSS	600	-.180	2	600	-.260	-3.76	<.001
	MBI – EE	600	-.187	3	600	-.232	-2.45	.014

Note. STSS = Total score on the Secondary Traumatic Stress Scale; EE = Total score on the Maslach Burnout Inventory, Emotional Exhaustion subscale; PSS = Total score on the Perceived Stress Scale; MSM = Mixed Stress Measure counterpart used for comparison (using total score).

Aim 3: Incremental utility of measures of work-related stress for employment outcomes, after controlling for general stress.

To test Aim 3, we first used a series of sequential linear regression models to examine the predictive variance that helping-related stress measures added to general stress, in models of turnover likelihood, work performance, and job satisfaction. Results are shown in Table 9; and generally indicate that specialized helping-related stress measures significantly (but modestly) add to the prediction of certain employment outcomes after differences in responses to the measure of general stress have been statistically eliminated. Of the dependent variables tested, turnover likelihood was the most impacted by incremental addition of specialized helping stress measures, particularly emotional exhaustion, to the initial predictor of general stress. The best fitting model for job satisfaction included general stress followed by addition of emotional exhaustion. Finally, neither emotional exhaustion nor secondary trauma add significant incremental utility above perceived stress in the prediction of self-rated work performance ($p=.72$ and $p=.87$, respectively).

Next, we used sequential ordinal regression to examine the outcome of absenteeism (i.e., no absences in the last month, 1 day absent in the last month, and 2 or more absences in the last month)—first on the basis of perceived general stress scores and again after addition of a specific helping-related stress score, either emotional exhaustion or secondary trauma. Results are shown in Table 10. First, there was good model fit on the basis of perceived general stress alone, $\chi^2(1, N=631)=45.88, p<.001$. Second, even after accounting for PSS, EE significantly increased the odds of moving up a category in absenteeism. A χ^2 difference test (Werner & Schermelleh-Engel, 2010) indicates that the model that includes PSS and EE fit these data significantly better than the simpler model with only the PSS, ($\chi^2_{diff}=7.01, p=.008$). Third, after accounting for PSS,

STSS did not significantly increase the odds of moving from one absenteeism category to the next ($p=.063$).

Table 9. *Linear Regression Testing Incremental Utility of General vs. Specific Stress Measures in the Prediction of Employment Outcomes*

Criterion	Model	Variable Entered	β	R ²	ΔR^2	ΔF	Sig.
Turnover Likelihood	1	Perceived Stress	.392	.154	.154	108.60	< .001
	2	Perceived Stress	.103	.275	.121	99.61	< .001
		Emotional Exhaustion	.453				
3	Perceived Stress	.217	.191	.037	27.40	< .001	
	Secondary Trauma	.261					
Job Satisfaction	4	Perceived Stress	-.443	.196	.196	146.10	< .001
	5	Perceived Stress	-.187	.290	.094	79.60	< .001
		Emotional Exhaustion	-.400				
6	Perceived Stress	-.353	.206	.010	7.33	.007	
	Secondary Trauma	-.133					
Self-Rated Work Performance	7	Perceived Stress	-.275	.076	.076	49.03	< .001
	8	Perceived Stress	-.264	.076	.000	0.13	.722
		Emotional Exhaustion	-.018				
9	Perceived Stress	-.281	.076	.000	0.27	.869	
	Secondary Trauma	.009					

Note. ΔR^2 and ΔF values in more complex models are based on change from the base models including general stress only (models 1, 4 and 7). Significance refers to the p-value associated with ΔF .

Table 10. *Ordinal Regression Testing Incremental Utility of General vs. Specific Stress Measures in the Prediction of Absenteeism Levels (N=631)*

Criterion	Model	Variable Entered	Point Estimate (95% CI)	Sig.	Wald	Nagelkerke R ²
Absenteeism (last 30 days)	1	Perceived Stress	.08 (.05-.10)	.000	42.64	.080
	2	Perceived Stress	.05 (.03-.08)	.000	13.10	.092
		Emotional Exhaustion	.02 (.01-.04)	.009	6.75	
	3	Perceived Stress	.06 (.03-.09)	.000	14.62	.086
Secondary Trauma		.02 (-.00-.04)	.063	3.47		

Thresholds: 0 days (44.5%), 1 day (20.1%), 2 or more days (35.3%)

Discussion

Although PSs experience comparable levels of work-related and general stress conditions to other clinicians and the general population (Hayes & Skeem, 2020), the results of the present study can inform approaches for identifying and supporting the small subset of providers who are *currently* distressed and stressed at work. The study's findings can be organized into three points, each of which are unpacked below. First, measures of work-related stress overlap moderately with both one another *and* a well-validated measure of general stress. Second, randomly-created

measures of mixed stress predict adverse employment outcomes as well as, or better than, validated measures of work-related stress. Finally, a measure of general stress is an important predictor of adverse employment outcomes—and measures of work-related stress add only modest incremental utility. Of the helping-related stress measures, emotional exhaustion appears to have the greatest incremental utility.

Work-Related Stress Measures Share Variance with General Stress

When it comes to identifying people at risk of impaired job performance, it would be an exercise in futility to promote a “best” stress assessment if available measures are essentially interchangeable with one another. We sought to quantify similarities among measures of ostensibly different stress conditions as an indication of how much the field has been subject to the “jangle” fallacy—or putting “old wine in new bottle” by re-labelling an already-existing idea as a dissimilar construct. Maslach and Leiter (2016) note that the latter phenomenon has plagued conceptualization of burnout since its introduction in the 1970s, when the “old wine” was better known as job dissatisfaction or depression.

Because we selected measures based on their apparent uniqueness from other stress instruments, the results of this study represent constructs at their most distinct. We found that helping-related measures overlapped as much with general stress—a somewhat different construct—as they did with each other. Although these close relationships among seemingly different measures of general stress, emotional exhaustion, and secondary trauma do not preclude the possibility of unique attributes, they raise suspicion about their usefulness as individual instruments and potential predictors of employment outcomes.

This concern is echoed in other studies critiquing the relationship between stress constructs. Though one theoretical model was selected for each stress construct represented in this study, there are multiple models available. Cieslak et al. (2014) found in their meta-analysis that correlational strength between different constructs heavily depends upon which underlying theory informs the measurement. For example, PTSD-oriented secondary traumatic stress, as it was conceptualized in this study, shared 34% of the variance with the burnout syndrome as proposed by Maslach (Cieslak et al., 2014)—and we found an even stronger relationship between STS and burnout’s core dimension, emotional exhaustion. Under those frameworks, i.e., PTSD-oriented STS and Maslach’s burnout model, STS and burnout are related, but different constructs. STS and burnout are further muddled when both are measured according to another popular theoretical framework (not utilized in this study) that regularly conflates them with “compassion fatigue” (weighted $r .74$; 55% of shared variance; Cieslak et al., 2014). While strong relationships do not negate proposed theories of work-related stress *per se*, they do suggest a limited practical utility of applying certain models when examining constructs concurrently. Future studies should continue to test the specificity of measures of stress-related constructs and, when relevant, test developers should revise their measures to achieve greater precision.

“Mixed” Stress Measures Often Outperform Validated Measures of Work-Related Stress in Predicting Employment Outcomes

Is there anything special about measures designed to assess particular stress constructs? Typically, stronger relationships can be expected between measures and outcomes that are more similar in content—e.g., a work-specific measure of stress should predict job outcomes more

strongly than an assortment of items from different measures of stress. But we found that randomized stress measures, with few exceptions, demonstrated *stronger* associations with adverse employment outcomes when compared to original measures, in effect suggesting that the “brand name” of stress matters little. As each original measure was equally represented in the randomized scales, this finding weakens the support for use of specialized stress measures. At best, they may only serve as narrow lenses, each of which can access a fragment of a higher-order construct which correlates more convincingly with adverse employment outcomes. Although the selection of measures for this study was justified by their reported validity and distinctness from other measures of similar constructs, this leads us back to the problem of conceptual ambiguity among specific stress conditions.

To find a parsimonious model of stress conditions, there may be more work to do in the area of common factors. Thomas and Wilson (2004), for example, group secondary trauma/traumatoid states, vicarious trauma, and compassion fatigue (including burnout) together as components of an occupationally-related stress response syndrome (OSRS). Conceptually, specific stress conditions are unique but interrelated pathways to OSRS, and the authors suggest that each occurs as a result of empathic strain, defined as factors which diminish empathic attunement with clients and adversely affect the therapeutic process. While attenuated by therapeutic context, i.e., the degree to which trauma recovery is a feature of treatment, empathic attunement and strain may be examples of clearer, more measurable antecedents to aid our understanding of the progression of stress conditions and determining which is most useful to explain work-related problems. This framework does not emphasize the contribution of general stress and may be limited in that regard. Though, in a meta-analysis of work strain, health, and absenteeism, Darr and Johns (2008) present “a need to shift focus from detailed, debated descriptions of what stress is toward an explication of how related elements can be integrated in advancing knowledge about the stress process,” also finding that general stress may relate to outcomes indirectly. For now, we advise caution in recommending any ‘targeted’ measure.

To Promote Positive Work Outcomes, Consider Impact of General Stress and Exhaustion

Implications for Stress Measurement

We found nothing truly special about the predictive power of specific stress measures; instead, general stress impacts adverse employment outcomes in ways that were not seen when the order of predictors was reversed. When considering the gestalt of stress-related phenomena in PSs, general stress should stand out as a primary contributor to performance, as it describes much of the variance in adverse employment outcomes. In fact, in models of self-rated work performance, perceived general stress emerged as a sole predictive variable—though this subjective performance outcome variable may partly reflect perceived self-efficacy (Roberti et al., 2006).

Although helping-related stress shares common ground with general stress, it also shows modest evidence of unique associations with adverse employment outcomes. This is particularly true of emotional exhaustion. Similar to our findings, Pines and Keinan (2005) found that burnout (inclusive of emotional exhaustion), was more strongly correlated with low job satisfaction, desire to quit, and perceived performance level than a general stress measure. In the present study, emotional exhaustion affected just over half of PSs (51.2%) at moderate or high levels and most consistently predicted employment outcomes (out of the helping-related stress measures). The contribution of STS to adverse employment outcomes was trivial, but may

nevertheless warrant consideration in this population given its strong link with psychiatric symptoms (Hayes & Skeem, 2020). Since PSs function in a variety of roles (Cronise et al., 2016; Salzer et al., 2010), it may be prudent to raise the subject of secondary trauma in workers who are regularly exposed to clients in crisis. In light of ongoing attempts to differentiate burnout syndromes from psychiatric disorders such as depression (Schonfeld, Verkuilen, & Bianchi, 2019), this adds nuance to the assessment of stress conditions. However, these findings do not justify disproportionate targeting of PSs for assessment and intervention in this area; PSs experience stress levels roughly equivalent to other mental health providers (Hayes & Skeem, 2020; Park et al., 2016; Scanlan et al., 2020).

Implications for Practice

In the realm of occupational trauma, Graham (2012) addresses the interchangeability of stress terminology and a need for research to show that interventions are as generalizable as the terms used to describe the problems. A similar vision guided our work, and to this end, we sought possible advantages to narrowing the focus of stress measurement to inform intervention approaches, finding some justification for doing so.

Overall, to improve employment outcomes in PSs suffering from occupation-related stress, general stress is a practical first target for assessment and remedial efforts. Interventions for general stress are arguably less resource-intensive than those designed for stress associated with helping work, so general stress reduction approaches are understandably attractive strategies for organizations to initially implement. Mindfulness and stress management training (Richardson & Rothstein, 2008), for example, are likely the most feasible, with the onus on the worker to take inventory of and improve global (rather than work-specific) distress and functioning. However, efforts to alleviate non-specific forms of stress may only incidentally impact distress linked to workplace conditions.

Of the helping-related forms of stress, emotional exhaustion is also an efficient and directly relevant way of identifying a subgroup of people who are struggling. For the stress conditions discussed here, many of the reported remedial paths share common elements. Burnout, for example, is said to be buffered by mindfulness practice (Luken & Sammons, 2016), organizational climates of authenticity (Grandey, Foo, Groth, & Goodwin, 2012), and timely opportunities to gain some control over the scope of work (Hätinen, 2008). Secondary trauma could be alleviated by strategies similar to those utilized for burnout, but given the potentially acute and disruptive nature of traumatic responses, more intensive supports may be needed such as evidence-based protocols for primary traumatic stress (i.e. PTSD), such as trauma-focused cognitive behavioral therapy (Benish, Imel, & Wampold, 2008; Bisson et al., 2007). However, among behavioral healthcare workers—particularly with PSs who already experience stigma related to their self-identification as mental health service users—there may be iatrogenic complications associated with assessment of a condition modeled after a recognized psychiatric disorder.

Remedies for stress conditions were not the focus of this study, but a direction for future research would be to directly test the effectiveness of interventions designed for work-specific stress to see which is most helpful. Our recommendation to further investigate, and potentially intervene in these areas does have certain caveats related to organizational capacity. Though identification and treatment of employees' general stress may be less resource-intensive than unpacking issues of specific helping-related stress, our findings do not reveal whether any

particular intervention is economically justifiable for organizations. A systematic review on the role of psychosocial working conditions on emotional exhaustion (Seidler et al., 2014), for example, found that high workload, high demands (whether quantitative, mental or emotional), and low social support predicted it—remedial efforts in these areas are costly, though it is not readily apparent how to best accommodate PSs since certain work demands do not seem to differentially affect their stress levels (Hayes & Skeem, 2020). Regardless, reminiscent of Graham’s (2012) sentiment on treatment for occupational trauma, we recommend that future research address whether improvements in individual performance outcomes offset the expense of stress management interventions.

For PSs, specific helping-related stress measures add modest incremental predictive value in models of absenteeism, turnover likelihood, and job satisfaction. In practice, their unique contribution should be considered within the context of the work environment and providers’ expressed concerns. Neither helping-related stress measure makes an especially large contribution to models of adverse employment outcomes, so general stress is a worthy target in work environments with limited resources. The measure of emotional exhaustion is sensible for use in situations which would benefit from the added specificity, and it poses relatively less risk of stigmatizing distressed emotional states, compared to the STSS.

Limitations

Like any study, the present survey has limitations. First, all measures are based on self-report, which introduces risk of method variance. In particular, associations between measures of stress and employment outcomes may exaggerate true relationships because PSs were the source of information for both indices. Objective indices of employment outcomes, such as administrative data, will be important to include in future research. Second, because this is a cross-sectional study, the time-ordering and directionality of relationships between stress and employment outcomes is uncertain. Although we use the terms “predictive,” it is not clear whether the forms of stress here precede and increase the likelihood of adverse employment outcomes until a longitudinal study is completed. Finally, if eligible PSs did not participate in this survey because of high stress levels and/or its most dire consequences (i.e. job loss), this study is subject to selection bias. This concern is mitigated—but not eliminated—by the fact that our sample’s characteristics approximated recent nationwide population estimates in PSs (see Hayes & Skeem, 2020).

In closing, as one of the largest studies of PSs conducted to date, the present study informs debate about how best to measure stress in a population perceived as “high need” in the employment sphere. It informs best practices in mental health care by introducing starting points for screening and intervention in workers experiencing the adverse effects of helping others under strain. Though general and specific measures of stress overlap to some degree, we find justification for focus on general stress and emotional exhaustion, which emerge as salient potential predictors of adverse employment outcomes in PSs.

Conclusion

This dissertation concludes with the sentiment that stress and distress among peer support providers is a loaded subject. Mental health services are changing, and modern-day peer support providers find gainful employment within organizations historically at philosophical odds with the earlier champions of peer support, who advocated for liberation from oppressive psychiatric treatment. For many, this is a Pyrrhic victory. Despite apparent shifts in service philosophies—away from management of intractable disability and toward recovery-oriented ideologies and services—many peer support providers have struggled to blend with more medically-oriented services. Peer support providers are therefore subject to the stresses of ever-changing service environments, are tasked with assisting people in acute distress, and additionally, withstand a burden of also being identified as “mentally ill” in its most disempowering form. An artifact of the biomedical paradigm, tacit assumptions linger in the field regarding peer workers’ resiliency, suggesting their limited competency in the provision of mental health services (Gibson-Leek, 2003; Meagher, 2002). These assumptions may or may not be well-founded, given the known links between stress and mental illness, and the satisfaction peer specialists derive from their work. However, the issue has generally been neglected in empirical research.

Research questions designed to address the stress and performance of a relatively new class of workers are pragmatic ones; testing measurement validity in new populations is standard practice. Given that these are topics which have received little attention in the literature on peer support, any large study of stress in this population is a contribution to knowledge, however, it is cultural stigma toward mental illness, and concerns about peer support providers’ comparative resiliency, that spurred the research forward. As the study progressed, it was celebrated by most who responded to the promotional materials, and there was an overwhelming influx of potential participants. Curiously, the study was also met with some resistance, as it was perceived to potentially validate stigmatizing beliefs about people labelled mentally ill and contribute to further “othering” among colleagues.

The findings uncovered through this work are important ones. With controversial topics such as vulnerability to stress and work performance concerns in a historically marginalized group of mental health consumers/survivors, these findings must be interpreted with nuance and sensitivity, regardless of how they may align with clinical lore or popular trends in peer support research. Whether or not assumptions about predisposition to stress and related challenges are founded, actionable data are needed on stress and performance in this workforce—to solve a problem, it must first be named. At best, we find that there is less of a problem than anyone presumed. At worst, there is now a knowledge base from which interventions may be designed. The dissertation addressed several unresolved problems in the literature on peer support and stress measurement, summarized below.

Stress Susceptibility & Contribution of Psychological Distress

Is work-related or general stress a problem for support providers? For those concerned about the perpetuation of stigmatizing attitudes toward peer support providers, the good news is that as an overall group, there is no appreciable difference between the stress levels of peer support providers and that of comparative samples. This study found that burnout and secondary trauma are just as challenging, but not really any more challenging, for peer support providers than other clinicians who do not self-identify with psychiatric histories as a

requirement for their employment. Their levels of general stress approximate the general population. One in five PSs at a given time may benefit from tailored supports to address pronounced stress.

There is a difference between self-identification as a peer support provider with history of psychiatric symptoms, and current manifestation of psychiatric symptoms: Personal history is not necessarily an indicator of current function. But because of the link between psychological distress and stress, we cannot discard the potential impact of current psychiatric symptoms on these analyses. This inquiry led to a result some are wary to hear—yes, clinically-significant levels of psychological distress are indeed tied to high levels of all forms of stress, particularly when measured against comparative groups. However, the directionality of the relationship between psychological stress is not confirmed. Further, the measure of psychological distress is brief, and assesses very general symptoms of depression, anxiety, and somatization which can (and will) apply to anyone at some point in their lives, regardless of their professional roles or history of severe illness. It should be no surprise that people struggling with their mood or anxiety are likely to be feeling increasingly stressed—this is not grounds for stereotyping peer support providers as particularly vulnerable.

Utility of Stress Measures: For what and for whom?

As with the stress experienced by clinicians, peer support providers' stress levels should be a concern for all who have some stake in mental health care. Peer support providers' ability to endure stressful work circumstances has implications for improving their own sense of mastery, contributes to their own recovery efforts, and allows them to model success for the people they serve—not to mention the other well-documented effects of stress on service delivery. Organizational interests, however, are more likely focused on their bottom line, that is, the implications of stress on peer support providers' ability to perform according to expectations at work. Given the link between work-related stress and key performance outcomes, measurement of stress is one way to approximate current or impending performance issues.

But before assessing their usefulness as potential predictors of outcomes, stress instruments should be deemed valid and reliable in a given population—the predictive power of certain measures is limited by their validity. Though most measures demonstrated sound psychometric properties for use with peer support providers, unfortunately, two of the Maslach Burnout Inventory's subscales were inadequate. This limits what we can say about burnout and associated factors in peer support providers according to this widely-used theoretical model. Future research using this instrument, and other potentially similar instruments, should consider that some items may not be pertinent to the experience of burnout in this population since the relationships between providers and clients in their case is fundamentally different (e.g. less hierarchical). The measures of emotional exhaustion, general stress, and secondary trauma, however, were suitable and provide enough of a “toolbox” to examine stress experiences in peer support providers.

Next, the shared variance among ostensibly different stress measures—compounded by the often-superior performance of randomized stress measures—raised questions about their discriminant validity. These issues have received recent attention in studies closely linking burnout to other dysphoric states such as depression (Schonfeld et al., 2019). However, this wasn't a reason to “throw the baby out with the bath water,” so to speak, since differences were

detected in the contribution to adverse employment outcomes. We were able to identify general stress as a salient and efficient predictor of adverse employment outcomes, with emotional exhaustion coming in second. Importantly, we ruled out secondary trauma as a major contributor to these outcomes, which helps reduce the need to incorporate potentially stigmatizing intervention practices.

Future Directions

This study was a snapshot of associations between different forms of stress and potential adverse employment outcomes. A major limitation of the study design is that directionality of the relationships between variables cannot be established—true prediction of outcomes would be ideal, but not in the purview of a cross-sectional study. Additionally, the self-report survey is a potential source of bias. There are several avenues to improve upon these findings.

One improvement considers the quality of comparison groups. Ideally, an investigation into the differential effects of helping-related stress would put to rest assumptions about peer worker capacity, or provide some insight into how to address the problems peers uniquely experience. Results from the Peer Provider Stress Survey were analyzed against comparison groups and norms, but these population estimates are limited in that their specific employment circumstances and personal characteristics (e.g. personal psychiatric histories) of the comparative samples are unknown. Future studies may consider utilizing a comparison group of mental health providers who work in similar capacities and have similar levels of training, but neither identify as “peers,” nor experience psychiatric symptoms. Similar methodology was utilized by Park et al. (2016) in the assessment of burnout, and a related approach could be taken for secondary trauma. Additionally, while the survey carefully screened for inclusion criteria, among participants there was still significant heterogeneity of roles, organizations, and other working conditions. Further refining the sample for these characteristics can improve generalizability of results.

Administrative data related to the employment of peer support workers and non-peer comparisons, particularly in a large organization with years of employee data on hand, would be one way to objectively examine and cross-validate indices of turnover, absenteeism, and possibly other aspects of work performance. Even in a single cohort, longitudinal design can help establish a causal relationship between stress and employment outcomes, and consider the impact of contributing factors to stress. This builds a pathway to intervention research and problem solving.

Finally, there have been numerous small studies of peer support provider satisfaction and their workplace challenges, which, along with foundational studies on stress, can serve as a launchpad to explore the utility of targeted stress interventions. Given the diversity of peer workers, their functions, and environments, there are ample opportunities to expand upon existing research and delve into the nuances of peer support services and workers’ experiences. Well-known issues such as emotional self-care, boundary management and personal preparedness for work in mental health services have important implications for ethical, effective service delivery and occupational health, but have received scant attention in the field of peer support. Organization-level studies can address peer workload and diversity of work roles from a broader perspective. Rather than continue to rely on anecdotal complaints and advocacy efforts, a more powerful message about the prevalence and trajectory of stress-related conditions could

be derived through well-designed, rigorous investigation of peer support providers' experiences and service outcomes.

In closing, peer support providers now work in disparate mental health service environments and are considered an “integral component” of care systems (Myrick & Del Vecchio, 2016) which are frequently overburdened. This has been celebrated as a major step toward legitimacy for those who have revealed their own highly stigmatized lived experiences as a way to assist others in recovery. Peer support providers are likely in the field to stay, and their on-the-job experiences deserve the same level of rigorous empirical attention paid to other established classes of workers. In one of the largest studies of peer support specialists conducted to date, the Peer Provider Stress Survey presented a first look at severity of stress-related phenomena in peer support providers nationwide, while accounting for validity of the instruments. By comparing stress levels of PSs with providers who are identified professionally as clinicians, we found these groups united in their experience with stress, which can help steer efforts to combat the problem of stress and burnout in mental health service organizations. This work informs best practices in mental health care by introducing efficient, less-stigmatizing starting points for screening and intervention in workers experiencing the adverse effects of helping others under strain.

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Appendix 1. Methodology Details

The Peer Provider Stress Survey was a single cross-sectional data collection effort and employed a correlational research design. Several survey instruments were included to address questions related to occupational stress in peer support providers; these were answered via confirmatory as well as exploratory analytic approaches fully described in the main body of the dissertation. This appendix provides an overview of methodology not detailed in the two publications.

Participants

Inclusion and Exclusion

The subject population includes adults (aged 18+) working as peer support specialists in mental health service settings. “Peer specialist” refers to a broad range of potential job roles and titles, including those in the following non-exhaustive list:

- Peer Advocate
- Peer Bridger
- Peer Coach
- Vet-To-Vet Facilitator
- Peer Specialist
- Recovery Coach
- Recovery Educator
- Peer Wellness Specialist
- Peer Coordinator
- Peer Navigator
- Warmline Operator
- Recovery Support Specialist
- Peer Partner
- Recovery Trainer
- Health Mentor

However, these job titles share a common eligibility criterion in that workers are hired based on their reported personal experience of mental health distress or service use (either may apply). For inclusion in this study, at the time of survey participation, peer specialists must have answered that they:

1. Currently provide, either paid or unpaid, predominantly uni-directional, direct peer support services to adults in recovery from mental health challenges;
2. Were hired into a formal support role at recovery-oriented organizations or mental health service organizations based on their own personal experience with mental health challenges and/or service use;
3. Were trained, either through certification or on-the-job, to provide peer support services;
4. Work at this position in the United States; and
5. Were age 18 or older.

There was no limitation set on type of employer. Peer support providers may have been employed at recovery-oriented organizations (such as consumer-driven or consumer-operated) or traditional mental health service organizations. These may have included, for example, county mental health agencies, non-profit contractors, private organizations or Veterans Affairs Medical Centers. *Excluded* from the study are peer support workers who met any of the following:

1. Were solely engaged in mutual aid or self-help groups, such as in “12-Step” programs or other grassroots support groups (e.g., Hearing Voices Network, The Icarus Project), and not otherwise working in accordance with a formal job description and employing organization;

2. Were hired into a service organization due to their lived experience but do not provide direct support services to people in recovery (e.g., working in an administrative capacity 100% of the time);
3. Served as part of family-to-family initiatives; that is, their identification as a “peer” primarily relates to their experience as a family member of someone diagnosed with mental illness, and their “peer group” is comprised of other family members with these experiences.

The subject population includes all genders, races, and ethnicities. The survey was available in English, and included questions written at an 8th-grade reading level. The instruments were available in online format only. Therefore, the population was limited to participants with an 8th grade (or higher) English reading comprehension, access to the Internet, and with basic computer and Internet literacy.

Recruitment

Strategy. Recruitment for the study was a nationwide effort, with a greater focus planned for California and Texas, two of the more populated states with emphasis on peer support provision in public programs. The recruitment effort was initiated at the International Association of Peer Supporters conference in Phoenix, Arizona from October 16-18, 2017, where peer workers and program leaders were informed of the upcoming study. Following this event and the study kick-off on October 20th, 2017, participants were recruited indirectly through e-mail promotions and IRB-approved electronic flyers (see Appendix 2) sent to employing organizations of peer support specialists. Social media (i.e. Facebook, LinkedIn) was also used to locate peer support specialist groups and inform members of the study through general discussion posts. Following several survey promotions, agencies and individuals began to share study information with others, which increased participation. Incidentally, Arizona agencies paid special interest in the effort and provided significant support with study promotion, resulting in a comparatively high response rate from that state. Prospective participants self-identified as meeting study inclusion criteria listed in promotional materials, they were not sought individually.

Screening. The Peer Provider Stress Survey included a unique screening component to circumvent known challenges with defining the population of peer support providers. Recruitment efforts listed inclusion criteria for the study, and automatic, web-based screening occurred prior to the beginning of the survey to ensure that responses were from people actively employed in a peer support position as commonly defined in the literature and practice. The final screening was programmed in Qualtrics as the first page accessed by prospective participants. There, participants were informed of the screening and asked five questions to ensure that prospective participants meet the inclusion criteria.

Incentive. To mitigate some response burden and encourage completion of the survey, participants were offered an opportunity to enter a random drawing for a modest prize. Offering a random drawing for small prizes was expected to incentivize participation without being overly coercive. Participants were informed of this opportunity in promotional materials, as well as in their informed consent form. Up to fifty \$5 Amazon gift certificates, redeemable online, were made available for the drawing. A one-in-ten chance of winning was advertised in the

recruitment materials. At the close of the survey, participants were asked if they wished to be entered in the drawing. Those who answered "yes" were directed to an unlinked survey and prompted to enter an e-mail address where they could be sent the \$5 gift certificate if they won the drawing. This e-mail address was stored in an unlinked database in Qualtrics to protect confidentiality. Four hundred and fifty-four people opted into the prize drawing. Following the conclusion of data collection, the e-mail addresses were assigned random numbers. In keeping with the one-in-ten chance of winning, 45 random numbers were generated, and those e-mail addresses matching the numbers were sent a \$5 gift certificate from Amazon.com. Following the drawing, the database holding the e-mail addresses was deleted. Those who did not cash their gift card were sent e-mail notifications through Amazon.com, once a month for six months. Of the 45 gift cards generated, 30 (66.7%) were redeemed.

Sample Size

Justification. This particular type of study—conceptualization and measurement of work-related stress—had not yet been conducted with a sample of peer support specialists and required computationally-intensive multivariate analyses on the primary measures of interest. This necessitated a large sample size. At the time of this study's proposal it was unclear what could be expected in terms of response trends (i.e. correlations), which would affect the sample size required to conduct the analyses. Rules of thumb by H. Lee and Comrey (1992) suggest that a sample size of 500 is "very good" for the purposes of data reduction (i.e., factor analytic procedures). Several statisticians also mention a subject-to-variable ratio of 10:1. Taken together, the primary measures totaled 49 items. Since this was the maximum number of items to be included in exploratory factor analyses, Lee and Comrey's rule of thumb was observed by achieving a sample size of 500.

Feasibility. Regarding feasibility of such a data collection effort, it is established that web-based surveys of workplace compensation, education, and satisfaction are well-tolerated the population of peer support providers. A 2014 effort by iNAPS yielded over 600 responses from peer specialists nationwide, with a low rate of drop-out and no use of incentive. Rough analyses of completion time for the iNAPS survey showed that for participants who completed the survey within one day (inclusive of those who ended the survey early as well as those who returned to the survey after several hours), the mean time for engagement with survey software was 35 minutes, with a median of 23 minutes (IQR 15-36). As the Peer Provider Stress Survey was comparable in length, it was reasonable to expect that prospective participants would tolerate the survey and that a similar response could be achieved. However, the data collection process in the earlier effort took several months to yield the sample size goal in this study.

Result. The target sample size for the Peer Provider Stress Survey (N=500) was reached on February 9th, 2018 after three months and 21 days of data collection. The effort continued until the originally planned study end date of May 1st, 2018.

Procedure

Ethics

This study was approved by the UC Berkeley Committee for Protection of Human Subjects (CPHS #2016-04-8658). The survey questions were based on widely-used questionnaires, and not considered harmful. Though there was a risk that participation could potentially cause discomfort or distress, participants were informed of this and were provided a general help resource in the informed consent. Further, the survey was well-tolerated. The survey did not require identifiable information but there was a risk that participants could reveal personal, sensitive, or identifiable information about themselves on open-ended text entry questions. However, these responses were not included in reports and there were no breaches of confidentiality through the course of the study. All questionnaires were concealed, and no one other than the investigators had access to data. Responses have been, and will continue to be, stored in a secure offline database until the completion of the study, when they will be destroyed. No adverse events were reported by participants to the investigator.

Survey Design

The Peer Provider Stress Survey was open from October 20th, 2017 – May 1st, 2018 and available online 24 hours a day to be taken at the convenience of participants. Data were collected online via the survey platform, Qualtrics—a reputable, powerful data collection tool.

Administration Considerations. There are disadvantages to online survey use in data collection, and participation in the Peer Provider Stress Survey could not be proactively monitored to ensure that the sample truly reflected the population of interest. To mitigate this, access to the survey was restricted at the front-end to those who passed the screening. This appeared to be effective, as several potential participants e-mailed with concerns about being blocked from the survey to find that, indeed, they did not meet the inclusion criteria for participation (typically because they were working in a role that didn't feature direct support or could be filled by someone who was not "peer-identified").

Another concern was that participants might attempt to take the survey multiple times to increase chances of receiving an incentive. Qualtrics has an optional feature to prevent "ballot box stuffing" by setting browser cookies and blocking repeated attempts from the same IP address. However, this may have prevented people from taking the survey if they attempted to access it from a workplace where a colleague had also completed it. Since this seemed like a significant impediment to the data collection process, the option was not utilized. The incentive database provided a clue that participants were indeed completing the survey more than once, so the project data file was cleaned for duplicate entries identified by demographic information and precisely matching text-entry fields.

Qualtrics software estimated the survey would take approximately 37 minutes to complete, and to better estimate response burden, test users verified that the survey took 20-30 minutes. To minimize response burden, participants were allowed to complete the survey in one session, or return to it at a later time. However, to ensure that these data were truly cross-sectional, survey expiration was utilized. Respondents had one week to complete the survey,

once started, but typically did so in one sitting. For those who completed the survey, the median response time was 40.6 minutes (IQR 29.23-66.31). As participation was anonymous there were no follow-up contacts with those who took the survey.

Data Extraction. Once the study closed and data collection was complete, data were exported directly from Qualtrics into the latest version of SPSS. The SPSS software package was used predominantly in study analyses.

Instruments

The online survey collected data on experiences of general stress and helping-related stress, theorized consequences of burnout, and environmental conditions linked to occupational stress. The survey primarily consists of instruments validated for use with professional and general populations. When appropriate, item content was slightly modified to more clearly identify the group being served, for example, instead of “patient” the word “peer” or “service recipient” was used. Some survey questions paralleled a recent effort by the International Association of Peer Specialists (iNAPS), with the permission of then-Executive Director Steve Harrington to use survey questions as needed from the 2014 Survey of Education, Compensation, and Satisfaction (International Association of Peer Supporters, 2015).

Stress-Related Measures

Burnout. The Maslach Burnout Inventory: Human Services Survey (MBI-HSS; Maslach & Jackson, 1981, 1984) is a 22-item measure reflecting the three-dimensional structure of burnout; emotional exhaustion, depersonalization, and personal accomplishment are assessed. According to a systematic review of 17 major studies on MBI-HSS between 2000-2014 (Loera et al., 2014), most factor analyses yield structures in alignment with Maslach’s work, the most common modification being elimination of two items (typically items 12 and 16), a method which Maslach herself did not oppose. Reliability and validity have been assessed in a few comparable populations. Chao et al. (2011) interviewed 435 workers delivering direct care to persons with intellectual disabilities; factor analyses revealed acceptable reliabilities and internal consistency comparable to Maslach’s findings. However, due to issues fitting the model, they suggested that the depersonalization factor be further divided into two subscales for this population: one that captures indifference about the care recipient, and one that captures rejection of them. In a longitudinal study of 475 California-based social workers (Kim & Ji, 2009), researchers determined that the three-factor model of burnout held, but dropped three items from the analysis. They also found that in social workers, the most salient factors are emotional exhaustion and depersonalization, with the latter being a critical symptom of burnout over time. Finally, Schaufeli et al. (2001) examined the validity of the MBI in two groups of people receiving outpatient psychiatric treatment—one group was decidedly “burned out” from their jobs (n=71) and the other not (n=68). Their work supported the three-factor structure and also found that the condition can be distinguished somewhat from other psychiatric conditions such as anxiety and depression.

Secondary Traumatic Stress. The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) is a 17-item measure of vicarious trauma experienced in the last seven days. Subscales are congruent with conceptualization of trauma as it was outlined in

the DSM-IV: intrusion, avoidance and arousal. In an initial exploration of psychometric properties (Bride et al., 2004), the full STSS and subscales showed very good internal consistency (alpha ranging from .83 to .89). Convergent validity and factorial validity of the STSS have also been reported. In a national sample of 275 mental health social workers (Ting et al., 2005), CFA revealed an adequately fitting model, but with high intercorrelations between factors the scale may be unidimensional.

General Stress. General stress has been conceptualized as an experience of life situations as unpredictable or overwhelming, and along these lines, the Perceived Stress Scale (PSS; (Cohen et al., 1994) is a widely used instrument for measuring generally stressful feelings or thoughts over the last month, and focuses on the degree to which life situations are seen as unpredictable or overwhelming as well as direct assessment of perceived stress level. This is an easily-understood measure and written to be useful for general populations. According to a review on psychometric evidence for the PSS (E. Lee, 2012), higher PSS scores have been found to have moderate to strong association with depression and anxiety, and lower scores have been noted in participants hypothesized to have lower levels of stress (e.g. were young, white, married, employed, and had higher SES). The PSS has acceptable reliability and validity, with superior psychometric properties reported in the 10-item version of the instrument (alternate versions have either four or 14 items); however, more research is needed into the test-retest reliability, criterion validity, and known-groups validity. Lee (2012) reported on exploratory factor analyses conducted to date on the 10-item version, with six studies finding that a two-factor structure explained most of the variance, and two studies finding that the items reduced to a single factor. Cronbach's alpha (internal consistency) was found to be $>.70$ in all 12 studies in which the 10-item version was used.

Psychological Distress. The Brief Symptom Inventory-18 (BSI-18) was included in the questionnaire to assess any current psychiatric symptoms and their intensity in the month prior to survey administration. The Brief Symptom Inventory (Derogatis & Melisaratos, 1983) is a 53-item Likert response format questionnaire which assesses nine categories of symptoms, however the version used in this study is the shortest and most recent form of the BSI, assessing three of these: somatization, depression, and anxiety. A Global Severity Index is calculated as a summed total of all items. The original BSI was developed from the SCL-90-R and shows convergence with dimensions of the Minnesota Multiphasic Personality Inventory (Derogatis & Melisaratos, 1983); both are longer instruments considered reliable in the measurement of psychopathology.

One of the more prominent measures of psychological distress, psychometric properties of the BSI have been tested in many research studies, however much of this work been performed by the authors of the test (Boulet & Boss, 1991). The BSI has been shown to have good internal reliability, test-retest reliability, and correlates with the SCL-90-R (Derogatis & Spencer, 1993). Regarding the shorter form of the instrument, Franke et al. (2017) report that it is a reliable measure of psychological distress in general populations, noting good internal consistency among the three subscales (Somatization $\alpha = .82$, Depression $\alpha = .87$, Anxiety $\alpha = .84$, GSI $\alpha = .93$), and good model fit based on RMSEA, though other fit indices were inadequate.

Potential Correlates of Stress

Demographics. Information on age, sex, ethnicity, socioeconomic indicators, and self-report of diagnosis, service use, and/or lived experience of mental distress were collected.

Working Conditions. Included were several brief questions on workload and work setting, including pay rate, weekly hours worked, and caseload.

Organizational Support. The Survey of Perceived Organizational Support (Eisenberger, Huntington, Hutchison, & Sowa, 1986) addresses possible actions by the organization that may affect an employee and reflect the value the organization may have for the employee. It measures the general belief that the organization is committed to the employee, values their continued membership, and is generally concerned about their well-being. The 16-item version of this instrument was utilized as part of an optional survey section. Hellman, Fuqua, and Worley (2006) reviewed 62 studies using this measure and found that out of the 58 studies reporting reliability coefficients, the mean internal consistency was .88 (95% CI .851-.904).

Life Stressors. The Holmes and Rahe Stress Checklist (Holmes & Rahe, 1967), also referred to as the Social Readjustment Rating Scale (SRRS), is a 43-item checklist of life events determined to contribute negatively to one's stress load. Each event is referred to as a Life Change Unit and has a different weight, depending on severity. Respondents indicate how many times each event has affected them in the last year. Adding the weights of applicable life events yields a total score, where 11-150= low to moderate chance of becoming ill in the near future, 150-299=moderate to high chance of becoming ill in the near future, and 300-600=high or very high risk of becoming ill in the near future. The reliability and validity of this and other checklists have been contested (Dohrenwend, 2006), and due to individual differences in resilience and coping abilities, interpretation of the results can be challenging.

Work-Related Measures

Turnover Intention. These questions were modeled after the iNAPS Survey of Education, Compensation, and Satisfaction (Cronise et al., 2016), and address self-perceived likelihood of staying in the current work condition. See Table 11 (Appendix 3) for question content and descriptive statistics.

Self-Rated Work Performance. Respondents rated their own current levels of job performance consistent with a method used in Parker and Kulik's (1995) study of burnout and job performance in nurses. Included are the following areas: knowledge of procedures, interaction with coworkers, dedication to work, quality of care provided to peers, and overall rating of job performance. Each dimension is rated on a 5-point Likert scale from 1 (poor) to 5 (outstanding). In Parker and Kulick's work, the items were shown to be reliably related to each other ($r = .73$) and were collapsed into a single index of self-reported job performance. See Table 12 (Appendix 3) for descriptive statistics on self-rated work performance.

Job Satisfaction. Originally developed for use with community nurses, the Measure of Job Satisfaction (MJS; Traynor & Wade, 1993) has demonstrated high reliability and validity in community settings. Internal consistency was measured with Cronbach's alpha at .93; test-retest

reliability was .89. The items relate to work environments generalizable to peer support providers, and are organized into five subscales which address different aspects of job satisfaction: personal satisfaction, satisfaction with workload, satisfaction with professional support, satisfaction with pay and prospects, and satisfaction with training. In a review of the psychometric properties of job satisfaction instruments (van Saane et al., 2003), it was found that few measures had high reliability and validity and further, psychometric properties of job satisfaction measures have received relatively little attention in the literature. After reducing the set of job satisfaction measures to seven which met criteria for adequate psychometric quality, the MJS was noted to have good (perhaps the best) content validity, in that it addresses each the work factors authors deemed important in an assessment of job satisfaction. See Table 12 (Appendix 3) for descriptive statistics on level of job satisfaction.

Absenteeism. Four questions ask about unplanned absences in the previous month; these were also adapted from Parker and Kulik (1995), however are not part of a validated instrument. Respondents were asked to note whether the unplanned absences were for physical health reasons, mental health reasons, or other reasons. See Table 12 (Appendix 3) for descriptive statistics on absenteeism.

Summary of Procedures

1. Following IRB approval in October 2017, information about study recruitment was distributed via e-mail to organizational contacts and posts to social media groups, such as peer support specialist groups on Facebook and LinkedIn. The only interaction with potential subjects occurred when participants e-mailed the investigator with questions, as encouraged on the recruitment flyer and informed consent.
2. Potential participants followed the link included on recruitment materials to the screening form at the beginning of the web-based Qualtrics survey, and answered four screening questions.
3. If they passed the screening, potential participants were directed to the online informed consent form and were required to provide informed consent in order to continue with the survey.
4. Once screening and informed consent were passed, participants began the survey questions. They were allowed to quit at any time or could return to the survey later to finish (within one week).
5. Immediately following the survey, participants were asked if they wanted to be included in the random drawing for a \$5 Amazon gift card. They were informed for a second time that this entailed collecting e-mail address in a confidential manner. Participants either requested to be a part of the drawing or opted out. The survey was then closed, and no follow-up took place.
6. Those who requested to be a part of the drawing were directed to another survey not linked to the data collection effort, and entered their e-mail address there to be used for the random drawing. No identifiable information was collected and e-mail information was kept in a separate database to preserve confidentiality.
7. The prize drawing occurred on May 21st, 2018. From the pool of 454 people who opted in to the prize drawing and provided their e-mail address, 45 were randomly selected and sent a \$5 gift card.

8. Following the close of data collection, survey data were downloaded from the secure Qualtrics platform into SPSS format, and then deleted from Qualtrics. Analyses were primarily conducted in the secured SPSS database, and to a lesser extent, in SPSS AMOS, Stata, and FACTOR.
9. Preliminary descriptive results based on the unrefined study sample were posted on the (now-defunct) study website, www.peer-stress-survey.com, from September 23rd 2018 – October 31st, 2019.

Sample Characteristics

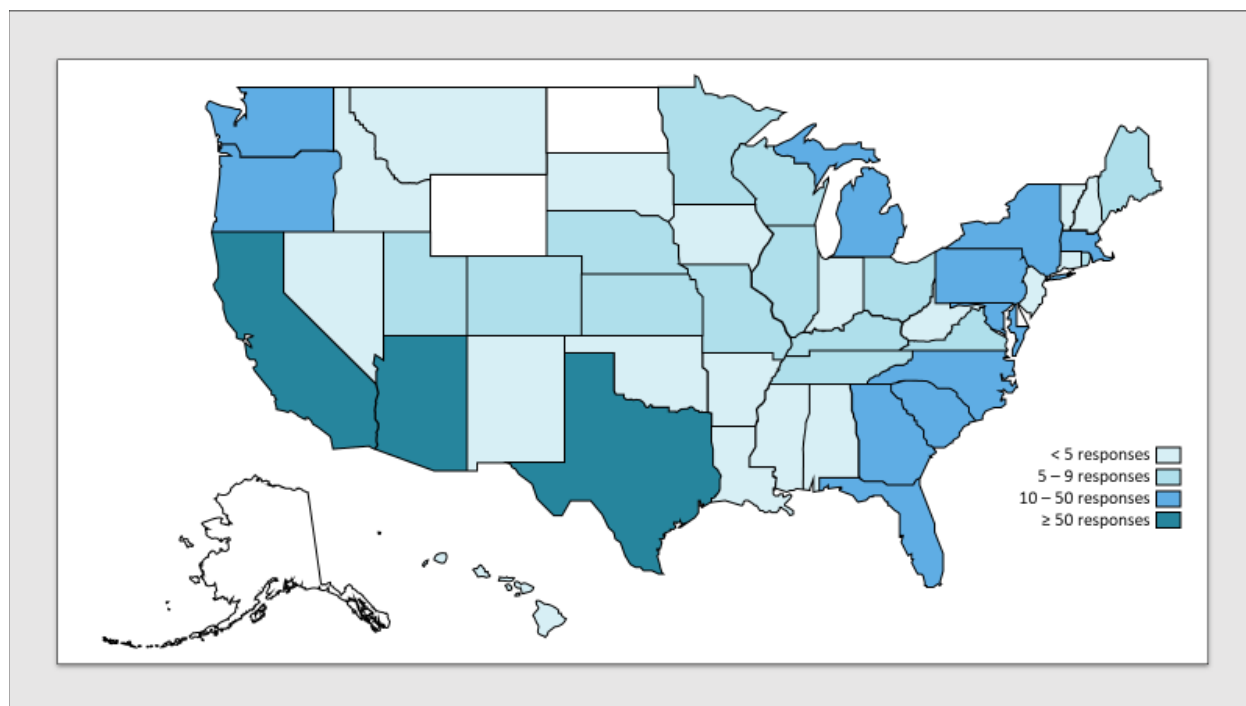
The online survey was accessed 1,245 times. Those who passed inclusion criteria were required to provide informed consent before participating in the survey; 960 gained access and completed at least part of it. The dataset was cleaned to exclude participants performing duties far in addition to peer support, and people who took the survey more than once, as identified by text entry forms and demographic information (Figure 2). The survey was well-tolerated, and those who passed the screening usually completed the survey or, if not, quit before answering questions which would allow for analysis of potential selection bias.

Table 1 (in Paper 1) describes demographic, clinical, and work characteristics. The resultant maximum study sample totaled 738 participants with a mean age of 48.21 (range 18-74). Most (64.8%) identified as female and white, non-Hispanic (77.5%). The high majority of respondents (n=642, 87.0%) completed requirements and received designation as certified peer support specialists. Most (n=552, 74.8%) worked full-time in paid positions, 93.6% worked solely as direct peer support providers. The mean number of hours worked per week was 33.4, with a mean hourly pay rate of \$15.80 (SD 4.71) among the 447 workers who provided this information. Among the 711 who reported their caseload—that is, number of peers supported weekly, there was high variability in results though usually fell within an expected range. The median caseload was 16 peers served weekly (IQR 10-30)⁶.

Peer support providers draw from a variety of personally-lived experiences. Survey respondents were asked about general life experiences that inform their work; these questions were modeled after the 2014 Survey of Education, Compensation, and Satisfaction conducted by the International Association of Peer Supporters (Cronise et al., 2016). The majority endorsed personal experience with anxiety (80.1%) and a psychiatric condition (79.9%). Fewer participants reported personal experience with involuntary mental health treatment (19.7%) and/or legal involvement (38.7%). Trauma-related and depressive diagnoses were the most frequently reported in the sample.

⁶ In future studies it will be helpful to reframe this question as number of peers served in given contexts—e.g. in group support or educational settings, in one-on-one encounters, or served agency-wide—as well as inquire about service intensity, which is difficult to glean from the available metrics in the current study.

Figure 4. *Geographical Distribution of Responses*



Appendix 2. IRB Approval

UNIVERSITY OF CALIFORNIA AT BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO



SAN FRANCISCO • SANTA BARBARA • SANTA CRUZ

**COMMITTEE FOR PROTECTION OF HUMAN SUBJECTS
OFFICE FOR THE PROTECTION OF HUMAN SUBJECTS**
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Website: <http://cphs.berkeley.edu>
FWA#00006252

NOTICE OF APPROVAL FOR HUMAN RESEARCH

DATE: *January 27, 2017*
TO: *Jennifer Skeem, Social Welfare
Stephanie Hayes, Social Welfare*
CPHS PROTOCOL NUMBER: *2016-04-8658*
CPHS PROTOCOL TITLE: *Conceptualization and measurement of helping-related strain in peer support specialists*
FUNDING SOURCE(S): *NONE*

A(n) *new* application was submitted for the above-referenced protocol. The Committee for Protection of Human Subjects (CPHS) has reviewed and approved the application by *Full Review* review procedures.

Effective Date: *January 27, 2017*
Expiration Date: *January 26, 2027*

Continuation/Renewal: Applications for continuation review should be submitted no later than 6 weeks prior to the expiration date of the current approval. *Note: It is the responsibility of the Principal Investigator to submit for renewed approval in a timely manner. If approval expires, all research activity (including data analysis) must cease until re-approval from CPHS has been received.* See [Renew \(Continue\) an Approved Protocol](#).

Amendments/Modifications: Any change in the design, conduct, or key personnel of this research must be approved by the CPHS **prior** to implementation. For more information, see [Amend/Modify an Approved Protocol](#).

Ten-year approvals: Minimal risk, non-federally funded protocols that are not subject to federal oversight may now be given a ten-year approval period. Please see [Ten Year Approvals](#) for information about which protocols can qualify for ten-year approvals.

The addition of federal funding or certain modifications that increase the level of risk may require a continuing review form to be submitted and approved in order for the protocol to continue. If one or more of the following changes occur, a Continuing Review application must be submitted and approved in order for the protocol to continue.

- Changes in study procedures that increase risk;
- Addition of federal funds.

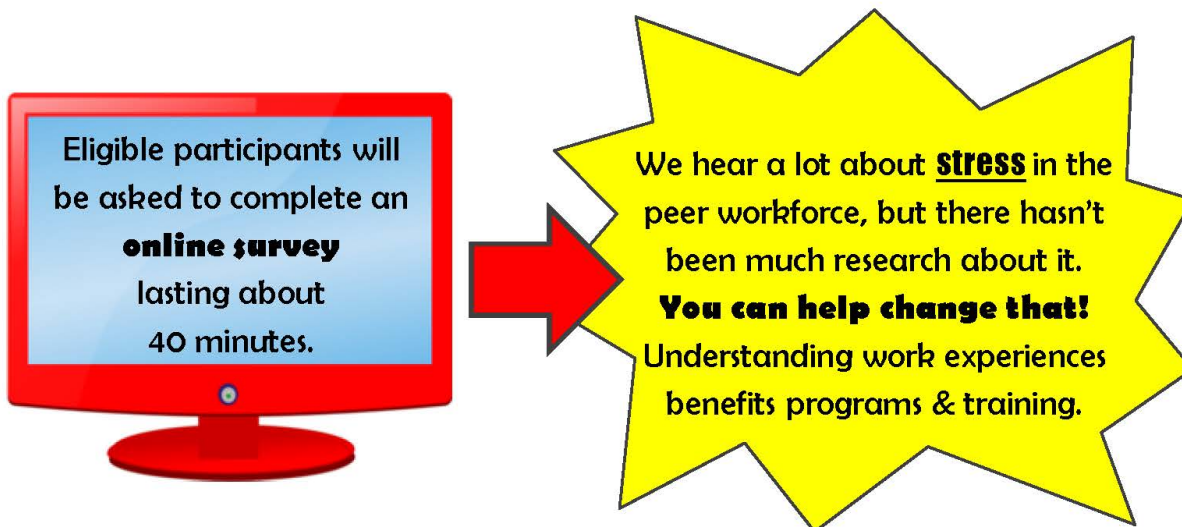
Unanticipated Problems and Adverse Events: If any study subject experiences an unanticipated problem involving risks to subjects or others, and/or a serious adverse event, the CPHS must be informed *promptly*. For more information on definitions and reporting requirements related to this topic, see [Adverse Event and Unanticipated Problem Reporting](#).

This approval is issued under University of California, Berkeley Federalwide Assurance #00006252.

If you have any questions about this matter, please contact the OPHS staff at 642-7461 or email ophs@berkeley.edu.

Research Volunteers Needed Nationwide!

Do you currently work as a peer support specialist?
If so, your perspective on work-related stress is needed.



Participants will be entered to win a \$5 Amazon.com gift card!
Chances of winning are about 1 in 10.

You may be eligible to participate if ***all*** of these apply:

- You were trained and currently provide *direct* peer support services in a mental health organization, paid or unpaid
- You *use your own recovery experience* to assist others with mental health & other life challenges
- You are *over age 18* and *work in the United States*

This study was designed by a certified peer support specialist, with input from peers and allies. If you want to learn more, please send questions to the investigator, Stephania Hayes, by e-mail: stephania@berkeley.edu

Ready to get started?

Click this link to answer initial questions:

[Peer Stress Survey](#)

Or, paste this into your web browser:

<http://bit.ly/2ziTivL>

Appendix 3. Descriptive Statistics on Selected Measures

Employment-Related Variables

Table 11. *Summary Statistics on Four Questions Related to Turnover Likelihood*

Peer support providers who...	Response	N	%
Considered finding a new job in the past 6 months	Yes	298	49.5
	No	304	50.5
Considered leaving the field of peer support in the past 6 months	Yes	180	29.9
	No	420	69.8
Wish to leave current job as a peer support worker	Definitely yes	35	5.8
	Probably yes	96	15.9
	Probably not	191	31.7
	Definitely not	279	46.3
Will likely have the same peer support job in a year	Definitely yes	238	39.5
	Probably yes	275	45.7
	Probably not	76	12.6
	Definitely not	13	2.2

Table 12. *Descriptive Statistics on Level of Job Satisfaction, Absenteeism, and Self-Rated Work Performance*

Level of satisfaction with...	N	Min	Max	Mean	SD
pay	597	4	20	13.01	4.92
training	594	6	25	17.99	4.23
prospects	596	6	30	22.23	5.20
standards of care	596	11	30	23.75	4.38
personal satisfaction	600	8	30	25.34	4.27
workload	591	8	40	29.81	5.53
professional support	597	8	40	31.55	7.16
Overall job satisfaction...	N	Min	Max	Mean	SD
directly reported	602	1	5	4.16	.906
mean of MJS items	602	1.44	5.00	3.81	.664
Days absent in last month due to...	N	Min	Max	Mean	SD
physical health reasons	591	0	31	1.05	2.40
mental health reasons	592	0	17	.69	1.86
other reasons	586	0	12	.46	1.23
Total unplanned absences	602	0	31	1.72	3.01
Self-rated Work Performance	N	Min	Max	Mean	SD
Knowledge of procedures	602	2	5	4.30	.596
Interaction with coworkers	600	2	5	4.33	.699
Dedication to work	602	1	5	4.66	.579
Quality of care provided to peers	602	2	5	4.56	.575
Overall self-rating of job performance	602	2	5	4.42	.595

Note. Scoring on the measure of self-rated work performance: 1="poor," 2="below average," 3="average," 4="good," 5="outstanding."

Secondary Traumatic Stress

At least three scoring methods have been proposed for the STSS. The first aligns with diagnostic evaluation for clinical PTSD according to the DSM-IV-TR; however, given that the diagnostic criteria for PTSD has changed in the latest revision (American Psychiatric Association, 2013), continued use of this scoring method is less defensible.

Another approach compares total summed scores to original normative scores for the STSS published by Bride (2007). These were established in a group of 282 licensed social workers, over half (56.6%) of whom practiced in mental health settings. According to this method, scores at or below the 50th percentile are interpreted as little to no secondary traumatic stress, and scores above the 50th percentile are interpreted as progressively more intense. Using the scoring breakdown published by Bride (2007), a combined 85.1% of peer support workers experience either mild, or little to no secondary traumatic stress while 5.8% (n=36) endorsed severe levels of it (Table 13).

Table 13. *PSs' Level of Secondary Traumatic Stress, According to Published Percentiles*

STS Level	Percentile	Corresponding Total Score	n	%
Little / None	≤ 50th	< 28	372	60.4
Mild	51st - 75th	28 - 37	152	24.7
Moderate	76th - 90th	38 - 43	34	5.5
High	91st - 95th	44 - 48	22	3.6
Severe	>95th	≥ 49	36	5.8

Notes. N=616. The percentiles and corresponding scores are derived from the original “normative” sample of 282 social workers (Bride, 2007). In the sample of peer support providers, percentiles and corresponding scores may manifest differently; they were not recalculated for this group.

The third approach uses a binary cutoff, where individuals scoring at a moderate level—or a score of 38—are identified as having clinically significant secondary traumatic stress. According to this simplified scoring procedure, nearly 15% of the sample has a significant level of post-traumatic stress through secondary traumatization (Table 14).

Table 14. *PSs' Level of Secondary Traumatic Stress, According to Proposed Binary Cutoff*

STS Level	n	Percent
Below threshold for PTSD	524	85.1
Clinically significant	92	14.9

Appendix 4. Factor Analytic Procedures for Three Stress Measures

Confirmatory factor analysis is a multivariate procedure by which measurement theories are either confirmed or rejected. Since the three measures utilized in this study—the MBI-HSS, STSS, and PSS—had not been tested with peer support specialists previous to this study, CFA results can suggest whether they are indicated for use in this population. Results from confirmatory analyses of the three stress measures follow. Each model is specified first according to its theorized structure in SPSS AMOS (Arbuckle, 2017), and then with alternate structures as supported by previous work with the measures. Models are assessed by examining factor loadings, relationships between the factors, and four indices of fit with the following target values: The chi-square value (CMIN/DF) between 1.0 and 5.0, and ideally non-significant, though chi-square is sensitive to large sample size (Iacobucci, 2010); the Tucker-Lewis index (TLI) and comparative fit index (CFI) should be greater than or equal to 0.9; and the root mean square error of approximation (RMSEA) less than or equal to 0.08, ideally less than 0.05.

Confirmatory factor analyses rely upon an assumption of multivariate normality, which does not describe the response distribution on any stress measure in this sample of peer specialists. Despite statistical best practices, factor analytic procedures are often unadjusted in the face of violated assumptions (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Kasper & Unlu, 2013; Zygmunt & Smith, 2014). Structural equation modeling software such as AMOS (Arbuckle, 2017) is widely used for confirmatory factor analyses in the social sciences, and can identify issues such as multivariate non-normality, but it is not well-equipped to handle it. Further, traditional factor analytic approaches with Likert-style data have been criticized (Lubke & Muthén, 2004). Given these challenges and the failure of data transformation, alternate exploratory analyses for each stress measure were conducted in FACTOR (Lorenzo-Seva & Ferrando, 2006) under the expectation that similar issues with item performance would be revealed. Key differences from the previous method include calculation on the polychoric correlation matrix, parallel analysis based on principal components (Horn, 1965) to determine the number of dimensions, and an asymptotic covariance/variance matrix estimated using bootstrap sampling (Lambert, Wildt, & Durand, 1991). For the STSS and PSS, unidimensionality assessments were added to gain insight on whether the measures can reliably be conceptualized as a single scale.

Maslach Burnout Inventory – Human Services Survey

SPSS AMOS Procedures

First, adequacy for data reduction was determined by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity, both of which suggested the MBI-HSS was suitable for factor analysis⁷. In line with a confirmatory approach, the hypothesized factor structure of burnout was defined *a priori* in SPSS AMOS (Arbuckle, 2017) by 22 response items organized into three latent variables: Emotional Exhaustion (EE) corresponded with nine items, Personal Accomplishment (PA) with eight items, and Depersonalization (DP) with five items. Error terms were also included and named, resulting in

⁷ The high result (0.91) on the KMO measure indicates that the variance may be explained by latent factors. The significant result on the Bartlett's test ($\chi^2 5947.45$, $df 231$, $p < .001$) indicates that the correlation matrix is not an identity matrix, and an underlying structure may be detected.

47 total variables in the default model (22 observed, 25 unobserved; 22 endogenous, 25 exogenous). In the default model, there are 275 distinct sample moments and 69 parameters to be estimated, resulting in 206 degrees of freedom ($\chi^2 1188.176$, $p=.000$) which exceeds the minimum required for model identifiability and results in a convergent solution.

The parameters of the measurement model were estimated; AMOS calculated tests for multivariate normality and outliers, standardized estimates, residual moments, and modification indices. First, to identify cases with extreme scores on at least two MBI-HSS items, the squared Mahalanobis distance (d^2) was computed for each case. These values were generally consistent except for one substantially deviating case in which multivariate outliers are suggested. However, there is no theoretical justification for dropping cases. To check the assumption of multivariate normality, univariate normality was first assessed via standardized kurtosis indices for each item. Using the suggested value of seven or greater (Byrne, 2016), it appears that four items have non-normal distribution, with extreme kurtosis values ranging from 7.22 – 12.53 (see Table 15).

Table 15. *Normality Assessment: Highest MBI-HSS Skew and Kurtosis Values*

Item	Min	Max	Skew	CR	Kurtosis	CR
15. Don't care	0	6	3.42	35.20	12.53	64.49
17. Relaxed	0	6	-2.85	-29.35	10.15	52.24
5. Objects	0	6	2.80	28.79	7.66	39.45
9. Positive influence	0	6	-2.62	-27.01	7.22	37.15
7. Effective	0	6	-2.38	-24.45	5.10	26.26
Multivariate					192.317	74.625

Note. CR=Critical Ratio. According to Gao, Mokhtarian, and Johnston (2008), when the CR is less than 1.96, a sample can be considered to be multivariate normally distributed at $\alpha=0.05$.

Moving on, three items have loadings under .40 on their indicated factor (Table 16), suggesting that they may not fit with the model or should be a target of respecification in future work.

Table 16. *Low Factor Loadings on the MBI-HSS*

Item	Loading (Subscale)
4. Understand feelings	.39 (Personal Accomplishment)
12. Energetic	.36 (Personal Accomplishment)
22. Feel blamed	.29 (Depersonalization)

Regarding the model as a whole, and using Evans' (1996) guidelines for correlational strength, Emotional Exhaustion had a very weak, negative correlation ($r=-.17$) with Personal Accomplishment and a strong, positive one ($r=.68$) with Depersonalization. Depersonalization and Personal Accomplishment were weakly associated ($r=-.30$). Finally, goodness-of-fit was assessed, and the fit indices seen in Table 17 show that these data fall short of each threshold.

Table 17. *Goodness-of-fit in Original Model Specification of the MBI-HSS*

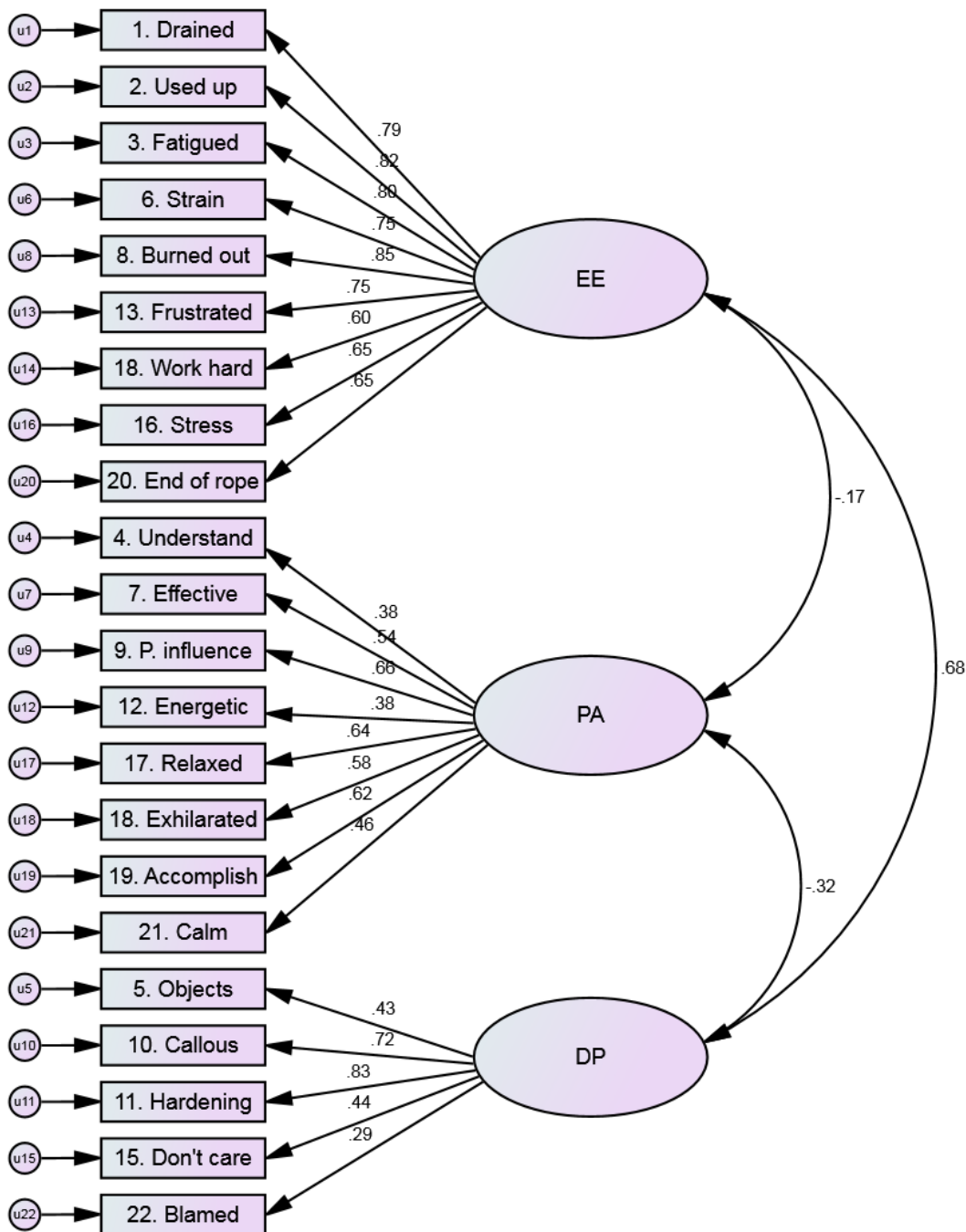
Fit Index	Value	p
CMIN/DF	5.741	<.001
TLI	.799	---
CFI	.836	---
RMSEA (90% CI)	.080 (.075-.084)	<.001

Note. CMIN/DF=minimum discrepancy, divided by its degrees of freedom; TLI=Tucker-Lewis index; CFI=comparative fit index; RMSEA=root mean square error of approximation.

FACTOR Procedures

After Varimax rotation, the loading matrix was assessed. Again using the 0.40 threshold, each of the 22 items loaded adequately on their hypothesized factors with some instances of cross-loading. Of most concern, Item 12 (“energetic”) loaded more strongly on an alternate component—emotional exhaustion—than it did on its hypothesized component (personal accomplishment). Other cross-loading items were of minor concern, as they loaded most strongly on their own hypothesized component, and on a secondary component with coefficients ranging from .305 - .387. FACTOR then computed bias-corrected and accelerated bootstrap 95% confidence intervals for loading values on 500 samples. In this analysis it became apparent that Item 22, while adequately loading at 0.495 on its hypothesized component (depersonalization), it is not doing so reliably. The confidence interval for this item plummets to 0.200, and the item does not load highly on either of the other components. Revisiting the issue with Item 12, the bootstrapping technique revealed that the item clearly aligned better with the emotional exhaustion component. Not only does it load more strongly on EE (loading value - 0.565, 95% CI -0.640, -0.500), but the confidence interval for the loading value dips below the 0.40 threshold on its hypothesized component (loading 0.468 on personal accomplishment, 95% CI 0.379, 0.558). Given these results, descriptive statistics with peer support providers—particularly for the Personal Accomplishment and Depersonalization subscales—should be interpreted very cautiously.

Figure 5. Graphical Summary of CFA Results Obtained from Hypothesized Three-Factor Structure of the MBI-HSS



Note. EE=Emotional Exhaustion; PA=Personal Accomplishment; DP=Depersonalization.

Secondary Traumatic Stress Scale

SPSS AMOS Procedures

First, adequacy for data reduction was determined by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity, both of which suggested the STSS was suitable for factor analysis⁸. The hypothesized three-factor model for the STSS was specified a priori using SPSS AMOS version 25 (Arbuckle, 2017), with 17 response items organized into three latent variables: Intrusion (IN) as a latent variable corresponded with five items, Avoidance (AV) with seven items, and Arousal (AR) with five items. Error terms were also included and named, resulting in 37 total variables in the default model (17 observed, 20 unobserved; 17 endogenous, 20 exogenous). In the default model, there are 170 distinct sample moments and 54 parameters to be estimated, resulting in 116 degrees of freedom ($\chi^2 544.251$, $p=.000$) which exceeds the minimum required for model identifiability.

The parameters of the measurement model were estimated; AMOS calculated tests for multivariate normality and outliers, standardized estimates, residual moments, and modification indices. First, to identify cases with extreme scores on at least two STSS items, the squared Mahalanobis distance (d^2) was computed for each case in AMOS. These values were generally consistent with no extreme outliers noted. To check the assumption of multivariate normality, univariate normality was first assessed. Standardized kurtosis indices were reviewed for each STSS item. Using the suggested value of seven or greater as an indicator of extreme kurtosis (Byrne, 2016), it appears that two items have non-normal distribution, with kurtosis values ranging from 8.79 – 13.28 (see Table 18).

Table 18. *Normality Assessment: Highest STSS Skew and Kurtosis Values*

Item	Min	Max	Skew	CR	Kurtosis	CR
13. Disturbing dreams	1	5	3.22	32.61	13.28	67.28
2. Heart pounding	1	5	2.76	27.93	8.79	44.53
3. Reliving trauma	1	5	2.38	24.13	6.18	31.32
6. Upsetting reminders	1	5	2.10	21.31	5.91	29.96
12. Avoided reminders	1	5	2.41	24.46	5.81	29.41
Multivariate					267.28	130.50

Note. CR=Critical Ratio. According to Gao et al. (2008), when the CR is less than 1.96, a sample can be considered to be multivariate normally distributed at $\alpha=0.05$.

Figure 6 displays the AMOS-generated three-factor model of secondary traumatic stress in this sample, however, since uncorrected estimators may overestimate the statistical significance of the model, these results are interpreted with caution.

⁸ The high result (0.95) on the KMO measure indicates that the variance may be explained by latent factors. The significant result on the Bartlett's test ($\chi^2 5432.55$, $df 136$, $p < .001$) indicates that the correlation matrix is not an identity matrix, and an underlying structure may be detected.

FACTOR Procedures

Challenging the model fit found via SPSS AMOS, FACTOR revealed that the STSS could be conceptualized as a single component. Based on eigenvalues, the first component explained 58.5% of the variance and results from parallel analysis suggested that the STSS is unidimensional. After Varimax rotation, there was high incidence of cross-loading with most of the 17 items affected. Intrusion and Avoidance items were more likely to crossload within those two subscales, and this was confirmed via bias-corrected and accelerated bootstrap 95% confidence intervals for loading values on 500 samples. The analysis was re-run under the assumption of a single component. The closeness to unidimensionality assessment (Ferrando & Lorenzo-Seva, 2018) suggested that the scale was nearly unidimensional⁹. Item 13 (“disturbing dreams”), found to be most kurtotically distributed, was the only item that fell short of the unidimensionality criteria. Fortunately, the STSS is usually analyzed as a total scale, but given these results, the subscale-specific statistics with peer support providers should be interpreted cautiously.

Finally, fit indices were sufficient, indicating that the original three-factor model of secondary traumatic stress adequately fits these data. However, collinearity between the factors indicates a unidimensional model may be more appropriate, and given the existing support for this alternate structure (Benuto, Yang, Ahrendt, & Cummings, 2018; Ting et al., 2005), it was also tested in SPSS AMOS (Figure 7).

⁹ The closeness to unidimensionality assessment (Ferrando & Lorenzo-Seva, 2017) uses the bootstrap 95% confidence intervals of unidimensional congruence, explained common variance, and residual absolute loadings. Unidimensionality can be assumed when values of Unidimensional Congruence and Item Unidimensional Congruence are larger than 0.95; values of Explained Common Variance and Item Explained Common Variance are larger than 0.85; and, values of MIREAL (Mean of Item RESidual Absolute Loadings) and I-REAL (Item RESidual Absolute Loadings) are lower than 0.300. Overall assessment showed values of 0.990, 0.915, and 0.213, respectively.

Figure 6. Graphical Summary of CFA Results Obtained from Hypothesized Three-Factor Structure of the STSS

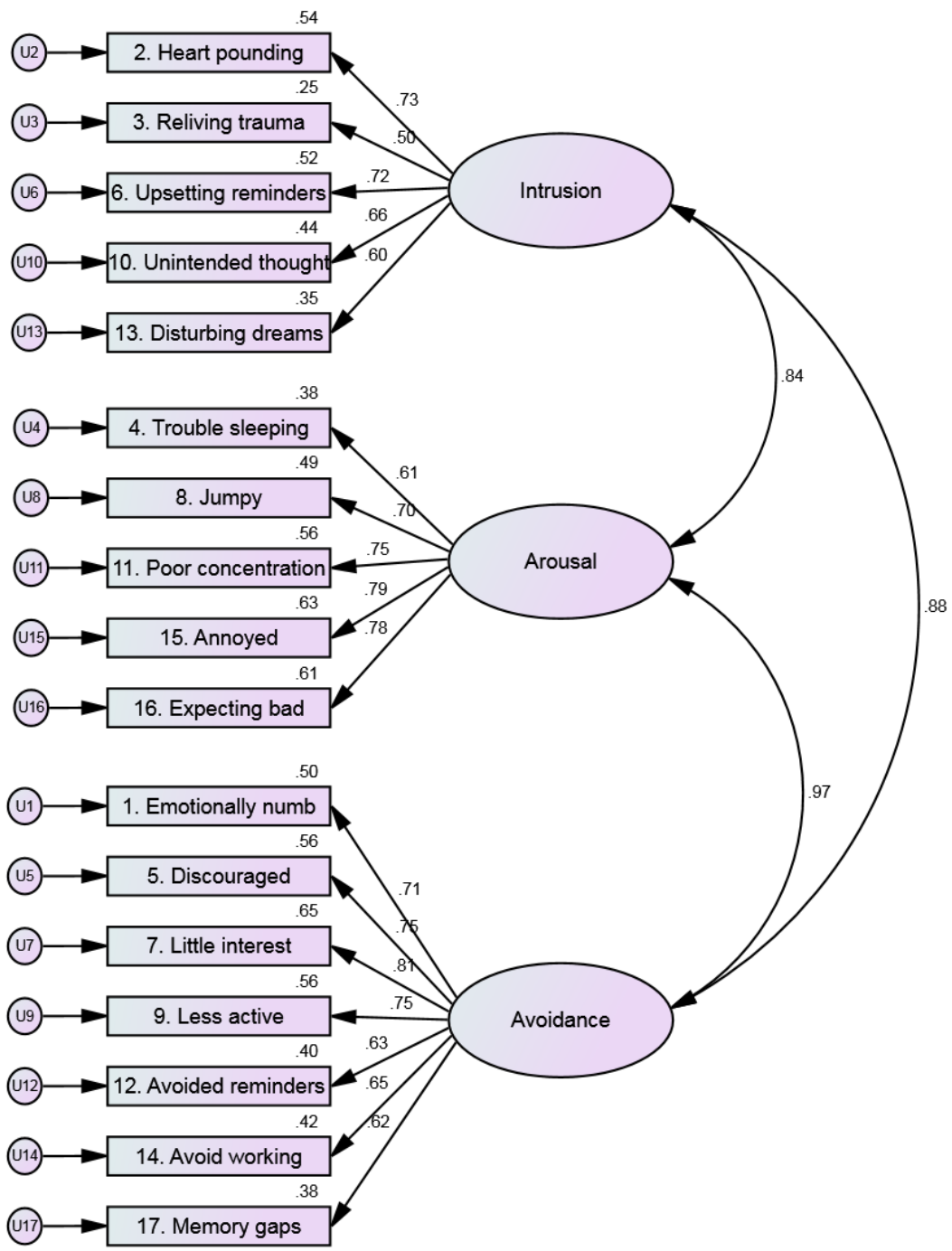
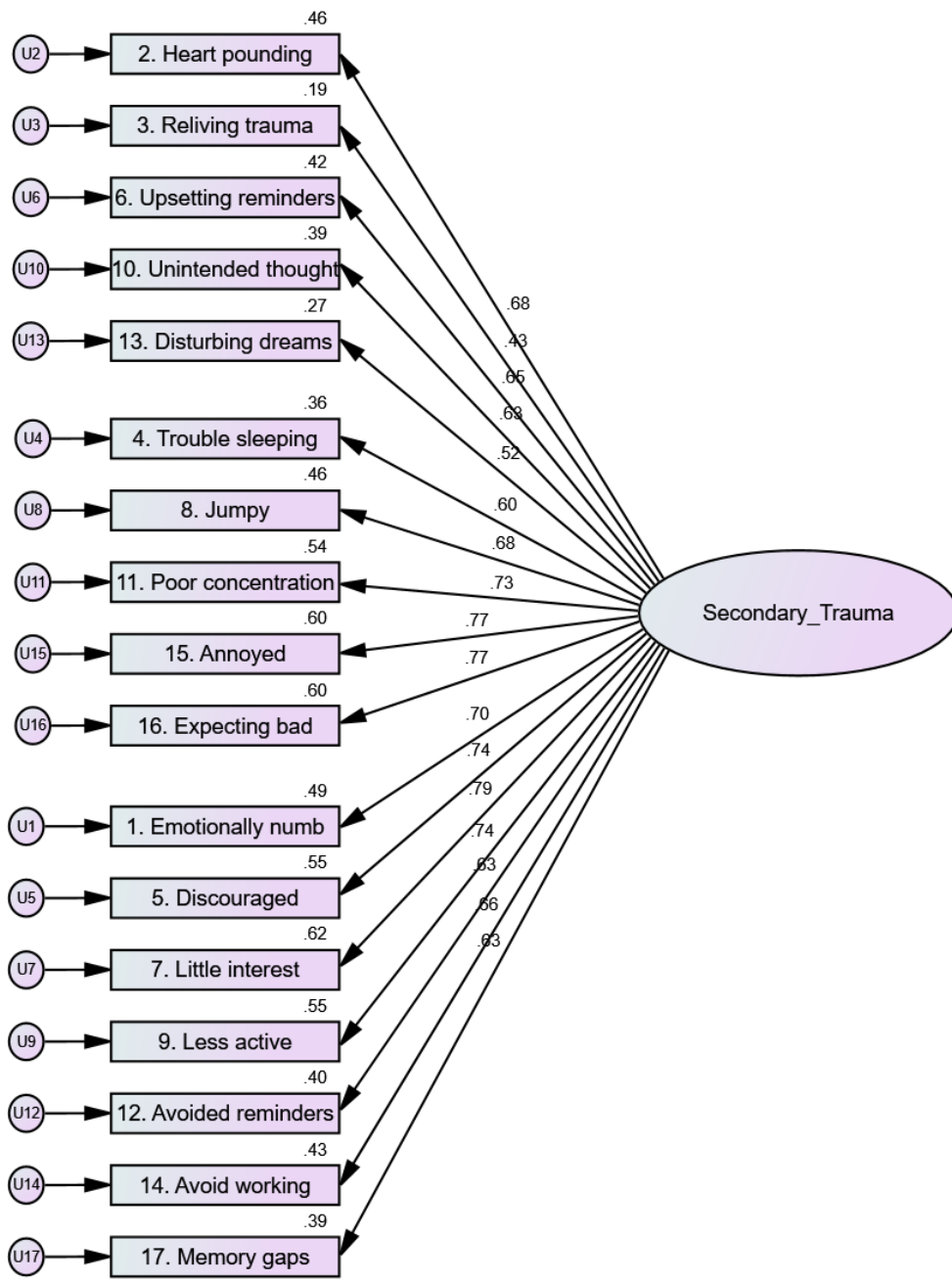


Figure 7. Graphical Summary of CFA Results Obtained from Unidimensional Structure of the STSS



Fit indices in Table 19 indicate that the unidimensional model is plausible. However, since uncorrected estimators may overestimate the statistical significance of the model, these results are interpreted with caution.

Table 19. *Comparison of Original and Respecified Models of the STS*

Model	Action	CMIN/DF	TLI	CFI	RMSEA (90 CI)
1	Original model	4.692	.895	.920	.071 (.065-.077)
2	Unidimensional model	5.490	.886	.900	.085 (.079-.092)

Note. CMIN/DF=minimum discrepancy, divided by its degrees of freedom; TLI=Tucker-Lewis index; CFI=comparative fit index; RMSEA=root mean square error of approximation; CI=confidence interval.

Perceived Stress Scale

SPSS AMOS Procedures

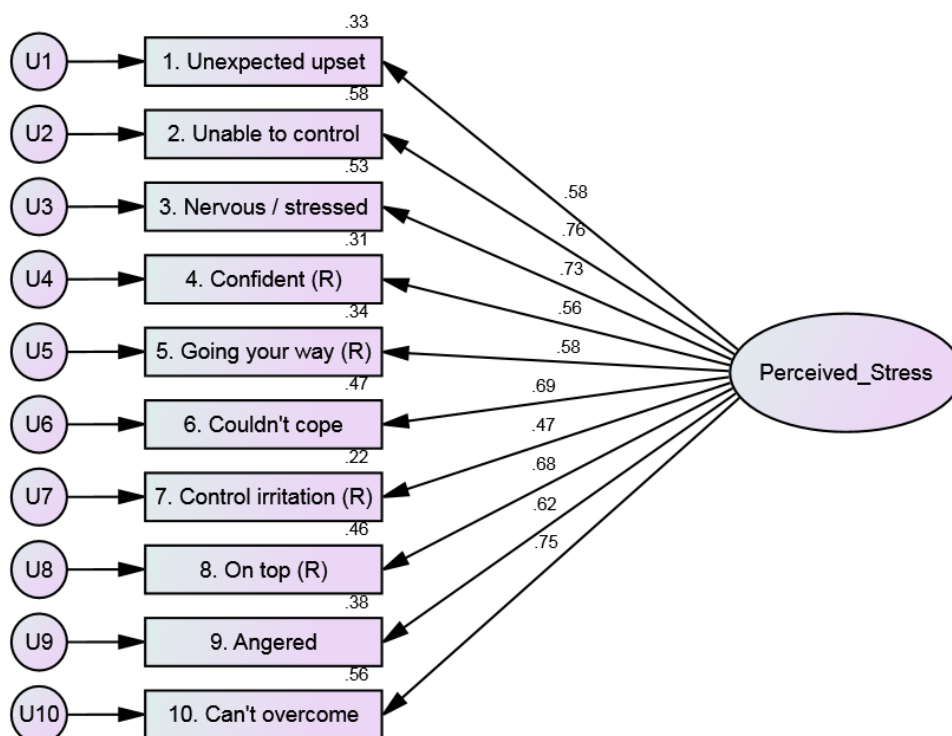
First, adequacy for data reduction was determined by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity, both of which suggested the STSS was suitable for factor analysis¹⁰. In line with the confirmatory approach, the hypothesized model for the PSS was specified a priori using SPSS AMOS version 25 (Arbuckle, 2017), with 10 unidimensional response items. Error terms were also included and named, resulting in 37 total variables in the default model (17 observed, 20 unobserved; 17 endogenous, 20 exogenous). In the default model, there are 170 distinct sample moments and 54 parameters to be estimated, resulting in 116 degrees of freedom ($\chi^2 544.251$, $p=.000$) which exceeds the minimum required for model identifiability.

The parameters of the measurement model were estimated; AMOS calculated tests for multivariate normality and outliers, standardized estimates, residual moments, and modification indices. First, to identify cases with extreme scores on at least two PSS items, the squared Mahalanobis distance (d^2) was computed for each case in AMOS. These values were generally consistent with no outstanding values. To check the assumption of multivariate normality, univariate normality was first assessed via standardized kurtosis indices for each PSS item. Using the suggested value of seven or greater as an indicator of extreme kurtosis (Byrne, 2016), it appears that all items have sufficiently normal univariate distribution, though Mardia's coefficient indicates significant multivariate non-normality. Figure 8 displays the AMOS-generated unidimensional model of perceived stress in this sample, however, since uncorrected estimators may overestimate the statistical significance of the model, these results are interpreted with caution.

There have been two potential structures proposed for the PSS, and a unidimensional model was tested first. All items loaded sufficiently on their specified factors, that is, each coefficient was greater than 0.4 (Figure 8). The lowest, "Been able to control irritations in your life" (reverse scored) was 0.47. As the scale is purportedly unidimensional, there is no factor covariance in this model. However, the indices of fit left much room for improvement, with all measures falling far short of their targets (see Table 20). Overall the indication is that the unidimensional model of perceived general stress does not adequately fit these data—a challenge to how the Perceived Stress Scale is currently presented for use.

¹⁰ The high result (0.90) on the KMO measure indicates that the variance may be explained by latent factors. The significant result on the Bartlett's test ($\chi^2 2463.141$, $df 45$, $p < .001$) indicates that the correlation matrix is not an identity matrix, and an underlying structure may be detected.

Figure 8. Graphical Summary of CFA Results Obtained from The Hypothesized Unidimensional Structure of the PSS



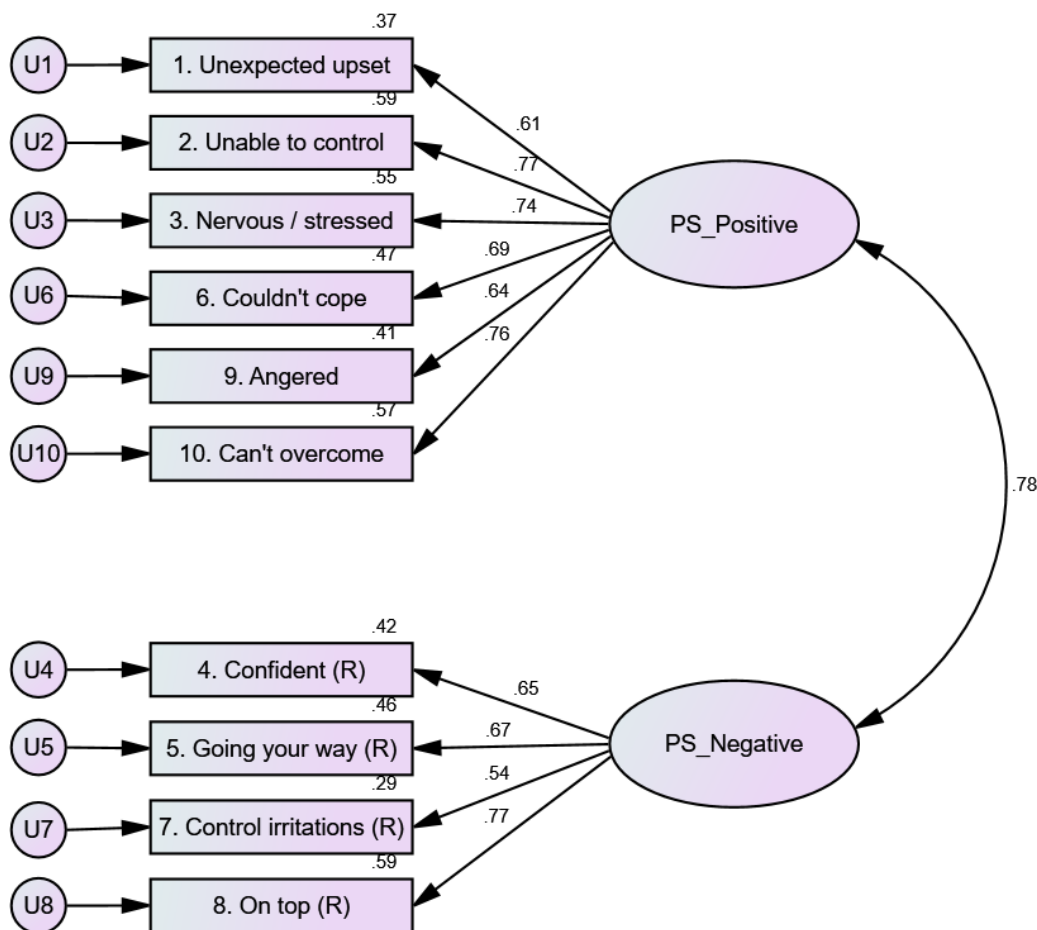
The literature on the Perceived Stress Scale was reviewed to assist in additional model configurations. Previous studies reveal a potential two-factor solution, with positively-worded items as one factor, and negatively-worded items as the other, though it is unclear whether this is a methodological artifact (Spector et al., 1997) or due to newly-identified factors (Roberti et al., 2006). This model was specified as a potential alternative in AMOS (Figure 9) and fit indices greatly improved, as shown in Table 20.

Table 20. Comparison of Original and Respecified models of the PSS

Model	Action	CMIN/DF	TLI	CFI	RMSEA (90 CI)
1	Original model	9.02	.822	.887	.104 (.094 - .115)
2	Grouped pos. and neg. items	5.415	.902	.939	.077 (.067 - .089)

Note. CMIN/DF=minimum discrepancy, divided by its degrees of freedom; TLI=Tucker-Lewis index; CFI=comparative fit index; RMSEA=root mean square error of approximation; CI=confidence interval.

Figure 9. Graphical Summary of CFA Results Obtained from Respecified Two-Factor Structure of the PSS



FACTOR Procedures

FACTOR offers an assessment of unidimensionality that is appropriate for the PSS. These analyses yielded mixed results. Parallel analysis based on principal components suggested one dimension when considering the 95th percentile of random eigenvalues, but two dimensions when considering the mean. The loading matrix was assessed and each of the 10 items loaded adequately according to the 0.40 threshold; except for item 7 communalities were in an acceptable range. FACTOR then computed bias-corrected and accelerated bootstrap 95% confidence intervals for loading values on 500 samples; all items loaded adequately onto one dimension. However, the closeness to unidimensionality assessment (Ferrando & Lorenzo-Seva, 2018), which uses the bootstrap 95% confidence intervals of unidimensional congruence, explained common variance, and residual absolute loadings suggested that the scale was close, but not quite unidimensional.

Summary

Hypothesized models of three stress-related constructs were tested via confirmatory analysis of their corresponding instruments, the MBI-HSS, STSS, and PSS. Of these, two of the

measures are suitable as designed for use in additional analyses with peer support providers. The STSS, rooted in a somewhat-outdated conceptualization of PTSD, was the only measure that aligned well with the theorized construct of secondary trauma. Perceived general stress suffered from the presence of artifactual factors which muddies interpretation of the construct, however the unidimensional scale is still suitable for further analysis in this sample.

In each of the follow-up exploratory assessments in FACTOR, there were only minor deviations from the results generated in confirmatory analyses. The MBI suffered from significant crossloading of items, weakening the internal validity of Depersonalization and Personal Accomplishment subscales and delegitimizing their use with populations of peer support providers. The three-factor model of burnout does not appear to be a good fit for these data, however there was again evidence to suggest that the Emotional Exhaustion subscale is relatively trustworthy and suitable for use in ongoing analyses. Challenging findings via SPSS AMOS, FACTOR revealed that the STSS and the PSS could each be conceptualized as a single component.