



LEEDS  
BECKETT  
UNIVERSITY

---

Citation:

Adam-Bagley, C and Sawyerr, A and Abubaker, M (2021) Psychological Profiles of Successful Career Nurses: Implications for Managerial Psychology in an Era of Covid Challenge. *European Journal of Business and Management Research*, 6 (2). pp. 168-175. ISSN 2507-1076 DOI: <https://doi.org/10.24018/ejbmr.2021.6.2.829>

Link to Leeds Beckett Repository record:

<https://eprints.leedsbeckett.ac.uk/id/eprint/10827/>

Document Version:

Article (Published Version)

---

Creative Commons: Attribution 4.0

The aim of the Leeds Beckett Repository is to provide open access to our research, as required by funder policies and permitted by publishers and copyright law.

The Leeds Beckett repository holds a wide range of publications, each of which has been checked for copyright and the relevant embargo period has been applied by the Research Services team.

We operate on a standard take-down policy. If you are the author or publisher of an output and you would like it removed from the repository, please [contact us](#) and we will investigate on a case-by-case basis.

Each thesis in the repository has been cleared where necessary by the author for third party copyright. If you would like a thesis to be removed from the repository or believe there is an issue with copyright, please contact us on [openaccess@leedsbeckett.ac.uk](mailto:openaccess@leedsbeckett.ac.uk) and we will investigate on a case-by-case basis.

# Psychological Profiles of Successful Career Nurses: Implications for Managerial Psychology in an Era of Covid Challenge

Christopher Adam-Bagley, Alice Sawyerr, and Mahmoud Abubaker

## ABSTRACT

We present findings from a 2020 follow-up study of 159 senior hospital nurses involved in the front-line care of COVID patients in urban centres in Northern England, prior to the “second wave” of COVID patients in November 2020. In 2020 further measures of adjustment stress (including PTSD), and self-actualization were added to earlier measures of personality adjustment, work-life stress, and career intention. Principal component and cluster analyses identified 3 main types in the 2020 follow-up cohort: A ‘Actualizing Professionals’; (N=59); B ‘Strong Professionals’ (N=55); C ‘Highly Stressed Nurses’ (N=30). The research model driving this research is that of Critical Realism which identifies the process of morphogenesis which creates a constructive dialogue for social change on behalf of nurses, who faced almost overwhelming stress in caring for COVID patients. We have identified two types of dedicated nurses with a hardy personality style which has helped them face severe stress in emerging as psychologically strong, self-actualizing individuals. These psychological profiles have implications for understanding and supporting women in a wider range of professional and managerial roles.

**Keywords:** Nurses, COVID, Longitudinal Study, Critical Realism, Hardy Personality, Self-Actualization, Women Professionals, Managerial Psychology.

**Submitted :** March 24, 2021

**Published :** April 14, 2021

**ISSN:** 2507-1076

**DOI:** 10.24018/ejbmr.2021.6.2.829

**Christopher Adam-Bagley\***

Faculty of Social Sciences, University of Southampton, Southampton, UK.

(e-mail: christopher.adam@outlook.com)

**Alice Sawyerr**

Department for Continuing Education, University of Oxford, UK.

(e-mail: alice.sawyerr@contined.ox.ac.uk)

**Mahmoud Abubaker**

Leeds Business School, Leeds Beckett University, Leeds, UK.

(e-mail: m.abubaker@leedsbeckett.ac.uk)

\*Corresponding Author

## I. INTRODUCTION

### A. Long-term Study of Nursing Values, Psychological Strengths, Stress Factors and Nursing Careers

We address the issues of how some hospital nurses in England have faced the stress involved in COVID care, a role which has been difficult and demanding and involves not only the demanding tasks of saving the very ill, but also of comforting the dying. Front-line medical care staff have also been at above average level of acquiring COVID infection, and between March 2020 and February 2021 more than 800 nurses and care home staff died of COVID, acquired directly or indirectly during their nursing roles [1]. How have nurses endured under such hazardous conditions?

Our follow-up study of English nurses was conducted between June and November 2020, following the first phase of the COVID pandemic, and before the onset of ‘the second wave’. In England and Wales in the early months of 2020 preceding our study 4,671 men and women aged 20 to 64 died from COVID: in women in the general population this gave a death rate of 9.7 per 100,000, but in the female occupational group categorised as Nurses, the COVID death rate was recorded as 15.3 per 100,000, an elevated rate 1.57 times greater than in the general population. (ONS, 2020). There remained a possibility that the COVID-related illnesses and deaths of health carers represented “a parallel pandemic” in

all world countries [2]. This began at a time (first quarter of 2020) when nurses in English hospitals often did not have access to adequate forms of masks and other protection (PPE) [3]. For our interviewees, two-thirds of whom were directly involved in COVID care on a daily basis, the recent history of COVID was a challenging professional reality. It had been well-established that nursing in the face of an infectious disease epidemic is a difficult and demanding task [4].

## II. STRESSES FACED BY NURSES, AND CONSEQUENCES OF STRESS

### A. Psychosocial Stress and Resilience

Problems facing nurses in their demanding roles, which might lead to profound psychological distress, burnout and even suicidal thoughts and behaviours, have been observed in different cultures, in contrasted models of health care delivery [5]-[10]. From this case study and epidemiological evidence, it appears that *despite* lack of adequate material rewards, “faithful and compassionate” dedication to their professional roles in a high stress profession motivates most nurses to “soldier on”.

### B. Three: Burnout, Morbidity and Mortality

American research published prior to the 2020 pandemic demonstrated the negative, downward spiral that poor nurse-

patient ratios in hospitals could set in train: overworked nurses caring for too many patients are unable to use their professional skills adequately, leading to disenchantment with nursing, increases in anxiety and depression, burnout, and leaving the profession [11]. This work has been replicated with large populations of nurses in the United Kingdom showing that, as in the US, poor nurse:patient ratios are associated with higher rates of patient morbidity (new illnesses acquired while in hospital), and mortality (deaths due to poorer care; or ‘tasks left undone’ – [12]). The decline in nurse:patient and doctor:patient ratios in UK public hospitals has led to situations in which patient safety (prior to the COVID crisis) was endangered [13].

The demands of *shift work* (including 12-hours ‘on duty’; and evening and night shifts) have been (in the pre-COVID era) stressful for many nurses. For example, in the 20-year follow-up of a Danish cohort of 18,015 nurses (average age 44 at start of the study), 9 percent had died by the time of the most recent follow-up [14]. Statistically significant correlates of early death (mainly from CVD, cancer, and diabetes) included the degree to which the nurses had undertaken rotating, evening and night shift work, a variety of other premorbid factors controlled for.

The impact on normal biological rhythms may negatively impact 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 exit from the profession also have higher rates of self-killing [5]. What is clear is that the dropout from the nursing profession is high in the first two years after graduation [15]. 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 with failing to cope with a professional role to which they were emotionally attached [16].

### C. Work-Life-Balance Stressors

Some career nurses face *Work-Life Balance* (WLB) problems in which the individual’s social and family life is challenged by the demands of their work roles, including having to work long shifts, and night duty [17]. For this reason, we included a measure of WLB stress in our data package, since hypothetically WLB stress may interact with or exacerbate nursing role stresses. The WLB measure chosen was that of Hayman [18]. We chose Hayman’s [18] and [19] scale since it showed good evidence of discriminant validity, and as a relevant instrument for completion by human service professionals [20]. A high score indicates greater amounts of stress due to work-life imbalance in nurses, and in other professional groups [21], [22].

### D. Burnout and Its Professional and Mental Health Sequels

The pioneer of “burnout” research is Christina Maslach [23]: the MBI scale developed from this research has been refined and validated and is widely used in research on occupational psychology [24], [25]. The 20-item MBI measures the potential for professionals in demanding roles such as nurses, to suffer exhaustion, role disenchantment, imminence of leaving nursing, frequent sickness, depersonalisation, and automated performance of routine

duties. It 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”).

Dall’Ora et al. [26] in a systematic review located 39 studies which had used the full Maslach Burnout Scale with nurses, in several countries:

*The patterns identified by these studies consistently show that adverse job characteristics—high workload, low staffing levels, long shifts, and low control—are associated with burnout in nursing. The potential consequences for staff and patients are severe. The literature on burnout in nursing partly supports Maslach’s theory, but some areas are insufficiently tested, in particular, the association between burnout and turnover, and relationships were found for some MBI dimensions only.* [26]

Relationships between stress, incipient burnout, and poor professional performance in these studies were not absolute, or entirely predictable, since many nurses did *not* show signs of burnout despite multiple stressors. Hypothetically these are individuals with high levels of psychological hardiness [27].

In studies with nurses (and others who engage in work with ill or distressed people) on personality measures, higher OCEAN (Big 5) Extraversion and lower Neuroticism scores were the most salient in predicting lower scores on the Burnout potential on the Maslach scales [28]-[30].

### E. 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. Critical care nurses 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.* [31]

The measurement of PTSD, and problems faced by nurses facing COVID-related stressors are discussed by [32] and [33].

### F. Resilience, Stress, Mental Health and Coping in Nurses

There is an important literature on psychological resilience in nurses, showing that some nurses have special strengths in coping with stresses they face, in ways which mean that they can successfully cope with professional challenges [34]. The ‘resilient nurse’ is (on the ‘Big Five’ personality test), likely to be emotionally stable, outgoing and communicative [30], [35], [36].

This idea of resilience has been conceptualised in various ways by those studying the careers of health care professionals: as “Sense of Personal Autonomy” [37]; as “Hardiness” [27], [38]-[40]; and as “Positive psychology self-enhancement strategy” [41].

“Resilient nurses” and other health care professionals may possess an ego-strength which helps them buffer stress, and avoid the onset of depression, anxiety, and PTSD in difficult conditions [42], [43]. Nevertheless, even the strongest person

does not have an infinitely strong endurance level. Bartone et al. [39] for example, in developing measures of hardiness, report that most soldiers (but certainly not all) in combat would develop acute PTSD after three months of continuous warfare. Nurses working at the COVID frontline may also face stressors which result in PTSD symptoms [44], [32].

### G. Self-Actualization – Humanistic Psychology and Challenges to the Nursing Vocation

Our value presumption is that all humans, when culture allows them, will seek to maximise personal fulfilment and well-being through service to others. As Bhaskar [45] puts it: “... we should approach the ontology of persons in terms of the thought embodied in some southern African languages by the notion of *ubuntu* which means roughly ‘I am because you are’.” (p. 113) In this respect we follow Abraham Maslow’s [46] ideas on human nature and fulfilment in explaining, and planning the management of human action in social and medical professionals as a form of ‘public service’ [47], [48]:

*We have, each of us, an essential biologically based inner nature, which is to some degree "natural," intrinsic, given, and, in a certain limited sense, unchangeable, or, at least, unchanging ... Each person's inner nature is in part unique to himself 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.* [49]

Nurses in particular may benefit from developments in humanistic and positive psychology, which involve the development of both ‘emotional intelligence’ and ‘mindfulness’ [50], [51]. Following these ‘Maslovian ideals’ for achieving self-actualization, [49], [52] we have included in the follow-up study of nurses three measures which claim to capture the essence of a successfully adjusted, self-actualized person [53] – someone who is developing their talents and their “inner goodness” to the fullest degree.

## III. RECAPITULATION OF THE STUDY’S FIRST PHASE: MEASUREMENT, SAMPLING, RESEARCH METHODS AND FINDINGS

### A. Interviewing and Study Design

Respondents were gathered through the snowball sampling technique [54], for a study nurses who were invited to review personal and professional challenges as reflected in responses to standardised questionnaires, as well as their willingness to participate in the second phase of the survey. Snowball sampling asks the first respondents (known to the researchers) to nominate people similar to themselves who might be interested in completing the measures for a study of “personal adjustment to the nursing role.” This research was conducted entirely outside of clinical or hospital settings, so ethical approval for the study was general rather than that required for clinical research in hospitals. Fuller details of the advantages of the snowball-sampling and interview techniques, and validity of measures used are given in Adam-Bagley et al. [55].

Of the 192 nurses participating in Phase 1 in 2018, 187 agreed to a follow-up study (of the five declining follow-up, one was at the point of retirement, and two were planning to return to their country of birth within the next 6 months). Average age of participants the nurses contacted in January to June 2018 was 36.5 years (range 24 to 55 years). All had professional qualifications in nursing and were working full-time in National Health Service hospitals. Forty percent held positions of relative seniority, beyond that of staff nurse. Our method of sampling meant that we contacted women who were active in their nursing roles, and all were permanent or long-term residents of the UK. The snowball method did introduce the bias that we were studying women who often knew one another, were at similar stages of their careers, and likely shared some of the same interests and values.

The initial interviews were completed in June 2018, prior to the onset of the COVID-19 pandemic crises.

### B. The Initial Model Explored in the 2018 Study

Exploratory factor analysis using the Principal Components method identified groupings of variables, which enabled us to generate *factor scores* for everyone in the study. Factor scores from three major components (explaining more than 50% of the total variance) were then explored using *cluster analysis* (using factor scores for individuals) which categorised individuals within groups, in ways which maximised the “numerical distance” between members of other groups. Heuristic analysis arrived at four distinct clusters of individuals. The statistical values of key variables are outlined in Table I (derived from Adam-Bagley et al. [55]).

The Four Kinds of Nurses resulting from this analysis are:

**Group A “The Soldiers”:** medium scores on most measures; some burnout; fewer intentions to leave nursing, but more work-life stress; somewhat lower scores on agreeable personality; lower scores on nursing values scale.

**Group B “Cheerful Professionals”:** higher job rank; more extraverted; more agreeable; better self-esteem; not depressed; few plans to leave nursing; medium-to-low scores on neuroticism and depression; good self-esteem; middle range hardy personality scale score; somewhat higher attachment to core nursing values.

**Group C “Highly Stressed, Potential Leavers”:** high levels of depression and neuroticism; poor self-esteem; less extraverted; low “hardy personality” profiles; experiencing work-life stress; somewhat lesser attachment to core nursing values.

**Group D “High Achievers, Strong and Stable”:** higher job rank; more extraverted; lower scores on neuroticism and depression measures; higher scores on hardiness and self-esteem; less work-life stress; less burnout; higher nursing values profile.

TABLE I: CLUSTER ANALYSIS OF 192 NURSES, USING FACTOR SCORES FROM PRINCIPAL COMPONENTS ANALYSIS

Variable	A: "The Soldiers" (79)	B: "Cheerful Professionals" (54)	C: "Highly Stressed, Potential Leavers" (20)	D: "High Achievers, Strong & Stable" (39)	Value & Significance of Chi2
Job rank high	13%	31%	6%	49%	36.71 (6 df) p<.0000
Intends to leave nursing?	15%	9%	80%	3%	65.15 (3 df) p<.0000
Neuroticism hi quartile	25%	26%	37%	12%	86.41 (6 df) P<.0000
Extraversion hi quartile	15%	31%	6%	48%	46.23 (6 df) p<.0000
Agreeableness hi quartile	27%	32%	10%	31%	20.86 (6 df) p<.0000
Hardiness hi quartile	23%	30%	2%	44%	38.37 (6 df) p<.0000
Depression hi quartile	29%	25%	30%	17%	51.02 (6 df) p<.0000
Self-Esteem hi quartile	24%	33%	4%	39%	64.35 (6 df) p<.0000
Burnout hi quartile	32%	25%	35%	8%	94.47 (6 df) p<.0000
Work-Life Stress hi quartile	30%	25%	30%	15%	50.53 (6 df) P<.0000
Nursing Values hi quartile	24%	30%	10%	36%	41.32 (6 df) p<.0000

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.

#### IV. PHASE TWO: RESEARCH QUESTIONS FOR THE 2020 FOLLOW-UP STUDY

##### A. Locating Nurses in the Follow-up Study

In the first sweep, nurses (in Northern England) were interviewed in face-to-face settings, but not in any hospital environment. Measures were completed on a laptop computer. For the 2020 follow-up, Nurses were contacted by phone or e-mail, and completed questionnaires online. Five of the 192 nurses in the original cohort had indicated that they did not want to be contacted again. Of the remaining 187 nurses, six could not be traced through the e-mail or telephone links they had provided earlier. Of those contacted only two declined a follow-up interview. Twenty of the respondents indicated that they had left nursing for a variety of reasons, although seven said they might return. Thus, the final number completing the full follow-up interview with currently practising nurses was 159. The 20 nurses who had left the profession by 2020 came predominantly from Type C, nurses experiencing high stress which had led them to seriously consider leaving the profession within the next year. We retained only six of the 20 Type C nurses for the follow-up interviews (Table II).

TABLE II: PROFESSIONAL OUTCOMES IN 2020 FOR THE FOUR TYPES OF NURSES IN THE 2018 CLUSTER ANALYSIS

Type	N in 2018 (full interview)	N in 2020 (full interview)	Left Nursing (by 2020)	Total No. Lost
A. The Soldiers	79	71	6.6% (5/76)	10.1% (8/79)
B. Professionals	54	46	9.9% (5/51)	14.8% (8/54)
C. Highly Stressed	20	6	60% (9/15)	70.0% (14/20)
D. High Achievers	39	36	2.7% (1/37)	7.8% (3/39)
Totals	192	159	11.1% (20/179)	17.2% (33/192)

Notes: Answering "Yes" to "Do you intend to leave nursing ..." (2018) predicted 17 of the 23 known decisions to leave nursing by follow-up 2 years later (1-way ANOVA, p<.001). "Lost to study" included 5 who requested 'no second interview' in 2018; 2 individuals who declined a further interview in 2020; and 6 who were untraceable. No further questions were asked of those who had left nursing. 159 nurses completed the full interview in 2018 & 2020. Distribution of "left nursing" across the Four Types, p<.001 (1-way ANOVA), indicating a statistically significant excess in the 2018 Group C.

#### V. THE SECOND DATA SWEEP: MOVING TOWARDS A FURTHER CLASSIFICATION OF NURSES

##### A. Initial Results

Of the 192 included in the first Sweep in 2018, 159 nurses were retained in the 2020 Data Sweep, the largest sample loss being 14 nurses from the Highly Stressed group C. The intention of nurses in this group to leave the profession in the forthcoming year predicted the majority of the decisions to leave nursing.

Following correlational analysis of the personal and professional measures, including new measures focussing on aspects of self-actualization [56]-[58], the resulting matrix was subjected to an exploratory Factor Analysis, with three varimax rotated components selected explaining just over 50 percent of the total variance, and which fulfilled the criteria for the "scree test" for selection [59]. Loadings of items on these three rotated factors are shown in Table IV. The first factor or component groups together "strong personalities" (Extraverted + Stable + Agreeable); Hardiness; Self-Compassion; Personal Well-Being; and Self-Actualization. Factor II also represents a dimension of Well-Being, combined with Hardiness, good Self-Esteem, and affiliation with Nursing Values. Factor III identifies a grouping of negative variables, including Burnout scores, WLB stress, poorer overall life satisfaction and adjustment, and a potential for leaving the nursing profession.

##### B. Correlation, Component and Cluster Analysis to Identify 'Types of Nurses'

In order to arrive at a clustering of individuals (as opposed to a grouping of variables) a similar procedure was followed to that applied in Sweep 1 data: k-means cluster analysis using the SPSS program. The 2020 data analysis could not arrive at a set of groupings which were as clear-cut as in 2018, but 3-group solution did maximise statistical distance between the clustering of individuals. However, 15 individuals were outliers, and could not be successfully included in any of the three groups (the 4- and 5-group solution produced clusters which could absorb most of these individuals, but at the cost of lack of clarity in the focus of the other groups – and so the 3-group solution was retained in the qualitative design as having the most heuristic usefulness (This approach may be compared with that of Summers [67] who also used factor analyses in a critical realist study of

Australian nurses):

The largest Group A (n=59) we have labelled “**Actualizing Professionals**” who tend to have positive personality profiles, Hardy personality, and strong Well-Being, Self-Compassion and Self-Actualizing scores. This group contains a core of both the 2018 Group B “Strong Professionals”, and Group D “High Achievers”.

The next Group B (n=55) called “**Strong Professionals**” tend to be the most senior group, committed to Nursing Values, with good Self-Esteem and Self-Compassion. This group contains a core of the 2018 “Strong Professionals” group.

The third Group C (n=30) is named “**Highly Stressed Nurses**”, a group of nurses, experiencing feelings of Burnout, contemplating leaving nursing; they also experience significant Work-Life-Balance stress, centred mainly on problems of caring for children. This group contains *all* of the nurses who were tentatively classified as falling into the PTSD clinical category. This group contains both “Soldiers” and “Highly Stressed” nurses from the previous grouping.

There is some continuity of clusters across a two-year period, offering an indication of the reliability and validity of the clustering process, even when a significant number from the first sweep had left nursing. One of the disappointments in the follow-up findings was the relatively poor outcomes for the Phase One “Soldiers”. These nurses did not, in the main, evolve into hardy career nurses as we had hoped; rather, they became “highly stressed” nurses, or manifested inconsistent patterns of adjustment which meant that they could not be assigned to any clearly defined group of nurses in Phase Two.

TABLE III: MEANS AND CORRELATIONS OF NURSES’ ADJUSTMENT AND COPING SCALES, SWEEP 1 (2018) COMPARED WITH SWEEP 2 (2020)

	2018 N=192 Mean (SD)	2020 N=159 Mean (SD)	Correlations 2017 to 2020
NVS (Values)	12.64 (3.67)	14.29 (4.39)	.47
Hardiness	33.85 (8.59)	36.26 (8.72)	.53
Self-Esteem (RSES)	28.89 (5.55)	30.23 (5.51)	.40
Burnout	5.63 (1.79)	6.67 (2.81)	.38
WLB Stress	12.54 (4.21)	16.71 (5.23)	.40
Leave nursing?	19%	20%	.16
Self Actualization	Not completed	31.55 (5.50)	-
Self Compassion	Not completed	31.34 (6.98)	-
Personal Well-Being	Not completed	63.20 (8.37)	-
CESD Depression	12.50 (9.92)	10.10 (6.29)	.22
PTSD-N: Post Traumatic Stress	Not completed	(14/159 above clinical cut-off)	-
Personality: Agreeable, Extraverted & Emotionally Stable	1.0 (normalised, Gaussian curve)	Not completed	-
COVID Contact Nursing	Not relevant	88.6%	-

Notes: Correlations calculated for 159 nurses completing similar measures in 2018 & 2020. Significance of correlations by Pearson’s r (2-tailed test): 0.25 and above, P<.01.

TABLE IV: PRINCIPAL COMPONENTS ANALYSIS OF VARIABLES FROM 2018 AND 2020 SWEEPS

	Factor I (24% of variance)	Factor II (18% of variance)	Factor III (8% of variance)
Job rank (low to high)	.38	.05	-.40
Extraverted+Stable+Agreeable	.65	-.35	.02
Hardy Personality	.63	-.56	-.20
CESD Depression (high to low)	.22	-.27	-.41
Self-esteem (low to high)	.43	-.54	-.04
Burnout Scales (high to low)	.17	-.08	-.55
Work-Life Balance stress (high to low)	.20	.01	-.61
Intention to Leave Nursing	-.34	.01	-.47
Nursing Values Scale	.37	-.54	-.30
PTSD-N Measure (high to low stress)	.00	-.00	-.33
Self-Compassion	.61	-.39	-.39
Personal Well-Being	.67	-.55	-.41
Self-Actualization	.48	-.30	-.09

Note: Principal component analysis based on the correlation matrix of measures, used Varimax rotation, requiring orthogonal rotation. All measures completed in 2020, except “Personality” (extraverted + stable + agreeable), based on combining high (16%), medium (68%) and low (16%) scorers on each of these 3 scales, combined, from scale completion in 2018.

TABLE V: TYPOLOGY OF 144 NURSES FROM THE 2020 DATA SWEEP

	A “Actualizing Professionals” (n=59)	B “Strong Professionals” (n=55)	C “Highly Stressed Nurses” (n=30)	Value & Significance of Chi-squared
Job rank high	57.6%	72.7%	40.0%	Chi2 (4df, 144) p<.0002
Plans to leave nursing?	25.4%	18.2%	60.0%	Chi2 (4df, 144) 17.1, p<.0002
Personality, high on 3 types (n=23)	56.5%	14.5%	6.6%	Chi2 (4df, 144) 11.2, p<.05
Hardiness, top 25% (n=36)	63.9%	27.8%	10.0%	Chi2 (4df, 144) 19.1, p<.0002
Depression, top 25% (n=36)	18.6%	18.2%	50.0%	Chi2 (4 df, 144), 13.2, p<.01
High Self-Esteem, top 25% (n=36)	13.5%	36.4%	26.6%	Chi2 (4 df, 144), 33.2, p<.0000
Burnout, top 25%	6.8%	20.0%	70.0%	Chi2 (4 df, 144) 49.2, p<.0000
WLB stress, top 25%	8.5%	25.4%	56.6%	Chi2 (4 df, 144) 30.6, p<.0000
Nursing Values, top 25%	25.4%	27.2%	20.0%	Chi2 (4 df, 144) 2.0, p=.730, not significant
Well-Being scale, top 25%	32.2%	21.8%	16.6%	Chi2 (4df, 144) 13.30, p<.01=.746
Self-Compassion scale, top 25%	32.2%	27.2%	6.7%	Chi2 (4 df, 144) 3.10, p=.540. not significant
Self-Actualization scale, top 25%	35.5%	20.0%	13.3%	Chi2 (4 df, 144) 16.65, p<.003
PTSD-N ‘clinical’ group	0.0%	0.0%	43.3%	Chi2 (3df, 144) 44.0, p<.0000
(A) Soldiers (2018)	A: 0.0%	7.3%	36.6%	(15 Nurses could not be classified in the 2020 data analysis of 159 nurses)
(B) Professionals (2018)	B: 37.4%	60.0%	0.0%	
(C) Stressed (2018)	C: 8.4%	0.0%	20.0%	
(D) Hi Achievers (2018)	D: 54.2%	25.4%	0.0%	

## VI. DISCUSSION AND CONCLUSIONS

Joseph [60] from the perspective of humanistic psychology argues that the “synergist person” (in Maslow’s model) can face and overcome challenges - which for some would result in PTSD. Some personality styles help individuals to transcend these challenges, as part of personal and interpersonal growth, in the movement towards self-actualization. This growth, a core of nurses in our study, seem to be achieving. Siebert [61] elaborates this theme in relation to front-line soldiers, and then applies it to civilians – managers and professionals of various kinds:

*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)

In Siebert’s [61] model, people (including nurses) with “survivor personalities” are those who: (1) have survived a major crisis or crises; (2) surmounted threat crisis through personal effort; (3) emerged from the experience with previously unknown strengths and abilities; (4) in retrospect, find value in the challenging experience. Having inherited resilience is valuable, but according to Siebert many professionals can be also trained and supported in how to find resilience in the face of stress.

Two key variables from the 2018 data sweep have salient predictive power for the 2020 cohort: the personality types represented by the combination of (with moderate to high saliency) the profiles of Extraversion, Emotional Stability, and Agreeableness which together with Hardiness, allow women to face and overcome potential stress.

Nurses who lack these characteristics seem to struggle to find fulfilment in their profession, especially when crises occur such as the challenges of COVID nursing. But the struggles of these nurses should certainly be acknowledged, and roles found for them in hospital or medical work which minimise stress. In addition, nurse training and continuing education programmes should focus on ways of handling the special stresses which nursing imposes, and which can undermine the values to which nurses are, or should be, dedicated [62], [63].

We plan to develop the model of the successful female nursing professional in our other research programme [64], which examines “glass ceiling” effects which block women’s advancement. How do women managers (including nurses) develop and sustain their “hardy personalities” in facing barriers to progress in both medical and non-medical settings? Is nursing a kind of marginalised occupation into which talented women find ways of succeeding, which are different from their male counterparts? Ideally, we can integrate these findings on “successful nurses” with the literature on the psychological profiles of successful women managers, executives, and professionals [65], [66].

## REFERENCES

- [1] ONS (2020). *Coronavirus (COVID-19) Related Deaths by Occupation, England and Wales: Deaths Registered Between 9 March and 25 May 2020*. London: Office for National Statistics.
- [2] Dzau, V. J., Kirch, D., & Nasca, T. (2020). Preventing a parallel pandemic—a national strategy to protect clinicians’ well-being. *New England Journal of Medicine*, 383(6), 513-515.
- [3] Hackett, K. (2021c). PPE provision ‘nowhere near enough’ in first wave and staff left at risk, say MPs: Committee urges government to learn lessons and improve management and distribution. *Royal College of Nurses: Nursing Standard*, February 12<sup>th</sup>, 2021.
- [4] Brooks, S. K., Dunn, R., Amlôt, R., Rubin, G. J., & Greenberg, N. (2018). A systematic, thematic review of social and occupational factors associated with psychological outcomes in healthcare employees during an infectious disease outbreak. *Journal of Occupational and Environmental Medicine*, 60(3), 248-257.
- [5] Feskanich, D., Hastrup, J. L., Marshall, J. R., Colditz, G. A., Stampfer, M. J., Willett, W. C., & Kawachi, I. (2002). Stress and suicide in the Nurses’ health study. *Journal of Epidemiology & Community Health*, 56(2), 95-98.
- [6] de Boer, J., Lok, A., van’t Verlaat, E., Duivenvoorden, H. Bakker, A. & Smit, B. (2011). Work-related critical incidents in hospital-based health care providers and the risk of post-traumatic stress symptoms, anxiety, and depression: A meta-analysis. *Social Science & Medicine* 73(2), 316–326.
- [7] Kølves, K., Kølves, K. E., & De Leo, D. (2013). Natural disasters and suicidal behaviours: a systematic literature review. *Journal of affective disorders*, 146(1), 1-14.
- [8] Andersen, L. P., Høgh, A., Elklit, A., Andersen, J. H., & Biering, K. (2019). Work-related threats and violence and post-traumatic symptoms in four high-risk occupations: short-and long-term symptoms. *International archives of occupational and environmental health*, 92(2), 195-208.
- [9] Campbell, J. (2015). Improving the resilience and workforce of health systems for women’s, children’s, and adolescents’ health. *BMJ: British Medical Journal*, 351.
- [10] Woodhead, E. L., Northrop, L., & Edelstein, B. (2016). Stress, social support, and burnout among long-term care nursing staff. *Journal of Applied Gerontology*, 35(1), 84-105.
- [11] Keneisha, K., Fowler, K. & Eller, M. (2014). Newly licensed RNs; and missed care. *The American Journal of Nursing*, 114(2), 12.
- [12] Griffiths, P., Ball, J., Murrells, T., Jones, S. & Rafferty, A-M. (2016). Registered nurse, healthcare support worker, medical staffing levels and mortality in English hospital trusts: a cross-sectional study. *BMJ Open*, 6, 2 Online.
- [13] Thomas, C. (2020). *Resilient Health and Care: Learning the Lessons of COVID-19 Resilient Health Care in the English NHS*. London: Institute for Public Policy Research (IPPR). doi:10.2307/resrep25700.5.
- [14] Jørgensen, J. T., Karlsen, S., Stayner, L., Hansen, J., & Andersen, Z. J. (2017). Shift work and overall and cause-specific mortality in the Danish nurse cohort. *Occupational and Environmental Medicine*, 74, A143.
- [15] Li, J., Shang, L., Galatsch, M., Siegrist, J., Müller, B. H., Hasselhorn, H. M., & NEXT Study Group. (2013). Psychosocial work environment and intention to leave the nursing profession: a cross-national prospective study of eight countries. *International Journal of Health Services*, 43(3), 519-536.
- [16] Bruyneel, L., Thoelen, T., Adriaenssens, J., & Sermeus, W. (2016). Emergency room nurses’ pathway to turnover intention: a moderated serial mediation analysis. *Journal of Advanced Nursing*, November 7, Online.
- [17] Duchting, M. (2015). *Improving the Work-Life Balance of Registered Nurses*. Norderstedt DE: Grin Verlag.
- [18] Hayman, J.R. (2005). Psychometric assessment of an instrument designed to measure work life balance. *Research and Practice in Human Resource Management*, 13(1), 85-91.
- [19] Hayman, J. R. (2009). Flexible work arrangements: exploring the linkages between perceived usability of flexible work schedules and work/life balance. *Community, Work and Family*, 12(3), 237–338.
- [20] Hayman, J. & Rasmussen, E. (2013). Gender, caring, part-time employment and work/life balance. *Employment Relations Record*, 13(1) 45-58.
- [21] Smeltzer, S. C., Cantrell, M. A., Sharts-Hopko, N. C., Heverly, M. A., Jenkinson, A., & Nthenge, S. (2016). Psychometric analysis of the Work/Life Balance self-assessment scale. *Journal of Nursing Measurement*, 24(1), 5-14.
- [22] Agha, K., Azmi, F. T. & Khan, S. A. (2017). Work-Life Balance: Scale development and validation. In Heras, M. L., Chinchilla, N. &

- Grau, M. (Eds). *The Work-Family Balance in Light of Globalization and Technology* (pp. 109-130). Newcastle, UK: Cambridge Scholars Publishing.
- [23] Maslach C. & Jackson S.E. (1986) *Maslach Burnout Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- [24] Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52(1), 397-422.
- [25] Maslach C., Jackson S.E. & Leiter M.P. (2006) *Maslach Burnout Inventory Manual 5<sup>th</sup> Edn*. Palo Alto, CA: Consulting Psychologists Press.
- [26] Dall'Ora, C., Ball, J., Reinius, M., & Griffiths, P. (2020). Burnout in nursing: a theoretical review. *Human Resources for Health*, 18, 1-17.
- [27] Henderson, J. (2015). The effect of hardiness education on hardiness and burnout on registered nurses. *Nursing Economics*, 33(4), 204-214.
- [28] Bakker, A. B., Van Der Zee, K. I., Lewig, K. A., & Dollard, M. F. (2006). The relationship between the big five personality factors and burnout: A study among volunteer counselors. *The Journal of Social Psychology*, 146(1), 31-50.
- [29] Adrianssens, J., De Gucht, D. & Maes, S. (2015). Determinants and prevalence of burnout in emergency nurses: a systematic review of 25 years of research. *International Journal of Nursing Studies*, 52(4), 649-661.
- [30] Törnroos, M., Hintsanen, M., Hintsu, T., Jokela, M., Pulkki-Råback, L., Hutri-Kähönen, N., & Keltikangas-Järvinen, L. (2013). Associations between Five-Factor Model traits and perceived job strain: A population-based study. *Journal of Occupational Health Psychology*, 18(4), 492-502.
- [31] Salmon, G., & Morehead, A. (2019). Posttraumatic stress syndrome and implications for practice in critical care nurses. *Critical Care Nursing Clinics of North America*, 31(4), 517-526.
- [32] Carmassi, C., Foghi, C., Dell'Oste, V., Cordone, A., Bertelloni, C. A., Bui, E., & Dell'Osso, L. (2020). PTSD symptoms in healthcare workers facing the three coronavirus outbreaks: What can we expect after the COVID-19 pandemic? *Psychiatry Research*, 113312.
- [33] Schuster, M., & Dwyer, P. A. (2020). Post-traumatic stress disorder in nurses: An integrative review. *Journal of Clinical Nursing*, 29(15-16), 2769-2787.
- [34] Dewe, P. J., & Cooper, C. L. (2017). *Work Stress and Coping: Forces of Change and Challenges*. London: Sage.
- [35] Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: a meta-analysis. *Journal of Applied Psychology* 27(3), 530-554.
- [36] Bruck, C. S., & Allen, T. D. (2003). The relationship between big five personality traits, negative affectivity, type A behavior, and work-family conflict. *Journal of Vocational Behavior*, 63(3), 457-472.
- [37] Hochwälder, J. (2015). Test of Antonovsky's postulate: high sense of coherence helps people avoid negative life events. *Psychological Reports*, 116(2), 363-376.
- [38] Benishok, L. A., & Lopez, F. G. (2001). Development and initial validation of a measure of academic hardiness. *Journal of Career Assessment*, 9(4), 333-352.
- [39] Bartone, P. T., Roland, R. R., Picano, J. J., & Williams, T. J. (2008). Psychological hardiness predicts success in US Army Special Forces candidates. *International Journal of Selection and Assessment*, 16(1), 78-81.
- [40] Foster, K., Roche, M., Delgado, C., Cuzzillo, C., Giandinoto, J. A., & Furness, T. (2019). Resilience and mental health nursing: An integrative review of international literature. *International Journal of Mental Health Nursing*, 28(1), 71-85.
- [41] Friedman, S. E., & Baum, N. (2016). The role of positive psychology in the modern medical practice. *The Journal of Medical Practice Management*, 31(5), 287-297.
- [42] Kadner, K.D. (1989). *Resilience in Nursing: The Relationship of Ego Strength, Social Intimacy, and Resourcefulness to Coping*. Austin: University of Austin Press.
- [43] Epstein R.M. & Krasner M.S. (2013). Physician resilience: what it means, why it matters, and how to promote it. *Academic Medicine*, 88(3), 301-303.
- [44] Cai, Z., Cui, Q., Liu, Z., Li, J., Gong, X., Liu, J., ... & Wang, G. (2020). Nurses endured high risks of psychological problems under the epidemic of COVID-19 in a longitudinal study in Wuhan China. *Journal of Psychiatric Research*, 131, 132-137.
- [45] Bhaskar, R. (2020). Critical realism and the ontology of persons. *Journal of Critical Realism*, 19(2), 113-120.
- [46] Maslow, A.H. (2013.) *Toward a Psychology of Being*. 4<sup>th</sup> Edition. New York: Simon and Schuster.
- [47] Stretton, S. (1994.) Maslow and the modern public servant: A lateral approach to performance and integrity in the public sector work environment. *Australian Journal of Public Administration*, 53(2), 144-151.
- [48] Zalenski, R.J. and Raspa, R., 2006. Maslow's hierarchy of needs: a framework for achieving human potential in hospice. *Journal of Palliative Medicine*, 9(5), pp.1120-1127.
- [49] Maslow, A.H. (1964). Synergy in the society and in the individual. *Journal of Individual Psychology*, 20(2) 53-164.
- [50] Parsons, C. (2008). *Positive Psychology and Positive Interventions for Nurse*. Pennsylvania: University of Pennsylvania, Creative Commons.
- [51] Healy, R. (2019). Mindfulness on the move: new mindfulness tools from the RCN. *Royal College of Nursing: RCN Bulletin*, May 28<sup>th</sup>, 2019, Online.
- [52] Maslow, A.H. (1965). *Self-Actualization and Beyond*. Winchester, MASS: Center for Study of Liberal Education, University of Boston.
- [53] Groff-Paris, L. & Terhaar, M. (2010). Using Maslow's pyramid and the national database of nursing quality indicators™ to attain a healthier work environment. *OJIN: The Online Journal of Issues in Nursing*, 16(1), pp.1-8.
- [54] Sadler, G.R., Hau-Chen, L., Seung-Hwan Lim, S.-K. & Fullerton., J. (2010.). Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy. *Nursing & Health Sciences*, 12(3) 369-374.
- [55] Adam-Bagley, C., Abubaker, M., & Sawyerr, A. (2018). Personality, work-life balance, hardiness, and vocation: a typology of nurses and nursing values in a special sample of English hospital nurses. *Administrative Sciences*, 8(4), 79-85.
- [56] Jones, A., & Crandall, R. (1986). Validation of a short index of self-actualization. *Personality and Social Psychology Bulletin*, 12, 63 -73.
- [57] Neff, K. D. (2009). The role of self-compassion in development: A healthier way to relate to oneself. *Human Development*, 52(4), 211-221.
- [58] Lui, P.P. and Fernando, G.A. (2018). Development and initial validation of a multidimensional scale assessing subjective well-being: The Well-Being Scale (WeBS). *Psychological Reports*, 121(1), pp.135-160.
- [59] Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1(2), 245-276.
- [60] Joseph, S. (2019). Posttraumatic growth as a process and an outcome: Vexing problems and paradoxes seen from the perspective of humanistic psychology. *The Humanistic Psychologist*, August, 1-21.
- [61] Siebert, A. (2010). *The Survivor Personality: Why Some People are Stronger, Smarter, and More Skilful at Handling Life's Difficulties*. New York: Penguin-Putnam.
- [62] Barzilay, R., Moore, T. M., Greenberg, D. M., DiDomenico, G. E., Brown, L. A., White, L. K., ... & Gur, R. E. (2020). Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. *Translational Psychiatry*, 10(1), 1-8.
- [63] Tracy, D. K., Tam, M., Eldridge, R., Cooke, J., Calder, J. D., & Greenberg, N. (2020). What should be done to support the mental health of healthcare staff treating COVID-19 patients? *The British Journal of Psychiatry*, 217(4), 537-539.
- [64] Abubaker, M., Adam-Bagley, C. & Shahnaz, A. (2018). Muslim women in management roles in Western and in Muslim-majority countries: strong women balancing family and career. In Adam-Bagley, C. & Abubaker, M. (Eds.) *Muslim Women Seeking Power, Muslim Youth Seeking Justice* (pp 35-55). Newcastle: Cambridge Scholars Publishing.
- [65] Wille, B., Wiernik, B. M., Vergauwe, J., Vrijdags, A., & Trbovic, N. (2018). Personality characteristics of male and female executives: Distinct pathways to success? *Journal of Vocational Behavior*, 106, 220-235.
- [66] Player, A., Randsley de Moura, G., Leite, A. C., Abrams, D., & Tresh, F. (2019). Overlooked leadership potential: The preference for leadership potential in job candidates who are men vs. women. *Frontiers in Psychology*, 10, 755, Online.
- [67] Summers, A. (2020). A practical example of exploratory factor analysis and critical realism. *Nurse Researcher*, 28(4).
- [68] Adam-Bagley, C., Sawyerr, A., & Abubaker, M. (2016). Dialectic critical realism: grounded values and reflexivity in social science research. *Advances in Applied Sociology*, 6(2), 400-419.
- [69] Browning, L., Ryan, C. S., Thomas, S., Greenberg, M., & Rolniak, S. (2007). Nursing specialty and burnout. *Psychology, Health & Medicine*, 12(2), 148-154.
- [70] Griffiths, P., Ball, J., Drennan, J., James, L., Jones, J., Recio, A., & Simon, M. (2014). *The Association Between Patient Safety Outcomes and Nurse/healthcare Assistant Skill Mix and Staffing Levels*. Southampton: Centre for Innovation and Leadership in Health Services.
- [71] Hackett, K. (2020). Quarter of nurses leave the profession due to stress. *Royal College of Nursing: Nursing Management*, 22(4), 6,



Online.

- [72] Hackett, K. (2021a). HCA with three young children dies from COVID-19. *Royal College of Nursing: Nursing Standard*, January 18<sup>th</sup>, 2021 Online.
- [73] Hackett, K. (2021b). Shocking effect of COVID-19 stress on ICU nurses revealed. *Royal College of Nursing: Nursing Standard* January 13<sup>th</sup>, 2021, Online.