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How do they cope? A national cross-sectional study of coping in hospital doctors in Ireland

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ABSTRACT

Objectives To measure coping strategies and associated psychological distress, burnout and work ability in hospital doctors in Ireland.

Design National cross-sectional study of randomised sample of trainee and consultant hospital doctors.

Setting Irish publicly funded hospitals and residential institutions.

Participants 1749 doctors returned surveys (55% response rate).

Outcome measures Dependent variables were psychological distress (measured using 12-item General Health Questionnaire), burnout (Maslach Burnout Inventory) and work ability (single-item measure). Adaptive and maladaptive coping strategies (Brief Coping Orientation to Problems Experienced) were covariates.

Results The coping mechanism most frequently reported by this cohort was the adaptive strategy of active planning. Increased mean hours worked (MHW) (OR 1.02; 95% CI 1.01 to 1.03), a low Work Ability Score (OR 3.23; 95% CI 2.47 to 4.23) and maladaptive coping strategies (OR 1.26; 95% CI 1.22 to 1.31) were significantly associated with psychological distress. Adaptive coping was associated with decreased psychological distress (OR 0.98; 95% CI 0.97 to 1.00). Increased MHW (OR 0.98; 95% CI 0.97 to 0.99), insufficient work ability (OR 0.62; 95% CI 0.48 to 0.80) and maladaptive coping (OR 0.87; 95% CI 0.85 to 0.89) were significantly associated with burnout. Increased MHW (OR 0.99; 95% CI 0.98 to 1.00) and maladaptive coping (OR 0.90, 95% CI 0.88 to 0.92) were significantly associated with insufficient work ability.

Conclusions Adaptive coping is associated with decreased psychological distress but does not mitigate the effect of increased work hours, which are associated with burnout, distress and insufficient work ability, regardless of a doctor's coping style. The burden of psychological distress on doctors cannot be mitigated meaningfully unless workplace factors are addressed.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study provides new information on how doctors cope with the demands of their work environment, and how coping affects psychological distress, burnout and work ability.
⇒ This study of a national cohort of hospital doctors in Ireland is the largest known study of coping in doctors.
⇒ The use of standardised instruments allows for comparison with other studies of doctors.
⇒ The study is limited by the age of the data, the cross-sectional design and reliance on self-report measures.

BACKGROUND

Doctors report high levels of psychological distress, burnout and insufficient work ability[1–4] and rates of burnout have increased since the COVID-19 pandemic.[5] Psychological distress can have devastating effects for physicians[6 7] and their families[8] and has been shown to negatively impact patient care.[9 10] It is generally accepted that the working life of physicians consists of a number of significant, inherent and unavoidable stressors such as decision-making in uncertainty and dealing with negative patient outcomes and death.[11] The pandemic introduced new challenges for doctors and their working environment, and exacerbated longstanding issues such as resource shortages, overwork and feeling undervalued.[5 12 13]

Doctors use a variety of coping strategies to attempt to manage the demands of their role and workplace environment.[3 12 14] Coping strategies can be understood as cognitive and behavioural efforts to deal with stressful encounters.[15] Coping is a complex process and is influenced by person-specific factors (such as gender[16] and personality traits[17]), the perception of the context, including its controllability[18 19] and social resources.[20 21] Tackling avoidable stressors is important, as is supporting doctors to cope better with the inherent stressors of the job. However, training doctors to cope better with avoidable system-level stressors is becoming an increasingly unpopular approach to tackling burnout because it shifts the blame and responsibility for doctors' difficulties away from systems, which are understaffed and underfunded, and onto individuals.[11 22 23] Nevertheless, understanding how doctors cope remains an important part of the puzzle.

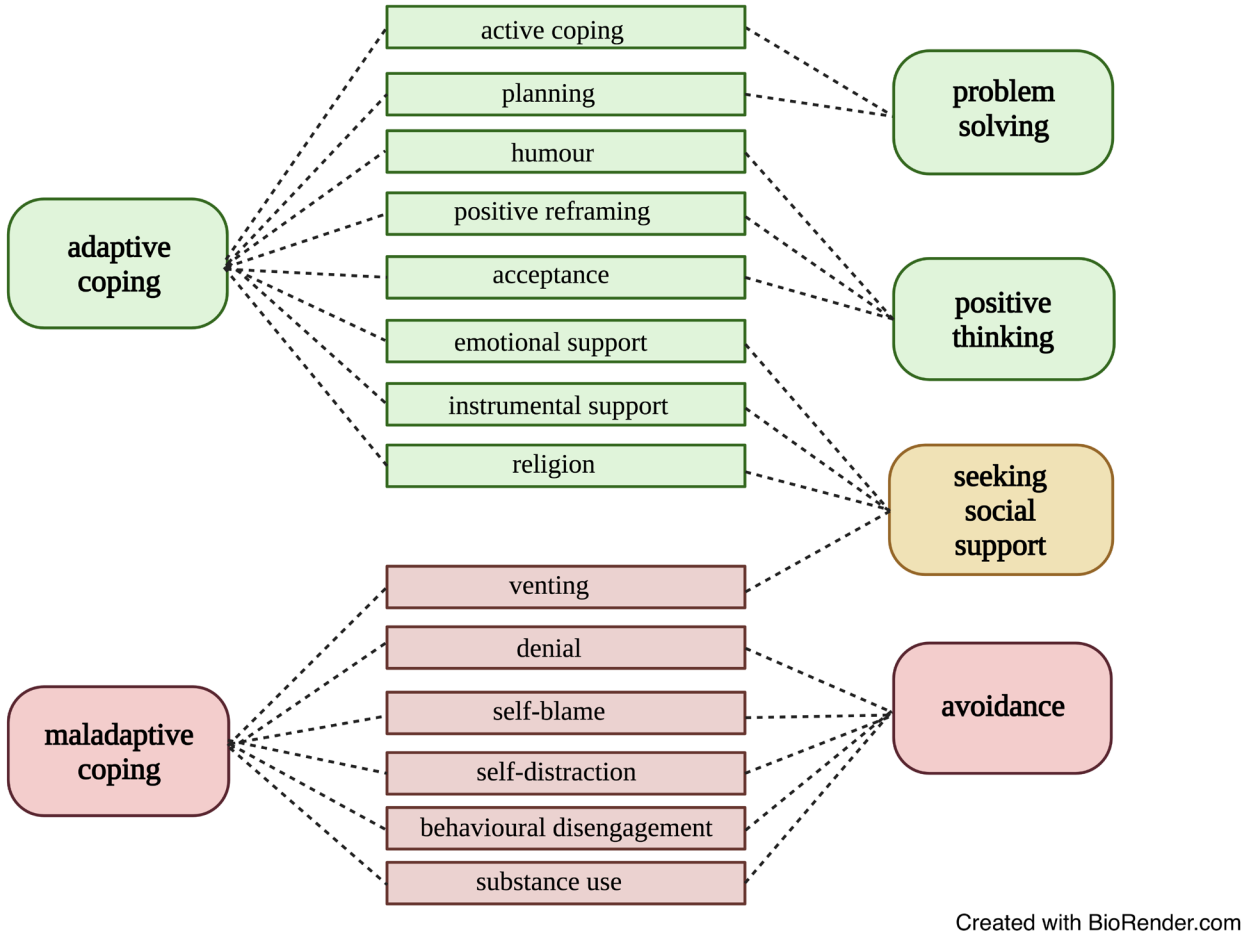

Figure 1 Two-factor versus four-factor models of coping.

While there is no gold standard for the measurement of coping,[24] the Brief Coping Orientation Problems Experienced (Brief-COPE)[25] is a frequently used measure which has been used in a number of studies in healthcare professionals.[3 12] Coping strategies can be categorised in a variety of ways (see figure 1). Certain coping strategies are viewed as *adaptive* (improving functioning), while others are considered *maladaptive* (maintaining or increasing levels of stress or distress).[26] Factor analysis has suggested a four-factor structure of the Brief-COPE inventory—*social support, problem solving, avoidance and positive thinking* which is supported by different theoretical models of coping.[27]

A study of doctors in the UK[3] found that the most frequently reported coping mechanism was the *maladaptive* strategy of self-distraction (ie, drawing one's thoughts or attention away from the problem or stressor). In contrast, recent studies of Italian healthcare workers[12] and residents in Indonesia[28] found that the most commonly reported coping strategies were *adaptive*. Similarly, a cross-cultural study found that the most commonly reported coping strategies by German and Australian doctors were the *adaptive* strategies of active coping, planning and positive reframing.[29]

The current literature suggests that *maladaptive* coping strategies are linked to burnout in doctors. The study of UK doctors found that venting, behavioural disengagement and substance use were associated with burnout.[3] Similarly, a study of internal medicine physicians in the USA demonstrated that the *maladaptive* strategies of venting, disengagement, substance use, self-blame and denial were associated with burnout.[30] Avoidant coping strategies (ie, self-distraction, substance use, denial, behavioural disengagement and self-blame) have been associated with higher levels of anxiety and depression and lower work efficiency in a sample of Italian physicians.[12] Interestingly, this same study found that coping strategies involving social support (ie, instrumental support, emotional support, religion and venting) were associated with higher levels of anxiety and depression and lower perceived well-being. In contrast, the *adaptive* coping strategies of acceptance, active coping, positive reframing and planning seem to be protective against burnout in doctors.[30]

In Ireland, doctors are facing a time of significant pressure, with record levels of hospital overcrowding,[31] one-fifth of consultant posts unfilled[32] and perpetual threats of strike action across the health service due to poor

working conditions. Challenges with physician burnout and psychological distress have been identified,[1 2] basic statutory leave and cover entitlements are not being met in some hospitals[33] and difficulties with recruitment and retention are widely publicised.[34 35] Despite having the highest number of medical graduates per population in Europe,[36] Ireland has the lowest number of consultants per 1000 people in Europe, a contradiction which has been dubbed 'The Irish Paradox' by Europe's Organisation for Economic Cooperation and Development.

While fundamental issues of staffing, recruitment and retention are being addressed, doctors in Ireland must continue to work within the current system and understanding and optimising the ways in which they cope is important. In comparison to the ever-growing interest and literature on doctors' occupational stress and burnout, there is limited research on how doctors cope. Furthermore, studies have generally relied on small sample sizes. High levels of psychological distress,[1] burnout and insufficient work ability were previously reported in this large sample of Irish doctors.[2] This paper aimed to investigate how they cope, and to assess the impact of coping style on psychological distress, burnout and work ability.

METHODS

Design

The study was a national cross-sectional survey of hospital doctors working in Ireland.

Sample

The sampling method has been previously described in detail.[1] A stratified random sample of 3164 doctors (as determined by the Raosoft sample size calculator[37]) was invited to participate in the study. In order to be invited to participate, participants had to be fully registered and actively working as either consultants or trainees in a formal training programme in anaesthetics, medicine (including emergency medicine), obstetrics/gynaecology, ophthalmology, paediatrics, pathology, psychiatry and surgery. The Faculty of Radiology opted out of the study. The sample included both consultants and trainee doctors in either basic specialist training (BST, equivalent to residency in North America) or higher specialist training (HST, equivalent to fellowship in North America). The study was overseen by a stakeholder group with representatives from different medical specialities and grades, psychology, administration and management.

Data collection

The data collection has previously been described in detail.[1 2] A postal and electronic questionnaire were distributed in April 2014, with two reminders sent over the subsequent 2 months. Participants provided data on demographics (age, sex) and employment stage/grade. Workload was measured by the question 'how many hours per week did you work over 2 consecutive working weeks in the past month?' (mean hours worked, MHW). A number of validated and widely used instruments were administered to assess for burnout, work ability, psychological distress and coping. Internal consistency was satisfactory on all scales (Cronbach's α=0.71–0.9).

Measures

Brief-COPE

The Brief-COPE is a self-administered 28-item tool which measures 14 different dimensions of coping (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion and self-blame). Each coping dimension (strategy) is scored from 2 to 8 with higher scores reflecting more frequent use of the strategy.

12-item General Health Questionnaire

12-item General Health Questionnaire (GHQ-12) is a self-administered 12-item tool which screens for psychological distress by assessing symptoms over the previous few weeks. Using the GHQ-method for scoring, scores range from 0 to 12, with 0 indicating no evidence of probable mental ill health, 1–3 indicating less than optimal mental health and 4 or more indicating probable mental ill health or psychological distress.[38]

Maslach Burnout Inventory

The Maslach Burnout Inventory is a self-administered tool to assess burnout, which is defined by a high level of EE (EE; the feeling of being emotionally exhausted and overwhelmed by work) combined with either a high level of DP (DP; the loss of empathy and the emergence of cynicism in one's care for others) or a low level of PA (PA; feeling of competence in one's work with people.[39]

Work ability

The concept of work ability relates to the balance between work and personal resources. The Work Ability Score was developed from the 7-item Work Ability Index,[40 41] and is validated as a single-item instrument.[42] A single question 'how would you rate your current work ability compared with your lifetime best' offers numerical response options on an 11 point scale (0–10). Previous large studies in doctors have considered a score of <6 as insufficient work ability.[43]

Statistical analyses

All statistical analyses were performed using SPSS V.26.0: IBM SPSS for Mac. Differences between sexes were analysed using an independent t-test. An independent Kruskal-Wallis test was used to analyse differences across employment grades. A correlation analysis was carried out prior to running binary logistic regressions to rule out collinearity. All dependent variables were dichotomised.

Three different regression analyses were performed:

1. A binary logistic regression model to analyse the factors associated with psychological distress, which was set as the (binary) dependent variable and sex, grade,

Table 1 Frequencies of sex and work variables across grade, and frequencies of psychological distress, burnout and coping style across grades

	BST		HST		Consultant	
	N (mean)	% (SD)	N (mean)	% (SD)	N (mean)	% (SD)
Sex						
Male	130	34.7	178	42.0	574	60.4
Female	244	65.1	245	57.8	375	39.5
Average hours worked						
Mean	59.63	13.02	61.08	15.47	54.17	15.10
Work Ability Score						
Insufficient	118	31.5	126	29.7	267	28.1
Sufficient	257	68.5	298	70.3	683	71.9
GHQ-12 score						
Probable psychological distress	215	57.3	230	54.2	401	42.2
MBI						
Burnout (EE+1)	156	41.6	163	38.4	199	20.9
Brief-COPE						
Adaptive coping	36.82	8.66	35.51	8.92	33.80	9.47
Maladaptive coping	22.17	5.53	21.37	5.50	19.33	5.29

Brief-COPE, Brief Coping Orientation Problems Experienced ; BST, basic specialist training; EE, the feeling of being emotionally exhausted and overwhelmed by work; GHQ-12, 12-item General Health Questionnaire; HST, higher specialist training; MBI, Maslach Burnout Inventory.

MHW, work ability and coping style as independent variables.

2. A binary logistic regression model to analyse the factors associated with burnout, which was set as the dependent variable and sex, grade, MHW, work ability, psychological distress and coping style as independent variables.
3. A final binary logistic regression model was used to analyse the factors associated with work ability, which was set as the (binary) dependent variable and sex, grade, MHW, burnout, psychological distress and coping style as independent variables.

Patient and public involvement

This study explored coping strategies used by doctors. While no patients or public representatives were involved in the study design, the original study[1] was overseen by a stakeholder group with representatives from different medical specialties and grades, psychology, administration and management.

RESULTS

1749 doctors participated in the study in total, with a response rate of 55%. Rates of psychological distress, burnout and work ability in this sample have been previously reported in detail[1 2] and are summarised in table 1.

Coping style

The most frequently reported coping strategies by this sample were *adaptive*. Table 2 demonstrates the mean score for each coping mechanism on the Brief-COPE. The three most frequently reported strategies were the *adaptive* strategies of planning (thinking about how to confront the stressor; mean Brief-COPE score 5.0, SD 1.77), acceptance (accepting what has happened or learning to live with it; mean 4.84, SD 1.61) and active coping (concentrating effort on doing something about the situation or taking action to make it better; mean 4.78, SD 1.70). The most frequently reported *maladaptive* coping mechanism was self-distraction (turning to work or other activities to take your mind off the stressor, or doing something to think about it less; mean 4.4, SD 1.6).

Sex and employment grade may influence reported coping strategies

Women reported using *adaptive* coping strategies more frequently than men. The mean total Brief-COPE score for *adaptive* coping was higher for women (mean 33.9; SD 9.3) than men (mean 33.9, SD 9.3) and this difference was significant (p<0.001). Women also reported using *maladaptive* coping (mean 21.0; SD 5.4) significantly more frequently than men (mean 20.0; SD 5.6; p=0.001).

The frequencies of sex and work-related variables across grades are outlined in table 1. *Adaptive* (p<0.001) and *maladaptive* (p<0.001) coping scores were significantly associated with employment grade. In general, consultants were engaged in less coping activities than trainees, for both *adaptive* and *maladaptive* styles of coping. Pairwise comparisons demonstrated that consultants were less likely than BST (p<0.001) and HST (p<0.001) trainees to report using *maladaptive* coping strategies and there were no significant differences between trainees (p=0.15).

Table 2 Mean score (of total sample) for each coping mechanism on Brief-COPE and independent samples Kruskal-Wallis test and pairwise comparisons of coping strategies across grades

	Mean (SD)	Kruskal-Wallis test statistic (significance value*)	Pairwise comparisons*		
			Consultant-HST	Consultant-BST	HST-BST
Adaptive coping strategies					
Planning	5.0 (1.77)	3.88 (p=0.144)	–	–	–
Acceptance	4.84 (1.61)	16.42 (p<0.001)	p=0.066	p<0.001	p=0.445
Active coping	4.78 (1.70)	0.83 (p=0.661)	–	–	–
Positive reframing	4.50 (1.63)	37.97 (p<0.001)	p<0.001	p<0.001	p=0.181
Emotional support	4.42 (1.77)	27.21 (p<0.001)	p<0.001	p<0.001	p=1.000
Instrumental support	4.15 (1.74)	43.12 (p<0.001)	p<0.001	p<0.001	p=0.057
Humour	4.07 (1.79)	30.80 (p<0.001)	p<0.008	p<0.001	p=0.091
Religion	3.28 (1.79)	2.81 (p=0.246)	–	–	–
Maladaptive coping strategies					
Self-distraction	4.44 (1.59)	79.70 (p<0.001)	p<0.001	p<0.001	p=0.006
Self-blame	3.98 (1.69)	95.63 (p<0.001)	p<0.001	p<0.001	p=0.615
Venting	3.93 (1.46)	27.51 (p<0.001)	p<0.001	p<0.001	p=1.000
Behavioural disengagement	2.88 (1.30)	19.32 (p<0.001)	p=0.040	p<0.001	p=0.338
Denial	2.64 (1.13)	21.80 (p<0.001)	p=0.005	p<0.001	p=0.917
Substance use	2.63 (1.19)	4.96 (p=0.084)	–	–	–

*Adjusted by the Bonferroni correction for multiple tests.

Consultants were also less likely to report using adaptive coping strategies compared with both BST (p<0.001) and HST (p=0.003) trainees. There were no significant differences between trainees (p=0.21).

The *adaptive* coping strategies of use of emotional support, use of instrumental support, positive reframing, humour and acceptance and the *maladaptive* coping strategies of behavioural disengagement, self-blame, venting, denial and self-distraction were associated with employment grade (see table 2) . There were no significant between-group differences for the coping strategies of religion, planning, substance use and active coping. Pairwise comparisons highlighted that consultants were less likely to use positive reframing, emotional support, instrumental support, humour, self-distraction, self-blame, venting, behavioural disengagement and denial than HST and BSTs. HSTs were less likely than BSTs to use self-distraction. There were no differences between trainee groups for positive reframing, emotional support, instrumental support, humour, self-blame, venting, behavioural disengagement and denial.

The frequencies of mean *adaptive* and *maladaptive* coping scores across specialty groups are reported in online supplemental table 1 (online supplemental file).

Binary logistic regression analysis

Psychological distress

Sex, MHW, work ability and coping style were significantly associated with psychological distress (table 3). Male doctors were significantly less likely to report psychological distress compared with females (OR 0.74; 95% CI 0.58 to 0.94). Increased MHW (OR 1.02; 95% CI 1.01 to 1.03) was significantly associated with psychological distress. Doctors with a low Work Ability Score (WAS<6) were three times more likely to report psychological distress than those with sufficient work ability (OR 3.23; 95% CI 2.47 to 4.23). *Maladaptive* coping was associated with psychological distress (OR 1.26; 95% CI 1.22 to 1.31) and *adaptive* coping was associated with decreased psychological distress (OR 0.98; 95% CI 0.97 to 1.00). The model explained 37% of the variance in psychological distress.

A further binary logistic regression model for psychological distress investigated the four-factor model of coping strategies which demonstrated that *social support* (OR 1.04; 95% CI 1.01 to 1.08) coping strategies and *avoidant* strategies (OR=1.31; 95% CI 1.26 to 1.36) were associated with psychological distress. *Positive thinking* coping strategies were associated with decreased psychological distress (OR 0.91; 95% CI 0.87 to 0.95). The other factor, *problem solving*, was not associated with the dependent variable psychological distress.

Burnout

Sex, increased MHW, work ability, employment grade and coping style were significantly associated with burnout (table 3). Male sex was significantly associated with burnout (OR 0.68; 95% CI 0.54 to 0.87). Increased MHW (OR 0.98; 95% CI 0.97 to 0.99) and insufficient

Table 3 Demographic, occupational and coping factors and their association with psychological distress, burnout and workability (binary logistic regression analyses)

	Psychological distress (n=1542)		Burnout (n=1564)		Insufficient workability (n=1539)	
	Wald	Exp(B) (95% CI)	Wald	Exp(B) (95% CI)	Wald	Exp(B) (95% CI)
Sex*	5.93*	0.74 (0.58 to 0.94)	9.27**	0.68 (0.54 to 0.87)	4.07*	1.28 (1.01 to 1.62)
Mean hours worked	18.41***	1.02 (1.01 to 1.03)	19.95***	0.98 (0.97 to 0.99)	6.87**	0.99 (0.98 to 1.00)
Employment grade†	0.30 ns	1.07 (0.83 to 1.38)	7.83**	1.42 (1.11 to 1.83)	3.29 ns	0.80 (0.62 to 1.02)
Work ability‡	72.72***	3.23 (2.47 to 4.23)	13.96***	0.62 (0.48 to 0.80)	–	–
Adaptive coping	6.30*	0.98 (0.97 to 1.00)	0.69 ns	1.01 (0.99 to 1.02)	4.28*	1.02 (1.00 to 1.03)
Maladaptive coping	192.42***	1.26 (1.22 to 1.31)	109.93***	0.87 (0.85 to 0.89)	75.66***	0.90 (0.88 to 0.92)
Nagelkerke R^2		0.37		0.21		0.16

*p≤0.05, **p≤0.01, ***p≤0.001.
R^2: Total variance explained by the model.
*Male sex.
†Consultant.
‡Insufficient workability (Work Ability Score <6).

work ability (WAS<6) (OR 0.62; 95% CI 0.48 to 0.80) were significantly associated with burnout. Consultants were less likely to report burnout compared with trainees (OR 1.42; 95% CI 1.11 to 1.83). *Maladaptive* coping was associated with burnout (OR 0.87; 95% CI 0.85 to 0.89). *Adaptive* coping was not associated with burnout (or the absence thereof). The binary logistic regression model explained 21.2% of the variance in burnout.

A further binary logistic regression model for burnout investigated the four-factor model of coping strategies and demonstrated that *avoidant* coping strategies were associated with burnout (OR 0.87; 95% CI 0.85 to 0.90). The other three factors (social support, positive thinking and problem solving strategies) were not significantly associated with burnout.

Work ability

Sex, increased MHW and coping style were significantly associated with work ability. Male doctors were more likely to have sufficient work ability (OR 1.28; 95% CI 1.01 to 1.62). Increased MHW was significantly associated with insufficient work ability (OR 0.99; 95% CI 0.98 to 1.00). *Maladaptive* coping was significantly associated with insufficient work ability (OR 0.90, 95% CI 0.88 to 0.92) and remained significant when psychological distress and burnout were controlled for (OR 0.95; 95% CI 0.92 to 0.97). *Adaptive* coping was significantly associated with sufficient work ability (OR 1.02; 95% CI 1.00 to 1.03) but this association was no longer significant when psychological distress and burnout were controlled for. The model explained 15.9% of the variance in work ability.

A further binary logistic regression model for work ability investigated the four-factor model of coping strategies which demonstrated that *avoidant* coping strategies were associated with insufficient work ability (OR 0.89; 95% CI 0.87 to 0.92) and *positive thinking* strategies were associated with sufficient work ability (OR 1.08; 95% CI 1.04 to 1.12). The other two factors (*problem solving and social support strategies*) were not significantly associated with work ability.

Multicollinearity was ruled out using a correlation analysis which demonstrated weak-moderate correlation between variables (see online supplemental table 2).

DISCUSSION

This national survey of hospital doctors working within a single healthcare system set out to explore coping strategies in a cohort already shown to have high levels of psychological distress, burnout and insufficient work ability.[1 2] Encouragingly, the most frequently reported coping strategies by doctors in Ireland were *adaptive* rather than *maladaptive*, and this finding was consistent across grades and sexes. This is in keeping with several international studies[12 28 29] but is in contrast to a UK study.[3]

Female doctors in this sample were more likely to report both *maladaptive* and *adaptive* coping strategies compared with males. While this may reflect a true difference between sexes where females are generally using more coping strategies, or a difference in tendency to report such strategies, it is important to note that mean differences between groups were small. Sex differences in the coping styles of doctors are not well understood, but may be of interest in light of the growing numbers of women in medicine.[44]

Consultants were less likely, compared with trainees, to report both *maladaptive* and *adaptive* coping strategies. This may reflect consultants using (or needing to use) less coping strategies or more conservative reporting. Alternatively, this result may simply be a reflection of differences in coping strategy use or reporting between sexes, given that our sample of consultants was predominantly male and the trainee sample was predominantly female.

Our study demonstrates that *maladaptive* coping is independently associated with psychological distress,

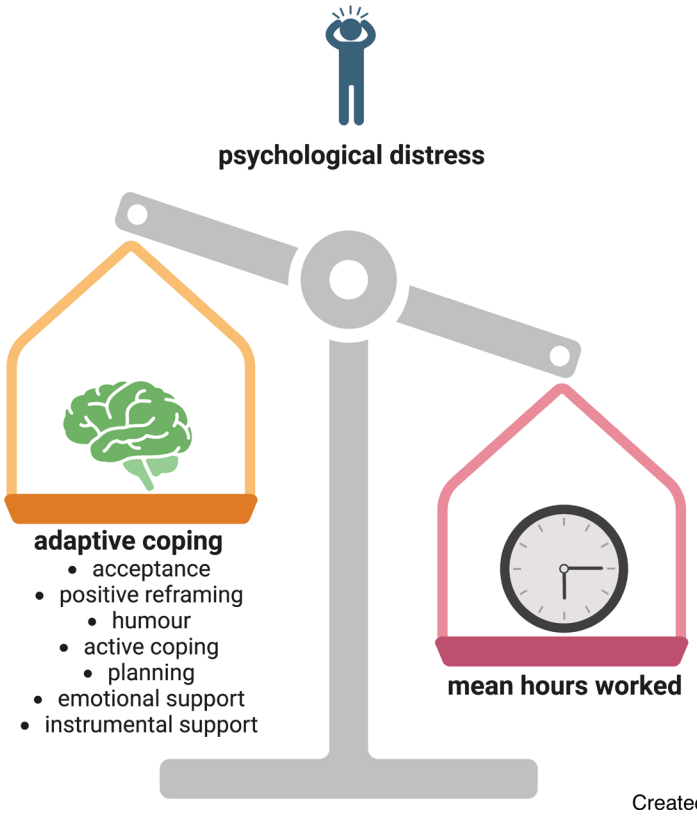

Figure 2 Adaptive coping cannot mitigate against the negative effect of increased working hours on psychological distress.

insufficient work ability and burnout, which is not accounted for by differences in socio-demographic or work-related factors such as employment grade and average hours worked. The association of *maladaptive* coping with burnout in our model is in line with previous studies (although of small sample sizes) demonstrating this effect in doctors.[14 30 45] In relation to the four-factor model of coping, our study finds that a*voidant* coping strategies are associated with psychological distress, burnout and insufficient work ability. This result is unsurprising, given that the coping strategies that make up the factor of *avoidant* coping are very similar to those which are categorised as *maladaptive*.

This study also shows that *adaptive* coping strategies (and more specifically, using the four-factor model, *positive thinking strategies*) are associated with decreased psychological distress, even when socio-demographic and work-related factors are controlled for. In addition, *adaptive* coping is associated with sufficient work ability, though this is no longer significant when psychological distress and burnout are controlled for.

Importantly, our findings show that increased MHW is significantly associated with psychological distress, regardless of an individual's coping style, demographics, work-related factors and whether they are experiencing burnout. This emphasises that even if an individual is using adaptive coping, this does not mitigate against the negative effect of increased working hours on psychological distress (see figure 2).

While the focus of this paper is coping, it is essential to emphasise the importance and responsibility, of workplace environments and systems in supporting and enhancing an individual's ability to cope. If workplace factors such as sufficient and safe staffing, considerate rotas, clinical and educational supervision are not in place, it is difficult to envisage how an individual will be able to employ adaptive coping mechanisms in the face of such barriers. It is worth underscoring, for example, that our regression models show that increased MHW remain significantly associated with psychological distress, regardless of an individual's coping style, demographics and work-related factors. This emphasises that the burden of psychological distress cannot be mitigated meaningfully unless factors such as working hours are addressed. Even if doctors are coping adaptively, they can only tolerate so much and are working in a system where their working hours alone put them at risk of psychological distress, burnout and insufficient work ability.

Considering how doctors cope, and supporting adaptive coping, is increasingly important since the COVID-19 pandemic. Unsurprisingly, doctors are now reporting higher rates of burnout[5] and are facing additional workplace stressors. Moreover, burnout significantly increases turnover intention among doctors.[46] A recent report by the British Medical Association highlighted that doctors who are planning early retirement, or plan to leave the National Health Service, cite workload and personal wellbeing as the most common reasons for their decision.[13]

Qualitative and quantitative studies have reported that doctors believe practical, system-focused interventions are of greatest need to reduce work stress and burnout, including guaranteeing basic entitlements such as availing of statutory leave, adequate cover when on leave and adequate staffing levels.[33 47] Our finding that increased working hours remains associated with the presence of psychological distress, burnout and insufficient work ability, even if adaptive coping is being used, underlines the importance of addressing systemic primary interventions such as reviewing staffing levels, cover and leave practices. Until these are addressed, secondary-level individual-focused interventions (eg, targeting improving doctors' ability to cope adaptively) will struggle to effectively mitigate levels of distress, burnout and insufficient work ability.

Strengths and limitations

To our knowledge, this is the largest published study on coping in doctors to date. The methods, including the use of validated tools and categorisation of coping strategies by two methods, enables comparison with previous studies in this area and will allow comparison with future studies in doctors in other health systems, as well as other healthcare professionals. Furthermore, our inclusion of workplace variables allows us to begin to understand the interplay between doctors' coping styles and the challenging environments and healthcare systems in which they work.

A limitation of this study is the age of the data, which were collected in 2014. The data were collected prior to the COVID-19 pandemic, and due to the cross-sectional design we cannot comment on whether doctors' coping styles changed in the face of the pandemic. This study is also limited by its reliance on self-report measures. Another limitation is that certain doctor groups were not included in the study (ie, preregistration doctors, doctors who are not allied to any undergraduate training body, general practitioners, locum doctors and those working exclusively in private practice). Non-responder bias is a further factor to consider and we have no information on non-responders. These limitations may impact the generalisability of the study findings. Additionally, it is likely that included variables may be associated in the opposite direction (ie, that psychological distress, insufficient work ability and burnout impact on an individual's coping style), but investigating this direction of effect is beyond the scope of this paper.

Future research

There is a paucity of research on the stability of doctors' coping strategies, both over time and across situations and we do not yet fully understand the impact of the COVID-19 pandemic on doctors' coping strategies. A Canadian study[48] recently investigated doctors' mental health, physical health and coping at two time points 1 year apart, but the results are limited by a small sample size and their assessment of coping which did not use a validated instrument. Further longitudinal studies are required to truly understand the interplay and potential causal relationships influencing the use of coping strategies by doctors in the healthcare environment as well as the stability of doctors' coping styles over time.

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Competing interests None declared.

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Patient consent for publication Not applicable.

Ethics approval The study protocol was approved by the Royal College of Physicians of Ireland's (RCPI) Research Ethics Committee in December 2013 (RCPI RECSAF 20). Participants gave informed consent to participate in the study before taking part.

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Data availability statement Data are available upon reasonable request. As per the ethics approval, the data will not be shared outside of the participating research institutions. Any sharing of the data beyond the group will be subject to review by the host institution (Royal College of Physicians of Ireland) and to independent research ethics application. Any queries on how to access the data set should be directed to research@rcpi.ie.

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