

1 **Title:** Potential strategies for supporting mental health and mitigating the risk of burnout
2 among healthcare professionals: insights from the COVID-19 pandemic.

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Summary (unstructured)

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Healthcare professionals (HCPs) experienced prolonged stressful conditions during the coronavirus disease 2019 pandemic, and the global situation (particularly in the United Kingdom) meant that they continue to sustain mental stress related to the subsequent cost-of-living and healthcare budgeting crises. The psychological toll on HCPs may lead to increased staff attrition, adversely impacting the quality of patient care and work security. To help mitigate this psychological impact, the current evidence is strongly supportive of healthcare providers consistently adopting programmes fostering improvement in coping and resilience, facilitating healthy lifestyle, and allocating some resources for therapeutic strategies (e.g. cognitive behavioural therapy-based strategies and other strategies specified to trauma-related issues) which can be delivered by trained professionals. We stress that some approaches are not a one-size-fits-all strategy, and we also highlight the need to encourage treatment-seeking among those who need it. These strategies are highly relevant to healthcare employers and policymakers to support all HCPs in settings marked by prolonged periods of stress. The investment in these strategies are expected not only to reduce staff attrition in the long-term, but are likely to add to the cost-effectiveness of overall healthcare budgetary allocation.

Keywords: healthcare professionals; Mental health; burnout; psychological stress; strategies; coronavirus.

1 Introduction

2 It is more than three years since the SARS-CoV-2 pathogen was first reported to the World
3 Health Organisation, marking the start of the coronavirus disease 2019 (COVID-19) pandemic.
4 Whilst mental health did not considerably worsen in the general population (1), healthcare
5 professionals (HCPs) were especially vulnerable due to the unique psychological stressors
6 faced: pooled estimates show that 28.5% of HCPs had clinically significant symptoms of
7 depression, 28.7% had anxiety, 25.5% had post-traumatic stress disorder (PTSD), and 24.4%
8 had insomnia during the pandemic (2). Furthermore, patient facing HCPs (vs non-patient facing
9 HCPs) were at significantly higher risk of burnout, and this difference in risk exacerbated over
10 time during the pandemic (3). It is debatable to what extent the rates of adverse mental health
11 worsened compared to before the pandemic, nonetheless it is generally accepted that HCPs
12 were particularly vulnerable to adverse mental health even before the pandemic and that
13 pandemic bared those factors to significant degrees, such that they further exacerbated those
14 existing vulnerabilities (2). Although vaccination programmes were effective in mitigating the
15 pandemic, the subsequent cost-of-living and National Health Service (NHS) budgeting crises
16 in the United Kingdom (UK) continues to place immense strain on HCPs (4): the Royal College
17 of Nursing strike – the largest nurses strike ever – as well as the British Medical Association
18 junior doctor and consultant strikes attest to this. Indeed, the economic and mental health
19 impact of the pandemic were also worldwide issues (5) (6). Since adverse mental health and
20 burnout are increasingly reasons for staff sickness (7) and attrition (8), and can impact on the
21 quality of patient care (9), there is an urgent need to reflect on the current evidence for strategies
22 to support all HCPs’ mental wellbeing during the COVID-19 pandemic and moving forward.

23 Whilst multiple rapid reviews have been conducted on this topic (10-13), these generally focus
24 on studies conducted in pre-COVID-19 pandemic scenarios (10, 12), or are based on cross-
25 sectional or observational study data (11, 13). In this viewpoint article, we offer to provide an
26 overview of strategies that have been shown to be effective interventions in a controlled clinical
27 trial setting, together with evidence from own observations (14). Since mental health is a
28 spectrum, we structure this viewpoint by first positing the strategies and resources implemented
29 or facilitated by employers to support all HCPs regardless of mental illness symptom severity,
30 before positing therapeutic strategies delivered by trained professionals to help mitigate
31 adverse mental health symptomology. We believe the evidence related to effective mitigating
32 strategies can be grouped into three categories: (i) *preservative strategies* via support
33 programmes implemented by the employer, (ii) *healthy lifestyle* facilitated by the employer and
34 self-delivered by the individual, and (iii) early and easy access to the *therapeutic interventions*
35 on individual basis delivered by trained mental health professionals (Figure 1). The latter may
36 need to include tailored therapeutic strategies depending on the extent and type of mental
37 illness, and strategies that will encourage treatment-seeking behaviours amongst HCPs and
38 reduce the stigma that is often attached to that.

39 ***Preservative strategies: ‘mind-management’ and resiliency programmes, and professional*** 40 ***coaching***

41 Preservative strategies refer to the strategies which can be implemented by healthcare
42 employers to equip HCPs with the necessary resources to prevent the development or
43 worsening of mental health and burnout symptomology. Here we focus on three aspects, based
44 on supporting evidence, to protect against adverse mental health and burnout amongst HCPs:

1 (i) ‘mind-management’, resilience, and coping skills, (ii) professional coaching, and (iii)
2 overall good quality workplace support.

3 Firstly, ‘mind-management’, resilience, and coping skills programmes have been shown to be
4 effective against burnout, stress, and adverse mental impact, and should be implemented for all
5 HCPs regardless of mental health status. These programmes can be delivered via several
6 methods including digital apps, online modules, or group face-to-face sessions. The efficacy
7 of these interventions is variable, but still reasonable and appears most relevant to improving
8 mental wellbeing and, to an extent, reducing burnout. For example, the *Mind Management*
9 *Skills for Life Programme* (an 8-week programme with one 90-minute session per week)
10 improved mental wellbeing by, on average, 3.71 points relative to a waitlist control group and
11 reduced average burnout scores with a medium between-groups effect size ($d = 0.60$) (15).
12 Furthermore, programmes focused on resiliency training (16, 17) can improve mental
13 wellbeing amongst HCPs (16, 17): for example, although mental wellbeing improved in a
14 control group over a three-month period with a small effect size ($d = 0.25$), by contrast the
15 experimental group (who received a single one-shot *Community Resilience Model* session)
16 experienced improved mental wellbeing with a large effect size ($d > 0.60$) (16). Other
17 psychoeducational programmes aiming to change cognitive appraisals of stress and helping
18 healthcare workers cope with the stressors have been found to reduce occupational stress
19 substantially amongst nurses during the pandemic, relative to waitlist controls (18).

20 Secondly, in comparison, professional coaching is shown to have particularly effective
21 mitigating impact against burnout. They often are delivered by professionals and offer coaching
22 either one to one or group to the HCPs in navigating professional choices and behaviours.
23 These do not have to be delivered by coaches skilled in a specific area of healthcare, but rather
24 the coaches can guide HCPs in obtaining ‘greater meaning in work, manage workload more
25 effectively, and improve work efficiency, teamwork, sense of autonomy, social connections at
26 work, and leadership skills’ (19). For example, 3.5 hours of professional coaching over a 6-
27 month period reduced burnout by 2.5% amongst surgeons during the pandemic, while in
28 contrast the surgeons who did not receive coaching experienced increased burnout by 2.5%
29 (19). Relative to controls, group-based professional coaching also significantly improved
30 emotional exhaustion by 4.33 points amongst Female physician residents (20) and by 4.13
31 points amongst Female trainee physicians (21) during the pandemic. We stress that a one-shot
32 coaching session may not be sufficient and that continued professional coaching (e.g. once a
33 month) should be offered to HCPs to sustain the benefits to burnout in the long-term (19).

34 The third aspect relates to overall workplace support as an additional systemic strategy. Indeed,
35 randomised controlled trials (RCTs) (likely in a cluster design) are required to robustly validate
36 the effectiveness of improved workplace support, nevertheless our own prospective cohort
37 research found that the level of perceived workplace support was consistently associated with
38 mental health, wellbeing, and burnout amongst HCPs, and that improved perceived workplace
39 support was associated with improved depression, anxiety, and wellbeing scores over a four
40 month study period during the pandemic (22). Qualities such as visible and approachable
41 leadership, consistent and transparent information sent on a timely manner, adequate staffing,
42 and camaraderie and solidarity amongst peers constituted good quality workplace support (22).
43 Similar studies also found that clear and consistent communication from leaders and adequate
44 training for COVID-19-related tasks were preservative factors for mental health amongst
45 nurses and midwives (23), and another study found that emotional support and feeling valued

1 by leaders was associated with persistent distress amongst frontline HCPs (24). We posit that
2 similar workplace support qualities should be made available to managers or healthcare leaders.

3 ***Facilitating healthy lifestyle habits***

4 In this section, we highlight some of the lifestyle-based strategies which can be facilitated by
5 the employer but self-implemented by the individual to help improve different facets of mental
6 health (primarily depression, anxiety, and general mental wellbeing) and burnout. We further
7 categorise these strategies as: (i) aspects traditionally associated with healthy lifestyle (namely
8 physical activity and healthy eating), and (ii) mindfulness which can also be incorporated into
9 a healthy lifestyle.

10 *Physical activity and healthy eating*

11 Strategies supporting and fostering the adoption and sustenance of the healthy lifestyle amongst
12 the work force is often thought as an effective strategy for improving physical health, but it is
13 now clear that it has significant benefit for improving mental health and reducing burnout.
14 Ironically, despite that, this is not a uniformly adopted strategy nor is targeting towards all
15 HCPs. This strategy can be enabled and facilitated in many ways, including using digital apps
16 to facilitate healthy lifestyle habits which can be self-delivered by HCPs to support their mental
17 wellbeing. For example, the *Foundations* digital application, provides users with an array of
18 techniques such as breathing exercises, working with thoughts (e.g. cognitive behavioural
19 therapy-based cognitive restructuring), positive thinking, mindfulness and meditation, sleep
20 relaxations, sleep hygiene and scheduling, and physical activity recommendations to
21 incorporate into everyday life (25). Relative to wait-list controls, the *Foundations* application
22 improved general psychiatric morbidity (reduced on average by 1.39 points), mental wellbeing
23 (improved on average by 0.54 points), and reduced the odds of insomnia by 64% amongst
24 HCPs during the COVID-19 pandemic (25).

25 While digital apps such as *Foundations* aim to facilitate multiple aspects of healthy lifestyle,
26 we are aware of very few RCTs which have specifically investigated singular aspects such as
27 physical activity and healthy eating in HCPs during the COVID-19 pandemic. Regarding
28 physical activity, a recent RCT demonstrated that a 12-week self-initiated exercise intervention
29 (via a digital application consisting of body weight interval training, yoga, running, and barre;
30 minimum of four 20-minute sessions per week) improved depression and burnout symptoms
31 amongst HCPs with a small-to-medium treatment effect (-0.41 for depression and up to -0.39
32 for burnout) relative to waitlist controls (26). Similar benefits, especially for those with
33 increased depressive symptoms at baseline, have been observed using the same digital exercise
34 application in a non-HCP sample (27). Supporting this, our COVID-19 disease and Physical
35 and Emotional Wellbeing of Health Care Professionals (CoPE-HCP) cohort study found that
36 improved overall lifestyle (consisting of improved physical activity, increased healthy eating,
37 and reduced smoking, alcohol consumption, and vaping) was associated with significantly
38 improved depression, anxiety, and wellbeing amongst 613 UK-based HCPs over a four-month
39 period during the pandemic (28). We advocate that healthcare systems give provision for
40 exercise routinely to staff. Specifically, HCPs could be given subsidised access to a gym or
41 swimming pools, digital exercise-focused applications, or leaders could encourage regular Park
42 Run participation (a free, weekly, 5-kilometre event on Saturday mornings). Indeed, prescribed
43 exercise is already in use amongst some cardiology units in London hospitals but for patients
44 specifically. If successfully incorporated into weekly routines, we anticipate that both regular

1 aerobic (29, 30) and resistance training programmes (30) will lead to mental health benefits
2 based on pre-pandemic evidence in non-HCP samples. One can argue that adherence to
3 exercise interventions will be low amongst those with adverse mental health, but there is
4 evidence from the pandemic that baseline mental health status is unrelated to adherence to
5 digital exercise app use (26), which requires self-administration. As such, prescribed exercise
6 should be made available to all HCPs regardless of mental health status.

7 In terms of healthy eating, although diet (in particular the Mediterranean diet) and probiotics
8 have been proposed as a potentially effective strategy to promote mental health during a
9 pandemic setting (31) or otherwise (32), we are aware of very few RCTs which have examined
10 this amongst HCPs in a pandemic setting. One study found no significant difference in
11 perceived stress between nurses taking probiotic supplement daily and a placebo group (33),
12 while supplementing with cannabidiol may reduce burnout, depression, and anxiety when used
13 with standard care compared to standard care alone (34) with benefits sustained up to 1-month
14 after treatment (35). Further RCTs are required to evaluate the effectiveness of nutrition-based
15 supplements and diet in mitigating specific domains of mental health amongst HCPs in a
16 pandemic/post-pandemic setting. None the less, we believe that diet is an integral part of
17 healthy lifestyle, and we recommend that a balanced healthy diet is supported for HCPs by
18 providing subsidies for healthy meal or providing education/skills to encourage adoption of
19 healthy eating routinely is important. Like physical activity, encouraging healthy eating
20 strategies are cost-effective and self-implemented.

21 *Mindfulness*

22 Most lifestyle-based strategies evaluated in a RCT design are mindfulness-based. As detailed
23 above, resilience and ‘mind-management’ programmes often include a mindfulness
24 component. Mindfulness digital applications (such as the *Headspace* application) may support
25 mental wellbeing by reducing the fear of COVID-19 and promoting sleep quality amongst
26 HCPs during the pandemic (36). Given that such digital applications often require a paid
27 subscription, we recommend that employers provide subsidies to all HCPs for these apps,
28 however we believe that other strategies for delivering mindfulness interventions may be more
29 effective. For example, a 4-week therapist-guided meditation programme via digital messaging
30 application was found to reduce stress, depression, and anxiety (37) with moderate-to-very
31 large effect sizes (up to 1.42) immediately after the intervention, and these effect sizes were
32 sustained (up to 0.98) an additional 4-weeks post-intervention in HCPs with moderate-to-high
33 baseline levels of stress or burnout. As such, therapist-guided meditation programmes may also
34 be particularly beneficial to HCPs experiencing high levels of stress.

35 Whilst self-administered digital mindfulness apps can be useful, our view is that non-digital
36 and more traditional forms of mindfulness, such as 1:1 meditation sessions and face-to-face
37 group meditation sessions, could be more effective but may incur additional costs if therapists
38 are required to lead the sessions or provide training to HCPs. For example, Transcendental
39 Meditation programmes are likely effective in reducing burnout and anxiety (38) with small-
40 to-medium effect sizes amongst HCPs during the pandemic, with some evidence for reducing
41 depression in a pre-pandemic setting (39), but training/education in this form of meditation will
42 be required. Breathing exercises such as progress muscle relaxation can also be taught to HCPs
43 to help mitigate stress and anxiety symptomology with large effect sizes ($d = 1.47$ and 1.61 ,
44 respectively) (40). Less costly but creative forms of mindfulness such as mandala colouring,

1 which are self-administered and require no training, may improve perceived stress amongst
2 HCPs in a pandemic setting but we believe this will be dependent on being motivated to engage
3 in colouring regularly and is unlikely to be an effective strategy for all HCPs (41). We advocate
4 that, if mindfulness is delivered as an intervention to support HCPs, then it should be delivered
5 by trained professionals in the form of guided meditation since this has the strongest evidence
6 base, and preferably conducted in face-to-face settings, although online sessions should be
7 offered given the variable work schedule of HCPs.

8 *Pitfalls of mindfulness interventions*

9 Drawing on this, since most RCTs evaluating the impact of mindfulness (or other lifestyle
10 interventions) on mental health involve HCP samples not marked by a mental illness, it is
11 difficult to advocate for these interventions for HCPs with mental illness or clinically-relevant
12 symptoms and we stress that we should not make a one-size-fits-all approach. Taking suicidal
13 ideation as an example, although brief mindfulness interventions can reduce suicidal ideation
14 (immediately after the intervention) amongst non-HCP samples (42), we are unaware of any
15 RCTs conducted with HCPs in a COVID-19 pandemic setting to demonstrate this. Factors such
16 as exposure to potentially morally injurious events, lack of confidence about raising safety
17 concerns and these concerns being addressed, feeling unsupported by managers, and providing
18 a reduced standard of care are factors unique to HCPs which contribute to increased suicidal
19 ideation amongst HCPs in the COVID-19 setting (43). Psychological therapies such as
20 interpersonal therapy are valuable in reducing suicidal ideation via reducing general depression
21 symptomology and should be prioritised, despite not specifically targeting suicidal ideation as
22 a symptom (44). We speculate, given those workplace-related factors listed above (43), that
23 improvements in systemic workplace support may also yield some benefit via the same
24 mechanism. This is not to negate the value of mindfulness-based digital apps for severe mental
25 health symptomology amongst HCPs: some mindfulness-based digital applications (such as
26 *Lift*) can be useful by alerting mental health staff to connect the user with additional mental
27 health services if suicidal ideation is reported (45).

28 *Access to therapeutic interventions*

29 Noted above, some HCPs will be symptomatic and may have clinically-relevant symptoms of
30 mental illness. Often, these symptoms are less expressed by these HCPs, mainly because of the
31 stigma attached. Additionally, the generic strategies that are discussed above are unlikely to
32 benefit those with clinically-relevant symptoms. This section focuses on the therapeutic
33 strategies which should be prioritised for those with clinically-relevant symptoms. We
34 advocate that there needs to be provision in any healthcare policy to ensure that therapies and
35 trauma-focused strategies are made accessible to HCPs, both online and in person. Online
36 cognitive behavioural therapy (CBT)-based interventions appear promising. For example, the
37 '*For Recovery from Stress*' (FOREST) programme, which involves individualized messaging-
38 based feedback from psychologists and psychologists' support on-demand, improved
39 perceived stress, depression, and psychological wellbeing amongst nurses, with benefits
40 retained up to 3 months later (46). The value of online interventions, such as those based on
41 CBT and acceptance and commitment therapy, are also supported by single-arm trials (47, 48).

42 Novel cognitive interventions may be required for trauma-related issues such as PTSD. For
43 example, imagery-competing tasks (49) and eye movement desensitization and reprocessing
44 therapy (EMDR; (50) are likely effective in mitigating PTSD symptomology amongst frontline

1 healthcare or emergency staff. Indeed, EMDR can be delivered online or in person by a trained
2 lead. The benefits of EMDR in this context may be retained up to 6-months post-intervention
3 (50) and may bring additional benefits by reducing burnout amongst HCPs exposed to
4 traumatic events (51). Besides these novel cognitive interventions, creative arts therapy (CAT)
5 may also improve PTSD symptomology (52), although the exact mechanism for mitigating
6 PTSD symptoms remains uncertain because the social aspect alone of group CAT may be
7 therapeutic.

8 To supplement these interventions, and reduce the stigma associated with these conditions, we
9 feel that it is imperative that there is wide-spread visible support and emphasis to increase the
10 health seeking behaviour amongst HCPs. One strategy is to deliver relatable videos of HCPs
11 describing their own mental health issues and describing how therapy benefitted them (53) as
12 part of a combat against mental health stigma. These videos should be tailored to specific
13 professional roles, genders, and age (53). Drawing on this, an increased understanding of
14 mental illness and an increased awareness of the systemic or workplace drivers of adverse
15 mental health is likely to reduce stigma and increase treatment-seeking. Whilst there has been
16 considerable advancement in reducing stigma regarding burnout, there is still work to be done
17 to reduce stigma regarding mental illnesses, most notably, regarding depression (54). This is
18 largely due to depression being regarded as an individual problem as opposed to burnout as an
19 organisational problem, despite workplace perceptions (workload satisfaction and learning
20 environment satisfaction) being strongly associated with both depression and burnout amongst
21 medical interns (55), and the inverse association between hours worked per week and
22 depression amongst physicians (56). Reframing depression (and psychological stress more
23 generally) as both an organisational-level problem and an individual-level problem will
24 hopefully increase treatment seeking and inform organisational approaches (e.g. improved
25 workplace support) to help mitigate both depression and burnout. This reframing requires a
26 top-down, systemic effort by leaders across healthcare services.

27 ***Take home messages for policymakers and researchers.***

28 The COVID-19 pandemic proved a natural experiment of psychological stress for HCPs and
29 led to numerous clinical trials evaluating support strategies which we base our
30 recommendations on (Figure 1). Arranging for training programmes for all HCPs to improve
31 resilience and effective coping strategies will help buffer against the onset of adverse mental
32 health and burnout, in addition to employers encouraging healthy lifestyle habits amongst
33 HCPs by subsidising subscriptions to mindfulness digital applications, gym memberships, and
34 healthy eating programmes. Despite the wealth of observational studies reporting consistent
35 associations between these lifestyle aspects and mental health or burnout, we need robust study
36 designs to understand the efficacy of lifestyle improvements (diet in particular) as a cost-
37 effective, self-administered intervention for mitigating adverse mental health and burnout.
38 Furthermore, given that these self-administered lifestyle interventions do not provide a one-
39 size-fits-all approach for all HCPs depending on mental health status, access to relevant
40 psychological support services must be provided by the employer to help combat clinical levels
41 of adverse mental health (e.g. depression, PTSD) or high levels of psychological distress. It
42 also would be valuable to encourage treatment-seeking by increasing awareness of mental
43 illness and both the individual-level and organisational-level drivers of mental health to combat
44 stigma. Indeed, organisational-level factors including provisions for adequate staff, availability
45 of regular supervision, reasonable work environment and working conditions may impact on

1 mental health and burnout amongst HCPs (57, 58). These factors may also in-part explain the
2 differential impact amongst HCPs performing different roles. For example, patient-facing
3 HCPs (3), and nurses in general (59), are at more risk of adverse mental health impact which
4 can be explained by differences in working condition, long hours, financial incentives, job
5 security, and provisions of resources and support (59). These work-related disparities should
6 be addressed by healthcare employers. As the pandemic continues amidst cost-of-living and
7 healthcare budgeting crises around the world, it is critical for policymakers and healthcare
8 organisations to invest in these strategies to support the mental health and wellbeing, and to
9 help mitigate burnout amongst HCPs. We expect a return-on-investment by funding these
10 strategies to reduce staff attrition in the long-term: while more studies need to be done on this
11 field, early evidence from two cost-benefit analyses studies have found considerable return-on-
12 investment when hospitals implemented support programmes for HCPs (60, 61). We strongly
13 believe that to ensure longevity in these cost benefits and bring additional return-on-
14 investment, initial corporate strategy should be to re-invest any financial savings into the
15 mental health and burnout support strategies.

16 ***Outstanding questions.***

17 Finally, we recognise that most of the evidence for these strategies is from the Western world,
18 and that there is a need for more studies from Africa and Asia to examine the relative
19 effectiveness of these interventions in the context of culture differences. Drawing on this, we
20 appreciate that there will be additional barriers to implementing such strategies in low-middle
21 income countries (LMICs) due to the pandemic exacerbating the existing economic and health
22 challenges in those countries. A more global effort is required to support those countries, and
23 further research is required to identify the unique barriers to implementing these recommended
24 support systems in LMICs.

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Figure

2 **Figure 1.** Strategies that have been shown to be effective in reducing the risk of adverse mental
3 health impact amongst healthcare professionals.

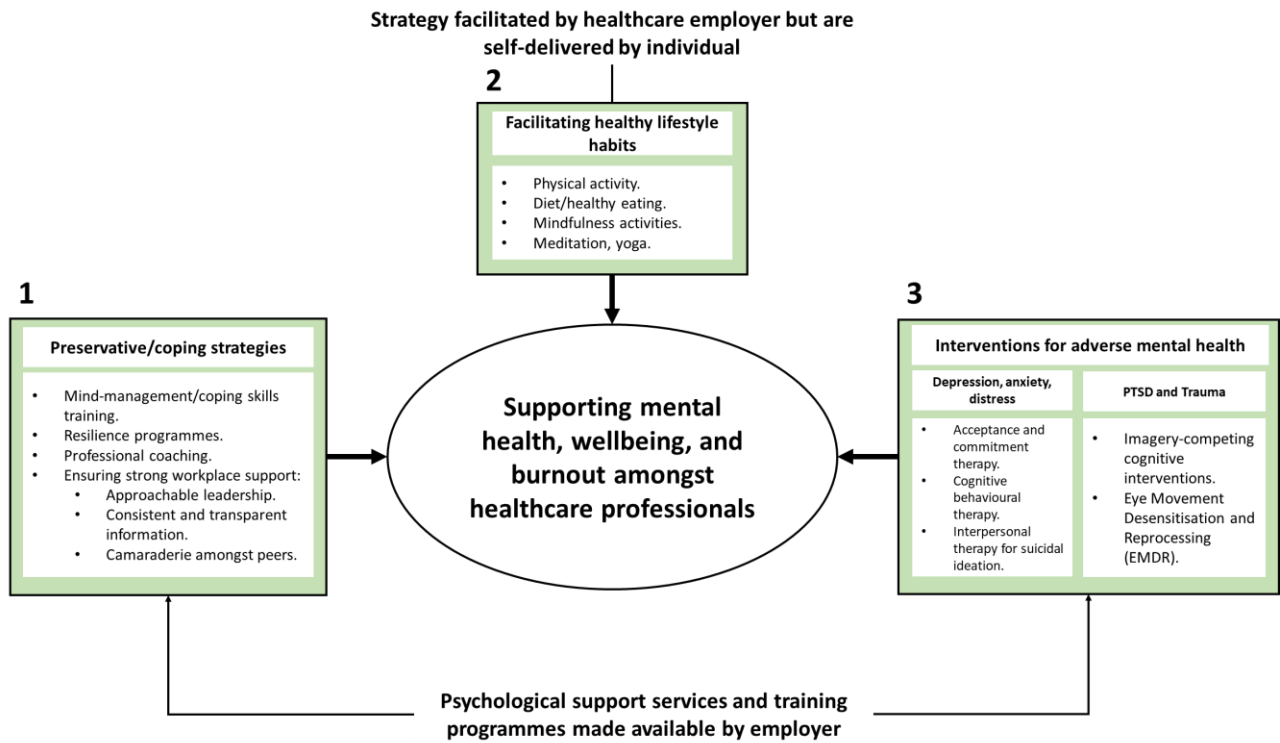


Figure 1. The diagram summarises the three strategies (non-hierarchical) that can be organised by healthcare employers to support the mental health and mental wellbeing of healthcare professionals: (1) preservative strategies via support programmes implemented by the employer, (2) healthy lifestyle facilitated by the employer and self-delivered by the individual, and (3) early and easy access to the tailored therapeutic interventions on an individual basis delivered by trained mental health professionals.

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