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Burned-out surgeons – a review of risk factors and intervention types

Review

In today's society, many employees are affected by symptoms of burnout, which can be described as feelings of emotional exhaustion, depersonalization and ineffectiveness in the work context. Burnout rates are especially high in the intensive care environment, particularly in surgeons, as they appear to be confronted with high amount of workload and stress. In this paper burnout in surgeons is discussed, with special focus on different interventions that should be considered in preventing and intervening burnout. On the one hand, individual-directed interventions, focusing on improvement of individual coping with stress, are described. On the other hand, there are organization directed interventions, which tackle the stressors directly and have the capacity to reduce or eliminate them. Although individual- and organization directed interventions each have their respective shortcomings, increased use of organizational programs is suggested, as burnout results from the work context rather than being an personal issue. Even more, a combination of both strategies seems to be the best alternative to prevent and intervene burnout. Yet, more research is needed since there is a lack of well-designed studies of organizational and combinational interventions.
Keywords: burnout; surgeons; intervention; prevention

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INTRODUCTION

Modern work has undergone many changes as a result of environmental challenges, involving technological changes and global competition, thereby affecting employee

wellbeing (Landsbergis, 2003). Jobs were redesigned with the purpose that employees can handle the stressful effects, such as higher workload of downsizing (Mishra & Spreitzer, 1998) and experience intrinsic value from their job (Brockner et al., 2004). Yet, jobs became more demanding as workload increased and evoked exhaustion in employees, leading to health problems (Osthus, 2007). Burnout became an important issue through the course of these changes and is a syndrome that is characterized by emotional exhaustion, depersonalization and a reduced feeling of personal achievement (Maslach, Jackson, & Leiter, 1996). One occupation that appears to be mostly affected is the physical profession, in particular surgeons (Embriaco et al., 2007), who appear to experience more severe stress compared to other general occupational groups, but also compared to other medical practitioners (Klein, Frie, Blum, & Von dem Knesebeck, 2010; von dem Knesebeck, Klein, Frie, Blum, & Siegrist, 2010.) Burnout in surgeons is extremely high with several studies reporting a prevalence of burnout between 30-38% among American and European surgeons (Klein et al., 2010; Shanafelt et al., 2009).

There are several reasons why the surgical profession is stressful and intensive. Surgeons have to manage, among other things, high workload such as long working hours and high patient volume. This prevents surgeons from taking part in non-work events and spending time with family and friends (Shanafelt et al, 2009; Balch, Freischlag, & Schanafelt, 2009; Campbell, Sonnad, Eckhauser, Campbell, & Greenfield, 2001). The prolonged stress due to high workload can ultimately result in burnout (Maslach, Schaufeli, & Leiter, 2001).

The consequences of burnout are detrimental, as they can affect patient safety, can lead to absenteeism and turnover rates and appear to have mental consequences for surgeons, such as depression and drug or alcohol use (Shanafelt, Bradley, Wipf, & Back, 2002; Center et al., 2003). Therefore it is absolutely necessary for us to understand what can be done to counteract burnout. A wide body of literature already exists, investigating ways in which burnout can be reduced or eliminated in the workplace. One can divide intervention types into programs that focus on the individual, with the main purpose of increasing strategies to cope with stress, or in programs focused on the organization, which in the best case remove or reduce stressors directly. Yet, organizational programs aim for increasing productivity and quality of the organization, resulting in decreased burnout rates as a favorable side effect (Schaufeli & Enzmann, 1998). Although each intervention type has its advantages and shortcomings in preventing or reducing burnout, researchers suggests the use of both intervention types in order to efficiently reduce or remove burnout (e.g. Maslach et al., 2001; Awa, Plaumann, & Walter, 2010), which will be discussed further in this paper.

This paper is focused on answering two key questions: 1) What are the causes of burnout in surgeons? 2) Which type of intervention is the best in preventing or reducing burnout in surgeons? Although recent research has made some suggestions, a more detailed review on the causes of burnout in surgeons and a thorough comparison of the different intervention types on a more global level is lacking. In this paper, an attempt is made to find the most critical risk factors of burnout in surgeons and based on these factors the most relevant and studied intervention programs are considered. This will be done by (a) providing general

information about burnout, (b) explaining why surgeons are prone to burnout, (c) describing and comparing the different types of interventions that can generally reduce or eliminate burnout and (d) introducing strategies suggested by different authors that might prevent or reduce burnout in surgeons on both individual and organizational level.

METHODS

Literature Search

In this review a systematic search of burnout interventions for surgeons was conducted in electronic databases such as "Google Scholar", "PsycINFO", "Catalogue UM" and "PubMed", restricting the search to English and German studies. This was done during a period starting in November 2013 and lasting until June 2015. This review involved, among others, key words such as "burnout", "work stress", "surgeon burnout", "surgeon stress", "physician burnout", "intervention burnout", "individual burnout intervention", "person-directed burnout intervention", "organization-directed burnout", "organization burnout", "burnout prevention" and "stress management surgeons". Further, reference lists of different articles were analyzed as well as electronic books by searching for articles including above-mentioned terms in databases such as "Catalogue UM" and "DawsonEra".

BURNOUT

Definition and consequences

The most widely accepted definition of burnout is by Maslach et al. (1996), who characterized burnout along three dimensions: (a) Individuals suffering from burnout feel emotionally and physically exhausted, which means that they lack energy and are unable to interact with people, nor are they able to adequately perform ascribed tasks. (b) They feel cynical toward their job and the people they encounter on a daily basis. They disengage from work, participate less in work affairs and use this attitude mostly to protect themselves from exhaustion. And (c), people feel ineffective, meaning that they are less confident and feel deficient. These three dimensions are often measured by using the Maslach-Burnout-Inventory (MBI).

Burnout can also be defined in stages; most definitions claim that the early stages of burnout develop as a result of a misfit between people's ideals and real-life. This stress might lead to emotional exhaustion and changes in perception of one's job and colleagues, eventually leading to burnout. The development of burnout depends on individual's preexisting coping strategies. Those with weak strategies might be more prone to the development of this syndrome (Schabracq, Winnubst, & Cooper, 2003).

Although burnout can be the result of chronic job stress, these two concepts should be kept separate; whereas occupational stress evolves from a discrepancy between job demands and individual's resources, burnout can be seen as the last

stage resulting from a long-term exposure to such discrepancy, thus as the last stage of long-lasting job stress (Brill, 1984). When having burnout, people develop negative attitudes towards people they are working with, towards their job and the organization, which is not necessarily the case with job stress (Schaufeli, Maslach & Marek, 1993). Lastly, apparently only those people who started their job with high goals and expectations towards their job end up having burnout, whereas everyone can experience stress (Pines, 1993).

The consequences of burnout are broad and have been related to physical, mental and social outcomes and of course, the work situation. Physically, burnout can lead to problems such as headaches, gastrointestinal illness, or sleep disturbances (Kim, Ji, & Kao, 2011). Mentally, it has been found to be correlated to, among other problems, depression, anxiety and sleeping problems (Peterson et al., 2008). Sometimes burnout can also decrease social interactions and social relationships, in particular when work interferes with family issues (Singh, Suar, & Leiter, 2013). At the workplace, burnout can turn into absenteeism and decreased job satisfaction (Ybema, Smulders, & Bongers, 2011). It is also related to turnover in organizations, probably as people feel less committed to their employer and decide to leave their job (Visser & Rothmann, 2008).

General risk factors of burnout

Since burnout has such numerous negative consequences on life aspects, it is necessary to analyze the risk factors of burnout, such as individual characteristics. Regarding personality characteristics, a meta-analysis by Swider and Zimmerman (2010) has revealed high correlations between some of the personality dimensions and burnout components. In particular people high on Neuroticism and low on Extraversion, Agreeableness and Conscientiousness seem to be prone to burnout regarding all three burnout dimensions. In addition to these traits, Alarcon, Eschleman and Bowling (2009) found that, among others, characteristics such as low hardiness-levels, as well as low levels of self-esteem and self-efficacy, an external locus of control and low optimism-levels are significantly related to burnout. Hardiness is defined by Kobasa (1979) as a personality of being able to deal with stressors and therefore of preventing to become physically or psychologically ill, whereas external locus of control involves believing that one's success is driven by external factors. Lastly, concerning demographic variables, Brewer and Shapard (2004) found that younger individuals and individuals with less years of experience have a higher burnout rate.

The person-job mismatch theory

Although significant correlations between individual factors and burnout have been found, burnout appears to be mostly related to situational factors and therefore it should be analyzed and defined more in a social context, in particular in the work context (Maslach et al., 2001). Some job characteristics, for instance high workload, lack of social support, feedback and autonomy are related to burnout. According to Maslach et al. (2001), burnout can be defined as a chronic discrepancy between

individual resources and job demands. Thus it is considered as a misfit between individual and situational factors; the greater the gap between individual resources and work demands, the higher the possibility of experiencing burnout, whereas the better the match, the more individuals engage in work.

The assumption of a misfit or match is in line with the Job Demands-Resources (JD-R) Model by Bakker and Demerouti (2007), focusing on two critical components for employees: job demands and job resources. Whereas job demands lead to stress reactions and negative consequences for wellbeing, job resources (such as control, participation in decision-making and task variety, but also social support) lead to work motivation and engagement. Accordingly, high resources can have a buffer effect on the effect of demands on stress reactions, meaning that they can reduce the negative influence of job demands (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). In their comprehensive job-person fit model, Maslach et al. (2001) argue that burnout is expected to develop from the mismatch of job demands and job resources in one or more of six different areas: workload, control, reward, community, fairness and values.

In the first area, *workload*, individuals are said to experience a mismatch when work demands exceed individual resources. Requirements of the jobs might not be met due to lack of time, organizational support or expertise. The resulting resource depletion appears to be highly related to emotional exhaustion, as overload can deplete individual's energy levels.

Control describes the area where individuals might not have sufficient authority and the freedom to make decisions at work. This area is based on the Demand-Control (DC) Model of Job Stress developed by Karasek and Theorell (1990). The authors argue that when a job is highly demanding and at the same time employees have low control, the employee will experience strain. However, having control in a highly demanding job is argued to serve as a "buffer" against experienced strain and protects the employee's wellbeing. For example, a barista who can decide how to make the coffee, whereas he/she has time pressure for serving the coffee, might experience less stress due to his/her control on the actions she makes at work.

Reward involves the missing compensation for one's accomplished work and can include monetary rewards, but also recognition by others such as positive feedback by customers or colleagues. In terms of the latter, Buunk and Schaufeli (1993) argue that when individuals invest in a relationship, they hope to receive proportional gains from the recipient. When they experience an imbalance, their resources are drained and they feel emotionally exhausted. An imbalanced reward-system is often related to feelings of inefficacy because employees often feel less valued (Maslach & Leiter, 2008).

Moreover, *community* describes an area where positive social interactions at work are missing. It also includes social support, by supervisors or colleagues, which when considered as a personal resource in the JD-R Model, could buffer against many stress-related components of the job.

Fairness issues arise when specific aspects of the job are judged as unfair, such as workload, payment or promotion decisions. These perceptions can be emotionally exhausting and may lead to cynical attitudes towards one's work.

Lastly, *value* conflicts can be a major problem when there is a misfit between

individual and organizational values, as they are often not aligned. An example could be that employees enter a job with different career expectations than held by the organization (Maslach & Leiter, 2008). These five areas have been found to be the most critical determinants of burnout in general and, as will be illustrated later in this paper, are as well critical risk factors for surgeon burnout.

BURNOUT IN SURGEONS

Burnout prevalence in surgeons and consequences

Burnout rates in surgical occupations seem to be particularly high compared to other occupations (Klein, et al., 2010). In a study conducted by Yost, Eshelman, Raoufi and Aboulijoud (2005) in the USA, 38% of transplant surgeons were identified with burnout. In a later, comparable study, Shanafelt et al. (2009) conducted one of the largest studies of burnout in the USA among surgeons in 2008 and found burnout rates of 40%. The prevalence of burnout in surgery is not restricted to the USA; high burnout rates were found in several European countries. For example, in the UK in the same year, colorectal and vascular surgeons were analyzed for symptoms of burnout. Among them, 32% had high burnout rates on at least one dimension of the MBI (Sharma, Sharp, Walker, & Monson, 2008). Furthermore, Klein et al. (2010) found that 48.7% of German general surgeons suffered from burnout. An overview of different burnout rates in the USA and Europe among surgeons of different specialties can be found in table 1.

Table 1: Prevalence of surgeon burnout in different specialties in the USA, UK, Switzerland and Germany

Author/Year of inquiry	Country	Prevalence	Sampled population
Yost, Eshelman, Raoufi, & Aboulijoud /2005	USA	38% on emotional exhaustion	Transplant surgeons
Shanafelt et al./ 2008	USA	40%	Surgeons in general
Sharma, Sharp, Walker, & Monson/ 2005	United Kingdom	31% emotional exhaustion	Colorectal and vascular surgeons
Businger, Stefenelli, & Guller/ 2010	Switzerland	35% moderate levels of burnout	Surgical residents and surgeons in general
Klein, Frie, Blum, & Knesebeck/ 2008	Germany	48.7%	Surgeons in general

Some differences have been found in burnout rates in surgeons within different specialties; higher risk was observed in trauma surgeons, who reported the highest workload, followed by urologists (focus on urinary tract and reproductive system, otolaryngologists (focus on head and neck surgeries), vascular surgeons (focus on arteries and veins) and general surgeons (Shanafelt et al., 2009; Balch, Shanafelt, Sloan, Satele, & Freischlag, 2011). There is a small difference in burnout rates across different specialties. It is assumed that those physicians who are in frequent contact with chronically ill or dying patients are more prone to burnout (Shanafelt et al., 2009).

The consequences of surgeon burnout are broad and can, most critically, affect patient safety. Burnout is related to higher risks of medical errors, yet the correlational nature of the study does not allow causal statements (Shanafelt et al., 2010). Organizations may also be affected as employees with high burnout levels appear to leave their job for another practice or may retire early (Campbell et al., 2001). At a personal level, burnout can lead to mental illnesses such as depression, anxiety and sleep disorders (Center et al., 2003). It can destroy relationships, lead to alcohol and drug addiction, and to suicide (Oreskovich et al., 2008; Dyrbye et al., 2008; Lutsky et al., 1994).

Risk factors of burnout in surgeons: Applying the person-job mismatch theory

An analysis of recent research reveals some specific factors to be prevalent in most of the surgeons. Some individual factors, namely personality variables, are related to surgeon burnout; those surgeons who are idealistic, perfectionists and passionate about their work appear to be more at risk for burnout (Bittner, Khan, Babu, & Hamed, 2011). Yet, the most strongly correlated to surgeon burnout are high workload, problems managing work/family issues and lack of reward or autonomy. All these factors are related to the work context (e.g. Shanafelt, 2009; Balch et al., 2009; Campbell et al., 2001). Although the consequences of these work characteristics for each individual depend on individual characteristics (Balch, Freischlag, & Shanafelt, 2009), these are the factors that have been found to be generalizable to the majority of surgeon occupations in all specialties. As explained above and proposed by Maslach and Leiter (2008), these risk factors should be analyzed as an imbalance between personal resources and work demands. Here four of the six above-mentioned risk factors of the person-job misfit model will be named as they fit to the surgical context, namely workload, control, reward and value.

Workload is the factor most strongly correlated to burnout in surgeons. As proven by several studies (e.g. Campbell et al., 2001; Yost et al., 2005; Rawlani et al, 2011), surgeons have to deal with overwhelming work, high patient volume and too many work hours or number of nights on call per week, and this has been argued to happen more in surgical occupations than in many other occupation (Bittner et al., 2011).

Furthermore, many studies confirm that one of the most relevant risk factors is the imbalance between personal and professional life (Yost et al., 2005; Shanafelt et al., 2001; Campbell et al., 2001). This is based on the assumption that surgeons

spend too much time in hospitals and have too little time for personal and non-work related activities, as well as for personal growths opportunities. Especially young students appear to have difficulties to handle the high workload and are not always capable to balance time for work and family. In many studies it has been proven that younger surgeons are more prone to burnout (Campbell et al., 2001; Shanafelt et al., 2009), and it appears that burnout already has an effect on medical students or surgical residents across different disciplines (Bittner et al., 2011).

Control has also been found to be one of the top risk factors related to burnout. Surgeons are often insufficiently involved in decision-making concerning work tasks or procedures, which is related to burnout (Campbell et al., 2001).
Another problem is the lack of reward; it was found that surgeons find their job often intrinsically unrewarding, tend to experience a lack of reciprocity by the patient and believe their services are not appreciated (Campbell et al., 2001; Bakker, Schaufeli, Sixma, Bosveld. & Van Dierendonck, 2000).

Value also plays a role as a risk factor for burnout; many surgeons have high expectations in the beginning of their career, hoping that after the hard training period and the exhausting work hours they will understand meaning behind their work and eventually feel personally and professionally satisfied with their lives (Balch et al., 2009). Such an ideology is described in Psychology as "delayed gratification", defined as postponing immediate rewards and waiting for future rewards (Mischel, 1974). As these expectations are often not met and are in conflict with the organizational values (since the first years in practice are usually highly demanding), young surgeons become frustrated and distressed (Shanafelt et al., 2008).

The factors mentioned above appear to contribute to burnout separately, but they seem to be interrelated. In particular young surgeons have high expectations and "delay their gratification" of spending time with their family. Working for long hours (work load) and not having autonomy over one's schedule (control) might hinder surgeons to find a balance between work-family issues, such that their strategy of delayed gratification is even maintained after the training period(Balch et al., 2009).

Another problem is that many surgeons do not know that they have or are at risk of burnout. In a recent study by Shanafelt et al. (2014) surgeons in the USA were told to assess their own wellbeing compared to the wellbeing of their colleagues. Results showed that those surgeons, whose wellbeing scores were low compared to other surgeons, thought they would belong to the average or above. Many surgeons are thus not aware of how much their wellbeing is affected by distress and they do not seem to know that they are in need of a change. However, after receiving individualized feedback about their state, the need for change was recognized and half of the participants reported that they had the intention to make a change.

Other surgeons, but also physicians in general, believe that distress and burnout are normal and have to be accepted. They tend to ignore their own health as caring for the patient is prioritized; hence they do not seek help from others. Given this train of thought, they rather deny stress rather than confronting it (Shanafelt et al. 2014). This accumulation of stress might lead to symptoms of burnout.

BURNOUT PREVENTION AND INTERVENTION

Many different intervention programs exist in order to prevent and combat burnout. These can be individually-directed or directed at the organization. At the individual level, the focus is on teaching the individual to generally cope with stress. The aim is to make the employee more resistant to job specific stressors. Most of the intervention programs are situated on this individual level (Schaufeli & Enzmann, 1998). Organizational interventions usually have influence on work procedures and the organizational or social environment, in a way that they can reduce or eliminate stressors at work (Korunka, Tement, Zdrehus, & Borza, 2010).

Individual-focused interventions

Interventions, which focus on the individual, aim at heightening individual awareness of the situation, or attempt to reduce the arousal individuals often feel when experiencing stress. An example of awareness-promoting interventions is self-monitoring, which helps to focus on the symptoms of stress, for example through stress diaries. Cognitive-behavioral techniques aim to change the perception of the individual towards stressful events so that one's feelings and behaviors are positively altered. Relaxation techniques are also used here, serving to reduce the arousal (Schaufeli & Enzmann, 1998).

The general techniques used to improve employee's health and take part in more productive coping behaviors appear to be particularly difficult for surgeons as the professional culture of physicians incorporates a philosophy of putting the work before personal life, other's needs before own needs and professional achievement before personal achievement (Shanafelt, Chung, White, & Lyckholm, 2006). As a response, some specific strategies have been suggested that help avoiding burnout and increasing satisfaction. In a study by Shanafelt et al. (2012) different individual wellness strategies were tested and related to burnout. The strategies that were related to low risks of burnout were finding meaning in one's work, having a philosophy of a balance between personal and professional life, concentrating one's attention on what is important in life and taking vacations. Furthermore, although a rarely used strategy, taking part in mindfulness training for self-awareness is suggested, which can lead to reduced burnout and increased empathy (Krasner et al., 2009).

With the aim to prevent burnout in surgical oncologists, Shanafelt et al. (2008) developed a five-step solution for young surgeons, which can be classified as an individual-directed intervention; he recommended that after evaluating if one has a "delayed gratification attitude", one should (a) determine one's values, (b) optimize one's own career, (c) define stressors, (d) have a balance between personal and professional life and (e) develop wellness strategies.

Considering the first step (a), it is important that surgeons identify their personal values or goals, which can be for example being a medical educator or a professional healer. Questions surgeons could ask are "Why did I choose to become a physician?" and "What do I like about my job?". Then (b), surgeons should evaluate which type of practical work and work setting is helpful in reaching their goals and

they should be aware that interests change during their career. It is also advisable to identify specific stressors they encounter during their practical experiences, such as frequent night or weekend calls or high patient volumes (c). Surgeons can manage these stressors by for example distributing administrative work among colleagues or discussing one's work with mentors. Particularly these first three steps can help finding meaning in one's work. Further, achieving a balance between personal and professional life (d) can be achieved when surgeons become aware that they cannot "have it all" but are confronted with a trade-off; they should acknowledge that choosing one aspect of life, such as work, might reduce the opportunity to spend one's fullest time for family, and vice versa. Finally, (e), it is suggested to deploy wellness strategies, which help to grow personally and use one's leisure time efficiently. These strategies have also been found to be effective in some studies and include activities such as spending time with friends and family, personal reflection , spiritual practices, taking care of one-self and hobbies (Shanafelt, 2004). These steps do not only appear to promote personal and professional satisfaction, but also prevent the occurrence of delayed gratification, as gratification does not have to be "delayed" when surgeons experience meaning in their work and find an appropriate balance between work and home.

Although individual-directed interventions are effective, several shortcomings should be mentioned. According to Maslach et al. (2001), individual-directed interventions only affect the exhaustion component of burnout, leaving out cynicism and personal efficacy. A probable cause of this is that individual- directed interventions aim to minimize negative arousal , but do not try to change negative attitudes towards the job; thus, there would be no influence on the cynicism component. These interventions also do not maximize professional work-related skills nor resources and, as a consequence, do not increase personal achievement (Schaufeli, 2003). Also, they appear to be ineffective in a workplace environment where individuals would naturally find it more difficult to manipulate work-related stressors as opposed to personal ones. Another critical shortcoming is the longitude of their effect. In order to assess the effectiveness of different intervention programs on burnout (person-directed, organization-directed and a combination of both), Awa et al. (2010) conducted a meta-analysis, in which they included professionals of different occupational fields. It was found that individual-directed programs in general had positive effects on reducing burnout, but this effect persisted only for six-months. This finding is congruent with the idea that burnout is more strongly related to situational factors, and therefore should be tackled at the work- and organizational level (Maslach et al., 2001).

Organization-focused interventions

Many individual interventions focus on teaching employees how to handle stress, but it is recommended to focus more on cultural and environmental factors leading to the development of stress (Shanafelt & Dyrbye, 2012). Therefore it is recommended to tackle the problem at the work- or organizational level. More precisely, it is suggested to achieve a balance between personal resources and work demands in all levels (Maslach et al., 2001); this would mean to find a balance between areas such as workload, work-family issues, control, reward and social support. Whereas

the first two could be classified as job demands, lead to strain and therefore should be reduced, the control, reward and social support represent job resources, can lead to motivation and engagement and therefore should be increased (Shanafelt & Dyrbye, 2012).

Organizational interventions have the capacity to survey, eliminate or reduce stressors encountered at the work place through different techniques. To monitor stress, stress audits or surveys are used to determine occupational stressors, such as stress resulting from interpersonal relationships. These help organizations to develop strategies to improve organizational effectiveness and promote employee wellbeing. As an example of burnout prevention, organizations try to improve the job tasks and work environment to minimize work overload. For example, jobs are redesigned to involve more responsibilities or become more challenging. Time scheduling helps to reduce working hours or time spent with recipients (Schaufeli & Buunk, 2003). To treat burnout when it already affected employees, psychosocial check-ups are recommended, meaning that burnout-levels in employees are defined and subsequentlz treated. Support groups are also often implemented, providing help to stressed employees (Schaufeli & Enzmann, 1998; Schaufeli & Buunk, 2003).

Some organization-focused interventions in the occupational field of physicians aim to reduce burnout. Dunn, Arnetz, Christensen and Homer (2007) developed an intervention based on the promotion of three organizational factors: providing physicians control (having influence and authority on one's work), order (efficient office design and professional staff) and meaning (satisfaction with their job) (Shanafelt & Derbye, 2012), all characteristics that could be classified as personal resources (Bakker & Demerouti, 2007). These factors were determined prior to the intervention, followed by the development of improvement plans. A decrease in exhaustion and an improvement of empathy and emotional connection was found. Yet, the study had a small sample, as it is the case with most of the organizational-focused interventions. Most studies are not properly designed as they have too small and non-randomized samples, or/and no follow-up data. Thus in order to implement change, more evidence-based organizational-based interventions are necessary (Shanafelt & Dyrbye, 2012).

There are several reasons why organization directed interventions are implemented less. Theoretically, in organization directed interventions, the source of the problem of burnout as an organizational issue is addressed. Since most of the interventions on this level are established with the purpose to improve productivity and quality of the organization, the root of the problem is not always removed (Schaufeli & Enzmann, 2008). Furthermore, these interventions are complex as they require the involvement of employees from different departments, are time-consuming and entail high financial costs (Schaufeli & Enzmann, 1998; Schabracq et al., 2003).

Some suggestions have been made concerning organizational interventions that might be helpful in order to decrease burnout in surgeons. First of all, what appears to be lacking is a short self-assessment tool that determines physician's distress level as compared to their colleagues, since surgeons are often not aware of their risk of having burnout (Shanafelt et al., 2014). A recommendation could be to provide more stress audits or surveys in order to check current stress levels of

surgeons or psychosocial check-ups. Secondly, concerning job demands, workload could be decreased through reduction of paperwork and introduction of more flexible time schedules for critical family events. One could also implement appropriate administrative support systems and mentors providing help in balancing work and life issues (Spickard, Gabbe, & Christensen, 2002).

However, as workload is hard to change and often not even under the control of the organization, alternative interventions have to be used. This leads to increasing or replenishing job resources to increase control in surgeons. The health care industry should provide surgeons more autonomy and growth opportunities. Concerning intrinsic rewards, organizations should provide an appropriate amount of time for physician-patient relations, while the physician-patient time should be just enough to limit workload consisting of too high patient volume (Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012).

In regard to the organizational community, an effective team appears to reduce burnout. As found in a study by Willard-Grace et al. (2014), clinicians who established a team-based working system and focused on respecting as well as communicating with each other experienced lower levels of exhaustion. These results can be possibly accounted by the fact that a team-based working structure might help to delegate responsibilities equally and thereby decrease workload. The authors therefore suggest establishing specific rules and changing work roles and hierarchies to implement a team-based culture within clinicians.

Combination of person- and organization-focused interventions

Although there are many advantages of an organization directed intervention, this approach does not target individual coping skills. A combination of both strategies is the best way to combat burnout. Maslach et al. (2001) proposed the implementation of both strategies: an educational approach, which means teaching an individual how to improve coping strategies, as well as management changes, thus changing the work conditions in a way that employees value their work and feel rewarded for it. Although the effect of a combinational intervention program has not been studied yet in the fields of surgery, some researchers compared intervention types for their effectiveness on reducing burnout in a wide field of different occupations. In their meta-analysis, Awa et al. (2010) found that a combination of both programs (individual- and organization based programs) lead to longer-lasting reductions of burnout, compared to individual-based programs alone, as the effects lasted for about 12 months and more. Yet, only a few combinational studies have been analyzed in their meta-analysis due to absence of such programs, in particular in the surgical practice.

Alternatively, one could examine studies of combinational approaches implemented in fields outside of the physical occupation. Innstrand, Epnes and Mykletun (2004) conducted a combinational intervention for staff members working with intellectually disabled people. First different stressors at work were identified. Second different intervention strategies on both individual and organizational levels were implemented. The individual approach consisted of a voluntary exercise program to improve fitness and wellbeing in employees. On the organizational level, on the other hand, performance appraisals (providing feedback), reorganization

of working schedules and improvement of routines for new employees were implemented. Positive effects of reduced exhaustion were found, without finding effects on the other two components of burnout (depersonalization and personal accomplishment), probably as follow-up tests were conducted too early (two months after the study termination).

Although no well-designed combinational study for surgeon burnout is reported, some authors made suggestions, which are applicable to the surgeon context. To prevent burnout, a general strategy for both individuals and organizations should be to nurture wellbeing of physicians on emotional, psychological, physical and spiritual grounds and from the beginning of their career until they retire (Spickards, Gabbe, Christensen, 2002). On the individual level, suggestions were made for physicians based on the most successful practices to promote wellbeing: spending time with family and friends, taking part in religious or spiritual activities, taking care of oneself, finding meaning in one's work and more (Weiner, Swain, & Wolf, & Gottlieb, 2001). On the organizational level, the focus should be on creating personal values and allowing more control, which can be addressed by strategies such as measuring intrinsic and extrinsic values, creating mentoring programs, or involving physicians in shaping and controlling their environment (Spickards et al., 2002).

Several strategies have been proposed in this paper, yet, there are some general suggestions applicable to all interventions. First of all, what appears to be critical as a first step in all interventions is identifying job stressors (Murphy, 1995). After this identification, one can choose the stressors that are most severe and resolve these. When there are stressors (or mismatches) in one area, such as in workload, these stressors can be compensated by matches in other areas, such as when people derive meaning in one's work (Maslach et al. 2001). Lastly, no matter which type of intervention is used, it is important that employees participate in the process and top management is involved (Cartwright et al., 1996).

DISCUSSION

The aim of this paper was to (1) analyze the most relevant risk factors of burnout in surgeons and (2) compare different intervention types that prevent and reduce burnout. In doing so, this paper built on the proposition that burnout develops as a prolonged misfit between personal resources and organizational demands in the following areas: workload, control, rewards, community and values. Research on surgeon burnout has found common factors related to burnout; surgeons are confronted with high workload, problems managing work and life aspects, experience too less influence on their work and receive too little intrinsic reward. Moreover, many young surgeons incorporate a philosophy of delayed gratification. Some are unaware of their high burnout risk, while others ignore this fact.

The consequences of burnout have been found to be detrimental for the surgeons themselves, the patients, and the organization. Surgeon burnout is related

to drug and alcohol abuse, as well as to several mental illnesses. It has also been argued that surgeons with high burnout levels pose a threat to patients due to surgeon errors. On the organizational level, burnout appears to be costly as turnover rates and absence are prominent.

Concerning possible interventions to reduce or prevent burnout, three intervention types have been compared, namely individual-focused, organization-focused and combinational interventions. Individual focused interventions aim at increasing coping skills. Although these interventions seem to have positive effects on reducing emotional exhaustion, these effects are short-lived. As burnout appears to develop as a result from work factors, it is suggested to implement organization focused interventions to a greater extent than individual focused interventions, as they have the potential to reduce or even eliminate risk factors of burnout. However, they are implemented much less than individual-focused interventions due to complexity, time- and cost issues. Furthermore, the main goal of this type of interventions is to improve effectiveness of the interventions, such that improving employee wellbeing becomes a minor matter.

Eliminating or reducing burnout is even more probable when individual- and organization directed interventions are combined, in such a way that the individual's coping strategies are improved and stressors at work are directly tackled. Yet, such interventions are rare, especially in the surgical occupation. Nevertheless, specific strategies for the individual surgeons and for organizations have been suggested, which could be united in the future. On the individual level, these strategies involve creating meaning in one's work by defining personal goals and working in the field congruent with one's goals, as well as taking part in meaningful activities outside work. On the organizational level, strategies such as providing appropriate stress and burnout assessment tools, increasing autonomy in decision-making processes for surgeons, ensuring adequate patient-physician time and implementing support opportunities are suggested.

It is important to consider some limitations of this review. Proposals of strategies and interventions for surgeons made in this paper are based on survey-studies where physicians were asked for their strategy used, but have not been converted into actual implementations. To give evidence-based and valuable suggestions about the effectiveness of such strategies, actual interventions and well-designed studies on these interventions are necessary (Shanafelt & Dyrbye, 2012; Awa et al., 2010). Moreover, to find interventions for surgeons, the most common risk factors of burnout among surgeons were illustrated. Yet, there might be individual differences in their prevalence, and there are surely differences between various specialties (Balch et al., 2009). Therefore, some strategies and intervention suggestions might not be applicable to some surgeons, which is why a proper screening prior to the development of the interventions is recommended (Murphy, 1995).

The results of this paper could have useful implications for the future. As burnout is related to turnover and absence, health care organizations could save money by implementing interventions against burnout (Buchbinder, Wilson, Melick, & Powe, 1999; Misra-Hebert, Kay, & Stoller, 2004). Furthermore, patient care might be endangered as burnout is related to increased errors (Shanafelt et al., 2002), thus a proper intervention might decrease the prevalence of litigations

(Crane, 1998). Since research is lacking in precise intervention suggestions, this review might help other researchers to shed light on the issue and encourage them to investigate different intervention programs.

All in all, after analyzing the literature and previous research, surgeon burnout can be best combatted through a combinational intervention. Yet, as these types of interventions are scarce, it is recommended to focus on available strategies on the individual or organizational level specifically proposed to prevent or reduce surgeon burnout. More research on organizational and combinational intervention types in this field is necessary.

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