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Challenges for Nurses Before and After Covid Care: Resilient Health Practitioners in a Longitudinal Study of Psychology, Values and Self-Actualization

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Abstract

This research focused on the challenges faced by nurses, and their strengths in facing crises of nursing before, during and after the COVID-pandemic, and the personal traits and professional identity and values which may have helped them in meeting these challenges and avoiding burnout. The study was based on a follow-up of nurses completing measures before and after the COVID-19 epidemic in England. In the first study in 2018 with 192 middle-rank and senior nurses, the study described two types of dedicated professionals with a 'hardy personality style', enabling them to cope with extreme stress, as psychologically strong, and often self-actualizing professionals, dedicated to higher values of nursing. The present paper presents findings from the follow-up of 185 of these nurses who had been involved in the front-line care of COVID-19 patients in urban centres in Northern England, during and after the "second wave" of COVID patients in November 2020. Measures of adjustment, stress (including PTSD), and Maslowian self-actualization were added to earlier measures of personality, adjustment, work-life stress, and career intention. Cluster analysis identified three types in the 2020-2023 cohort: I 'Actualizing Professionals'; (N=62); II 'Strong Professionals' (N=56); III 'Highly Stressed Nurses' (N=45). These latter very stressed nurses included all nurses (N=16) identified as having PTSD symptoms. The study highlights the role of certain personality traits in fostering resilience and growth among healthcare professionals, particularly nurses, as they work towards self-actualization. Al Siebert's concept of the survivor personality, characterized by the ability to navigate and grow from crises, is applied to understand the resilience of nurses, especially in the face of the COVID-19 pandemic. The research underscores the importance of identifying and nurturing positive traits within nurses to enhance job satisfaction and manage stress, suggesting that targeted training and support can help develop resilience. It also acknowledges the global impact of COVID-19 on nursing, calling for further research into the experiences and resilience of nurses during such crises.

Keywords: *Nursing Values; COVID-19; Nursing Stress; Burnout; PTSD; Hardy Personality; Self-Actualization*

1.0 Introduction

This study explores how a group of hospital nurses in England have confronted the challenges associated with providing COVID-19 care, a role characterized by its difficult and demanding nature requiring specialised nursing techniques, high death rates of patients, and dangers of infection to nursing staff. This role encompasses not only the clinical tasks of caring for severely ill patients but also the emotionally taxing responsibility of comforting those facing the end of life. Front-line healthcare personnel in the UK and other regions have faced an increased risk of contracting COVID19, with more than 800 nurses losing their lives to the virus between March 2020 and February 2021, acquired directly or indirectly during their nursing duties [1,2]. How do nurses who have endured such challenging conditions manage their moral and psychological well-being? We speculate that a significant part of their resilience can be attributed to their unwavering commitment to a set of nursing values, such as the '6Cs,' which are elaborated below.

The follow-up study of nurses in Northern England reported here was undertaken from August 2020 to July, 2023, following the initial phase of the COVID pandemic but overlapping with the onset of the 'second wave.' In the early months of 2020, prior to and during our investigation, 4,671 individuals aged 20 to 64 succumbed to COVID-19 in England and Wales. Among women in the general population this resulted in a death rate of 9.7 per 100,000 [1]. The first wave of COVID-19 infections began during the first quarter of 2020 when nurses in English hospitals often lacked access to adequate protective equipment (PPE) and masks [3]. COVID-19 presented a formidable professional challenge for our interviewees (whom we had first interviewed in 2018, prior to the pandemic) with more than two-thirds actively and continuously engaged in daily COVID care; all had some contact in their daily practice with Covid patients, or their grieving relatives. It is well-documented that nursing during an infectious disease epidemic is arduous and demanding [4] and the epidemic nearly overwhelmed healthcare staff in NHS hospitals in England from December 2020 through February 2021 [5].

As Waddington [6] aptly described, during this second wave, frontline nurses confronted a daily ordeal of "anxiety and dread within a single 12-hour shift." What stood out in these firsthand accounts, drawn from The Royal College of Nursing and its members, was the remarkable courage and unwavering determination exhibited by nurses in fulfilling their roles " [7]. This observation invites the question: What may have served as the wellspring of this resolve, courage, and moral purpose? This has been explored in our longitudinal study of nurses begun in 2018 [8], reported below. This paper a further report from a study examining personality, stress, values, role performance, and career outcomes among a cohort of female hospital nurses [8,9]. Here we offer a psychometric analysis of how a 'special' sample of English nurses managed the exceptionally stressful task of caring for COVID-19 patients. Our intuition (as professional nurses) is that the roles of the COVID-care nurses we studied have a value-grounded and subjective (personality-based) set of guiding principles and motivations Many nurses have motivations and career values which are implicit but are nevertheless strongly held. [10–13]

1.1 Nursing values

Nursing is a vocation that best suits an individual whose personality and personal principles play an important role in their ability to handle the demanding responsibilities of healthcare [14] The core principles of a nurse's calling are encapsulated in "the 6Cs of nursing": Care, Compassion, Competence, Communication, Courage, and Commitment. These six values have been acknowledged (but rarely operationalized) in nursing and midwifery [15], by the UK's Royal College of Nursing [16]. These enduring values trace their roots to the pioneering work of Florence Nightingale, who revolutionized nursing care, practices based on her experiences caring for war-wounded patients in the 19th century [17]. A similar professional ethos in nursing was forged in North America by nurses who tended to Civil War casualties [18]. In the evolution of this "philosophy of care in nursing," both within the United States and internationally, there is also a prominent spiritual or religious dimension [15,19].

In the UK model, nursing places Care as its foundational core, with nurses serving as both caregivers and sources of comfort for individuals experiencing a range of life-altering transitions, which may

encompass moments of stress, and even moments of joy. These transitions can include instances of injury, the miracle of birth, the journey to recovery, the process of rehabilitation, the provision of end-of-life care, and the facilitation of a peaceful passing. Compassion, a crucial attribute in nursing, encompasses a combination of inherent and learned qualities that include intelligence and empathetic insight into each patient's fears, anxieties, sufferings, and hopes. Competence in nursing extends beyond the acquisition of technical skills; it also involves the ability to excel in nursing practice and collaborate effectively within complex medical care teams. This competence empowers nurses to optimize their unique professional abilities, integrating new techniques and technologies into their care delivery. Effective Communication encompasses actively listening to both patients and colleagues while also expressing one's own perspectives on patient care to fellow team members and superiors. This involves openly extending support to both colleagues and patients when they find themselves in stressful situations.

Courage entails unwavering resilience when confronted with challenging scenarios, the ability to handle the suffering of others, and the bravery to explore and implement innovative approaches to enhance patient care. Commitment is a deep-seated devotion not only to patients but also to acquiring and applying new skills and cutting-edge technologies. It also encompasses a dedication to comprehending the inner workings of the organization in which one operates. This insightful understanding, in turn, facilitates the smooth functioning of the organization. Communication involves listening to others – patients and colleagues – and communicating one's own needs and understandings of patient care to colleagues and to line managers, openly offering support to both colleagues and patients in stressful situations. Courage involves steadfastness in the face of stressful situations, coping with the suffering of others, with courage to think of (and implement) new ways of optimising patient care. In order to measure the six kinds of value dedication in nursing, we constructed a nursing values questionnaire (NVQ) whose psychometric validity has been explored in the report of the initial study of the cohort of nurses [8]

1.2 The Critical Realist research model, and the study's first phase

We began this research with a critical realist perspective, which is a value-driven approach that intuitively discerns the underlying nature of the research domain. This enabled us to develop nuanced insights through meaningful dialogues with research participants, with the ultimate goal of fostering morphogenesis—a constructive social transformation of institutions and interactions within them [20,21]. Critical realism has evolved into a widely adopted methodology in the fields of education, social welfare and healthcare management, as evidenced by studies spanning from Alderson's work in 2015 to 2021 [22,23]. Critical Realism (CR) has gained significant appeal among social researchers and theorists who advocate for a clearly identified value foundation in understanding human behaviour. It posits that certain structures such as class exploitation, metaphysical moral codes, and the associated systems governing societal relationships, are real but often unacknowledged or unrecognised. While the nature and intricate details of these structures may be subject of examination and debate, their existence (ontology) is eminently real [21].

In the context of the Critical Realism (CR) framework, key figures including UK nurse leaders such as Mulholland in 2020 [24] have played a pivotal role in promoting a dialectic between marginalized groups, like frontline nurses, and individuals and organizations advocating on their behalf. This dialogue serves to unveil the societal forces at play in the exploitation of nursing staff. For instance, Dame Anne Marie Rafferty, the President of the Royal College of Nurses, articulated that the COVID-19 pandemic served as a catalyst for addressing the systemic issues afflicting the nursing profession. Dame Rafferty highlighted several critical concerns including the persistently low and declining wages for nursing staff, inadequate nurse-patient ratios leading to a significant exodus of trained personnel from the profession, and a deficiency in Continuing Professional Development (CPD) opportunities for nurses. A study from the Royal College of Nurses (RCN), involving 1,600 nurses who left the profession, revealed that approximately a quarter departed due to the sustained stress related to personal adaptation challenges and mental health issues, as documented by Hackett in 2020 [25].

In the initial phase of this research [8], one of our heuristic approaches has involved data reduction, eliminating some overlapping measures in order to reduce the number of variables needed, as a preliminary to exploring a meaningful typology of hardiness and vulnerability in nurses. This approach yielded relatively successful results, categorizing many individuals into four distinct types based on their nursing careers. The first category included very successful "hardy personality" career nurses who demonstrated the ability to effectively manage a wide range of professional and personal challenges. The second and third categories involved successful nurses who were essentially "soldiering on," falling within the middle range of adjustments and outlook. The final group consisted of individuals clearly struggling and in need of psychological, social, and professional support—support that was currently lacking. In this initial phase we also endeavoured to develop a co-counselling model, wherein we enlisted the assistance of 20 successful career nurses to provide help and support (mainly through telephone support and counselling) to their struggling colleagues identified in the study. We deemed this strategy appropriate, given the special bonds among nurses related to care and comradeship, as highlighted for example, by Harris and colleagues [26].

1.3 Challenges faced by nurses, likely consequences, and sources of resilience.

1.3.1 Worsening nurse-patient ratios, and financial support for nurses and nursing

Most nurses in the UK, as elsewhere, are we presume likely to have commitment to upholding all of the 6C Values of Nursing, in the face of the challenging and demanding nature of their profession. This commitment becomes even more critical when their professional integrity is compromised by inadequate compensation. In the United Kingdom due to government policies, nursing salaries had progressively diminished by more than 10% in real terms over a ten-year period by the year 2021 [27]. Furthermore, a steady reduction in funding for the UK National Health Service (NHS), coupled with government failure to adequately fund or support professional education for nurses in colleges and universities, resulted in a systematic decline in nurse-to-patient ratios when compared to the previous decade [28]. By 2018, a larger number of nurses, primarily under the age of 50, were leaving the profession in England than in any previous year. This situation seemed to manifest a concerning 'downward spiral': as nurse-to-patient ratios worsened and the challenges facing the nursing profession became increasingly stressful, prompting a growing exodus of nurses [5,24,25,28,29].

1.3.2 Psychosocial stress and resilience

Nurses face many challenges in their demanding roles, which can sometimes lead to psychological distress, burnout, and even to thoughts and behaviours related to suicide. These challenges have been observed across various cultures and different healthcare delivery models [30–34] From the insights gained through our case studies [8] and epidemiological data, it becomes evident that despite the lack of adequate material rewards, many nurses are motivated to persevere by their professional dedication, often described as being "faithful and compassionate", which motivates nurses to persist in the face of high stress. Personal religious faith and strongly held values often empower nurses to continue their dedicated service, even when financial rewards are insufficient [35,36]. In this model, nurses establish "a culture of ethical practice delivery" where the importance of material rewards is secondary to their moral commitment to patient care [37].

1.3.3 Burnout

Research conducted in the United States before the 2020 COVID pandemic revealed the detrimental consequences of inadequate nurse-patient ratios, in terms of hospital patient care. This situation can trigger a negative cycle, with overburdened nurses caring for an increasing number of patients, hindering their ability to effectively utilize professional skills. This can lead to disillusionment, increased anxiety and depression, burnout, and ultimately a departure from the nursing profession [38–40]. Subsequent research conducted in the United Kingdom has corroborated these findings, demonstrating that, as in the United States, poor nurse-patient ratios are associated with elevated rates of patient morbidity (newly acquired illnesses during hospitalization) and mortality (deaths resulting

from substandard care or incomplete clinical tasks) [41–44]. The impact of chronic shiftwork on normal biological rhythms may impact negatively on both physical and mental health. For example, completed suicide in nurses shows a 'U' shaped curve, with younger nurses more likely to choose this drastic form of exit; but older nurses in the years following their sometimes-despairing exit from the profession also having higher rates of self-killing [30]. What is clear is that the dropout from the nursing profession is high in the first two years after graduation, and that stress factors which impact mental health adjustment have an influential role in this [45]. Rather than "soldiering on" in the face of what seems like an increasingly stressful career, significant numbers of nurses leave the profession in their early years of nursing work, perhaps with some guilt and regret about failing to cope with a professional role to which they were emotionally attached [46–48].

1.3.4 Work-Life-Balance stressors

Many career nurses encounter challenges in maintaining a healthy Work-Life Balance (WLB). These challenges arise from demands of their profession such as working extended shifts and night duties [49,50], which can put a strain on their social and family life. To account for this potential impact we incorporated a measure of WLB stress into our dataset. It is conceivable that WLB stress could interact with or intensify stress experienced in nursing roles. The specific WLB measure selected is the one developed by Hayman [51], which is detailed below.

1.3.5 Burnout and its professional and mental health sequels

Christina Maslach is the leading scholar in the study and measurement of occupational "burnout" [52]. Her research laid the foundation for the development of the MBI scale, which has become a widely employed tool in occupational psychology research [53,54]. The 20-item Maslach Burnout Inventory (MBI) scale assesses the susceptibility of professionals in demanding roles to experience various negative feelings and experiences, including exhaustion, disillusionment with their role, a desire to leave their profession, increased illness, depersonalization, and the mechanical execution of routine tasks. The MBI has three subscales: "Emotional exhaustion" (e.g., "I feel emotionally drained from my work"), "Depersonalization" (e.g., "I don't really care what happens to some patients"), and "Personal accomplishment" (e.g., "I deal effectively with the problems of my patients"). In the studies reviewed by Dall'Ora et al. in 2020 [55], the relationships between stress, incipient burnout, and poor professional performance in nurses and other human service professionals were somewhat complex. Many nurses managed to avoid burnout despite facing multiple stressors, potentially due to their high levels of psychological hardiness [56,57]. Thus, Munnangi and colleagues [58] identified only "moderate" levels of burnout stress and symptoms in ER nurses. This suggests that in challenging and demanding roles "the best survive." Elaborating this idea, the present study delves into the possibility that a group of relatively senior nurses have largely managed to withstand the many stresses and extra demands of nursing care both before and during the COVID-19 pandemic without experiencing burnout. We note in this context that in studies of nurses and individuals involved in caregiving, personality assessments have consistently shown that higher scores on the Extroversion dimension of the OCEAN (Big 5) personality model (discussed in detail below), and lower scores on Neuroticism are the most significant sub-scales predicting reduced levels of burnout potential as measured by the Maslach scales [52–54] – stable extroverts are those most likely to survive stressful role demands [59–61].

1.3.6 PTSD as a possible outcome for critical care nurses

Posttraumatic stress disorder (PTSD) is a complex, often debilitating disorder that has far-reaching effects, including anxiety, depression, burnout, and compassion fatigue. Working as a critical care unit nurse can be physically and emotionally demanding, and nurses in this role are at increased risk of developing PTSD compared with general care nurses. Employers are also affected due to increased rates of attrition, absenteeism, and general decreased quality in patient care. There is conflicting evidence related to which factors contribute to PTSD, but increased resilience holds the most promise for preventing PTSD and its detrimental effects on critical care nurses. (Salmon & Morehead, 2019, p.

515) [62] The measurement of PTSD, and its link to problems faced by nurses experiencing COVID-19 related stressors remains a challenge for nursing research [63,64].

1.3.7 Resilience, stress, mental health and coping in nurses

The field of psychological resilience in nurses has yielded significant literature, indicating that many nurses possess strengths enabling them to effectively cope with the stresses inherent in their profession, allowing them to navigate these challenges successfully [65]. The 'resilient nurse,' as assessed through the 'Big Five' personality test for example, typically exhibits emotional stability, extroversion, and strong communication skills [61,66–68]. Researchers studying the careers of healthcare professionals have conceptualized this notion of resilience in various ways. It has been described as "Sense of Personal Autonomy" [69], as "Hardiness" [57,68,70,71], and also as a "positive psychology self-enhancement strategy" [72]. While the Big Five personality dimensions (OCEAN) have a biological basis within an individual's inherent personality, research suggests that these traits can also be cultivated and coached to improve job performance, stress resilience, and personal satisfaction [67].

Furthermore, indicators of a hardy personality, such as positive self-concept and self-esteem, can be bolstered, even in cases where early developmental factors may have hindered self-esteem and self-actualization [73]. Healthcare professionals, including nurses who exhibit resilience may possess ego-strength that enables them to effectively withstand stress and prevent the emergence of conditions such as depression, anxiety, and post-traumatic stress disorder (PTSD) in challenging situations [11,74]. Nonetheless, it's essential to recognize that even the most resilient individuals have limits to their endurance. For instance, Bartone et al. [71], while developing measures of hardiness, noted that a majority of soldiers, although not all, would develop acute PTSD after three months of continuous combat. Similarly, even the psychologically hardiest nurses on the frontlines of COVID-19 care may encounter overwhelming stressors that lead to the manifestation of PTSD symptoms [63,75]. In the two initial phases of our own study, validated measures of depression and of self-esteem [73] have evaluated both the nurses' adjustment, and their potential to sustain a positive emotional state when confronted with stress.

1.3.8. Self-actualization, humanistic psychology and challenge and response of nurses

Our underlying assumption is that in most social systems, all individuals will 'naturally' strive to enhance their personal fulfilment and well-being by contributing to the welfare of others [76,77]. As articulated by Bhaskar [21], this perspective aligns with the concept of "ubuntu" prevalent in some African languages, which roughly translates into "I am, because you are" (p. 113). This viewpoint finds resonance with Abraham Maslow's theories [78–81] regarding human nature and self-realization, informing our approach to comprehending and organizing human activities within the realms of social, nursing and medical professions, as a manifestation of 'public service' [82,83]. We follow Maslow (1964) [78] in asserting that: "We have, each of us, a biologically based inner nature, which is to some degree "natural", intrinsic and in a certain limited sense, unchangeable, or, at least, unchanging Each person's inner nature is in part unique to themselves and in part species-wide… This inner nature seems not to be intrinsically or primarily or necessarily evil. The basic needs (for life, for safety and security, for belongingness and affection, for respect and self-respect, and for self-actualization), the basic human emotions and the basic human capacities are on their face, either neutral, pre-moral or positively good." (Maslow, 1964, p. 100) [78]

The values of nurses may find valuable insights from humanistic and positive psychology, focusing on the cultivation of both 'emotional intelligence' and 'mindfulness' [84,85]. In pursuit of these ideals, akin to the principles espoused by Maslow for achieving self-actualization, our follow-up study on nurses incorporates three metrics aimed at capturing the essence of a well-adjusted, self actualized individual—someone who is honing their talents and nurturing their "inner goodness" to the fullest extent The first of these measures is the Self-Actualization assessment developed by Jones & Crandall [86], drawing from concepts rooted in Maslow's hierarchical framework of personal development, stress management, and fulfilment (e.g. of item "I respect and assist my colleagues"). The second

measure, used during Phase 2 in 2020-2023 is Neff's [87–89] "Self-compassion Scale" (e.g. of item "I am compassionate to myself when faced with stress"). The third measure used is Lui & Fernando's well-being scale [90] which gauges personal fulfilment, a discerning understanding of one's strengths and limitations, and contentment and happiness in various roles (e.g. of item "I find joy in life," assessed on a scale from 'very little' to 'most of the time'). Previous validation studies for these scales indicate that higher scores signify emotional maturity, effective role fulfilment, realistic self-assessment, and satisfaction in achieving personal objectives.

1.4 Recapitulation of the study's first phase: measurement, sampling and findings

1.4.1 Interviewing and study design

Respondents were gathered using the snowball sampling technique [91] for a study involving nurses who were invited to assess personal and professional challenges by responding to standardized questionnaires. They were also asked about their willingness to participate in the second phase of the survey. In the snowball sampling approach initial respondents, known to the researchers were asked to suggest individuals similar to themselves who might be interested in completing the measures for a study focused on "personal adjustment to the nursing role." This research was conducted entirely outside of clinical or hospital settings. Out of the 192 professional nurses who participated in Phase 1 in 2018, 187 agreed to take part in a follow-up study in 2020 to 2023. Among those 192 who initially agreed to participate, 25 experienced and well-qualified nurses were asked to act as co-counselling professional support volunteers, and 20 of them accepted this role. The average age of the participants in 2018 was 36.5 years, ranging from 24 to 55 years. All were employed full-time in National Health Service hospitals, 40 percent holding positions of relative seniority, beyond that of a staff nurse. Our sampling method led us to contact women who were actively engaged in their nursing roles, and all were permanent or long-term residents of the UK. It's important to note that the snowball method introduced a bias, so we were studying women who often knew each other, were often at similar career stages, and likely shared some common interests and values. The initial interviews were completed by June 2018, before the onset of the first COVID-19 pandemic. These interviews and questionnaire completion, primarily conducted via telephone and internet, took place outside of clinical settings, and no data regarding the participants' actual clinical roles or the type and location of hospitals were recorded.

1.4.2 Ideas explored in the study's first phase: instruments and questionnaires

In the initial phase, participants completed a questionnaire that covered various aspects of their work history, motivations for choosing a career in nursing, and their considerations regarding leaving nursing. Respondents were asked to complete a six-item scale designed to gauge their alignment with the 6C Values of nursing. It's important to note that this instrument was designed to encourage a positive endorsement of the core nursing values, as we aimed to emphasize the ethical and prominent nature of these values. Our primary focus was to assess the extent to which the nurse respondents felt less than completely confident in applying these values. Additionally, we included several other measures in our study, including: Maslach's Burnout Inventory, a widely used tool in previous research on nurses' career patterns and morale [52–54]. The Short Hardiness Inventory developed by Bartone and colleagues [71], which aims to explain why certain individuals, such as those in stressful conditions like military combat, emerge without experiencing mental health trauma. Bartone et al. had found that individuals with high hardiness scores demonstrated a strong sense of life and work commitment, greater perceived control of negative factors in their lives, and a willingness to embrace life's challenges.

The Big 5 (OCEAN) Personality Inventory, a standard personality assessment measure [92], and widely accepted for its validity and reliability in prior studies [93]. Three of these five 'personality have emerged as predictors of relevant outcome variables in the present study: E: Extroversion (outgoing, energetic, strong and usually positive emotional reactions, sociable, seeking social stimulus in the company of others, socially active and attention-seeking individuals versus those at the other extreme,

described as reserved, shy, withdrawn, self-absorbed, avoiding social interactions); A: Agreeableness (being straightforward, trusting, altruistic, compliant to the needs and wishes of others, modest, co-operative rather than competitive, not inclined to argue or disagree versus the polar opposite of these traits, in persons having low scores on this dimension, as rather disagreeable person).; N:Neuroticism (secure and confident individuals who are stable, calm and unworried versus individuals who are nervous, often worried, anxious and depressed).

A comprehensive analysis of 163 studies on the relationship between OCEAN (Big 5) personality scores and "job satisfaction," [67] indicated that the personality traits of Extroversion (E), Emotional Stability (N), Agreeableness (N) played the most significant roles in defining successful individuals in the context of job satisfaction, particularly in the field of human relationships and people management. The Center for Epidemiological Studies of Depression (CESD) questionnaire, developed by Radloff in 1977 [94], is a widely recognized and thoroughly validated 20-item assessment tool designed to identify classical signs of depression. A score of 16 or higher suggests a strong likelihood that an individual is experiencing depression, warranting further investigation and potential treatment [95]. The Rosenberg Self-Esteem Scale (RSES) has surprisingly, received limited attention in the context of profiling nurses as a professional group [96]. But one relevant study using the Rosenberg Scale [97], demonstrated that lower levels of self-esteem predicted attrition among trainee American nurses.

The RSES is a widely used, valid, and reliable measure of self-esteem as a personal trait that is socially constructed through socialization and social interactions, ultimately forming a strong foundation for inner strength and self-confidence in coping with subsequent life stresses [73]. This body of evidence underscores that, by young adulthood, self-esteem becomes a fundamental aspect of one's personality and is often resistant to modification. In the tables provided below, a higher RSES score indicates a more favourable level of self-esteem. Hayman's assessment of stress associated with Work-Life Balance (WLB) challenges measures a type of stress arising from the disparity between one's professional commitments and their family and personal pursuits outside of paid work. We selected Hayman's scale [51,98] due to its robust evidence of discriminant validity, and the concept's relevance as an appropriate tool for use by human service professionals [99]. A higher score on this measure reflects a greater degree of stress attributed to work-life imbalance, a phenomenon observed not only in nurses but also in other professional groups [100,101].

1.4.3 The initial model explored in the 2018 study

Initial exploration of concepts revolved around the idea that those with a strong commitment to Nursing Values would exhibit personal strengths, such as high self-esteem, specific personality traits, and a resilient personality profile. Professional value commitment was expected to have negative correlations with psychological discomfort, social stressors (e.g., work-life balance, and work-related stress, as indicated by the potential for burnout). Additionally, we explored whether reduced commitment to nursing values could predict an intention to leave the nursing profession, and whether this prediction's significance would persist when considering other variables in the study. Our secondary objective was to use heuristic and intuitive statistical analyses to identify distinct subgroups within the cohort of nurses, distinguishing those with unique strengths; and those who were susceptible to various forms of stress. The Nursing Values Questionnaire (NVQ) [8] was designed to elicit positive responses indicating agreement with six types of value orientation guiding the best kind of nursing practice. In the analysis of data from the 2018 cohort, higher NVQ scores were indeed significantly associated with having a hardy personality, good self-esteem, occupying higher-ranking positions, with lacking any intention to leave the nursing profession, demonstrating agreeable personality traits, and being largely free from symptoms of depression or neuroticism, while also displaying lower scores on burnout sub-scales. Results in 2018 for The Self-Compassion Scale confirmed the analyses by Neff and her team [92, 93], "high self-compassion" being linked to personality traits such as extroversion, agreeableness, conscientiousness, and a lack of neuroticism, as measured by the OCEAN personality indicators [92,93]. Concerning Personal Well-Being, our findings in 2018 supported Lui and Fernando's [90] results from the Well-Being Scale (WBS), an elaboration of Maslow's concept of the self-actualizing

individual, where "happiness and well-being stem from one's dedication to serving others" (p. 140). This 16-item scale had factorial validity, and includes items such as "I can solve the problems I face", "I have the potential to reach my goals", "I have a satisfying spiritual life" [90, 102]

Table 1: Cluster analysis of 192 nurses, using factor scores from principal components analysis.

	A : "The Soldiers" (N = 79)	B: "Cheerful Professionals" (N = 54)	C: "Highly Stressed, Potential Leavers" (N = 20)	D: "High Achievers, Strong & Stable" (N = 39)	Value & significance of Chi 2 of variable across 4 categories
Job rank high	13%	**31%**	6%	**49%**	36.71 (6 df) p<.000
Considers leaving nursing?	15%	9%	**80%**	3%	65.15 (3 df) p<.000
Neuroticism hi quartile	25%	26%	**37%**	12%	86.41 (6 df) P<.000
Extroversion hi quartile	15%	**31%**	6%	**48%**	46.23 (6 df) p<.000
Agreeableness hi quartile	27%	**32%**	10%	**31%**	20.86 (6 df) p<.000
Hardiness hi quartile	23%	**30%**	2%	**44%**	38.37 (6 df) p<.000
Depression hi quartile	29%	25%	**30%**	17%	51.02 (6 df) p<.000
Self-Esteem hi quartile	24%	**33%**	4%	**39%**	64.35 (6 df) p<.000
Burnout hi quartile	**32%**	25%	35%	8%	94.47 (6 df) p<.000
Work-Life Stress hi quartile	**30%**	25%	**30%**	15%	50.53 (6 df) P<.000
Nursing Values hi quartile	24%	**30%**	10%	**36%**	41.32 (6 df) p<.000

Notes: Method used: K-means cluster analysis (SPSS-16), specifying five, then four, then three clusters in separate analyses, using factor scores from principal components analysis. The finally chosen, four-groups solution (using 11 of the 13 variables in the principal components analysis) maximized average significance of differences between groups on the selected variables, listed above. Source of Table: Adam-Bagley et al. (2018).[8]

1.5 Indications of Post-Traumatic Stress Disorder (PTSD) in the 2020-2023 data sweep?

Post-traumatic stress disorder (PTSD) manifests itself through enduring and often frightening symptoms, including anxiety, depression, disrupted sleep patterns, hypervigilance, and flashbacks. These manifestations arise from exposure to profound trauma, which can be physical, psychological, or a combination of both [74, 103]. This process involves intricate, albeit typically temporary, neurobiological challenges [104, 105] A growing concern revolves around healthcare professionals, especially nurses, who, having provided care during the COVID-19 pandemic, may face an increased risk of developing PTSD and related syndromes [63, 106, 107, 108, 109]. In a longitudinal study spanning nine months in 2020, which included several hundred nurses, it was observed that working directly with COVID-19 patients for extended periods with limited breaks or rest during the health crisis often led to the development of symptoms resembling those of post-traumatic stress disorder (PTSD) [110]. Considering these findings, advocates for nursing professionals emphasize the importance of

implementing strategies to mitigate high levels of stress, PTSD, and burnout. They propose that nurses should be regularly rotated away from direct patient care duties and provided with additional mental health support [63, 111]. Unfortunately, in countries like Britain where nurses are already in short supply with inadequate nurse-patient ratios, providing such stress relief measures is extremely challenging because of underfunding of health services [112]. What is particularly noteworthy in previous research on nurses enduring prolonged, high-stress situations, such as COVID-19 nursing, is that more than two-thirds endured, apparently without exhibiting symptoms of mental illness, trauma, depression, anxiety, or PTSD [63]. The diagnosed rates of PTSD in nurses across various studies included in that review varied from 8 to 30 percent. This psychological resilience and the capacity to withstand these challenges certainly warrants further investigation and study.

Although reliable and valid measures of PTSD, such as the PTSD-8 [103] have been developed, these assessments are typically validated against specific, one-time traumatic events like a car crash, an environmental disaster, or a violent sexual assault, rather than enduring work stress. Therefore we modified and rephrased the 8-item PTSD-8 scale into a PTSD-N for Nurses scale, incorporating specific questions about post-traumatic stress related to challenges in nursing (e.g. sudden and unexpected death of a patient). Surprisingly, in our study of 185 nurses, 102 reported no enduring memory of a "traumatizing" event which had affected their mood or mental state in the past month. Instead, they viewed the death and suffering of patients as part of their everyday nursing role, coping with these challenges in a professional yet compassionate manner, and not experiencing personal trauma, indicated by their personal accounts. Twenty seven nurses had been infected with COVID-19, and ten of these women took extended leave following the infection. None of the nurses recorded their personal illness from COVID as a cause of PTSD-like symptoms.

> The PTSD-N scale begins with the question: "The following are some of the ways in which nurses may act after experiencing or witnessing an event or series of events, such as unexpected or prolonged severe pain in a patient; distress or death of a patient or patients and/or their relatives; the expression of aggression against you …Exhaustion with no breaks …Chronic physical pain from nursing … Any personal illness arising from your care of patients ... If any of these did occur, considering the most recent event(s) of this type, please check your reactions or feelings concerning any such event …
>
> Results indicated the responses: "I have not experienced any such a 'traumatic' events': (23 of 185 nurses, 12.4%); "Such events have occurred in my experience as a nurse, but I do not have any recent 'post-traumatic' feelings in the past month, concerning such event(s)" (115 of 185 nurses, 62.2%); "I have experienced such event(s) which were a psychological challenge, with some continuing 'post-traumatic' negative feelings (e.g. continued anxiety, depression or sleep problems) in the past month" (47 of 185 nurses (25.4%). Of the 47 reporting some recent PTSD experience, 26 reported a marked impact on their psychological well-being. For these 47 nurses, we followed cut-off points in previous research [63] to suggest that 16 of the 185 nurses, 8.6% (including those no longer in nursing roles) might present clinical profiles of chronic PTSD. This is a tentative diagnosis based on a measure that has yet to be fully validated, and its reliability checked.

1.6 Self-Actualizing 'measures completed in 2020-23

1.6.1 Self-Actualization Scales

The Jones & Crandall measure [86] was specifically designed to directly measure Maslow's concepts of fulfilling basic needs on the path towards self-actualization and self-transcendence. In the case of two other scales, namely, the Lui-Fernando Well-Being Scale and the Neff Self-Compassion Scale, these have been shortened to include only those items that exhibited high factor loadings (>.50) in the original factor analyses. Fuller details of these three scales and their factorial reliability are given in Adam-Bagley et al. (2021) [9].

1.6.2 The Self-Compassion Scale

In the analyses by Neff and her team, "high self-compassion" is frequently linked to personality traits such as extroversion, agreeableness, conscientiousness, and a lack of neuroticism, as measured by the OCEAN personality indicators [92, 93]. Neff and Vonk [113] conclude that individuals with high self-compassion are more likely to experience positive emotions because they embrace themselves "as they are". Self-compassion also fosters a sense of connection with others and may represent a close approximation of "optimal" or "true" self-esteem. Attaining elevated levels of self-compassion can also align with what Maslow [79, 80] defines as "self-actualization" and, ultimately, "self-transcendence." Neff and Vonk [113] also observed that achieving a realistic self-appraisal and cultivating self-compassion can be facilitated through mindfulness training, a technique successfully employed in providing psychological support to professionals like nurses, as evidenced by studies conducted by Mealer and colleagues in 2017 [114] and Stanulewicz et al. in 2019 [115].

1.6.3 Personal Well-Being

In 2018, Lui and Fernando [90] introduced the Well-Being Scale (WBS) as an elaboration of Maslow's concept of the self-actualizing individual, where "happiness and well-being stem from one's dedication to serving others" (p. 140). This concept is rooted in the notion of synergy, wherein altruistic actions not only benefit the individual but also bring rewards to others. For us, this represents the paramount guiding principle in the practice of nursing. It encompasses the responsibility of individuals who possess a lasting and unwavering sense of well-being, attained through self-awareness, and their commitment to serving others. This revised 16-item scale has factorial validity, and includes items such as "I can solve the problems I face", "I have the potential to reach my goals", "I have a satisfying spiritual life" [90]

1.7. Further classification of nurses

1.7.1 Initial results

It's important to note that the further data collection (conducted between 2020 and 2023) also involved nurses who had left the nursing profession or were taking 'professional breaks'), and who were not interviewed in the 2020 follow-up interviews [9]. Table 3 compares the mean values and correlations of the measurements obtained during the first and the last interview sets, in 2018 and subsequently between 2020 and 2023. Repeated measures exhibited statistical significance over time, suggesting a degree of reliability for the metrics, including Nursing Values, Hardiness, Work-Life Balance Stress, and Self-Esteem. However, it should be noted that the manifestation of Depression was less persistent over time, indicating both recovery from depression in some, and its onset in others. The OCEAN personality scales [92, 93] were not administered during the 2020-2023 data collection. Instead, the three primary profiles (Extroversion, Stability, and Agreeableness) from the 2018 data collection were fitted to a binary classification, describing a group that could be characterized as "Outgoing, Emotionally Stable & Agreeable" based on scores above the mean in the relevant direction, on each of the three personality dimensions. This binary categorization was incorporated into the taxonomic analysis of nurses who responded during the 2020-2023 follow-up, with 50 nurses being classified as having higher scores (above the mean for all of the three personality dimensions).

1.7.2 Correlation, component and cluster analysis to identify 'types of nurses'

To achieve a clustering of individuals, as opposed to grouping variables, we followed a procedure similar to that used for the analysis of Sweep 1 data, employing k-means cluster analysis of factor scores for individuals, using the SPSS program [8]. The analysis of the 2020-23 data yielded groups which were somewhat less clear cut than in 2018. Nonetheless, a 3-group solution, chosen to maximize statistical distance between three clusters does offer a certain theoretical clarity. But it's important to note that 22 individuals were identified as outliers and could not be effectively incorporated into any of the three groups. While a 4- or 5-group solution could accommodate most of these individuals, it came

at the cost of clarity in defining the other groups. Therefore, the 3-group solution was retained due to its heuristic value. The largest group, denoted as Group A (n=62), is labelled "Actualizing Professionals." This group exhibited positive personality profiles, a robust Hardy Personality, high scores on well-being scales, self-compassion, and movement towards self-actualization. Notably, this group comprises a core segment of both the 2018 "Strong Professionals" from Group B, and the 2018 "High Achievers" from Group D. The next cluster Group B (n=56), we have referred to as "Strong Professionals," a group which comprises the most senior individuals who are committed to Nursing Values. They exhibit good self-esteem and self-compassion. Notably, this group includes a core subset of individuals who were part of the 2018 "Strong Professionals" group.

The third cluster, Group C (n=45), is labelled "Highly Stressed Nurses." This group consists of nurses who were grappling with burnout and were contemplating leaving the nursing profession. They also experienced significant stress related to work-life balance, primarily centered around childcare responsibilities. It's worth noting that this group includes the majority of the nurses who were provisionally categorized as falling into the PTSD clinical category. Within this group, we find both "Soldiers" and "Highly Stressed" nurses from the 2018 groupings. There is a certain consistency in the clusters over a four-year period, suggesting potential reliability and validity in the clustering process. Initially, some senior nurses were enlisted as telephone counsellors for their struggling colleagues, with 15 of them fulfilling this role throughout the five-year span. Due to ethical considerations, specific details of these conversations were not sought. However, we know that many of these "counselling discussions" often resulted in the recommendation for highly stressed colleagues to consider taking a career break. One notable finding was the less favourable outcomes for the "Soldiers" identified in Phase One. Contrary to initial expectation, the majority of these nurses did not transition into resilient, long-term career nurses. Instead, many either became "highly stressed" nurses or exhibited inconsistent patterns of adjustment, making it challenging to categorize them into clearly defined groups in Phase Three of our research.

Table 2: Employment Outcomes in 2020-23 for the four types of nurses in the 2018 cluster analysis

Type	N in 2018	N in 2020-23	Left Nursing (by 2020-23)
A. The Soldiers	79	77	7.8% (6/77)
B. Professionals	54	53	9.4% (5/53)
C. Highly Stressed	20	18	55.5% (10/18)
D. High Achievers	39	39	3.9% (1/39)
Totals	192	187	11.8% (22/187)

Notes: Answering "Yes" to "Do you intend to leave nursing …" (2018) predicted 17 of the 22 known decisions to leave nursing in the follow-up to 5 years later (1-way ANOVA, p<.001). Distribution of "left nursing" across the Four Types, p<.001 (1-way ANOVA).

Table 3: Means and correlations of nurses' values, adjustment and coping scales, Phase 1 (2018) compared with Phase 2 (2020-23)

	2018 N=192 Mean (SD)	2020-23 N=185 Mean (SD)	Correlations 2018 to 2020-2023
NVS (Nursing Values)	12.64 (3.67)	14.04 (4.18)	.55
Hardiness	33.85 (8.59)	34.76 (7.93)	.51
Self-Esteem (Rosenberg RSES)	28.89 (5.55)	31.71 (5.51)	.52
Burnout	5.63 (1.79)	6.82 (2.73)	.38
WLB Stress	12.54 (4.21)	16.26 (5.23)	.40
Self Actualization	Not completed	31.55 (6.28)	-
Self Compassion	Not completed	30.37 (6.39)	-
Personal Well-Being	Not completed	61.26 (8.30)	-
CESD Depression	12.50 (9.92)	11.25 (7.62)	.25
PTSD: Post Traumatic Stress	Not completed	3.26 (2.47) (16/185 above clinical cut-off)	-
Personality: Agreeable, Extroverted & Emotionally Stable	1.0 (normalised, Gaussian curve)	Not completed	-
COVID-19 Contact Nursing	Not relevant	86.4%	-

Notes: Significance of correlations by Pearson's correlation coefficient, (2-tailed test): 0.20 and above, P<.01.

Table 4: Principal components analysis of measures completed by 185 nurses in 2020-2023 interviews

	Factor I (24% of variance)	Factor II (18% of variance	Factor III (8% of variance)
Job rank (low to high)	**.38**	.18	-.20
Extroverted+Stable+Agreeable	**.65**	**- .35**	.02
Hardy Personality	**.63**	**-.56**	-.18
CESD Depression (lo to high)	.22	-.17	**.51**
Self-esteem (low to high)	**.33**	**-.54**	-.04
Burnout Scales (high to low)	.17	-.08	**- .55**
Work-Life Balance stress (high to low)	.20	.01	**- .61**
Intention to Leave Nursing	-.23	.01	**- .51**
Nursing Values Questionnaire	**.38**	**-.50**	- .19
PTSD-N Measure (low to high stress)	.00	-.00	**- .33**
Self-Compassion	**.61**	**-.39**	- .18
Personal Well-Being	**.67**	**-.55**	- .13
Self-Actualization	**.58**	**-.30**	-.03

Note: Principal component analysis based on the correlation matrix of measures, used Varimax rotation, requiring orthogonal rotation. All measures completed in 2020-23, except "Personality" (extroverted+stable+agreeable), based on high scorers (above the mean on all of these 3 scales) completed in 2018.

Table 5: Typology of nurses from the 2020-23 interviews, compared with the 2018 analysis

	A **"Actualizing Professionals"** (n=62)	B **"Strong Professionals"** (n=56)	C **"Highly Stressed Nurses"** (n=45)	Value & Significance of Chi-squared
Job rank high	**56.4%**	**71.4%**	40.0%	Chi2 (6df, 163) p<.002
Plans to leave nursing?	25.4%	17.6%	**60.0%**	Chi2 (4df, 163) p<.002
Personality, high on 3 types (n=23)	**56.4%**	26.8%	6.7%	Chi2 (6df, 163) p<.001
Hardiness, top 25%	**63.9%**	28.6%	10.0%	Chi2 (6df, 163) p<.002
Depression, top 25%	16.13%	17.8%	**46.7%**	Chi2 (6df, 163) p<.001
High Self-Esteem, top 25%	25.0%	**35.7%**	22.2%	Chi2 (6df, 163), p<.01
Burnout, top 25%	6.8%	19.6%	**66.7%**	Chi2 (6df, 163) p<.001
WLB stress, top 25%	8.1%	25.0%	**55.5%**	Chi2 (6df, 163) p<.001
Nursing Values, top 25%	25.4%	26.8%	20.0%	Chi2 (6df, 163) not significant
Well-Being scale, top 25%	**32.2%**%	21.4%	15.5%	Chi2 (6df, 163) p.<01
Self-Compassion scale, top 25%	**32.2%**	26.8%	6.7%	Chi2 (6 df, 163) <.01
Self-Actualization scale, top 25%	**35.5%**	19.6%	13.3%	Chi2 (6df, 163) p<.003
PTSD-N 'clinical' group	0.0%	0.0%	**33.3%**	Chi2 (6df, 163) p<.001
(A) 'Soldiers' (in 2018) (B) 'Professionals' (in 2018) C) 'Stressed' (in 2018) (D) 'High Achievers' (in 2018)	A: 0.0% B: **40.3%** C: 8.1% D: **56.4%**	A 8.9% B **60.7%** C 0.0% D **25.0%**	A **40.0%** B 0.0% C **22.2%** D 0.0%	

Note: 22 nurses did. not in the follow-up study, fall into any cluster which could be meaningfully interpreted.

1.8 Discussion and conclusions

1.8.1 Perspective from humanist psychology

This research is grounded in the perspective of humanist psychology [76, 77] in which each "subject" in a study is a unique human being and is best framed in research terms as either unique, or as a member of a unique or special group within a broader social matrix, such as a hospital or other organization [8]. For this reason we have chosen to move from a purely psychometric study to one which classifies individuals according to their 'unique' groupings, which we have conceived in terms of Abraham

Maslow's perspective [77, 83].We follow Joseph (2019) [116] in adopting this humanistic perspective, asserting that the concept of the "synergist person" within Maslow's model can effectively confront and conquer challenges that may potentially lead (for example) to post-traumatic stress disorder (PTSD) in some individuals. Certain personality styles play a vital role in aiding individuals to transcend these challenges, contributing to personal and interpersonal growth as individuals such as nurses and other health professionals progress towards self-actualization. A core of nurses in our study appear to be making significant strides in this regard through the self-enablement of resilience, integrating and balancing their life experiences, and their personality traits. Siebert [117] extends this concept by exploring its relevance among frontline soldiers and subsequently applying it to a broader spectrum of individuals, including managers and professionals from various fields:

> Central to the development of a synergistic personality is the integration of paradoxical personality traits. Such persons are comfortable with and value their inner counter-balanced dimensions. They appreciate the benefits derived from being able to engage in pessimistic optimism, cooperative non-conformity, selfish altruism, extroverted introversion, playful seriousness, and more. (p. 12) [117]

In Siebert's framework, individuals, including nurses, with "survivor personalities" are those who exhibit the following characteristics: (a) they have successfully navigated significant crises; (b) they have overcome threatening situations through their personal efforts; (c) they have emerged with previously undiscovered strengths and capabilities; and (d) upon reflection, they find value in the challenging ordeals they've endured. While inherent resilience is certainly valuable, Siebert suggests that many professionals can also be trained and supported to discover resilience when confronted with stress. Several crucial characteristics identified in 2018 have significant predictive power for how the 2020-23 cohort in the present study have survived the trial of COVID-19 nursing, including the personality types of Extroversion, Emotional Stability, and Agreeableness, along with Hardiness, and associated psychological variables linked to stable individuals seeking to achieve the best in their personal and professional lives. Strong value commitment to nursing, lack of depression and good self-esteem also help, as does the absence of factors undermining good work-life balance.

Nurses who do not possess these positive traits often encounter difficulties in finding satisfaction in their profession, particularly when faced with crises such as the demanding circumstances of nursing during the COVID-19 pandemic. It is crucial to recognize the challenges that these nurses face, and efforts should be made to identify roles for them within hospital or medical settings that reduce stress. Furthermore, nurse training and ongoing education programs should prioritize strategies for effectively managing the unique stressors inherent in the nursing profession, as these stressors can compromise the values that nurses are, or should be, committed to [13, 111]. We are also concerned about the elevated occurrence of PTSD symptoms among some of the highly stressed nurses in our study. Future follow-up research may provide insights into the experiences and resilience of nurses who faced the overwhelming crisis in the English hospital system during the Fall and Winter of 2020 to 2021 [5, 6, 106, 107]. It's important to note that the acute stress resulting from the demands of COVID-19 nursing is not limited to the United Kingdom but is a global issue (Ciu et al., 2020; [110, 118, 119]. Certainly, studies examining experiences of nurses who have battled the challenges of COVID-19 nursing in various parts of the world are highly valuable.

1.8.2 Nursing as the lead profession in COVID care

Hospital nurses are a highly dedicated and motivated group, and many draw on both psychological strengths, and personal values in finding the highest levels of achievement and non-material reward in their profession. Two of the authors of this paper have had professional nurse training, and we draw on this experience in arguing, as other nurse practitioners and educators do, that nurses are the leading profession in delivering hospital-based health care. Nurse practitioners and leaders are, as Liaschenko & Peter [120] argue, the dedicated experts in treatment and management of health care, calling on a range of diagnostic and technical specialists (e.g. radiologists, surgeons, etc) in delivering that care. The

COVID-19 epidemic has shown how crucial these nurse managers are in delivering, ordering and managing patient care, leading to advocacy for a radical and permanent reorganisation of health delivery (e.g. Stucky et al, 2020) [121]. Their overview of COVID-19 care in China, Spain, Turkey, Ukraine, Brazil and the USA underscores these arguments: "Despite personal risks, nurses across the globe stepped up to the challenges of upholding and improving the health of the world's people … offering ways forward in both nursing practice and health policy." (Zipf et al., 2021, p. 92) [122]. De Raeve et al. (2021) [123] in their international survey argue that nurses, more than any other health professional, have had the key role in holding beleaguered health systems together as the frontline soldiers whose energy and dedication have fed into relevant policies, a view which echoes Shaffer et al.'s (2020) [124] international review, and Anders' (2020) [125] discussion of nurses facing America's COVID-19, who have influenced health policy in important directions. These reviews and research accounts identify studies which fit well with our own findings. Nursing is a brave and highly skilled profession which may lead the way in health care delivery and reform. Highly valued nurse practitioners are rewarded by their profession achievements, and by their dedication to that profession, in the face of many difficulties. In the Critical Realist model [20, 21], nurses have the potential to recreate health systems.

1.8.3 Study limitations

We haven't included male nurses in our current research cohort due to limited resources, even though they constitute an important (but somewhat marginalized) group within a predominantly female profession [126]. Nevertheless, we recognize the importance of studying male nurses in our future research. It is acknowledged that our study is based on a relatively small research population, and may well not be representative of English nurses. The recruitment of informants through personal contact means that the 'snowball' method may have collected together a relatively homogenous group of professionals [127] and this may have influenced statistical outcomes, such as the apparent success in identifying particular groups in the cluster analysis (although this method of sampling may be particularly relevant during and post pandemics [128]. Replication is called for, with a larger, randomly chosen group of nursing professionals. Some of the measures we've developed, such as the Nursing Values questionnaire, and the PTSD measure for nurses need a fuller review and replication in the light of existing measures for other groups [129]. Finally, we conclude by advocating for the need for taxonomic studies in research on health and personal adjustment, since this can by an important way of identifying relatively unique psychosocial groups for whom key variables and causal analyses may be identified, which can be specific to that subgroup [130].

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Informed Consent Statement: Informed consent was obtained from all participants involved.

Data Availability Statement: Requests will be considered carefully. Supply of data will require separating qualitative findings from the data files.

Conflicts of Interest: The three authors declare no conflict of interest. None of them is professionally concerned with the current delivery of health care, or with nurse education. Two of the authors have been Registered Nurses with professional responsibilities, in the previous century.

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