

# **Support for healthcare professionals**

**Anna Serlachius, PhD**

## **Affiliations:**

Department of Psychological Medicine, Faculty of Medical and Health Sciences, The  
University of Auckland, New Zealand

## **Contact details:**

Anna Serlachius, PhD

Lecturer, Department of Psychological Medicine

The University of Auckland, New Zealand

[a.serlachius@auckland.ac.nz](mailto:a.serlachius@auckland.ac.nz)

Tel: +64 9 923 3073.

# **Support for healthcare professionals**

**Anna Serlachius**

**The University of Auckland**

The past three decades have seen a substantial amount of research document the high rates of burnout, depression, and psychological distress in health professionals compared to the general working population (Firth-Cozens, 2001b; Wall et al., 1997). In contrast, only relatively recently has the issue of how to best provide support for healthcare professionals become an area of research and focus. Psychological distress, fatigue and burnout in health professionals are associated with loss of productivity, increased turnover, increased medical errors, and worse patient outcomes (Moss, Good, Gozal, Kleinpell, & Sessler, 2016; Priebe et al., 2004). Addressing and promoting increased support for healthcare professionals is therefore an important aspect of not only improving the health and wellbeing of staff but also improving the overall quality of healthcare.

This chapter aims to summarise the literature regarding support for healthcare professionals, beginning with a brief description of factors contributing to psychological distress. This is followed by a review of individual and organisational strategies to support the wellbeing of healthcare professionals. Lastly, a section on how to best support staff after adverse events, including some recent examples of multidimensional support programs, is presented.

## **Work-related and individual factors contributing to stress in healthcare professionals**

The high rates of psychological distress and burnout in healthcare professionals and across different healthcare professions is well established (Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012; Weinberg & Creed, 2000). This suggests there are external, work-related factors which contribute to increased stress in healthcare professionals. Common external stressors distinct to healthcare professions include treating suffering and dying patients, risk of patient suicide, and the risk of adverse events or medical errors (Firth-Cozens, 2003; Rössler, 2012). Other work-related stressors which further exacerbate stress and burnout, in particular in medical practice and training, include shift-work, sleep deprivation, and the hierarchical culture of medical training (Ramirez, Graham, Richards, Gregory, & Cull, 1996; Salazar et al., 2014). Further compounding the issue are organisational stressors, including poor management, poor communication, inadequate staffing and poor teamwork (Grunfeld et al., 2000; Ramirez et al., 1996).

Although workload and environmental factors inevitably contributes to stress in healthcare professions, personality and demographic factors also play a role (Firth-Cozens, 2001b). Studies have shown that personality, maladaptive coping strategies, marital status, age and seniority/tenure can all influence stress and burnout for healthcare professionals (Firth-Cozens, 2001b; Ramirez et al., 1996). For example, personality traits like neuroticism, or being single as well as young age are all risk factors associated with burnout in healthcare professionals (Poncet et al., 2007; Zellars, Perrewe, & Hochwarter, 2000). Recently, there has been an increased focus on the stressors faced by medical trainees, where psychological

distress often starts during residency (Thomas, 2004). The increased risk of psychological distress for junior staff has also been documented for other healthcare professionals, including nurses and therapists (S. L. Shapiro, Brown, & Biegel, 2007; Skovholt & Rønnestad, 2003).

The above risk factors represent separate but not necessarily independent causes of psychological distress in healthcare professionals. As described in previous chapters, risk factors associated with burnout are often inter-related, with external stressors interacting with personal characteristics, available support, and the general skills and experience of the healthcare professional in how they react and cope with stress.

### **Types of support for healthcare professionals**

Support for healthcare professionals can be grouped into individual or organisational support services. In this chapter, individual support is defined as personal strategies (e.g. cognitive or behavioural techniques) which allow individuals to manage and cope better with stress. In contrast, organisational support is defined as strategies which aim to change work-related factors and work practices and generally tend to focus on either groups of people or the whole organisation.

#### Individual training and support

Healthcare professionals, in particular physicians, often struggle to seek support when unwell or under stress (Wallace, Lemaire, & Ghali, 2009). As a result there has been a push for examining effective self-care skills and preventative strategies to improve resilience in healthcare professionals (S. L. Shapiro et al., 2007). As depicted in Table 1, these strategies include self-care skills, relaxation techniques, cognitive behaviour therapy (CBT) and communication skills training.

A recent Cochrane review (Ruotsalainen, Verbeek, Mariné, & Serra, 2015) examined the efficacy of 58 interventions aimed at preventing stress in healthcare workers. Out of the studies employing individual interventions, relaxation techniques (e.g. mindfulness meditation) and CBT demonstrated the most evidence for reducing stress in healthcare workers. In particular mindfulness-based stress reduction (MBSR) has been shown to reduce stress and improve wellbeing in healthcare professionals including physicians, nurses, social workers and psychologists (Ruotsalainen, Serra, Marine, & Verbeek, 2008; S. L. Shapiro et al., 2007).

Another individual strategy for reducing healthcare professionals' stress is communication skills training. Such skills are essential to managing many of the stressors inherent to medical practice, but many healthcare professionals feel insufficiently trained in communication skills (Plews-Ogan et al., 2016; Rassin, Levy, Schwartz, & Silner, 2006). An increasing number of studies have examined the effect of communications skills training to help physicians and trainees disclose and discuss medical errors, as well as improving patient-centred communication (Barth & Lannen, 2011; Canivet et al., 2014). In a randomized controlled trial (RCT) in the UK (Fallowfield et al., 2002), 160 oncologists from 34 cancer centres were randomly allocated to communication skills training or a control group. Results showed that

oncologists in the 3-day intervention group reported increased confidence and also received improved patient ratings compared to the less intensive intervention groups or the control group. Another study conducted in Japan examined the effect of communications skills training for oncology nurses, and its impact on patient outcomes (Fukui, Ogawa, Ohtsuka, & Fukui, 2008). The study found that communication training not only improved how confident the nurses felt, but also improved patient distress and adaptive coping skills.

#### Organisational training and support

Despite the importance of providing individual training and support, for support services to reach those most in need they need to be implemented and encouraged from an institutional level (S.D. Scott et al., 2010). Organisational support services are strategies which address work-related factors in order to prevent or manage stress in healthcare professionals, and usually impact whole units, departments or institutions. Organisational support can include supervisory and peer-support programs, leadership programs, as well as supporting staff after adverse events (see Table 1).

Feeling supported by one's team has a profound effect on satisfaction at work, with better functioning teams and units experiencing less stress (Carter & West, 1999) and demonstrating improved patient care and safety (Firth-Cozens, 2001a). Characteristics of well-functioning teams include good leadership, autonomy, effective communication, and a focus on patient safety and staff wellbeing (Firth-Cozens, 2001a; Michie & West, 2004). A recent longitudinal study examined 2100 physicians and nurses working in 55 intensive care units in Germany, and assessed emotional exhaustion, teamwork and patient safety over nine months (Welp, Meier, & Manser, 2016). The authors found that improved teamwork positively affected clinician-rated patient safety. Conversely, emotional exhaustion negatively impacted on teamwork.

An important aspect of thriving in a team is feeling supported by superiors and colleagues. It is not surprising that low supervisory support has been associated with increased risk for burnout in healthcare professionals (Kalliath & Beck, 2001). In contrast, improving support through mentoring programs can help prevent burnout and improve wellbeing in healthcare professionals (Balch & Copeland, 2007; Shanafelt, Sloan, & Habermann, 2003). As well as mentoring programs, peer support programs have also become increasingly popular as a way of improving collegial support and wellbeing in healthcare professionals. Peer-support programs are often perceived as more acceptable when dealing with sensitive issues like psychological distress or medical errors (Hu et al., 2012). A RCT of a peer support program for 151 healthcare workers was trialled in Sweden (Peterson, Bergström, Samuelsson, Åsberg, & Nygren, 2008), with results demonstrating improvements in general health, perceived demands at work, and support at work in the intervention group compared to the control group.

#### Supporting healthcare professionals after adverse events

Medical errors and adverse events are common in the healthcare professions (James, 2013; Kohn, Corrigan, & Donaldson, 2000). Healthcare professionals involved in an adverse event

may become traumatized as a result, referred to as the Second Victim phenomenon (Seys et al., 2013; Wu, 2000). Symptoms include feelings of guilt and responsibility for the patient outcome, loss of confidence in clinical skills, and increased anxiety and distress (S.D. Scott et al., 2009). Past research into supporting Second Victims have found that support services are often lacking or not accessible (Conway, Federico, Stewart, & Campbell, 2011; Edrees et al., 2016), or even hostile towards Second Victims (Christensen, Levinson, & Dunn, 1992; Marmon & Heiss, 2015). Complicating things further, studies have found that physicians are unlikely to seek support after adverse events (Rössler, 2012). This is due to a multitude of factors, including stigma surrounding seeking help, risk of litigation, and negative attitudes about disclosing medical errors (Bell, Moorman, & Delbanco, 2010).

Increasingly organisations are becoming aware of the importance of providing support programs and education to healthcare professionals to manage and decrease the psychological distress caused by medical errors and adverse events (Daniels & McCorkle, 2016; Edrees et al., 2016). However, many of these services remain under-used (Hu et al., 2012; Marmon & Heiss, 2015). Furthermore, many institutions lack the necessary educational programs and support systems to effectively manage psychological distress (Bell et al., 2010). Due to these constraints, many institutions refer to external, independent organisation which offer support services to healthcare professionals such as the Medically Induced Trauma Support Services (MITSS). This not-for-profit organisation provides information and advice for patients, clinicians as well as healthcare organisations in the United States (MITSS, n.d.). Similar organisations have been set up in the United Kingdom, including the NHS Practitioner Support Programme, which was set up as an alternative to mainstream NHS support services to enable NHS doctors and dentists to access confidential support (NHS, n.d.).

### Multidimensional programs

More recently, hospitals and healthcare organisations have initiated multidimensional programs which incorporate both individual and organisational support services, with the aim of creating supportive, healthy working conditions for healthcare professionals. An example of a multidimensional support program is the Center for Professionalism and Peer Support (CPPS) initiative developed at Brigham and Women's Hospital in Boston which encompasses a peer-support program, wellness programs, communication and disclosure training, and focus on a culture of professionalism (J. Shapiro, Whittemore, & Tsen, 2014). The program has been well received and has trained a wide range of health professionals since it was initiated in 2008 (J. Shapiro et al., 2014). Another pioneering multidimensional support program is the Second Victim Rapid Response Team (*forYou* program) developed at the University of Missouri Health Care (MUHC) (S.D. Scott et al., 2010). The program is a three-tiered Second Victim support system comprising: (1) immediate peer and supervisory support from the relevant unit or department, including relieving the healthcare professional of patient duties, (2) supporting previously identified staff through specifically trained peer supporters and possible referral to internal patient safety and risk management resources, and lastly (3) external referral for continued crisis support and psychological services. The MUHC support system includes a core team of 51 existing staff members (including physicians, nurses and allied health professionals) who have been trained to assist staff in

implementing and accessing the support system, and have been embedded throughout high-risk areas including intensive care, operating rooms, and emergency departments. The support system is unique in that it extends to all healthcare professionals and acknowledges that the whole team can be affected by adverse events. As of 2015, more than 1000 clinicians had received support from the forYou program (Hirschinger, Scott, & Hahn-Cover, 2015). A recent assessment of the impact of the program examined whether the program had an impact on staff perceptions of patient safety, measured using a patient safety culture survey covering 12 dimensions including teamwork within units, supervisor/manager expectations, frequency of events reported, and communication (S. D. Scott, 2015). Over 4,000 healthcare professionals participated and results demonstrated a significant difference between clinicians who identified as second victims and had received support in comparison with second victims without support. On all of the dimensions of perceived patient safety, the unsupported clinicians had lower scores compared to the supported clinicians.

Despite the obstacles that still exist for accessing appropriate support services, there is increased awareness regarding the importance of preventing burnout and psychological distress in healthcare professionals and trainees. An important aspect of increasing awareness is ensuring that information is provided regarding sensitive issues such as burnout, psychological disorders and Second Victim Syndrome, and that strategies to prevent psychological distress start early and continue throughout one's career (Balch & Copeland, 2007). Although increasing awareness is important, it is futile if health care professionals are not aware of the support programs that are available, how they work, and how to seek support when it is most needed. Importantly, the culture of the organisation will have a significant impact on whether these programs are effective (Bell et al., 2010).

## **Discussion**

This chapter has reviewed the literature regarding individual and organisational support services for healthcare professionals. Although individual interventions which aim to improve resilience and develop essential skills in healthcare professionals are to be commended, for such interventions to have sustainable effects, they should ideally be combined with organisational efforts to improve working conditions and support for healthcare professionals. A multidimensional approach is needed which takes into account individual factors including both recognising people at risk and offering appropriate individual support services, as well as recognising the role of external workplace factors and the medical work culture in exacerbating or alleviating stress in healthcare professionals.

Although it is encouraging to see the increase in support programs offered to healthcare professionals, there is still a shortage of longitudinal studies with adequate power, with the majority of studies cross sectional with small sample sizes (Moore, Rivera Mercado, Grez Artigues, & Lawrie, 2013; Ruotsalainen et al., 2015). Well-designed, longitudinal studies are needed to evaluate the efficacy of individual and organisational support programs for preventing burnout and psychological distress in healthcare professionals. Furthermore, few studies have evaluated the effect of support programs on both staff and patient outcomes. These studies are sorely needed, in particular so that guidelines can be developed for how to

best provide support for healthcare professionals (Bell et al., 2010; Wallace et al., 2009). As well as improving the evidence-base, a cultural change in healthcare is needed where staff wellbeing is prioritised, work-life balance is encouraged, and a healthy and supportive work environment is cultivated. Funding agencies, healthcare organisations, professional societies, as well as policy makers will play a key role in supporting this process.

## **Acknowledgements**

I would like to thank Dr Maria Poynter and Dr Chris Poynter for their comments on the chapter.



Table 1: Examples of support services for healthcare professionals

Individual support	Organisational support
Self-care skills (e.g. physical activity, adequate rest, healthy eating habits)	Leadership training
Relaxation training (e.g. mindfulness, relaxation techniques, meditation)	Teamwork training
Cognitive behaviour therapy	Mentoring programs
Communication skills training	Peer support programs
	Second Victim support programs

## References

- Balch, C. M., & Copeland, E. (2007). Stress and Burnout Among Surgical Oncologists: A Call for Personal Wellness and a Supportive Workplace Environment. *Annals of Surgical Oncology*, 14(11), 3029-3032. 10.1245/s10434-007-9588-0
- Barth, J., & Lannen, P. (2011). Efficacy of communication skills training courses in oncology: a systematic review and meta-analysis. *Annals of oncology*, 22(5), 1030-1040.
- Bell, S. K., Moorman, D. W., & Delbanco, T. (2010). Improving the patient, family, and clinician experience after harmful events: the "when things go wrong" curriculum. *Academic Medicine*, 85(6), 1010-1017.
- Canivet, D., Delvaux, N., Gibon, A.-S., Brancart, C., Slachmuylder, J.-L., & Razavi, D. (2014). Improving communication in cancer pain management nursing: a randomized controlled study assessing the efficacy of a communication skills training program. *Supportive Care in Cancer*, 22(12), 3311-3320.
- Carter, A. J., & West, M. A. (1999). Sharing the burden: team work in health care settings. In J. Firth-Cozens, & R. Payne (Eds.), *Stress in health professionals: psychological and organizational causes and interventions*. London: Wiley.
- Christensen, J. F., Levinson, W., & Dunn, P. M. (1992). The heart of darkness. *Journal of General Internal Medicine*, 7(4), 424-431.
- Conway, J., Federico, F., Stewart, K., & Campbell, M. J. (2011). *Respectful management of serious clinical adverse events: IHI Innovation Series White Paper*. Cambridge, MA: Institute for Healthcare Improvement.
- Daniels, R. G., & McCorkle, R. (2016). Design of an evidence-based "second victim" curriculum for nurse anesthetists. *AANA J*, 84, 107-113.
- Edrees, H., Brock, D. M., Wu, A. W., McCotter, P. I., Hofeldt, R., Shannon, S. E., . . . White, A. A. (2016). The experiences of risk managers in providing emotional support for health care workers after adverse events. *Journal of Healthcare Risk Management*, 35(4), 14-21. 10.1002/jhrm.21219
- Fallowfield, L., Jenkins, V., Farewell, V., Saul, J., Duffy, A., & Eves, R. (2002). Efficacy of a Cancer Research UK communication skills training model for oncologists: a randomised controlled trial. *The Lancet*, 359(9307), 650-656. [http://dx.doi.org/10.1016/S0140-6736\(02\)07810-8](http://dx.doi.org/10.1016/S0140-6736(02)07810-8)
- Firth-Cozens, J. (2001a). Cultures for improving patient safety through learning: the role of teamwork. *Quality in Health Care*, 10(suppl 2), ii26-ii31.
- Firth-Cozens, J. (2001b). Interventions to improve physicians' well-being and patient care. *Social science & medicine*, 52(2), 215-222.
- Firth-Cozens, J. (2003). Doctors, their wellbeing, and their stress. *It's time to be proactive about stress—and prevent it*, 326(7391), 670-671. 10.1136/bmj.326.7391.670
- Fukui, S., Ogawa, K., Ohtsuka, M., & Fukui, N. (2008). A randomized study assessing the efficacy of communication skill training on patients' psychologic distress and coping. *Cancer*, 113(6), 1462-1470.
- Grunfeld, E., Whelan, T. J., Zitzelsberger, L., Willan, A. R., Montesanto, B., & Evans, W. K. (2000). Cancer care workers in Ontario: prevalence of burnout, job stress and job satisfaction. *Canadian Medical Association Journal*, 163(2), 166-169.
- Hirschinger, L. E., Scott, S. D., & Hahn-Cover, K. (2015). Clinician support: five years of lessons learned. *Patient Saf Qual Healthc.*, 26-31.
- Hu, Y.-Y., Fix, M. L., Hevelone, N. D., Lipsitz, S. R., Greenberg, C. C., Weissman, J. S., & Shapiro, J. (2012). Physicians' needs in coping with emotional stressors: the case for peer support. *Archives of Surgery*, 147(3), 212-217.
- James, J. T. (2013). A new, evidence-based estimate of patient harms associated with hospital care. *Journal of patient safety*, 9(3), 122-128.
- Kalliath, T. J., & Beck, A. (2001). Is the path to burnout and turnover paved by a lack of supervisory support? A structural equations test. *New Zealand Journal of Psychology*, 30(2), 72.

- Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To err is human: building a safer health system* (0309261740). National Academies Press.
- Marmon, L. M., & Heiss, K. (2015). *Improving surgeon wellness: The second victim syndrome and quality of care*. Paper presented at the Seminars in pediatric surgery.
- Michie, S., & West, M. A. (2004). Managing people and performance: an evidence based framework applied to health service organizations. *International journal of management reviews*, 5(2), 91-111.
- MITSS.). Tools for Building a Clinician and Staff Support Program. Retrieved 29.06.2016, from <http://www.mitsstools.org/tool-kit-for-staff-support-for-healthcare-organizations.html>
- Moore, P. M., Rivera Mercado, S., Grez Artigues, M., & Lawrie, T. A. (2013). Communication skills training for healthcare professionals working with people who have cancer. *The Cochrane Library*.
- Morse, G., Salyers, M. P., Rollins, A. L., Monroe-DeVita, M., & Pfahler, C. (2012). Burnout in Mental Health Services: A Review of the Problem and Its Remediation. *Administration and Policy in Mental Health and Mental Health Services Research*, 39(5), 341-352. 10.1007/s10488-011-0352-1
- Moss, M., Good, V. S., Gozal, D., Kleinpell, R., & Sessler, C. N. (2016). A Critical Care Societies Collaborative Statement: Burnout Syndrome in Critical Care Health-Care Professionals. A Call for Action. *American Journal of Respiratory and Critical Care Medicine*, 194(1), 106-113.
- NHS.). NHS Practitioner Health Programme. Retrieved from <http://php.nhs.uk/>
- Peterson, U., Bergström, G., Samuelsson, M., Åsberg, M., & Nygren, Å. (2008). Reflecting peer-support groups in the prevention of stress and burnout: Randomized controlled trial. *Journal of Advanced Nursing*, 63(5), 506-516.
- Plews-Ogan, M., May, N., Owens, J., Ardelt, M., Shapiro, J., & Bell, S. K. (2016). Wisdom in Medicine: What Helps Physicians After a Medical Error? *Acad Med*, 91(2), 233-241. 10.1097/acm.0000000000000886
- Poncet, M. C., Toullic, P., Papazian, L., Kentish-Barnes, N., Timsit, J.-F., Pochard, F., . . . Azoulay, E. (2007). Burnout syndrome in critical care nursing staff. *American journal of respiratory and critical care medicine*, 175(7), 698-704.
- Priebe, S., Fakhoury, W., White, I., Watts, J., Bebbington, P., Billings, J., . . . Ryrie, I. (2004). Characteristics of teams, staff and patients: associations with outcomes of patients in assertive outreach. *The British Journal of Psychiatry*, 185(4), 306-311.
- Ramirez, A. J., Graham, J., Richards, M. A., Gregory, W. M., & Cull, A. (1996). Mental health of hospital consultants: the effects of stress and satisfaction at work. *The Lancet*, 347(9003), 724-728.
- Rassin, M., Levy, O., Schwartz, T., & Silner, D. (2006). Caregivers' Role in Breaking Bad News: Patients, Doctors, and Nurses' Points of View. *Cancer Nursing July/August*, 29(4), 302-308.
- Rössler, W. (2012). Stress, burnout, and job dissatisfaction in mental health workers. *European archives of psychiatry and clinical neuroscience*, 262(2), 65-69.
- Ruotsalainen, J., Serra, C., Marine, A., & Verbeek, J. H. (2008). Systematic review of interventions for reducing occupational stress in health care workers. *Scandinavian journal of work, environment & health*, 169-178.
- Ruotsalainen, J., Verbeek, J. H., Mariné, A., & Serra, C. (2015). Preventing occupational stress in healthcare workers. *The Cochrane Library*.
- Salazar, M. J. B., Minkoff, H., Bayya, J., Gillett, B., Onoriode, H., Weedon, J., . . . Fisher, N. (2014). Influence of surgeon behavior on trainee willingness to speak up: A randomized controlled trial. *Journal of the American College of Surgeons*, 219(5), 1001-1007.
- Scott, S. D. (2015). Second Victim Support: Implications for Patient Safety Attitudes and Perceptions. *Patient Safety & Quality Healthcare*, (September/October), 26-31.

- Scott, S. D., Hirschinger, L. E., Cox, K. R., McCoig, M., Brandt, J., & Hall, L. W. (2009). The natural history of recovery for the healthcare provider "second victim" after adverse patient events. *Quality and Safety in Health Care, 18*(5), 325-330.
- Scott, S. D., Hirschinger, L. E., Cox, K. R., McCoig, M., Hahn-Cover, K., Epperly, K. M., . . . Hall, L. W. (2010). Caring for our own: deploying a systemwide second victim rapid response team. *Jt Comm J Qual Patient Saf, 36*(5), 233-240.
- Seys, D., Scott, S., Wu, A., Van Gerven, E., Vleugels, A., Euwema, M., . . . Vanhaecht, K. (2013). Supporting involved health care professionals (second victims) following an adverse health event: a literature review. *International journal of nursing studies, 50*(5), 678-687.
- Shanafelt, T. D., Sloan, J. A., & Habermann, T. M. (2003). The well-being of physicians. *The American journal of medicine, 114*(6), 513-519.
- Shapiro, J., Whittemore, A., & Tsen, L. C. (2014). Instituting a culture of professionalism: the establishment of a center for professionalism and peer support. *Jt Comm J Qual Patient Saf, 40*(4), 168-177.
- Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology, 1*(2), 105.
- Skovholt, T. M., & Rønnestad, M. H. (2003). Struggles of the novice counselor and therapist. *Journal of Career Development, 30*(1), 45-58.
- Thomas, N. K. (2004). Resident burnout. *JAMA, 292*(23), 2880-2889. 10.1001/jama.292.23.2880
- Wall, T. D., Bolden, R. I., Borrill, C. S., Carter, A. J., Golya, D. A., Hardy, G. E., . . . West, M. A. (1997). Minor psychiatric disorder in NHS trust staff: occupational and gender differences. *The British Journal of Psychiatry, 171*(6), 519-523.
- Wallace, J. E., Lemaire, J. B., & Ghali, W. A. (2009). Physician wellness: a missing quality indicator. *The Lancet, 374*(9702), 1714-1721.
- Weinberg, A., & Creed, F. (2000). Stress and psychiatric disorder in healthcare professionals and hospital staff. *the Lancet, 355*(9203), 533-537.
- Welp, A., Meier, L. L., & Manser, T. (2016). The interplay between teamwork, clinicians' emotional exhaustion, and clinician-rated patient safety: a longitudinal study. *Critical Care, 20*(1), 1-10. 10.1186/s13054-016-1282-9
- Wu, A. (2000). Medical error: the second victim. *Western journal of medicine, 172*(6), 358.
- Zellars, K. L., Perrewe, P. L., & Hochwarter, W. A. (2000). Burnout in health care: The role of the five factors of personality. *Journal of Applied Social Psychology, 30*(8), 1570-1598.