An Exploration of Burnout and Coping Styles amongst Multidisciplinary Emergency Staff:

Quantitative Analyses of a Multisite Cross-sectional Survey

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Background:

Interventions planned

to reduce burnout among emergency department (ED) staff:

Information regarding its NATURE required to inform same.

Baseline measures of burnout

Coping styles

Work stressors

Pilot Methodology

Aims:

- Describe patterns of burnout & coping-styles of ED staff.
- Compare measures amongst different sites & between emergency & non-emergency staff
- Explore differences in burnout & coping-styles with respect to other "covariants of interest"

Objectives:

- Measure levels of Burnout
- Explore Specific Associations
  - Coping styles
    - confront, evade, emotive, fatalistic, optimistic, palliative, supportive, self-reliant
  - "Covariants of interest"
    - Site (public urban ED, associated inpatient team, Regional Public ED, associated private EDs x2),
    - Role Medical, Nursing, Allied Health, Nonclinical support
    - Work pattern (full time/part-time/casual),
    - Multiple ward rotations.
    - Marital status,
    - Gender,
    - Age (20-36, 37-52, ≥53).

Methods:

- **Design:**
  - Multisite cross-sectional staff survey (paper survey, feb-mar 2018)
  - HREC /17/QPCH/242: coping & resilience of ED staff: a multisite survey
- **Sites:**
  - 1 urban district public ED and associated medical inpatient-team
  - 1 regional public ED,
  - 2 associated private EDs
- **Survey Suite:**
  - Maslach Human Services Survey (MP)
  - Jalowiec Coping Scale (JCS) – use only
  - Gillman Work Stressors

Acknowledgements and thanks

- Richard Henshaw
- Dr Simon Newman
- Dr Melanie Jessup
- Petra Lawrence
- Professor Derek R Smith
- Susan Smith
- Kieran Sturgeon
- Kim Gerritsen
- Leah Harrison

- **All the multidisciplinary staff!!!**

- Disclaimer: Dr Kinnear is neither a statistician nor a psychologist

Maslach Human Services Survey (MP) : Sample Questions							
	Never	Few times a year or less	Once a month or less	Few times a month	Once per week	Few times a week	Every Day
I feel emotionally drained from my work	0	1	2	3	4	5	6
I can easily understand how my patients feel about things	0	1	2	3	4	5	6
I have accomplished many worthwhile things in this job	0	1	2	3	4	5	6

22 Questions total with 3 different subscales: EE/DP/PA
Extensive development and testing
Differing cutoffs/different reporting methods
Multiple theories on how subscales interact

Maslach Human Services Survey

- Maslach Subscales -SUMS:
  - Emotional exhaustion (EE): low ≤ 18, average 19-26, high ≥ 27
  - Depersonalisation (DE): low ≤5, average 6-9, high≥10
  - Personal Accomplishment (PA): low ≥40, average 34-39, high≤33
    - Maslach 2012

- Burnout Level Classification:
  - HIGH if all 3 subscales were classed as high,
  - MODERATE if 2 of 3 were high
  - LOW if 1 of 3 was high.
    - Delbrouk 2004

JALOWEIC COPING SCALE: DESCRIPTION OF COPING STYLES

Coping Style	No of Items	Description of Coping Style	Example of Coping Strategy
Confrontive	10	Facing up to problem	Thought out ways to handle situation
Evasive	13	Avoiding the problem	Tried to put problem out of mind
Optimistic	9	Positive Thinking	Thought about good things in life
Fatalistic	4	Pessimistic attitude	Resigned self to hopeless situation
Emotive	5	Releasing emotions	Took out tensions on somebody else
Palliative	7	Make yourself feel better	Took medications to feel better
Supportant	5	Using support systems	Discussed the problem with family etc
Self-reliant	7	Depending on self	Preferred to work things out yourself

Jalowiec Coping Scale

- Eight subscales
  - Different numbers of questions for subscales
  - Different numbers used by respondent

- Mean item Use Score Calculation
  - Item responses were summed to derive the raw scores for each subscale
  - The number of coping methods used by each respondent was determined
  - The mean item use score for each coping style was derived as the total score divided by the number of items used.

Statistics

- **Descriptive:**
  - Continuous: means (standard deviation)
  - Categorical variables: frequencies & percentages
- **Comparisons:**
  - Tested across sites: Pearsons chi-squared OR Fishers exact t-test (missing)
- **Associations:**
  - *Burnout subscales & JCS mean use scores: Pearsons correlations coefficient with Univariable regression modelling*
  - Maslach subscales (continuous) & "covariants of interest": linear regression modelling with multivariant regression models as appropriate
  - Burnout categories (categorical) & "covariants of interest": logistic regression with multivariable models as appropriate

(Stata statistical software package version 15)

Table 1: Distribution of Maslach Subscales & Jalowiec Coping Styles by Site

Variable		Urban District Public ED (n=158)	Private (n=36)	non-ED (n=33)	District General Public ED (n=52)	Total (n=279)	
	Average % missing for items on scale	Mean (SD) Scale	Mean (SD) Scale	Mean (SD) Scale	Mean (SD) Scale	Mean (SD)	p-value*
Age (years) (n=240)	14%	39 (10)	41 (12)	33 (8.7)	39 (11)	39 (11)	0.035
Maslach Subscales (Sums)							
Emotional exhaustion	0.6	23 (11.5) Mod	*15.2 (12) Low*	21.5 (11.1) Mod	24.5 (12.2) Mod	22.1 (11.9) Mod	0.001
Depersonalisation	0.7	**9.6 (7.3) High**	6.38 (5.4) Mod	8.31 (6.3) Mod	**11.6 (6.9) High**	**9.41 (7.0) High**	0.005
Personal accomplishment	1.8	37.9 (6.9) Mod	38.3 (7.8) Mod	38.3 (5.9) Mod	37.7 (6.7) Mod	37.9 (6.9) Mod	0.96
Coping Styles (Mean Use)							
Confronting	1.0	2.2 (.37)	2.2 (.32)	2.2 (.4)	2.2 (.44)	2.2 (.38)	0.80
Evasive	0.8	1.7 (.40)	1.7 (.33)	1.6 (.36)	1.7 (.33)	1.7 (.38)	0.44
Emotive	1.0	1.7 (.51)	1.6 (.42)	1.7 (.36)	1.7 (.43)	1.7 (.47)	0.88
Fatalistic	0.9	1.8 (.47)	1.6 (.46)	1.8 (.49)	1.8 (.44)	1.8 (.47)	0.20
Optimistic	1.3	2.2 (.37)	2.1 (.36)	2.2 (.37)	2.2 (.37)	2.2 (.37)	0.70
Palliative	1.3	2.0 (.41)	2.0 (.3)	2.0 (.44)	2.0 (.49)	2.0 (.41)	0.96
Supportive	1.0	2.0 (.48)	1.9 (.43)	1.9 (.43)	1.9 (.43)	2.0 (.46)	0.62
Self-reliant	1.0	2.1 (.38)	2.2 (.36)	2.1 (.4)	2.2 (.4)	2.1 (.38)	0.15

Maslach 2012:
Emotional Exhaustion:
Low ≤ 18
Mod 19-26
High ≥ **27**

Depersonalisation:
Low ≤ 5
Mod 6-9
High ≥ **10**

Personal Accomplishment:
Low ≥ *40*
Mod 34 -39
High ≤ 33

^ missing values: Imputed mean of item responses from same scale;

*p-values from Linear regression

Table 2: Distribution of Maslach Subscales and Burnout Level by Site

Variable & category	Urban Public ED N (%)	Private EDs N (%)	non-ED N (%)	District General Public ED N (%)	Total N (%)	p-value
Emotional exhaustion						0.041
low ≤18	*61 (38.6)*	*25 (69.4)*	*16 (48.5)*	*19 (36.5)*	*121 (43.4)*	
Moderate 19-26	36 (22.8)	5 (13.9)	5 (15.2)	13 (25.0)	59 (21.1)	
High ≥27	**61 (38.6)**	**6 (16.7)**	**12 (36.4)**	**20 (38.5)**	**99 (35.5)**	
Depersonalisation						0.005
Low ≤5	*55 (34.8)*	*20 (55.6)*	*14 (42.4)*	*9 (17.3)*	*98 (35.1)*	
Moderate 6-9	37 (23.4)	9 (25.0)	5 (15.2)	15 (28.8)	66 (23.7)	
High ≥10	**66 (41.8)**	**7 (19.4)**	**14 (42.4)**	**28 (53.8)**	**115 (41.2)**	
Personal accomplishment						0.25
Low ≥40	*71 (44.9)*	*22 (61.1)*	*14 (42.4)*	*24 (46.2)*	*131 (47.0)*	
Moderate 34-39	50 (31.6)	4 (11.1)	12 (36.4)	15 (28.8)	81 (29.0)	
High ≤33	**37 (23.4)**	**10 (27.8)**	**7 (21.2)**	**13 (25.0)**	**67 (24.0)**	
Burnout Level						0.17
No	61 (38.6)	22 (61.1)	12 (36.4)	18 (34.6)	113 (40.5)	
Mild	45 (28.5)	7 (19.4)	13 (39.4)	12 (23.1)	77 (27.6)	
Moderate	37 (23.4)	5 (13.9)	4 (12.1)	17 (32.7)	63 (22.6)	
High	**15 (9.5)**	**2 (5.6)**	**4 (12.1)**	**5 (9.6)**	**26 (9.3)**	
No of Returned Surveys	158 (78.6)	36 (32.1)	33 (50.8)	52 (65.0)	279 (60.9)	

P-values derived from Pearson's chi-squared test or Fisher's exact test

Burnout Level:
High: all 3 subscales High
Mod: 2 subscales high
Mild: 1 subscale high

Table 3: Distribution of "covariants of interest" by Site

Variable & category	SITE CLASSIFICATION Urban Public ED N (%)	Private ED N (%)	non-ED N (%)	District General Public ED N (%)	Total N (%)	p-value*
Age^						0.024
20-36	59 (42.4)	9 (30.0)	20 (76.9)	22 (48.9)	110 (45.8)	
37-52	63 (45.3)	17 (56.7)	4 (15.4)	17 (37.8)	101 (42.1)	
53+	17 (12.2)	4 (13.3)	2 (7.7)	6 (13.3)	29 (12.1)	
Gender^						0.75
Female	107 (69.5)	27 (75.0)	25 (78.1)	36 (70.6)	195 (71.4)	
Male	47 (30.5)	9 (25.0)	7 (21.9)	15 (29.4)	78 (28.6)	
Multiple units in a shift^						<0.001
No	115 (76.2)	30 (88.2)	9 (29.0)	50 (98.0)	204 (76.4)	
Yes	36 (23.8)	4 (11.8)	22 (71.0)	1 (2.0)	63 (23.6)	
Role^						0.003
Junior doctor	26 (16.6)	2 (5.7)	6 (18.2)	12 (24.0)	46 (16.7)	
Consultant	20 (12.7)	1 (2.9)	0 (0.0)	6 (12.0)	27 (9.8)	
Registered nurse	48 (30.6)	14 (40.0)	15 (45.5)	17 (34.0)	94 (34.2)	
Clinical nurse	27 (17.2)	10 (28.6)	4 (12.1)	10 (20.0)	51 (18.5)	
Nonclinical support	20 (12.7)	8 (22.9)	1 (3.0)	4 (8.0)	33 (12.0)	
Allied health professional	16 (10.2)	0 (0.0)	7 (21.2)	1 (2.0)	24 (8.7)	
No of Surveys Returned (%)	158 (78.6)	36 (32.1)	33 (50.8)	52 (65.0)	279 (60.9)	

* P-values derived from Pearson's chi-squared test or Fisher's exact test

^totals differ due to missing values

Comparison of Maslach Inventory Subscores among different study populations Mean (SD)			
	Emotional Exhaustion	Depersonalisation	Personal Accomplishment
Current Study Total Current Study Highest Current Study Lowest	22.1 (11.9) 24.5 (12.2) 15.2 (12)	9.41 (7.0) 11.6 (6.9) 6.3 (5.4)	37.9 (6.9) 37.7 (6.7) 38.3 (7.8)
Australasian Emergency Drs (n=351) Goh et al 1999	23.23 (10.05)	11.43 (7.07)	37.69 (6.68)
ACEP Scientific Community registrants (n=1272) Goldberg et al 1996	25.31 (8.55)	20.70 (8.49)	24.72 (9.17)
Canadian Emergency Physicians (n-268) Lloyd et al 1994	26.10 (11.30)	16.50 (6.90)	37.20 (7.60)
Medical Professionals (n=1104) Maslach & Jackson 1981	22.19 (9.53)	7.12 (5.22)	36.53 (7.34)
General population Maslach & Jackson 1981	20.99 (10.75)	8.73 (5.89)	34.58 (7.11)

Range of %
Current study top
Review below

EE 16.7-38.5%
9.5-67%

DP 19.4-53.8%
13-64%

PA 21.2-25.0%
9.4-49.35

Adriaenssens et al 2015: review

Summary of Results:

- Level of burnout is of concern

- Differences in level and subscales were detected between sites
- Differences were also detected by age, role, education, single status

Table 4: Mean values & 95% CI for Mean Use of Coping Styles by Level of Burnout.

Coping style	Burnout level	Mean	95% CI		coefficient	95% CI		p-value	Wald p
Optimistic	**Nil**	2.27	2.20	2.34	**Reference**				0.012
	Mild	2.12	2.04	2.20	-0.15	-0.25	-0.04	0.006	
	Mod	2.19	2.10	2.28	-0.08	-0.19	-0.04	0.181	
	High	2.07	1.93	2.21	-0.20	-0.36	-0.05	0.012	
	Intercept				2.27	2.20	2.34		
Confront	**Nil**	2.25	2.18	2.32	**Reference**				0.002
	Mild	2.19	2.10	2.27	-0.06	-0.17	0.04	0.249	
	Moderate	2.21	2.12	2.31	-0.03	-0.15	0.08	0.555	
	High	1.93	1.79	2.08	-0.32	-0.47	-0.16	<0.001	
	Intercept				2.25	2.18	2.32		
Evade	**Nil**	1.61	1.54	1.68	**Reference**				<0.001
	Mild	1.68	1.60	1.76	0.07	-0.04	0.17	0.213	
	Moderate	1.88	1.79	1.97	0.27	0.16	0.38	<0.001	
	High	1.88	1.74	2.02	0.27	0.12	0.43	0.001	
	Intercept				1.61	1.54	1.68		
Emotive	**Nil**	1.57	1.48	1.65	**Reference**				0.0013
	Mild	1.64	1.54	1.75	0.07	-0.06	0.21	0.277	
	Moderate	1.81	1.69	1.92	0.24	0.10	0.38	0.001	
	High	1.87	1.69	2.04	0.30	0.10	0.49	0.003	
	Intercept				1.57	1.48	1.65		
Fatalistic	**Nil**	1.68	1.59	1.76	**Reference**				<0.001
	Mild	1.76	1.66	1.87	0.09	-0.05	0.22	0.204	
	Moderate	1.99	1.87	2.10	0.31	0.17	0.45	<0.001	
	High	1.94	1.76	2.11	0.26	0.07	0.46	0.008	
	Intercept				1.68	1.59	1.76		

Estimates & p-values derived from linear regression models of coping style on burnout.

Table 5: Linear regression models for Maslach subscales (coping styles only)

	Univariable				Multivariable			
Variable & category	Coeff	95% CI		p-value	Coeff	95% CI		p-value
Emotional Exhaustion Mean use coping style								
Evade	11.4	7.9	14.9	<0.001	7.8	3.6	12.0	<0.001
Emotive	8.0	5.2	10.9	<0.001	3.5	0.5	6.5	0.024
Fatalistic	7.5	4.6	10.4	<0.001	4.5	1.4	7.5	0.004
Optimistic	-2.3	-6.1	1.5	0.233	-6.0	-9.4	-2.5	0.001
Intercept					12.1	3.1	21.2	
Depersonalisation Mean use coping style								
Confront	-1.3	-3.5	0.9	0.234	-2.5	-4.5	-0.4	0.017
Evade	4.3	2.1	6.5	<0.001	2.8	0.5	5.1	0.017
Fatalistic	3.8	2.0	5.5	<0.001	2.8	0.9	4.6	0.004
Intercept	-				6.5	1.0	12.1	
Personal Accomplishment Mean use coping style								
Confront	5.9	3.9	8.0	<0.001				
Evade	-2.8	-4.8	-0.7	0.008				
Intercept								

Other Associated variables of interest:

Emotional Exhaustion: Site, age, role

Depersonalisation: Site, age, education

Personal Accomplishment: Nil

Table 6: Variables associated with moderate-high burnout levels

	Univariable					Multivariable				
Variable & category	OR		95% CI		p-value	Wald p-value	OR		95% CI		p-value	Wald p-value
Work category						0.016						0.001
Consultant/ doctor	ref						ref					
Nurse		1.2	0.7	2.2	0.526			1.8	0.9	3.7	0.081	
Support/ allied health		0.4	0.2	0.9	0.029			0.3	0.1	0.9	0.032	
Single												
No	ref						ref					
Yes		2.0	1.2	3.4	0.011			2.1	1.1	3.9	0.02	
Coping style												
Evasive						0.001						0.005
1 (lowest quartile)	ref						ref					
2		1.6	0.7	3.9	0.274			2.0	0.7	5.4	0.165	
3		2.4	1.1	5.5	0.03			3.7	1.4	9.7	0.008	
4 (highest quartile)		5.5	2.5	12.1	<0.001			7.4	2.8	19.6	<0.001	
Fatalistic												
Highest quartile		2.9	1.7	5.0	<0.001			3.1	1.6	6.0	0.001	
Remaining 75%	ref						ref					
Optimistic												
Remaining 75%	ref						ref					
Lowest quartile		2.1	1.1	3.9	0.021			3.4	1.6	7.3	0.002	
Self-reliant												
Remaining 75%	ref						ref					
Lowest quartile		1.5	0.8	2.8	0.247			2.6	1.2	5.7	0.017	

Other literature:

Task orientated coping (action) response is associated with decreased burnout, whereas emotion orientated coping (emotional response) is associated with increased burnout Howlett et al 2015

Task and avoidance-orientated coping styles were predictors of less work related stress, while emotion orientated coping was associated with higher levels of stress Iannello & Balzarotti 2014

DP was significantly correlated with 2 coping strategies: escape avoidance and accepting responsibility: EE was also significantly correlated with escape-avoidance Hutchinson et al 2014

Denial was the only coping style significantly associated with emotional exhaustion Wallace & Lemaire 2014

CONCEPT OF MALADAPTIVE COPING STRATEGIES

different personalities

different situations

short or long term

In work or out of work

Potential utility:

Mild burnout: use a variety of coping mechanisms to maintain performance

*****Different models *****

High burnout: ?trapped in loss spiral – loss cycle PLUS lost gain cycle

Relative preservation of personal accomplishment Maslach subscale

Association of certain coping styles with burnout

?????

Discussion:

- **Limitations**
  - Self reported survey data
  - Variable uptake by site/craft group
  - Relatively small numbers/collapse of categories
- **Provisos:**
  - May not be representative (note high uptake levels at certain sites)
  - Associations only ie not necessarily causal

Summary of Results:

- Level of burnout is of concern

- Differences in level and subscales were detected between sites
- Differences were also detected by age, role, education, single status, and in relation to coping styles

- Final model (mod-high burnout) revealed differences by role, status, coping style (avoidant)

Future

- Pilot study:
  - Multisite survey – baseline complete
  - Interviews - underway
  - Focus Groups – planned

  - Intervention at pilot site (DUAL APPROACH – PERSONAL & WORK FACTORS)

- Statewide study:
  - Site sign up via QEDSAP workforce and wellbeing group – invitations soon!

Questions?

Any suggestions/feedback/interested sites

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Philosophy:

Burnout Reduction Requires a Dual Approach

Increase staff resilience

AND

Improve environment

?Paradigm shift

Wellness measures and resilience training