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RESEARCH ARTICLE

Unresolved Depression on Alleviating Health Research Burnout

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Abstract

Burnout is a widespread issue among health researchers, impairing both their well-being and research productivity. COVID-19 increased it. Through its psychosomatic effects, burnout diminishes researcher productivity, slowing and sometimes compromising advancements in health research. Resulting from unsuccessfully managed chronic workplace stress, energy depletion, or exhaustion, burnout is associated with depression, though not equivalent to it. Alleviating burnout may not result in resolving depression if its source is not burnout-related. Using a historical analysis methodology, this study examines the results of author-created and facilitated programs designed to relieve burnout in health researchers. The programs demonstrated effectiveness with their completion. For some, non-burnout-related depression remained after program completion. Discussed are the possible reasons for this unresolved depression and its potential solutions. The conclusion: being female and/or part of a minority, their depression remained once diminishing their burnout because of a perceived lack of personal support from individuals deemed significant to the researcher, not from COVID-19. Only when health researchers considered that they received such support with authentic leadership and team mindfulness was this depression controlled. The development of hopeful resilience is a potentially effective means to manage lingering depression in health researchers who have been programmatically successful in relieving their burnout-related depression.

Introduction

Burnout in healthcare professionals is a well-researched topic [1,2]. In contrast, burnout in health researchers has had less attention. The first dedicated publication on burnout in researchers was in 2005, focusing on clinical research coordinators in the United States [3]. Approximately 44% reported high emotional exhaustion based on self-administered questionnaires. Low job satisfaction, high perceived daily workload, and a low endurance personality were the factors associated with this result. A 2010 [4] brief report on burnout found that, in clinical investigators early in their research career, burnout was more prevalent for those over 35 years of age compared to younger colleagues-a predominant finding for women and underrepresented minorities. A 2015 publication [5] on burnout in healthcare research faculty, in contrast, found no differences in age, gender, length of time with the institution, or status regarding relationships or parental duties. There was no testing of minority

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affiliation. A feeling that the work was completed in crisis mode-reducing the quality of the research was identified as the primary reason producing burnout in this research group. By 2018, the macro issue of a financial crisis in Greece focused research on the 60% increase in burnout occurrence in health researchers [6]. Having a mental health issue was found to be a significant predictor of burnout, along with depression and anxiety in biomedical doctoral students in the United States, and was significantly associated with thoughts of dropping out in 2019 [7].

These studies regarding burnout were pre-COVID-19. The pandemic led to an immediate and continuing increase in health researcher burnout. The first article published on this topic was in early July 2020 [8]. Burnout experienced by researchers represented an overlooked aspect in mental health research during COVID-19, according to this letter to the editor. The challenges faced for such research were social distancing, the wearing of masks, data collection entirely by digital means, blurred boundaries, and the ongoing uncertain conditions created by the pandemic which led to researchers experiencing sleep and eating disturbances, increased interpersonal problems, an absence of leisure activities, and guilt feelings for leaving work undone - all factors increasing the burnout of researchers unique to the pandemic situation. An article in Nature proclaimed, "Pandemic Burnout is Rampant in Academia" in 2021 [9], with remote working conditions, delays in research, and problems with childcare the primary causes of the stress and anxiety associated with research burnout. By 2022 [10], a study investigated the latent profile analysis of burnout in young researchers that resulted from the growing problem of burnout during the pandemic. Those considered to have burnout profiles indicating a high risk represented 9.3%; however, another 30.1% were cynical towards their job. Their percentage regarding the burnout profiles was the largest, resulting from a poor work/life balance and perceived publication pressure. In Malaysia, research published in 2022, but conducted in the spring and summer of 2021, noted that burnout in 133 researchers had 41.4% specifying their intention to leave research. The limitations imposed by COVID-19 directly influenced this outcome [11].

In assessing these studies and future research on the topic, it is imperative to clarify the definition of burnout. Identified as an occupation-dependent syndrome by Freudenberger in 1974 [12], burnout results from the unsuccessful management of chronic workplace stress and a depleted energy level or exhaustion. In 2019, the World Health Organization [13] noted that, with the resulting compromised activity, burnout causes an increased work-related mental distance, negativism, or cynicism that reduces professional efficacy. A panel of 50 experts from 29 countries created a harmonized definition of the term in 2021 [14] by assessing 88 unique definitions of burnout, reaching a Delphi consensus that "In a worker, occupational burnout or occupational physical AND emotional exhaustion state is an exhaustion due to prolonged exposure to work-related problems". As such, the recent Delphi consensus corresponds with the initially proposed definition of burnout from 1974.

Burnout included psychosocial and somatic aspects [15-17], categorized it as a psychosomatic disorder [18], where the physical dysfunctions lack an adequate organic explanatory source or as an organic illness where psychosocial factors play a significant role [19]. Understanding the psychological and somatic components of health researcher burnout depends on the theories that interpret them. Regarding psychological theories, some include: (1) Maslach's Three Dimensions that relate to the Maslach Burnout Inventory (MBI), developed in 1981 to measure burnout-recognizing it as evident with negative scores in all three factors of exhaustion, cynicism, and professional efficacy [20], (2) Job Demands–Resources Theory (JD-R), which explains the impact of the organizational environment on employee well-being and performance concerning the classification of job characteristics into the two categories of job demands and job resources [21], and (3) Self-Determination Theory (SDT) by Deci and Ryan that maintains human motivation depends on innate psychological needs for competence, autonomy, and relatedness [22] so that psychological needs, self-direction, well-being, and performance are either facilitated or thwarted through personal, social, and cultural considerations [23]. For somatic theories, several recent studies focus on the relationship between sleep and burnout [24-26]. However, the causal relationship between poor sleep and burnout is undetermined [27]. Sleep disorders can disrupt the hormonal equilibrium of cortisol, the thyroid, testosterone, insulin, and those regulating hunger sensations [28]. Whether medically treating sleep disorders can prevent burnout by improving hormonal equilibrium is unknown.

Beyond the researcher effects of burnout, it

can lead to decreases in research productivity and creativity, compromising the research [29]. A reduction in employee performance ultimately may affect researcher retention rates, resulting from the development of workplace toxicity aggravated by exposed contributor mistakes [30]. Additionally, and especially evident during the COVID-19 pandemic, burnout in researchers results in an inability to balance work and home life, detrimental to family well-being [31]. These results represent the social aspect of the psychosocial challenge of burnout in health researchers.

There is evident value in investigating a particular aspect of health researcher burnout, given the wide-ranging consequences of health research burnout and the lack of such studies. The considered aspect for this study concerns analyzing the residual depression after health researchers have successfully participated in a burnout reduction intervention, alleviating depression associated with their workplace burnout. Designed to aid in reducing health researcher burnout, the interventions are two author-devised programs. They are the Health Narratives Research Group (HeNReG), offered yearly from October 2015 to April 2022, and the Health Narratives Research Process (HeNReP)-a one-on-one offering from October 2022 to April 2025. The official offering of the HeNReP ended in 2024. At the request of a past two-intervention HeNReG member, two additional HeNReP were created for this participant alone in the 2024–2025 academic year. Previous publications on the HeNReG [32-38], the HeNReP [39], and on both together [40] provide information on the content and operation of these interventions from 2018 to 2024. This work will not repeat these findings. The focus is on the results regarding some health researchers who completed either of these two interventions, who noted a reduction in their work-related burnout sufficient to return to their research with renewed energy and enthusiasm, yet, at the same time, reporting that there was a continuation in their depression concerning other, non-work-related reasons.

The aim is to identify the depression that each of these health researchers described to the author as the facilitator of these programs, and to determine if there is any pattern to the conditions under which a reduction in non-work-related depression is evident after the resolution of work-related depression associated with burnout. Making this determination differentiates the types of programs that might be effective in reducing depression following a resolution of health researcher burnout, supporting substantial published research on burnout and depression [41].

According to a 2021 study [42], there was still no consensus on whether burnout constitutes a type of depressive condition or a unique condition. However, a publication later that year by a team led by Gordon Parker provided a compelling theoretical basis, differentiating burnout from depression [43], which was further supported by their subsequent team research on the Sydney Burnout Measure. This research regarded 622 participants who self-identified as burned out in 2023 [44,45]. In contrast, by the end of 2021 [46] and the beginning of 2022 [47], the same research team as [42], led by Renzo Bianchi, argued that rather than studying burnout per se, the condition is best viewed as "occupational depression". Initially, as part of his team in [42] and again individually in 2023 [48], Bianchi published on the creation and testing of the Occupational Depression Inventory, with a 12,589-person participant study across 14 countries, demonstrating its validity. This present study is supportive of this evolving direction in burnout research, differentiating burnout regarding work-related depression as distinct from non-work-related depression. It is agnostic on whether burnout is viewed as other than depression, as in [43-45]-since it does not have the characteristics of non-work-related depression-or as occupational depression, as in [42,46-48]. The reason for this agnosticism is the evidently Gestalt [49-51], dual essence of burnout [52] as a psychosomatic state [19,53].

The hypotheses of this study are as follows.

H1:It is productive to examine the details of the participants in the HeNReG or HeNReP who were unable to resolve their non-work-related depression to clarify what is distinct about burnout-related depression from this residual depression.

H2: There is a recognizable pattern to the residual non-work-related depression that participants in either the HeNReG or HeNReP experienced post-intervention.

H3: Identifying this pattern is possible through the use of historical analysis methodology.

The results indicate that the examination is productive, with non-work-related depression having a pattern regarding the participant feeling a lack of significant support from those they deem

important individuals in their personal lives. The type of support that the participants view as missing is considered imperative by them to manage their personal lives. Since this feeling of a lack of support is participant perception, how to mitigate this residual depression after resolving burnout is to encourage these participants to reframe the support received to be adequate through hopeful resilience [37,54,55], promoting increased self-direction [56-58] in the participant through the authentic leadership [59-64] of the facilitator to create team mindfulness [65-67]. Also notable from this study is the identification that the reduction in depression associated with burnout is separate from subsequent attempts to alleviate the remaining, non-work-related depression. Yet, in support of the most recent research of 2025 by the team rethinking burnout as occupational depression [68,69], the cause of the work-related depression, for those identifying as burned out, may originate from the non-work-related depression.

Materials and Methods

Narrative inquiry is the method of historical analysis [70]. Its selection is to interpret the materials, including the relevant details of publications by the author on the HeNReG and the HeNReP, and the results of the records kept on the Group and the Process. These records include (1) the weekly posts on the yearly private Facebook group of the HeNReG, and the individual Messenger entries for the one-on-one HeNReP, and (2) the responses to the feedback forms provided by the participants to the facilitator at ending points in both the HeNReG and the HeNReP, (3) the annual reports for both programs, (4) email exchanges between the facilitator and the participant, (5) in-person communications, and (6) membership records tallied during the individual years.

Representing a type of inquiry beyond a text description, the historical narrative analysis analyzes the content and structure of the publications and records through a social and historical contextualization of their meaning [71]. Lacking consensus on reporting guidelines for this narrative analysis, the chosen approach is the one that is most common for historical data interpretation [72,73]-chronological descriptive ordering [74]. The purpose is to reveal relevant aspects of the published works and records identifiable when considering the residual depression in those participants who successfully had burnout reduction from either the HeNReG or the HeNReP. The method involves determining external as well as internal validity through a triangulation of sources to reduce bias and increase confidence in the robustness of the research results, and situating the data within historical contexts of other texts. [73]. Significantly, the methodology of at least one previous publication on burnout and depression by the Bianchi research team was a historical analysis [75].

The focus in [38] is the pre-COVID-19 outcome for HeNReG participants when the meeting was in person. There are several COVID-19-related works on the HeNReG [32-37]. They include information regarding the HeNReG before and after the COVID-19 restrictions moved the group online. There is one publication concerning the HeNReP [39]. There is no publication on the completion of the most recent year of the HeNReP. Its analysis will be based on private messages in the Messenger app and the feedback form. All of the publications are available for scrutiny by any interested researcher, aiding the avoidance of bias. However, following the informed consent agreement between the participant and the facilitator, approved in writing by the participant before commencing either intervention, the original records of the participant's contributions in the Facebook groups, Messenger, the feedback forms, and emails are private. The permission is for only anonymous reference to participant-recorded comments in the Facebook groups, Messenger, or feedback forms.

The questions asked regarding the publications and records are two: (1) How many participants experienced unresolved depression on completing either the HeNReG or the HeNReG? and (2) What is the unresolved depression experienced post-participation regarding either intervention?

Results

These results examine the evidence regarding those participants in either the HeNReG or the HeNReP who confided in the facilitator that they experienced lasting non-burnout related depression after the successful completion of one of these interventions. Here, “successful” means that the participant was able to return to their research work with renewed energy and interest.

Table 1 enumerates those who reported residual depression to the facilitator in person or by email after successful completion of the HeNReG or the HeNReP. Their number results from an examination of relevant

Table 1: Number of participants of the HeNReG between 2015 and 2022 (divided by each academic year), and those of the HeNReP from 2022 to 2025 (divided by each academic year), the number who completed either process, and those with residual depression of the number who completed either process. The percentage of those reporting residual depression (listed on the final line) is to two decimal points.

	HeNReG: 2015–2022							HeNReP: 2022–2025		
	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025
# Participants	10	11	18	17	23	20	19	7	7	2
# Completed	8	11	9	12	16	15	15	4	0	1
# Depressed	3	2	3	3	3	3	4	1	0	1
% Reporting of # Depressed	30	18	16	18	13	15	21	14	0	50

Source: Participant, completed, and depressed numbers for the HeNReG from [32], and for the HeNReP from [39].

documents and websites over the past ten years of offering these programs. The percentage of those communicating such lingering depression was higher at the start and end of these offerings. Otherwise, the yearly mention of remaining depression after the successful completion of either program was between 13% and 21% of participants.

Both publications report these numbers from an analysis of Facebook or Messenger participation and feedback form results. The exceptions are the first three years of the HeNReG. These numbers are from the Facebook group and the feedback results alone undertaken for this study.

Adding together the number of participants from each year reporting unresolved non-burnout-related depression equals 23. However, there were not twenty-three different participants relating their continuing depression. There were eight. Table 2 specifies the years of membership in the HeNReG or the HeNReP of the eight participants. From this table, only Participant 6 and Participant 7 were members of the HeNReG for a single year. The remainder of the participants joined the HeNReG or the HeNReP at least three times. Participant 4 joined the HeNReG four times. Participant 3 joined the HeNReG 3 times and the HeNReP once. Participant 5 was a HeNReG member five times.

Data on Participants 3, 4, 5, 6, 7, and 8, from 2018–2022 for the HeNReG from [32], and regarding Participant 8 from 2022–2025 for the HeNReP from [39]. Additionally, an analysis of Facebook, Messenger participation, and feedback form results provides the data.

Most of the participants with unresolved depression unrelated to their burnout were in one of two demographic categories: either they were female or they were part of an underrepresented minority group—one was both female and a minority. For those who were members of the HeNReG the longest, their lingering depression was recognized by them as being separated from their families as international students-Participant 4 and Participant 5. More specifically, unlike Participant 5, Participant 4 lived alone, reinforcing a feeling of separation that

Table 2: Years of program participation for participants with reporting residual depression after successful completion of either the HeNReG for the years 2015–2022 or the HeNReP from 2022–2025, where "X" represents a year with participation.

	HeNReG: 2015-2022							HeNReP: 2022-2025		
	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025
Participant 1	X	X	X							
Participant 2	X	X					X		X	
Participant 3	X			X			X			
Participant 4			X	X	X	X				
Participant 5			X	X	X	X	X			
Participant 6					X					
Participant 7						X				
Participant 8							X	X		X

Source: Information on Participants 1, 2, and 3 for the years 2015-2018 from the Facebook group and the feedback results.

intensified after a friend committed suicide. The other participants reporting their unresolved non-burnout-related depression also expressed problems with family members. Difficulties with parents affected three participants: Participant 1, Participant 2, and Participant 7. Experiencing struggles with siblings was reported by Participant 3 and Participant 8. Participant 6 related marital difficulties as the source of the unresolved depression (Table 3).

Specifying the number of females and those in underrepresented minorities for the entire ten-year period in comparison with those who had unresolved depression unrelated to burnout demonstrates that, although all were either female or an underrepresented minority, their percentage regarding the total number of participants was never more than 20%. The exception is the final year of offering the HeNReP, when only one participant engaged in the program twice. As this participant was both female and part of an underrepresented minority, the percentage is 100% (Table 4).

Data from 2018–2022 for the HeNReG from [32], from 2022–2025 for the HeNReP from [39] from the Facebook group, the feedback results, membership records, and annual reports.

It is relevant to examine the relationship of the participant to the facilitator to consider whether the type of relationship might have contributed to the lingering depression. The facilitator knew only one participant before the participant joined the HeNReG. That person was Participant 1. Half of the participants joined the HeNReG because they were mentees of the facilitator through college career mentorship programs, and they considered participating in this offering as an aspect of their mentoring. Participant 2 met the facilitator by chance, but after learning about the HeNReG, decided it might be helpful. This participant was one of two who had membership in both the HeNReG and the HeNReP. The other member of both was Participant 8. In contrast, Participant 6 is a long-time colleague of the facilitator. Table 5 demonstrates that although several participants

Table 3: Reasons given by participants for their non-burnout-related depression.

	Demographic	Participant perceived reason for onset of non-burnout-related depression
Participant 1	Female	Lacking support from significant family members, leading to psychosomatic illnesses
Participant 2	Female	Assuming the role of caregiver for a parent with terminal illness, with insufficient and ineffective support from other family members
Participant 3	Underrepresented ethnic minority	Acting as primary social support for autistic older brother
Participant 4	Underrepresented ethnic minority	Living alone, away from family, as an international student, additionally affected by a friend committing suicide
Participant 5	Underrepresented ethnic minority	Living away from family as an international student
Participant 6	Female	Enduring consistent gaslighting by husband
Participant 7	Female, and underrepresented ethnic minority	Experiencing trauma by parents, from physical and emotional abuse
Participant 8	Female, and underrepresented neurodivergent minority	Lacking support for neurodivergence from siblings

Source: Information on all participants gathered from emails, messages, and in-person communications.

Table 4: Percent of female and underrepresented minority participants for the HeNReG for the years 2015-2022 (divided by each academic year), and those of the HeNReP from 2022 to 2025 (divided by each academic year). The number in brackets is the percentage of participants indicating unresolved non-burnout-related depression. There are no percentages for the 2024/2025 column, as only one person engaged in the program twice in a single year. # Participants represent the total number of participants for each year.

	HeNReG: 2015–2022							HeNReP: 2022-2025		
	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025
% Female	70(20)	91(18)	56(6)	53(6)	83(4)	65(5)	63(16)	86(14)	71(14)	100
% Minority	20(10)	27(0)	50(11)	65(12)	30(9)	60(15)	58(5)	86(14)	71(0)	100
# Participants	10	11	18	17	23	20	19	7	7	2

Source: Information for the years 2015-2018 from the Facebook group, the feedback results, membership records, and annual reports.

Table 5: Assessment of the continuing association between the facilitator and the participant, chronologically ordered regarding each participant who reported residual depression.

	Type of contact facilitator had with participants over the years
Participant 1	Well known to the facilitator before joining the HeNReG in 2015, participating for three years, limited association after completing the program in 2018
Participant 2	Met facilitator in 2016, successfully participated in the HeNReG in three disparate years—the last five years after the previous—began but did not complete a HeNReP in 2023/2024, still in touch in July 2025
Participant 3	Began as a facilitator's mentee and participated successfully in three HeNReG offerings over seven years—no further contact with facilitator
Participant 4	Began as a facilitator's mentee and participated successfully in four HeNReG offerings over the same number of years—no further contact with facilitator
Participant 5	Began as a facilitator's mentee and participated successfully in five HeNReG offerings over the same number of years—no further contact with facilitator
Participant 6	Began as a long-time facilitator colleague before joining the HeNReG in 2020—still in communication
Participant 7	Began as a facilitator's mentee in 2011and knew well before joining the HeNReG in 2021—still in communication
Participant 8	Met facilitator upon joining the HeNReG in 2021, participating in two of them, and then in two HeNReP programs, completing one, still in communication

Source: Information on all participants gathered from emails, messages, and personal communications.

were mentees of the facilitator, the remainder had dissimilar associations with the facilitator, representing no discernible pattern.

Table 6 organizes the participant relationships with the facilitator into context. What this table reveals is that the relationship to the facilitator evidently cannot be considered a cause of the lingering non-burnout-related depression. Participant 1 was well known to the facilitator during membership in the HeNReG (Table 2). However, so were the majority of participants in its first two years. In the final year of membership in the HeNReG for Participant 1, there were three other participants well known to the facilitator. For those who were mentees of the facilitator (Participant 3, 4, 5, and 7), mentee participation in itself cannot represent a cause of the unresolved non-burnout-related depression, since several other mentees who participated in the HeNReG did not leave the intervention with residual depression. A few colleagues joined the HeNReG or the HeNReP. Only one of these who completed a program successfully then expressed continuing non-burnout related depression. There were participants unknown to the facilitator upon joining. These were Participant 2 and Participant 8. There were more originally unknown participants who joined either program than colleagues. No others reported unresolved depression from non-burnout related sources.

Discussion

Returning to the 2010 [4] brief report on researcher burnout that found burnout was more prevalent for women and underrepresented minorities, in comparison with the 2015 publication [5] on burnout in healthcare research faculty that identified no differences in gender, but did not test for minority affiliation, this study has relevant results. While all participants who reported unresolved depression post-program were either female or from underrepresented minorities, they represented

Table 6: Type of association of participants with the facilitator before joining either the HeNReG for the years 2015–2022 (divided by each academic year), and those of the HeNReP from 2022 to 2025 (divided by each academic year) over the ten-year history of offering these programs.

	HeNReG: 2015-2022							HeNReP: 2022-2025		
	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025
# Well known	5	5	4	4	3	5	10	1	4	2
# Colleagues	1	1	3	2	3	3	1	2	2	0
# Mentees	2	3	7	6	8	8	3	3	1	0
# Unknown	2	2	7	4	9	4	5	1	0	0
# Participants	10	11	21	16	23	20	19	7	7	2

Source: An analysis of Facebook, Messenger participation, emails, annual reports, and membership records provides the data.

a small proportion of the total participants (Table 4). As such, the results support the findings of both publications regarding women. Specific to [4], the only study testing for underrepresented minorities, in comparison with the total number of participants, only 15% of these minorities at most indicated lingering depression upon completion of one of the programs. Consequently, there is little support for being an underrepresented minority as a category representing those who had unresolved depression unrelated to their burnout.

Having a mental health issue was found to be a significant predictor of burnout, along with depression and anxiety, in biomedical doctoral students in the United States [7]. Although some of the participants of either the HeNReG or the HeNReP had unresolved depression upon successful program completion, the percentage of participants in these programs with a mental health issue was small (see table 4). Most participants did not have mental health issues in addition to burnout and were able to return to their research related to health, reenergized and recommitted upon program completion.

An interesting point to note is that although the publications regarding researcher burnout during COVID-19 [8-11] specified an increase in burnout as a result of the pandemic, this study did not find differences in the number of researchers indicating non-burnout related depression upon completing either the HeNReG or the HeNReP as a result of COVID-19. The researchers who participated in these programs during COVID-19 were aware of its detrimental effects on their research. Yet, although the number of participants joining the programs during COVID-19 increased (see table 1), the increase was slight. Thus, concerning non-burnout related depression in researchers who reduced their burnout sufficiently to return to their research, COVID-19 was not a contributing factor.

Why most of those who continued to experience non-burnout related depression joined either the HeNReG or the HeNReP multiple times when they were successful in returning to their research with renewed vigor and interest is relevant to consider. These interventions aim to reduce burnout. If reducing their burnout to the extent that they were able to return to their work, why did most of these participants become group members for multiple years? Perhaps this question is best answered by revealing that the two participants with residual non-burnout related depression who did not participate in more than one offering of these interventions were those who have kept in contact with the facilitator since completing the program. In other words, they had the opportunity to interact with the facilitator informally since then. As such, they may accomplish informally what the others chose to do more formally, that is, keep in contact with the facilitator as a means of helping to contain their non-burnout related depression. Thus, although the design of the HeNReG and the HeNReP was not to help mitigate depression itself, the participants who lacked the opportunity for informal contact with the facilitator may have made use of these programs to appease their depressive feelings.

Viewing these interventions as helpful in this regard might involve the structure they present for reflecting points of view. As outlined in the publications on the HeNReG [32-38] and the HeNReP [39], participants are required to reply to question prompts regarding how they define themselves as researchers. These questions follow the order of those encouraging the most objective answers to those prompting the most subjective responses. As such, these questions follow the order of when, where, who, what, how, and why. One question is asked of the participant by the facilitator for each session, beginning with a when question. When, where, who, and what questions prompt participants over four sessions. The how questions, for five sessions, and the why questions for six sessions. These final two questions increase in number over the others because the process aims to provide the conditions for the participant to feel ready and willing to answer the more subjective questions. Over the 28 sessions, the participant develops a trust in the process and the facilitator as an "authentic leader" [59-64] able to instill and maintain the core values of the program in the participants.

The merit of considering the facilitator as an authentic leader makes these programs attractive to those who experience residual depression from non-burnout-related sources [76,77]. Additionally, it offers the participant what they view as lacking in their lives—support from a significant other [78]. For each of the participants who had lingering depression after the successful completion of one of the two programs, they felt an absence of support from important individuals in their lives (Table 3). By representing an authentic leader, the facilitator, unlike those who were close to them, was able to

instill trust in the process and in the facilitator to maintain the core values of the process.

Creating this type of trust through the facilitator acting as an authentic leader provides the opportunity for participants with non-burnout-related depression to develop hopeful resilience [54, 55, 79-81]. Returning to the three psychosocial interpretations of burnout, the HeNReG and HeNReP can reduce the exhaustion, cynicism, and lack of professional efficacy measured by the Maslach Burnout Inventory (MBI) [20]. What these programs can also affect by presenting authentic leadership is providing an increased resource for the demands required by Job Demands–Resources Theory (JD-R) [21], and, in engaging the participant to reflect systematically on how they perceive themselves as researchers, there is an improvement in the competence, autonomy, and relatedness specified by Self-Determination Theory (SDT) [22], enhancing motivation. Together, these types of improvement then promote the hopeful resilience considered necessary for affecting non-burnout-related depression [82-84].

This study has not determined whether burnout is separate from depression [43-45] or whether it is more rightly viewed as occupational depression [42,46,47]. However, the discovery is that some participants in two intervention programs to reduce burnout initially experienced both the type of depression that is evident with burnout and an additional form of depression resulting from a perceived lack of support by individuals significant in the life of the participant. Moreover, burnout-related depression is reducible with these programs to the point where participants can return to work reinvigorated and interested in their research, yet, at the same time, they continue to be affected by the non-burnout-related depression. Those who have this residual depression maintain their association with the facilitator, either informally or formally through the HeNReG or HeNReP, and, in finding an authentic leader in the facilitator, the conditions are apparent for them to develop the hopeful resilience considered imperative to reduce non-burnout-related depression [85].

Strengths and Limitations

A historical analysis methodology for document analysis has as its strength summarizing all relevant information in a timeline and presenting it in tables to reveal the significant data for this investigation. This historical method discloses aspects of the process that would remain hidden without the analyses provided by the tables.

A limitation of this method is that it lacks a statistical analysis, which may have provided additional insights. Another limitation is that, by using Facebook and Messenger as the platforms for the intervention, the results are available to the facilitator and the researcher experiencing burnout only when the participant maintains a Facebook account. Some participants created a Facebook account to engage in either program. Those who later decide to close down their account lose access to the responses they provided, as does the facilitator. Additionally, some researchers are reluctant to participate because they do not want to join a private Facebook group or Messenger. For these reasons, using a private Facebook group or Messenger may need reconsideration for similar interventions. Yet, the visual division of the group provided by the private Facebook group or Messenger app, and easy access to all postings by participants, is lost if the choice is another online group meeting space. The final limitation is that the size of the groups each year was small, reducing the reliability of the recognized patterns of the intervention.

Suggested Future Research Directions

During the ten years the HeNReG or HeNReP were offered, several participants chose to join them more than once. Among these participants were those who experienced residual non-burnout-related depression. The reason for their continued interest in these programs after successfully reducing their burnout was investigated in earlier publications [32,40,86]. The discovery is that the authentic leadership attributed to the facilitator by participants corresponded with the team mindfulness displayed by participants.

First mentioned in 2017, team mindfulness is a shared belief among team members that their interactions are defined by non-judgmental awareness and attention in processing within-team experiences [67] (p.326). Team mindfulness enhances work-related personal fulfillment regarding the creation and maintenance of a meeting environment [65,66]. What is unknown is the role of team mindfulness in reducing depression associated with burnout or non-burnout-related depression.

Furthermore, the publication by the author [40] is the only one that considers the role of authentic leadership and team mindfulness. Additional research by various teams is needed to supplement knowledge in this area. The purpose is to determine their effect in producing the type of hopeful resilience identified as necessary for non-burnout-related depression reduction [37,54,55].

Conclusion

There was confirmation of the hypotheses of this study. The finding is that it is productive to examine the details of the participants in the HeNReG or HeNReP who were unable to resolve their non-work-related depression to clarify what distinguishes burnout-related depression from this residual depression. This examination revealed a recognizable pattern in the residual non-work-related depression that participants in either the HeNReG or HeNReP experienced post-intervention, and that this pattern was identifiable through the use of historical analysis methodology. From the examination of eight participants over the ten years of the program offerings who expressed to the facilitator their lingering non-burnout-related depression, it is evident that the pattern for this residual depression is a perceived lack of support from significant others in the lives of the participants. What is notable is that the COVID-19 pandemic was not the reason given by participants for this unresolved non-burnout-related depression, even during the height of the pandemic. In the role of an authentic leader, creating team mindfulness for both programs, the facilitator demonstrated the type of support these participants felt was missing in their significant personal relationships. Whether these results indicate that burnout is a separate syndrome from depression or better conceptualized as occupational depression remains unclear. That the non-work-related depression is the cause of the work-related depression for those identifying as burned out is possible, but requires further research under similar conditions to confirm.

Data Availability Statement

The data are either from publications by the author cited in the document or they are not publicly available due to privacy restrictions expected by participants when they agree to join either the Health Narratives Research Group or the Health Narratives Research Process.

Institutional Review Board Statement

Ethical review and approval were waived for this study due to the research being undertaken as historical research.

Ethical Statement

The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Participants engaged in the intervention after agreeing to the following statement as part of their informed consent: "By joining, a participant agrees that their responses may be anonymously referenced in presentations given and/or scholarly articles written by the facilitator regarding the results". The intervention was a free offering by the author as facilitator- in association with the Department of Psychiatry of the Mount Sinai Hospital - a teaching hospital at the University of Toronto. The intervention itself was not a study.

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