

Feasibility of measuring psychological resilience in hospitalized patients with acute illness: The Resilience After the Trauma of Acute Illness (RAFT) study

T Verma, A Taufik, R Vindla, SR Lloyd, S Rees & CP Subbe

Abstract

Resilience is the 'ability to bounce back'. We want to investigate whether measurement of resilience during an acute hospital admission is feasible.

We conducted a feasibility study. Resilience was measured using the Brief Resilience Scale. Results were contextualized by measuring chronic disease burden, anxiety, depression, coping strategies and personality traits.

56 or 103 patients approached took part in the study. A group of 12 patients undergoing pulmonary rehabilitation served as a control group. We found evidence of low resilience in 4/44 (9%) patients admitted as medical emergencies. Low resilience was statistically related to the Hospital Anxiety and Depression Scale and a number of coping strategies and personality traits. We found no relation between measures of resilience and previous admissions to hospital.

The concept of resilience might be applicable to unscheduled admissions to hospital. Larger studies are required to establish whether low resilience is common and amenable to intervention.

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Keywords

Resilience, Acute Medicine, recovery, coping mechanisms, personality traits, anxiety, depression

Key learning points

- Resilience as a character trait is the ability to bounce back from challenging events.
- Resilience is related to depression as measured by the Hospital Anxiety and Depression Scale, specific coping strategies and personality traits.
- In a small sample we found no relation between levels of resilience and previous hospital admission.
- Measurements of resilience is feasible in acute medical admissions.

Introduction

There is extensive evidence that psychological state can impact physical recovery, particularly in the context of stress reactions.¹⁻³ Investigations into how some people are more "naturally resistant" to negative psychological outcomes subsequently extended into other areas of psychology, sport science and medicine.⁴

Resilience is described as the ability to "bounce back" after hardships. Attributes describing resilience include acceptance, faith, hope, optimism, sense of purpose, meaningful relationships, activity, understanding and a sense of control,⁵ "viewing the adversity as a challenge/opportunity" (problem focused coping) commitment, recognition of limits to control, engaging the support of others, goal setting, self-efficacy, humour and adaptability to change⁶ and resilience is not a "solitary characteristic".

Resilience can be described as a stable individual character trait or a trajectory to recovery that can be learnt as a coping "strategy".^{7,8} The latter concept



would allow interventions for individuals with low resilience, arming them with an optimum degree of psychological protection against adverse outcomes.⁹ There are a large number of instruments to measure resilience but the Connor-Davidson Resilience Scale, the Resilience Scale for Adults and the Brief Resilience Scale have the best psychometric ratings.¹⁰

Resilience has been shown to influence psychological morbidity, which subsequently impacts physical recovery. A review of the literature¹¹ found few papers that directly investigating resilience in

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acute illness/injury. However, a number of papers were found investigating the psychological sequelae of acute illness/injury thus indicating that resilience research might be of value in these settings. Successful interventions have been established to improve resilience in other fields such as military, sport and chronic disease management. Resilience is hence a potential therapeutic target.

Resilience has not been explored in acute care. We hypothesised that measurement of resilience is possible in an acute care environment: In the 'Resilience after the Trauma of Acute Illness' (RAFT) study we aimed to show feasibility of measurement, explore responsiveness of a key measurement to interventions and inform sample size for further prospective studies.

Methods

Design

Explorative pilot for a prospective cohort study with convenience sampling. The primary analysis was predominantly descriptive and supplemented by exploratory analysis of correlations. IBM's SPSS V24 was used for the analysis.

Ethics approval was granted the Bangor Research Ethics committee (REC 17/WA/0024)

Setting

Recruitment included two samples of patients admitted to the Acute Medical Unit (AMU) of the Ysbyty Gwynedd in Bangor from the 15.03. to the 04.04.2017 and from the 21.03. to the 06.04.2018 as well as patients undergoing pulmonary rehabilitation (PR). The Ysbyty Gwynedd is a District General Hospital serving a population of 220.000 in North Wales.

Selection criteria

Patients gave informed consent. Patients admitted to the Acute Medical Unit were excluded with highly abnormal physiology as evidenced by a National Early Warning Score of 7 or more, shock, chest-pain, unstable angina, myocardial infarction or suspected intra-cerebral pathology, impaired level of consciousness, dementia, depression or other documented mental illness. Patients were asked whether they would be happy for a relative or friend to complete a variant of the Brief Resilient Scale.

Patients undergoing pulmonary rehabilitation with a diagnosis of dementia, depression or other documented mental illness were excluded.

Study procedures

Patients were asked standardized questions during a 45-minute session. The questionnaires cover

demographics, character of the admitting complaint and measures of resilience, anxiety and depression and personality traits.

Study variables included age (collected as age categories), gender, number of admissions in previous 12 months, level of severity of illness on admission as measured by the National Early Warning Score, frailty as measured by the Clinical Frailty Scale¹² and self-assessed Charlson Comorbidity index.¹³

Resilience was measured by patients with the Brief Resilience Scale (BRS) Self¹⁴ and by a family member or friend with a variant of the Brief Resilience Scale (BRS). Patients complemented the short Eysenck Personality Questionnaire Revision (EPQR-S), the Coping scale¹⁵ and the Hospital Anxiety and Depression Scale (HADS):¹⁶

The BRS scale ranges from 1–6, with scores above 3 considered to be normal to high, depending on the sample investigated.

The Eysenck Personality Questionnaire Revised-Short (EPQR-S), measures three dimensions; extraversion, neuroticism and psychoticism. Each dimension has 12 items. The social desirability/lie scale was excluded for this study. Depending on the sample, high extraversion (at least 7.0/12), low neuroticism (5.0 or less/12) and low psychoticism (3.0 or less/12) is considered normal.

The Coping scale contains 28 items and categories three strategies, namely problem-focused coping, emotion focused coping and support focused coping. A mean score between one and four was calculated for each of these categories.

The HADS contains 10 items to test for depression and 10 to test for anxiety and indicates depression and anxiety in the participants involved. A score of greater than 8 indicated presence of either depression or anxiety, a score of 7 or below was considered a normal case with no mood disorder present.

Results

Base line measures: patients recruited from the Acute Medical Unit

We approached a total of 103 patients, of which 56 patients were included: Of the remainder 17% met exclusion criteria and 83% did not consent. The final cohort consisted of 44 patients recruited from the Acute Medical Unit (AMU) and 12 from Pulmonary Rehabilitation (PR).

For patients recruited from the AMU, 5 patients were between 18–40 years old, 19 between 40–65, 25 between 66 and 80 and 7 older than 80 years old. 19 (43%) patients were female. 14 patients had documented readmissions in the previous 12

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months, 9 patients had 1 readmission, 2 patients had 2, 2 patients had 5 and 1 patient had 4.

Comorbidities

The Self-assessed Charlson Co-morbidity index indicated that 5 patients had no pre-existing condition, 8 one, 14 two, 16 three, 3 four, 7 five, and 3 patients had more than five conditions. The conditions were in order of prevalence:

- 32 lung disease
- 21 hypertension
- 20 back pain
- 17 patients had heart disease
- 13 osteoarthritis
- 8 diabetes
- 7 ulcer or stomach disease
- 6 anaemia
- 5 rheumatoid arthritis
- 4 kidney disease,
- 4 cancer
- 3 depression
- 1 liver disease

Resilience

The mean BRS scores were 3.69 (Standard Deviation (SD) 0.77) for the total sample, 3.70 (SD 0.81) for AMU admissions and 3.65 (SD 0.60) for patients undergoing pulmonary rehabilitation (Table 1).

4 of 44 patients recruited from the AMU, and 2 out of 12 PR patients had a low level of resilience (BRS<3). Resilience according to age groups were 3.67 (SD 0.31) for 18-40 year-olds, 3.58 (SD 0.82) for 40-65 year-olds, 3.77 (SD 0.79) for 66-80 year-olds and 3.69 (SD 0.89) for 80 year-olds and above.

23 patients were also scored by a friend or family member. Values of the self-assessed BRS and the family assessed BRS did not correlate: Scores were identical in 4 patients. In 6 patients the score given by family members was higher and for 13 patients it was lower than those that patients assigned to themselves.

Explanatory variables

Two patients had a HADS-D and six patients had a HADS-A score of greater than 10. HADS was significantly higher in patients with low resilience (9.4 (5.8) vs 20.3 (4.3), $p<0.01$). Eysenck Personality Questionnaire showed personality traits with values for extraversion of a means of 7.6 (SD 3.5), neuroticism with a mean of 4.2 (SD 2.8) and psychoticism with a mean of 3.4 (SD 1.7)

Patients employed different coping strategies: 13 patients (29.5%) had a higher score than 3.0 for problem-focused coping, 1 (2.3%) for emotion-focused coping and 7 for support-focused coping.

We found single variable correlations between BRS and HADS (D) (-.523, $p<0.000$), correlations between BRS and neuroticism as a personality trait (-.429, $p<0.004$), and between BRS and a number of coping strategies: denial (-.398, $p<0.007$), behaving (-.304, $p<0.045$), venting (-.491, $p<0.001$), positive framing (-.322, $p<0.033$), planning (-.482, $p<0.001$) and self-blame (-.371, $p<0.013$).

Readmissions

Values of the BRS were a median of 3.5 (IQR 3;4) for patients with no admission in the previous year and 4.4 (IQR 3.2;5) for patients with any admission in the previous 12 months (4.7 (2.88;5) for patients with one admission, 4.1 for patients with two admissions, 4.3 for patients with 4 admission and 3.7 for patients with 5 admissions).

Pulmonary rehabilitation

The control group of patients undergoing pulmonary rehabilitation had similar levels of resilience and co-morbidity as evidenced by the self-assessed Charlson Co-morbidity scale despite being a higher proportion of older patients. The patients in the PR group were frailer (3.75 (SD 0.87) (mode 3) for PR, and 3.05 (SD 1.40) (mode 2) for AMU).

Discussion

In a convenience sample of patients admitted as acute medical emergencies we found that a small proportion of patients showed features of low resilience. Low resilience was associated to higher levels of anxiety and a number of associations with personality traits and coping mechanisms.

In the small sample we found no relation between low resilience and number of admissions in the previous 12 months.

The mean resilience score from AMU patients was 3.70 and 3.65 for pulmonary rehabilitation patients; both these scores are higher than the mean of 3.55 found in an undergraduate sample and lower than the 3.98 found in the cardiac rehabilitation group.¹⁴ Differences might be related to sample size.

Patients with low resilience in our sample suffered from a number of conditions. Only few had frequent admission prior to their current hospital stay. Patient with more than four admissions per year¹⁵⁻¹⁹ are often patients with chronic illnesses that involve acute "flare ups" such as asthma, diabetes and epilepsy. Frequent admission affect patients and place an unnecessary burden on the health care system.²⁰ Patients at risk of hospital admission might showed features of low resilience in an Australian cohort.²¹ It could be hypothesized that resilience building tools that have been designed for chronic patients might

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Table 1. Resilience in acute admissions and patients undergoing pulmonary rehabilitation with explanatory variables. Values show mean (standard deviation) unless otherwise stated.

Parameter	Acute Admissions	Normal Resilience	Low Resilience (BRS <3)	P-value Normal vs Low (P<0.05)	Pulmonary Rehabilitation
N	44	40	4	n.a	12
Gender female	19 (43%)	16	3	n.s.	6 (50%)
NEWS >5 on admission	7/43	6	1	n.s.	n.a.
Frail (CFS>4)	6/44	5	1	n.s.	3/12
Age > 65	22/44	20	2	n.s.	10/12
Patients with Readmissions	11	10	1	n.s.	n.a.
Explanatory variables					
SCQ (/45)	6 (5)	5 (4)	11 (9)	0.012	8 (3)
HADS					
HADS Total (/42)	10 (6)	9 (6)	20 (4)	0.001	9 (4)
HADS -A (/21)	6 (4)	5 (4)	10 (3)	0.030	5 (3)
HADS -D (/21)	6 (4)	4 (3)	10 (5)	0.000	4 (1)
EPQ-SF (/12)					
EPQ-SF Neuroticism	4.2 (2.8)	4.0 (2.5)	6.3 (4.5)	n.s.	4.6 (2.4)
EPQ-SF Psychoticism	3.4 (1.7)	3.4 (1.6)	2.8 (2.2)	n.s.	3.6 (1.8)
EPQ-SF Extraversion	7.6 (3.5)	7.5 (3.6)	9.3 (1.3)	n.s.	8.3 (2.4)
BRIEF COPE (/4)					
Self-distraction	2.4 (1.0)	2.4 (1.0)	3.0 (0.7)	n.s.	2.5 (0.8)
Active coping	2.7 (1.1)	2.6 (1.0)	3.6 (0.7)	n.s.	2.6 (1.0)
Denial	1.7 (0.9)	1.6 (0.8)	2.5 (1.1)	n.s.	1.9 (1.1)
Substance Misuse	1.2 (0.5)	1.2 (0.5)	1.3 (0.5)	n.s.	1.0 (0.1)
Emotional Support	2.4 (1.0)	2.4 (1.0)	2.8 (1.0)	n.s.	2.0 (1.0)
Instrumental Support	2.1 (1.0)	2.0 (1.0)	2.5 (0.6)	n.s.	2.1 (1.0)
Behavioural disengagement	1.3 (0.5)	1.2 (0.5)	1.4 (0.8)	n.s.	1.4 (0.5)
Venting	1.8 (0.8)	1.7 (0.8)	2.6 (0.9)	0.038	2.0 (0.9)
Positive Reframing	2.4 (1.0)	2.2 (0.9)	3.5 (0.4)	0.012	2.1 (1.0)
Planning	2.0 (0.9)	1.9 (0.8)	2.6 (1.3)	n.s.	2.0 (1.0)
Humour	2.4 (1.2)	2.3 (1.2)	3.4 (0.6)	n.s.	2.8 (1.0)
Acceptance	3.0 (1.0)	3.0 (1.0)	3.1 (0.5)	n.s.	3.3 (1.1)
Religion	1.7 (1.1)	1.6 (1.0)	2.5 (1.7)	n.s.	1.4 (0.8)
Self-blame	2.0 (1.1)	1.9 (1.0)	3.4 (0.6)	0.006	2.1 (0.9)

help to reduce re-admission rates but in our small sample we found no relation between the two.

Resilience can be associated with other measures of mental health; it has been shown to have a negative correlation with measures of post-traumatic stress in family members of patients requiring intensive care.²² Similarly to our cohort low resilience as measured by the Connor-Davidson Resilience Scale⁶ was associated with anxiety and depression in a cohort of Chinese patients undergoing coronary angiography.²³ Resilience measured by the BRS related to depression in a cohort of Greek patients.²⁴

In line with the planned study size were unable to claim a representative sample. Because of the small number of patients with low resilience in the sample we could not estimate the overall incidence of low resilience or prevalence of low resilience in patients who were re-admitted following a previous hospital stay.

Based on our findings it is possible to conclude that measurement of resilience is feasible in the acute setting. Clinical significance of this is currently unclear. In order to establish whether resilience has a role in explaining variation of outcomes in acute

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illness requiring hospital admission measurement in a larger sample is required prior to testing of interventions aimed at strengthening resilience.

Conclusion

The authors believe that research focused on the role of resilience in acute illness/injury is warranted in order to determine whether measurements of resilience predict psychological morbidity in acute illness/injury, whether patients with frequent admissions have below average resilience levels and whether ways of improving resilience levels results in better outcomes in acute settings.

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Declaration of competing interests

None in relation to this study.

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