



January 2022

Caring for the Caregiver: A Feasibility Study of an Online Program that Addresses Compassion Fatigue, Burnout, and Secondary Trauma

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Recommended Citation

Koller, E. C., Abel, R. A., & Milton, L. E. (2022). Caring for the Caregiver: A Feasibility Study of an Online Program that Addresses Compassion Fatigue, Burnout, and Secondary Trauma. *The Open Journal of Occupational Therapy, 10*(1), 1-14. <https://doi.org/10.15453/2168-6408.1847>

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Caring for the Caregiver: A Feasibility Study of an Online Program that Addresses Compassion Fatigue, Burnout, and Secondary Trauma

Abstract

Background: Informal caregivers are susceptible to compassion fatigue in vicarious response to another's suffering. The purpose of the study was to determine the feasibility of an online program that addresses compassion fatigue, burnout, and secondary traumatic stress in informal caregivers.

Method: The study used a pre-post repeated measures feasibility design. Eighty-six participants were initially recruited. The intervention consisted of a 70-min online program. The participants completed surveys before and after program completion. The number of participants that completed each study phase was recorded to determine feasibility outcomes of acceptability, implementation, and demand. A Wilcoxon signed-rank test was employed to analyze survey results.

Results: Ten participants completed all study phases. Of the participants recruited and consented to participate, 29% completed part of the program, 12% completed all phases, and 70% reported they would recommend the online program. The results of the Wilcoxon signed-rank test revealed that completion of the online program elicited a significant change in secondary traumatic stress-related outcomes.

Conclusion: Findings provided preliminary evidence suggesting that the online program may be a feasible intervention to support informal caregiver mental health. Future efficacy testing of the online program is needed with specific consideration of the COVID-19 pandemic and resulting social isolation impacting mental health.

Comments

The authors have no conflict of interest to declare, nor financial interest or benefit that has arisen from our research.

Keywords

informal caregiver, compassion fatigue, burnout, secondary traumatic stress, mental health

Cover Page Footnote

The authors would like to acknowledge Dr. Chih-Hung Chang, Dr. Betsy Hawkins-Chernof, Mrs. Stephanie Canfield Stinnett, and Dr. Quinn Tyminski for their support of this project, as well as the Program in Occupational Therapy at Washington University School of Medicine in St. Louis, Missouri.

Credentials Display

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DOI: 10.15453/2168-6408.1847

Occupational therapy's (OT) role in interpreting the dynamic interaction between a person, the environment, and engagement in occupation transcends physical rehabilitation to influence mental health. Occupational therapists emulate the pillars of the Substance Abuse and Mental Health Services Administration's (SAMHSA) Recovery Model (2012) when providing collaborative, client-centered care. The profession's goal of empowering "resiliency, full participation, health promotion, and a wellness lifestyle" (American Occupational Therapy Association [AOTA], 2016a, para. 2) aligns with SAMHSA's definition of recovery that is nurtured by health and wellness to achieve one's optimal potential (SAMHSA, 2012). Mental health intervention methods involve coping strategies to alleviate mental health symptoms, health awareness strategies to manage and detect changes in chronic condition status, community resources and environmental supports for structural and social assistance, and wellness recovery action plans to anticipate potential triggers of recovery, among many others (AOTA, 2016a). However, all approaches must be rooted in the context of meaningful activity and life pursuits (e.g., activities of daily living, education, work, leisure) in order to amass the collective value of OT.

OT service delivery in mental health is not exclusive to health promotion approaches, nor is it exclusive to individual clients actively presenting with mental health-related disruption. The World Health Organization (WHO, 2002) delineates prevention as a necessary approach, defined as an established system of strategies employed to avert or mitigate the development of mental health symptoms by countering the risk factors affiliated with a mental health disorder (WHO, 2002). Traditional public health paradigms classify prevention as a three-tiered service delivery hierarchy, with primary, secondary, and tertiary stages signifying various points of disease progression and intervention (Centers for Disease Control and Prevention [CDC], 2017; WHO, 2002). Occupational therapists involved in primary efforts, or Tier 1, will direct interventions toward universal mental health promotion and disease prevention for all, regardless of the presence of a mental health disorder. Occupational therapists consulting at Tier 2 and Tier 3 will advance prevention and promotion efforts toward targeted and intensive intervention delivery, respectively (AOTA, 2016b). A growing population of informal caregivers may benefit from OT health promotion and prevention because of heightened risk of mental health disturbances; however, these invisible figures are often neglected regardless of their integral role on the interdisciplinary health care team.

Informal Caregiving

Informal caregivers are defined as family members, close friends, and/or individuals that voluntarily care for a care recipient and supply physical, emotional, medical, and/or financial support without receiving pay (Honea et al., 2008; Shilling et al., 2019). Informal caregiving is an emerging phenomenon that has redefined the time, financial burden, mental capacities, family dynamics, and energy expenditure of individuals across the nation. In the United States, 53 million individuals provided informal care to a child or adult in the last year, equating to 65 billion hr of unpaid work (American Association of Retired Persons [AARP] & National Alliance for Caregivers [NAC], 2020). As informal caregivers assist with the unique needs of their care recipients across the life span, it is likely that they will manage the trajectory of symptoms associated with a chronic or terminal condition. Provision of symptom management can be expressed by helping care recipients complete instrumental and basic activities of daily living, as assistance is frequently provided for grocery shopping, transportation, housekeeping, appointment scheduling, cooking, bill-paying, medication management, bathing/toileting, and more (Associated Press-NORC Center for Public Affairs Research, 2018). Assisting a care recipient with occupations is indeed considered an occupation in itself, evident by the *Occupational Therapy*

Practice Framework's (AOTA, 2020) inclusion of caregiving as a co-occupation with bidirectional participation enacted by both caregiver and care recipient to achieve occupational performance. Such caregiving roles may be accompanied by a sense of altruistic reward, including feelings of self-accomplishment, satisfaction, personal growth, and augmented reciprocity between caregiver and care recipient (Li & Loke, 2013). However, informal caregivers are often confronted by stressful situations in their own daily management of care that may instigate an emotional response.

Caregiver Burden

Informal caregivers are universally susceptible to the development of caregiver burden, a concept broadly defined as one's subjective evaluation of the situational and "physical, psychological, emotional, social, and/or financial" implications that accompany the caregiving experience (Gérain & Zech, 2019, p. 2). Caregiver burden manifests as somatic sensations of localized pain and muscle fatigue; interoceptive sensations of indigestion and fullness; disrupted sleep quality and patterns; loss of weight and energy expenditure; onsets of anxiety and depression; feelings of hopelessness, guilt, anger, inadequacy, and trauma; among many other expressions (Stenberg et al., 2010). The origins of such reactions may lie in the caregiver's appraisal of caregiving demands as superseding his or her own capabilities (Mosquera et al., 2016). In fact, the Informal Caregiving Integrative Model (Gérain & Zech, 2019) asserts that it is the appraisal of intrinsic caregiving determinants, including sociodemographic status and psychological and physical factors, that interact with the care recipient relationship quality, derived from extrinsic factors of the caregiving setting and social environment, to mediate specific outcomes of burnout. Burnout is defined as a psychological construct composed of emotional exhaustion, depersonalization, and a decreased sense of personal achievement (Maslach et al., 1996). Feelings of depersonalization have ventured outside of burnout to contribute to a contemporary construct, otherwise known as compassion fatigue.

Compassion Fatigue

Compassion fatigue is defined as the physical or emotional stress and exhaustion that develops as a vicarious response to another's suffering (Figley, 1995; Yu et al., 2016). An individual with compassion fatigue may internalize this suffering over time, to the point that the caregiver may become desensitized to another's chronic state of illness, pain, stress, or trauma (Figley, 1995; Figley Institute, 2012; Yu et al., 2016). Symptoms of compassion fatigue commonly present as apathy, empathy imbalance, sleep disruption, reduced energy, behavioral changes, job dissatisfaction, lack of interest in others, reduced colleague communication, and indifference toward self-care (Cross, 2019; Perregrini, 2019; Zajac et al., 2017). While the exact prevalence of compassion fatigue among informal caregivers is unknown, 69% of informal caregivers for adults with cancer reported experiencing distress (Sklenarova et al., 2015). Moreover, 85.6% reported having at least one unfulfilled caregiving need, in which needs pertaining to health service information, followed by psychological and emotional functioning, were more frequently neglected (Sklenarova et al., 2015). Neglect of the described needs, in turn, can negatively impact an informal caregiver's ability to care for others effectively (Pfaff et al., 2017).

OT and Informal Caregiving

OT is distinctly suited to serve the informal caregiving population, particularly through provision of educational programs rooted in mental health prevention and promotion. This is validated as caregivers reported significant increases in self-management, use of healthy habits and routines, stress-management, self-confidence, and quality of life, as well as a decrease in caregiver burden following

program completion (Sehremelis & Wang, 2019). A lifestyle intervention for caregivers of persons with dementia echoes such findings, with participants reporting improved physical health, mental health, sleep quality, and coping skills upon completing the program (Lu et al., 2018). However, while such programs accentuate self-care, a pillar of OT practice, they do not explicitly educate caregivers on the constructs of burnout, compassion fatigue, and secondary traumatic stress. In fact, there is a paucity of evidence examining the impact of educational programs that address compassion fatigue in the context of health care providers. Such programs involved training in compassion fatigue symptom detection, skill acquisition, prevention, and treatment (Flarity et al., 2013; Pfaff et al., 2017). Findings across the studies revealed significant reductions in secondary traumatic stress, burnout, and clinical stress, as well as increased compassion satisfaction after program completion (Flarity et al., 2013; Pfaff et al., 2017; Potter et al., 2013). However, more research is needed to adequately identify the impact of a predominantly psychoeducational program on those who informally care for others.

The purpose of this study was to determine the feasibility of an online program that addresses compassion fatigue, burnout, and secondary traumatic stress in informal caregivers. The researchers sought to determine feasibility by testing the following hypotheses: (a) The majority of informal caregivers who consent to participate in the study will complete part of the online program ($\geq 33\%$); (b) those who complete the entire online program (100%) will report significant improvements in the ability to detect, be aware of, and implement strategies for compassion fatigue, burnout, and secondary traumatic stress in the post-survey; and (c) those who complete the online program will report perceived demand of the online program for the informal caregiving population. A secondary aim was to improve the understanding of caregiving outcomes related to the offering of online psychoeducational programming. The researchers hypothesized that participants who completed the online program would report improvements with their care recipients in the following: ability to understand their unique needs, preparedness, knowledge of adequate resources, and confidence.

Method

Participants

Participants were recruited through a convenience sample of membership affiliation to caregiving groups or pages on Facebook, as well as word-of-mouth referrals by university faculty and local community-based organizations. Inclusion criteria to participate in the study were: at least 18 years of age, English-speaking, and fit the study's definition of informal caregiver (Honea et al., 2008; Shilling et al., 2019). Eighty-six participants were recruited and consented to participate in the present study. Of the 86 who consented, 63 completed the presurvey. Of the 63, 25 participated in 33% of the program, and 16 participated in greater than or equal to 66% of the program. Of those 16, 10 completed the post-survey. The researchers determined that the 53 participants who did not complete all phases of the study would not be a valid representation of implementation feasibility; therefore, these participants were omitted in inferential data analyses (Mulry et al., 2020). The final sample size for quantitative analysis of data was 10 (see Table 1).

Table 1
Demographics of Participants (n=10)

Demographic	n	%
Age group (years)		
18–34	0	0
35–49	1	10
50–64	5	50
65–74	3	30
75+	1	10
Gender		
Female	9	90
Male	1	10
Gender variant/non-conforming	0	0
Education Level		
Less than high school	0	0
High school graduate	0	0
Some college	2	20
Technical school	1	10
College graduate	3	30
Graduate school	4	40
Length of caregiving (year)		
Less than 1 year	1	10
1 year	1	10
2–3 years	3	30
4–5 years	1	10
6–7 years	1	10
8–9 years	1	10
10+ years	2	20
Amount of care recipient(s)		
1 recipient	5	50
2 recipients	3	30
3 recipients	0	0
4+ recipients	2	20
Age group of care recipient(s)		
Infant (0–2 years)	0	0
Child (3–12 years)	0	0
Teenager (13–17 years)	0	0
Young adult (18–25 years)	0	0
Adult (26–65 years)	1	10
Older adult (65+ years)	9	90
Conditions of care recipient(s)		
Alzheimer’s Disease/dementia	5	50
Stroke	2	20
Multiple sclerosis	0	0
Arthritis	1	10
Diabetes	1	10
Cancer	1	10
Cardiovascular disease	2	20
Genetic disorder	0	0
Spinal cord injury	0	0
Parkinson’s disease	4	40
Development/intellectual disability	0	0
Mental illness	2	20
Old age	4	40
Other	2	20

Procedures

The researchers used a pre-post repeated measures feasibility design to examine the acceptability, implementation, and demand of the online program. This study design was additionally chosen to determine whether the online program would be appropriate for future efficacy testing with a more robustly powered study design. Thus, a power analysis was not conducted for this study (King et al., 2015). Definitions of and criterions to determine feasibility measures included the following (Bowen et al., 2009):

- Acceptability: the magnitude to which the participants initially appraised the online program as suitable, measured as the number of participants who consented to participate, completed the presurvey, and participated in part ($\geq 33\%$) of the program.
- Implementation: the magnitude to which the online program can be successfully implemented; measured as the number of participants who completed all phases of the study (100%) (Houston et al., 2016).
- Demand for intervention: the magnitude to which the participants reported online program content and materials as useful; measured as the number of participants that recommended the online program to others as assessed in the post-survey.

All study procedures were approved by the university's institutional review board prior to participant recruitment and data collection. Recruitment occurred on a rolling basis from June to September of 2020. Online flyers and textbox entries that contained basic study information and instructions for accessing the presurvey were virtually distributed by the research team to 27 social media groups and pages, and by university faculty and local community-based organizations to informal caregivers of interest. The researchers provided their contact information with the recruitment materials and encouraged the participants to initiate correspondence throughout study processes should questions arise or if in need of guidance.

The presurvey was created with Qualtrics®, an online data collection software program, and was accessed through an embedded hyperlink in the recruitment information. Eligibility verification and consent to participate occurred at the beginning of the secure, online Qualtrics presurvey. Following consent, the participants confirmed the 18+ years of age criteria by selecting one of two multiple choice options indicative of age status; failure to select the appropriate option resulted in termination of the presurvey and participation in the study. The participants were instructed to provide an email address at the end of the presurvey and were given access to the online program through a second embedded hyperlink. The researchers sent an email to the participants with a disclosed email address approximately two weeks after completing the presurvey that reminded them to complete the online program. The participants were re-provided with the hyperlink to access it; survey responses that did not provide an email address for the purposes of a common identifier and virtual survey distribution were omitted from future data collection and analysis. The participants were next emailed the post-survey beginning in August, approximately three to five weeks from completing the presurvey and following self-reported completion of the online program. The participants were again instructed to provide an email address at the end of the post-survey for the purpose of having an identifier to pair pre and post survey results.

The researchers pursued rigorous techniques to ensure anonymous and confidential data collection and storage. Access to survey responses throughout data collection was password protected and secured through a university-wide site license with Qualtrics. Non-demographic information

obtained from the pre and post surveys was deidentified from the attached email addresses, downloaded from the Qualtrics account of the primary author, and stored on the university's password protected platform for secure "cloud"-like content management. Demographic information was similarly removed of identifiers, downloaded, and stored with access reserved only for members of the research team. Quantitative survey data were then uploaded to be analyzed on the password protected quantitative analysis software, IBM Statistical Product and Service Solutions Statistics (SPSS) – Version 27 (2020), formally known as the Statistical Package for the Social Sciences.

Materials

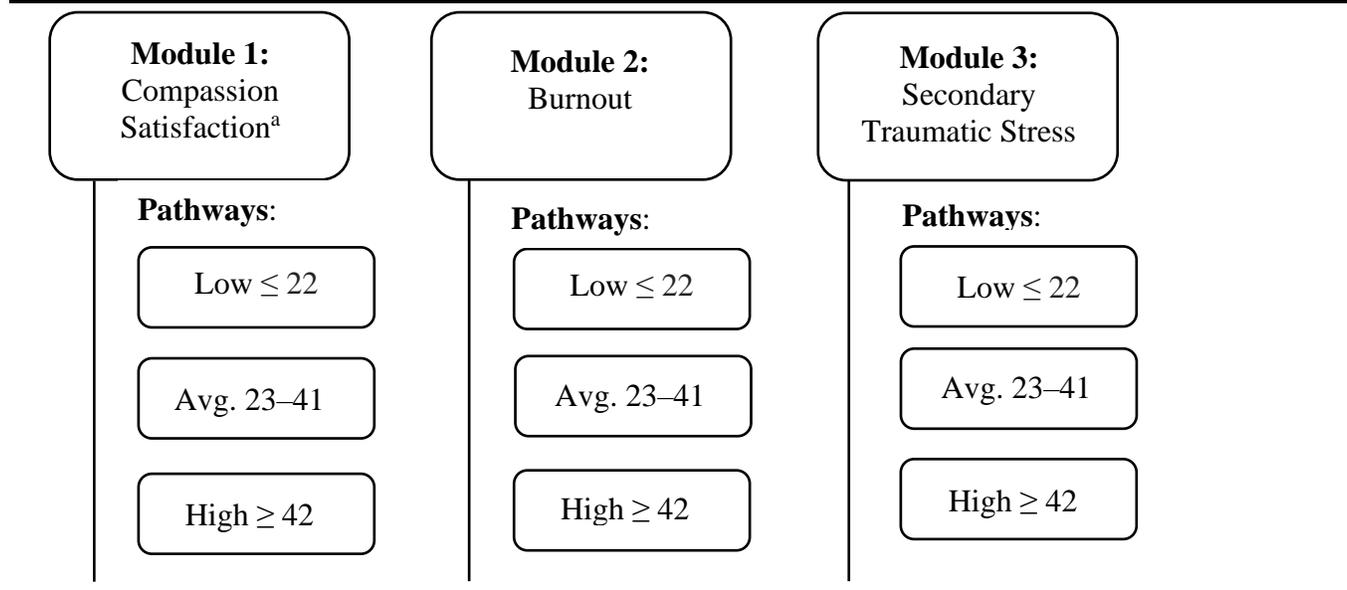
The participants were asked to complete a 20-item presurvey on Qualtrics in order to access the online program. The presurvey acquired demographic information and baseline data for the following variables: understanding the unique needs of care recipient; preparedness to support care recipient; having adequate resources to support care recipient; confidence working with care recipient; ability to detect signs of compassion fatigue, burnout, and secondary traumatic stress; awareness of strategies to protect self against compassion fatigue, burnout, and secondary traumatic stress; and ability to implement strategies to protect self against compassion fatigue, burnout, and secondary traumatic stress. Variables were presented as 5-point Likert scale statements, with multiple choice selections ranging from *strongly disagree* to *strongly agree*.

The intervention consisted of a 70-min asynchronous and dynamic online program, entitled "Promoting Mental Wellness for the Informal Caregiver," created by the research team using Prezi (Prezi Inc., 2020), a visually interactive online presentation software. Intervention content involved psychoeducation for three dynamic modules: (a) compassion fatigue, (b) burnout, and (c) secondary traumatic stress. Module navigation was modulated by the Professional Quality of Life Scale – Version 5 (ProQOL; Stamm, 2009–2012). The ProQOL is a 30-item Likert-type scale that measures compassion fatigue, burnout, and secondary traumatic stress within the last 30 days according to self-report. Prior to completing each module, the participants were directed to a Qualtrics survey that contained one of three ProQOL subtests that measured either compassion fatigue, burnout, or secondary traumatic stress. After the participants completed the subtest, they were given a numerical score representative of low, average, or high levels of the construct. The participants were then redirected back to the module to select one of three module pathways that corresponded with their numerical score. This dynamic structure allowed the participants to receive information that was personalized to individual caregiving and mental health needs (see Figure 1). The decision for a dynamic intervention structure was informed by Chang's (2019) Smart Testing and Learning (STL) framework, with intent to use advanced methodology and technology to produce dynamic assessment and tailored education. The participants could access the online program with a computer or tablet device; however, the researchers strongly recommended completion on a PC or laptop for optimal engagement with program content and materials.

Unlike with previous caregiving resources disseminated by national organizations, the mental health and wellness objectives for this program were identified through an occupation-based needs assessment conducted by members of the research team (Abraham et al., 2019). Qualitative needs assessment results yielded gaps among informal caregivers in self-care training and client behavior management (Abraham et al., 2019), two aggregates of health management as a defined occupation in the *Occupational Therapy Practice Framework* (AOTA, 2020) that serve as effective interventions for mental health disturbances (Sehremelis & Wang, 2019). Program development for mental health-related constructs was informed by the Person-Environment-Occupation-Performance Model (Baum et al.,

2015), in which education and strategy provision addressed both intrinsic factors of mental health and a range of environmental facilitators and barriers. Program content was curated into a 70-min intervention to prevent and/or mitigate information overload among caregivers as described in literature (Kim, 2020). A content expert with specialization in OT and mental health was consulted to review module content throughout processes of intervention creation (see Figure 2).

Figure 1
Online Program Structure



Note. Numerical scores equate the sum of ProQOL scale items for each subtest of compassion satisfaction, burnout, and secondary traumatic stress. ^aLow level of compassion satisfaction equates high compassion fatigue.

Figure 2
Online Program Content Involved in Intervention

High compassion satisfaction, low burnout, and secondary traumatic stress
Participants will receive information about the following:

- Prevention/self-care strategies
- Health promotion
- Education
- Case studies
- What to do if one starts developing signs or symptoms of compassion fatigue, burnout, and secondary traumatic stress

Average compassion satisfaction, burnout, and secondary traumatic stress
Participants will receive information about the following:

- Education
- How to prevent further development of signs or symptoms
- Self-care strategies to address current symptoms
- Case studies
- Advocacy for health and well-being

Low compassion satisfaction, high burnout, and secondary traumatic stress
Participants will receive information about the following:

- Education
- How to prevent further development of signs or symptoms
- Self-care strategies to address current symptoms
- Case studies
- Advocacy for health and well-being
- Grief and grieving
- Additional resources and advice on asking for help

The participants were asked to complete a 28–33 item postsurvey following completion of the online program. The postsurvey was created with Qualtrics and contained the same questions as the presurvey with the addition of quality improvement items related to the online program experience. Quality improvement items were presented as Likert scale statements and specifically measured: clarity of the online program instructions, ease of navigation, likelihood of recommending the program to others, and value of program content and features. Textbox entries accompanied several quality improvement items to collect further informal qualitative data.

Data Analysis

The number of individuals who participated in each phase of the study was recorded. Pre and postsurvey variables were analyzed using SPSS. A Wilcoxon signed-rank test was conducted to compare the direction and amount of ranked mean differences within paired pre and postsurvey results (Portney & Watkins, 2015). Selection of a nonparametric versus parametric statistical procedure resulted from the following statistical assumptions: (a) homogeneity of variance cannot be attained because of limited sample size, and (b) survey data were measured on ordinal Likert-type scales (Portney & Watkins, 2015). Additional descriptive statistics were computed using SPSS to describe the obtained data via frequency distributions and percentage values (Taylor, 2017). A statistician was consulted to validate statistical test selection and analysis post-data collection because of the feasibility study design. While nonparametric methods have less robust power efficiencies, the results of the data analysis of this feasibility study will be used to determine power required for future efficacy testing.

Results

Of the participants who were recruited and consented to participate, 29% completed part of the program, and approximately 12% completed the entire program and post-survey. Moreover, 70% of the participants reported that they were likely or extremely likely to recommend the online program to others. The results from the Wilcoxon signed-rank test further revealed that completion of the online program elicited a significant change in secondary traumatic stress-related outcomes. Specifically, posttest ranks were statistically significantly higher than pretest ranks for the following: ability to detect signs of secondary traumatic stress, awareness of strategies to protect self against secondary traumatic stress, and ability to implement strategies to protect self against secondary traumatic stress. Posttest ranks were statistically significantly lower than pretest ranks for the ability to detect signs of compassion fatigue (see Table 2). No statistically significant changes were found for the following variables as related to their care recipient: understanding their unique needs, preparedness, knowledge of adequate resources, and confidence.

Table 2

Results of Wilcoxon Signed-Rank Test

Outcome	Pretest		Posttest		Z	Sig. (2-tailed)
	M	SD	M	SD		
Understanding unique needs	4.40	.699	4.10	.316	-1.34	.180
Preparedness	4.30	2.00	4.00	.471	0.00	1.00
Adequate resources	3.50	1.08	3.70	.823	-.816	.414
Confidence	4.20	1.03	3.90	.316	-.816	.414
Ability to detect CF	5.50	1.43	4.10	.316	-2.18	.029*
Awareness of CF strategies	4.60	2.95	4.10	.876	-.908	.364
Ability to implement CF strategies	4.20	1.48	3.80	1.14	-.954	.340

Outcome	Pretest		Posttest		Z	Sig. (2-tailed)
	M	SD	M	SD		
Ability to detect BO	5.00	1.89	3.90	.738	-1.90	.058
Awareness of BO strategies	3.80	1.93	4.00	.943	-.525	.599
Ability to implement BO strategies	4.20	1.48	3.60	.843	-1.29	.196
Ability to detect STS	2.60	.843	3.60	.699	-2.46	.014*
Awareness of STS strategies	2.40	1.08	3.80	.919	-2.57	.010*
Ability to implement STS strategies	2.50	.972	3.60	.966	-2.16	.031*

Note. * $p < .05$. CF = Compassion Fatigue, BO = Burnout, STS = Secondary Traumatic Stress

Discussion

The current study provides preliminary evidence suggesting that an online psychoeducational program may be a feasible intervention to support informal caregiver mental health. Specifically, while the results of this feasibility study suggest limited acceptability (29%) and implementation (12%) of the online psychoeducational program to support informal caregiver mental health, the participants ranked statistically significant improvements in their ability to detect, be aware of, and implement strategies for secondary traumatic stress. A significant decrease in the ability to detect signs of compassion fatigue following program completion indicates a need to further adapt and/or expound on program content to better support compassion fatigue in caregiving practice. However, the majority of the participants reported perceived demand of the program as a third feasibility measure (70%), implying that the priority population has expressed interested in receiving or intends to use psychoeducation for caregiving needs (Bowen et al., 2009; Houston et al., 2016).

Previous research on secondary traumatic stress may explain the current study's significant findings. The risk of developing secondary traumatic stress is speculated to be higher among those who identify as female, are empathetically inclined, have previously endured personal trauma, and are among working professionals who are socially isolated and insufficiently trained or educated on trauma (National Child Traumatic Stress Network, n.d.). The majority of the participants in our study were female in the middle to older adult age range; as this age group was the most susceptible to social isolation resulting from the COVID-19 pandemic occurring at the time of recruitment (Hwang et al., 2020), it can be inferred that the participants were particularly susceptible toward developing secondary traumatic stress, and likely uneducated on the construct. Thus, provision of targeted caregiver education in the form of an online program explicitly addressing signs and strategies to prevent, manage, and/or mitigate secondary traumatic stress may have addressed gaps in caregiver knowledge and, thus, elucidated the significant improvements found after program completion.

Significant findings for secondary traumatic stress may be further expounded by the public's collective uncertainty or lack of awareness for secondary traumatic stress as a defined and practical construct in contemporary literature. For instance, prior to program completion, the participants may have been unfamiliar with secondary traumatic stress because of its application as a product of vicarious and indirect trauma; as opposed to direct and lived experiences of trauma that initiate the development and maintenance of post-traumatic stress disorder (Figley, 1995). Thus, it is probable that presentations of secondary traumatic stress were experienced by the participants, but likely ignored, misinterpreted as indicators of maladaptive coping, and/or inadequately distinguished from similar constructs of burnout or compassion fatigue (Sartor, 2016; Walker, 2019). As such, it may be implied that delivery of caregiver education raised awareness for secondary traumatic stress and, therefore, significantly

improved scores after program completion. However, the subtle nuances differentiating the semantic definitions of compassion fatigue and secondary traumatic stress may also explain the unexpected yet significant reduction in the ability to detect signs of compassion fatigue post program completion.

The researchers further examined the presence of insignificant findings across program outcomes. The reasons pertaining to insignificant findings may involve the complete asynchronous and online delivery of the program hindering the participants' ability to interact with program material on a deeper level that sparks critical learning and understanding. This assertion is validated by current literature; for instance, the delivery of online education can be as efficacious as face-to-face instruction when course curriculum maximizes on the appropriate use of pedagogy (Driscoll et al., 2012), including execution of a mixed-modality curriculum of asynchronous, synchronous, online, and offline components (Rapanta et al., 2020). Although immersing the program in active learning mechanisms of reflection, program content was primarily delivered via passive learning mechanisms of lecture presentation; such delivery may have severely constrained the transfer of knowledge to practical caregiving experiences (Michel et al., 2009), thus enabling an overarching lack of significant improvements in program outcomes.

In addition to insignificant findings, limited outcomes of acceptance (29%) and implementation (12%) feasibility were analyzed in the context of the COVID-19 pandemic that occurred throughout processes of recruitment and study participation. Mental health disturbances manifesting as anxiety, depression, fatigue, and sleep disruption were higher among informal caregivers compared to non-caregiving counterparts during the COVID-19 pandemic, with additional external factors of social isolation, financial strain, and food insecurity present (University of Pittsburgh, 2020). Findings as such are expected considering the increased and intensified physical and emotional demand affiliated with caregiving responsibilities; however, it is likely that the enhanced caregiving demand presenting as direct provision of care to children and/or elderly family members detracted from a participant's ability to (a) delegate time and energy toward participating in the online program, and/or (b) prioritize their own mental health. Factors as such may have resulted in decreased perceived acceptability or suitability of the program, and even lower implementation or full completion of the online program itself. However, a high outcome of demand feasibility (70%) for the online intervention as reported by the participants who completed the study suggests a perceived need of support, resources, and strategies for health management and maintenance through educational provision (University of Pittsburgh, 2016).

Limitations

While the feasibility study recruitment methods were acceptable (Bowen et al., 2009), a risk for selection biases still exists because of the groups from which the convenience, non-random samples belong. A further presence of nonresponse bias, as indicated by reasons for nonresponse pertaining to technological illiteracy and/or difficulty, may contribute to a limited ability to generalize findings to the informal caregiving population (Taylor, 2017). However, regardless of limited generalizability, sample demographics broadly matched national informal caregiver demographics in favor of the 50–64 age group, female gender, older adult care recipient, and care recipient condition of Alzheimer's/Dementia and old age (AARP & NAC, 2020). An additional recruitment limitation was the study's small sample size which increased the likelihood of Type II errors and decreased statistical power, a potential explanation for the study's numerous insignificant findings (Bowen et al., 2009; Taylor, 2017). Decreased statistical power resulting from selection of a nonparametric statistical test fails to consider the magnitude or precision of mean differences (Whitley & Ball, 2002), reinforces an over-reliance on *p*

values that undermines valid statistical testing (Thomas & Pencina, 2016), and ultimately poses challenges when making statistical assumptions about the quantitative data presented.

Additional limitations span to study design. While the participants indicated completion of the online program in the form of multiple-choice self-report during the post-survey, no mechanisms were embedded into the online program itself to authenticate participant completion. Reliance on self-report may enhance the study's risk for a social desirability bias, in which the participants may indicate online program completion for reasons of social acceptability, regardless of actual program completion (Lavrakas, 2008). Moreover, qualitative data obtained through open-ended questions pertaining to participant satisfaction was gained from the post-survey for the purposes of quality improvement; however, the data lacked phenomenological exploration of the caregiving experience as it related to the intervention. Use of a non-standardized 20-item survey instrument further presents with several underlying limitations related to measures of reliability and validity; such as the extent to which survey responses are predictably consistent and accurate in measuring the intended variables (Portney & Watkins, 2015). While the survey instrument broadly measured participant capabilities across domains of compassion fatigue, burnout, and secondary traumatic stress, the instrument lacked robust specificity and sensitivity to detect meaningful change, thus interfering with the ability to infer a true positive or negative across survey responses (Trevethan, 2017). Meaningful change is further threatened through selection of a 70-min untested intervention tool that, while alleviating information overload among the participants, limited the capacity to thoroughly and comprehensively elaborate on each mental health construct.

Future Research

For generalizability, future studies should recruit a larger sample size of informal caregivers with processes of random sampling (Taylor, 2017). A larger sample size will permit selection of a parametric statistic for a more robust data analysis; this will prioritize consideration of effect sizes for more valid data interpretation versus a sole reliance on *p* values (Thomas & Pencina, 2016). Second, installation of a mechanism to ensure participant completion of the online program, including the embedment of attendance Quick Response Codes, online forms or polls, or consistent email follow up may increase program quality and validity (Tadayon, 2020); however, transition of program content to a different learning management system such as Canvas (Instructure Inc., 2020), or transference to a hybrid or in-person program may be preferred. As the majority of the participants were categorized in the mid to older adult age range, ease of accessibility and technological literacy should be considered in future studies when selecting a platform of delivery. Finally, a mixed-methods design with standardized instruments for data collection should be employed in future studies to (a) ensure effective collection of qualitative data for phenomenological exploration of the caregiving experience, and (b) increase the reliability and validity of study procedures for more robust quantitative data analysis. The researchers hope that data obtained from this feasibility study will add a component of fidelity to the online intervention, such that replication of the intervention with larger cohorts of caregivers in a pilot study and/or randomized control trial will expand and corroborate the current study's findings.

Conclusion

The current study provided preliminary evidence suggesting that an asynchronous and dynamic online psychoeducational program may be a feasible intervention to support informal caregiver mental health. Contrary to researcher hypotheses, only 29% of the participants who consented to participate in the study completed part of the online program; however, the 12% who completed the entire online

program ranked significant improvements in their ability to detect, be aware of, and implement strategies for the construct of secondary traumatic stress. In congruence with researcher hypotheses, a perceived demand of the online program was strongly indicated (70%); however, a lack of statistically ranked findings for constructs of compassion fatigue, burnout, and care recipient-related outcomes contradicted research hypotheses, suggesting a need for improvement across study procedures and implementation. Future efficacy testing of the online program is needed with specific consideration of the COVID-19 pandemic and resulting social isolation impacting mental health. If found to be effective, dissemination of such programming to larger cohorts of caregivers is needed, as a caregiver's ability to attend to their care recipient is dependent on their ability to protect themselves from the adverse psychological effects that accompany the caregiving experience.

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