

Article

A model of multidimensional intervention for the prevention and management of violence and stress in emergency department healthcare professionals

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Abstract. *Aims:* the study proposes a model of multidimensional intervention for the prevention and management of violence and stress. *Discussion:* in current research models only a few studies address the prevention of stress as a result from violence, the importance of early recognition of the psychological disorders in the healthcare professionals and the efficacy of interventions to improve worker health and reduce sick leave. Commitment from hospital administrators, ED managers and hospital security is necessary to facilitate improvement and ensure a safer workplace for ED healthcare workers. Our study emphasizes the importance of analyzing, in addition to general job demands, the specific job demands such as the risk of violence, considered a key risk factor, predictor of stress and possible mental disorders in healthcare workers operating in high-risk environments. *Conclusions:* this study confirms the importance of application of the integrated multidimensional intervention model on the prevention of workplace violence and stress, the treatment and the psychological support for all those who reported they have felt stressed or those who are at risk of stress following the attacks, because emotional and psychological consequences and job dissatisfaction impact on the quality of life of the attacked healthcare professionals and reduce their quality of nursing care for the patients, with a higher risk of errors, accidents and absenteeism in the workplace. The multidimensional intervention model shall be implemented on all three levels: individual, organizational and situational.

Keywords: Aggression, violence, workplace violence, healthcare workers, emergency department, stress, mental health

Introduction

Violence at work by patients and/or family members is a widespread phenomenon in the world (Hsieh *et al.*), especially in the healthcare sector, in the Emergency Departments (WHO, 2012).

Workplace violence is associated with stress, depression, anxiety, fatigue, job dissatisfaction and absenteeism (Menckel & Viitasara; Rogers & Kelloway; Wieclaw *et al.*).

In Italy the consolidated Text on Labor Security (Legislative Decree 81/2008) sets up the obligation for the employer, confirmed by the Framework Directive 89/391 / EEC and reiterated by the framework agreements between the social partners on work-related stress and on harassment and violence in the workplace, to evaluate and measure work-related stress and to arrange all preventive measures that prove to be necessary. However, the current procedure considers stress in the workplace only when there have been cases of illness imputable to stress.

If these cases are not present or they have not actually been reported or recognized as such, because of receiving treatment outside the work sphere, the risk of stress is considered absent.

In addition, even nowadays there has been no correct protocol that defines the methods and limits of work-related stress risk assessment and management. Rewriting of the text of Legislative Decree 81/08 through Legislative Decree 106/09, has left the issue by the roadside, awaiting the National Consultative Commission to define an effective protocol and the operational standards for the prevention of work-related stress. The lack of obligation to consider violence as a risk factor to be monitored by the employer, stress evidence considered existent only when there is a pathology in progress due to it, the systematic non-reporting of the aggressions by the workers, promote the lack of daily conflict emergence and its consequences both on the worker's welfare state and emotional efficiency and permit the employer not to intervene in the progress and organization of work, for the sole purpose of improving the emotional conditions of the worker.

Dillon indicates, after a review of the literature on interventions for the prevention and management of violence and stress, that almost 70% of the American organizations have neither a program nor a policy to deal with violence. Besides, many organizations do not formally recognize violence as part of their risk management activities (Bentley *et al*; Catley *et al.*).

However, the fact that stress caused by violence can lead to burnout (Griffin *et al.*), mental disorders (Wang *et al.*) and disability (Dewa *et al.*) proposes to study the phenomenon of violence at work as an important risk factor for the wellbeing and health of emergency healthcare workers. This study wants to identify a model of effective intervention for the prevention and management of violence and its consequences on mental health of the healthcare professionals.

Work stress interventions

The various theoretical models for the assessment of work-related stress confirm that the perception of job characteristics has both direct and indirect effects on worker health (*such as psychological strain*) and on behavior in the workplace (*for example job satisfaction*).

In particular, the job demands control model (JD-C; Karasek, 1979) and the job demands control-support model (JDC-S; Johnson & Hall) claim that psychological demands (job demands), decision latitude (job control) and social support (support) are the most important psychosocial job characteristics in determining worker health. The model "effort-reward imbalance" by Siegrist (ERI) (Siegrist *et al.* 1986; Siegrist, 1996; Siegrist *et al.*, 2004;) claims that stress occurs due to the imbalance between effort and commitment (effort) compared to the rewards one receives (reward) (Siegrist, 1996). Several scholars used this model as a tool for the assessment of work-related stress (Tsutsumi & Kawakami, Godin *et al.*, 2005, Unterbrink *et al.*) and confirmed that work-related stress causes serious physical and mental health problems, above all anxiety and depression (Godin & Kittel, 2004; Godin *et al.*, 2005; Pikhart *et al.*; Buddeberg-Fischer *et al.*). The transactional model by Lazarus & Folkman, underlines that, when perceived environmental demands exceed one's ability to cope with them over a long period of time, then health problems develop. These models are supported by research (Nieuwenhuijsen *et al.*; Yu *et al.*; Lim *et al.*; Hauser *et al.*).

A predominant concept of these models is that job demands impact on the workers on the basis of decision latitude and/or social support. Consequently the healthcare professionals who work for organizations characterized by very high job demands and poor job control/support, according to the theory on psychological strain, will suffer high strain levels, with lower levels of job satisfaction and compromised daily functioning and absenteeism at work (de Lange *et al.*; Luchman & Gonzales-Morales). The assessment of work stress in the various studies is commonly carried out by analyzing the general demands applicable to many jobs (Hackman & Oldham 1975; Jackson *et al.*; Roberts & Glick) and they are the foundation of the work model by Hackman & Oldham, 1976, of the JD-C model by Karasek, of the JDC-S model by Johnson and Hall, and the model of wellbeing in the workplace by Warr. However, many researchers recognized the importance of including, together with the general job demands, also the specific job demands, to evaluate the specific work contexts, thus improving the validity of the assessment and the description of the work environment (Brough & Frame; Cooper *et al.*; Brough & Biggs) The evaluation of specific job demands was also used in interventions on stress to alleviate job related strain (Cooper *et al.*; O'Driscoll *et al.*).

For Brough & Biggs it is critical to evaluate specific job demands, in addition to generic assessments of job demands, because only these are significant stress predictors for work related stress and/or mental health problems in the workers at high risk of stress, while general demands such as workloads are not associated with stress (Brough; Summerlin *et al.*; Biggs). In fact the specific job demands have a close connection with job satisfaction, turnover, commitment and strain, while the general ones only with job commitment. For example, asking the workers if they have experienced incidents of violence at work is very important for the assessment of their wellbeing and health, of their performance and behavior in the workplace, especially if they work in an environment at high risk of violence. This multiform assessment of job demands for a detailed examination of the work environment is seldom used, although it is widely recommended (Brough & Biggs, 2010; Cooper *et al.*; Keinan & Malach-Pines).

The research by Brough and Biggs supports the theory of strain of the model JDC-S (Johnson & Hall), using specific job demands; therefore, jobs that are characterized by high specific demands and low control/support will suffer high levels of strain. The complex associations and interactions between the general and specific job demands, control and support at work and the influence of the

latter two on the general and specific job demands are the cause of the consequences on health (psychological strain) and on job behavior (job commitment, turnover and job satisfaction). Important for the assessment of work-related stress, even if poorly investigated, is the process of recovery from work-related stress (Huijs *et al*; Oyeflaten *et al*). This process is characterized by the decrease of disorders and resumption of work. De Vente *et al.* studied this process by analyzing the role of the stress predictors and of the resumption of work correlated to the individual (demographic factors, coping, cognition), to the job (job characteristics, social support) and to illness (duration of disorders, duration of absence from work). These results are confirmed by various studies (Nieuwenhuijsen *et al*; Yu *et al*; Lim *et al*; Hauser *et al*) which assert that the variables determining the emergence of stress and health problems are related to the individual (such as coping strategies), to work (such as job demands) and to disease (such as chronicity of disorders).

De Vente *et al.* observed that the predictors of stress disorders are: a) job characteristics as specified in the JDCS model (Karasek & Theorell), b) inadequate coping strategies associated with stress in the transactional model by Lazarus & Folkman and c) dysfunctional thoughts, considered a risk factor for mood disorders (Beck). Also the duration of illness has been used as an indicator of disturbance severity and / or an indirect indicator of workplace conditions that compromise recovery effort (for example in case of conflict with a colleague); therefore the longer the period of illness and / or absence from work, the lower the restore to health. The predictors of work-resumption are lower age and stronger reduction of burnout complaints. These results regarding the predictors of stress disorders and predictors of- work resumption (de Vente *et al*) are in agreement with other studies. In particular, the variables of gender, age, and support from colleagues are associated with stress disorders (Huijs *et al*; Oyeflaten *et al*; Huibers *et al*; Magnusson *et al*). Predictors of distress recovery are male gender, support and short absences from work.

Predictors of burnout recovery are male gender, lower age, high cultural level, less avoidance-oriented coping strategies, job security and support from co-workers. The reduction of disorders and work- resumption, even if they have different predictors, they are correlated in some way because work- resumption is associated with a decrease in distress and burnout (de Vente *et al*). The interventions of work-related stress management and prevention have focused on the changes in working conditions, on the education of the abilities to deal with working conditions and on the treatment of those individuals with high levels of stress (Briner). These interventions that have as their objective the individual or the workplace can be performed at primary, secondary and tertiary level (Tetrick & Qucik). Primary-level interventions refer to the intervention at organizational level (Burke) or to stress prevention (Jordan *et al*) and concern the actions to modify or eliminate stress sources in the workplace, thus reducing the impact on the worker or the exposure to stress (Cooper & Cartwright). Secondary-level interventions involve the management of stress and the improvement in the workers' ability to manage stressful conditions by intensifying perception, knowledge, skills, coping strategies and stress resilience in order to minimize the impact on their well-being and health (Sutherland & Cooper). Tertiary-level interventions refer to stress management of the workers who developed a disease (Sutherland & Cooper) and are aimed at reducing stress effects by the management and treatment of the disease (Cooper *et al*; La Montagne *et al*). Some researchers assert that the interventions have to concern both the environment and the person. (Noblet & La Montagne). In fact, external factors, such as private life, can have a greater

impact on the stress suffered by the workers than the factors in the workplace (Marchand *et al*). In this regard, several researchers observed that work stressors and non-work stressors have an independent effect on depression and absence due to mental health problems (Stansfeld *et al* 1997, 1998; Griffin *et al*; Melchior *et al*). According to Clark *et al*, non-work stressors should also be included in work-related stress interventions, because they can have an impact on absence because of sickness and have an independent effect of the work stressors on mental disorders. Therefore they could be effective in the prevention of psychological disorders.

These data support the burden model (Dohrenwend & Dohrenwend), that suggests that each stressor contributes independently to the onset of mental disorders. Other scholars underline the need for greater social support in the workplace, associated with lower percentage of chronic stress (Dewa *et al*). From a regulatory point of view, at the European level, the Framework Agreement of 8 October 2004 (as transposed by the Italian InterConfederal Agreement in 2008), states that it is necessary to analyze the work organization management and its processes in order to evaluate the presence of stress in a workplace (workloads, degree of decision-making autonomy, correspondence between job demands and individual abilities, etc.), working and environmental conditions (exposure to illicit behavior, noise, dangerous substances, etc.), communication (insecurity about job demands, employment prospects, etc.) and personal factors (emotional and social pressures, feelings of inadequacy, perception of lack of support etc.). The list is not complete, but it represents the variety of working factors to be considered. Measures to prevent, eliminate or reduce work-related stress can be either collective (aimed at the generality of workers or at homogeneous groups), or individual (aimed at a single or few workers exposed to stress risk conditions or, as they are oversensitive, to stressful conditions, common to all). Collective measures involve interventions related to the revision of work organization, such as timetables (e.g. by using more flexible and individualized models), support for the reconciliation between work and private family life, enhancement of the tools and technological automatisms available to reduce burdensome and painful aspects of the job, a better definition of procedures and roles in the workplace, adoption of ergonomic measures (with regard not only to environment and tools, but also to work processes) or measures aimed at improving communication and management of relationships in the specific working context. But there is a more complex intervention on the individual level, which includes individual differences in gender, age, social background and the type of contract, different levels of individual "tolerability", potentially variable among the workers (think about aspects of fatigue, discomfort, etc. related to job performance), and possible interference of "external" causal factors and / or attributable to private family and relational settings of the person concerned. However, if we intervene only on the organizational factor of work (such as its burdens or rhythms) there is a risk of making the change in completely random way, without deepening the relationships between the different subjects involved. Therefore it is necessary that the companies examine their organization according to a path that studies all variables indicated above in order to evaluate and confront the factors of work stress. In this way it will also be possible to identify the most appropriate and effective corrective measures.

Furthermore, the importance of work-related stress risk is even more evident, if we consider that it also acts as a modulator of the traditional risks (chemical, physical, etc.) by exacerbating the effects. Anyway, these indicators must be adapted and integrated in the single working context by

including, as appropriate, others or different types of the list, if these are present and relevant in this specific field.

Workplace violence interventions

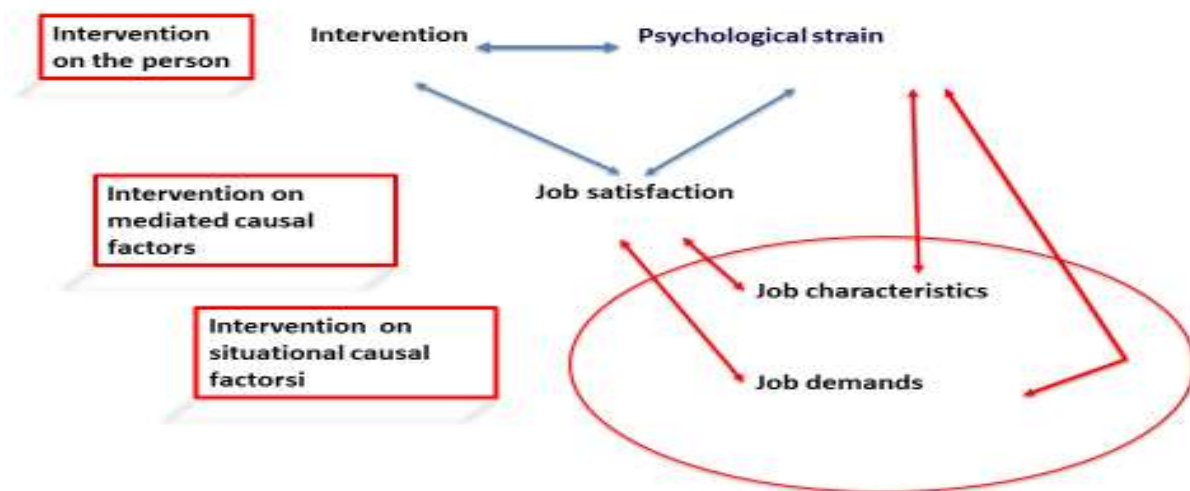
For the purpose of global understanding of the workplace violence and for the implementation of the prevention of stress work, it is important to know job characteristics and the individual aspects of the healthcare professionals such as gender, length of service and job activities, and even though these do not influence the frequency of violence exposure, all the same they affect somehow the healthcare workers' psychophysical wellbeing. In fact, in both men and women working in an environment that is exposed to the risk of violence, the feeling of overload and pressure increase with age, the work overload more in women than in men and isolation and insecurity more in men than in women increase with the length of service, together with a decrease in physical and mental wellbeing. The physicians seem to feel the effects of excessive professional responsibilities and the continuous interference in their work more than other professional positions. Healthcare professionals who have suffered many aggressions have the highest stress scores. With regard to working conditions, most men and women reported the presence of frequent environmental and organizational risk factors involving the manifestation of violence. In particular, the non correspondence of organizational and structural environment quality to the expectations of patients and/or relatives, waiting times and lack of information on the way in which are provided emergency services, disappointed expectations of patients and/or family members and communication difficulties between healthcare professionals and patients (Cannavò *et al.* 2017, 2019; Cinti *et al.*). In current research models only a few studies address the prevention of stress as a result from violence, the importance of early recognition of the psychological disorders in the healthcare professionals (Weinberg & Creed) and the efficacy of interventions to improve worker health and reduce sick leave (Nieuwenhuijsen *et al.*). In general, only the relationship between violence and the already recognized effects on the workers' wellbeing and health is researched.

Discussion

Actually, it is necessary to activate a program for the prevention of violence and stress, the treatment and the psychological support for all those who reported they have felt stressed or those who are at risk of stress following the attacks, because emotional and psychological consequences and job dissatisfaction impact on the quality of life of the attacked healthcare professionals and reduce their quality of nursing care for the patients, with a higher risk of errors, accidents and absenteeism in the workplace. The modified model (Brough & Biggs), when applied to violence and work related stress, allows to consider the direct effects of violence (specific demand) on wellbeing and health (psychological strain), on lifestyle and work habits (job satisfaction) of the healthcare professionals jointly with the mediation effects of each factor on the other, according to a circular perspective of constant reciprocal influences, in which the working

characteristics such as the decisional autonomy and the support, in turn, affect the results of violence on the mental health of the healthcare professionals and their job satisfaction. The model thus obtained allows for in depth analysis not only on synchronic relationships but also on diachronic ones. This study emphasizes the importance of analyzing, in addition to general demands, the specific demands such as the phenomenon of violence, considered a key risk factor, predictor of stress and possible mental disorders in healthcare workers operating in high risk environments. Moreover, this study confirms the importance of application of the modified model by Brough & Biggs to intervene on the prevention and management of violence and stress that shall be effective and take into consideration the complexity of the phenomenon and shall be implemented on all three levels: individual, organizational and situational. If we intervene in isolation and sporadically we will obtain only an episodic and temporary effect as a result and not the effects linked to the interaction between the results of the various elements, which should ensure stability and permanence of its efficacy (Brough & Briggs).

Figure 1 Relationships between the intervention and the effects on well-being and health
Brough & Biggs 2013, modified



Also de Vente *et al*, provide a support for the application of a multidisciplinary therapeutic approach by considering the predictors of stress disorders and those of work resumption, both are manifestations of the recovery process from stress. An important milestone towards the combined approaches was the Ottawa Charter that established the relevant policies, the creation of comfortable environments and the development of personal skills, an action of community strengthening and reorientation of the health services towards promotion of health (WHO, 2010). La Montagne *et al*, reviewed the interventions on stress in the period from 1990 to 2005. The authors analyzed 90 interventions and divided them into three classes: those with organizational and individual focus, those with simply organizational focus and those with only individual focus. The latter were effective only on an individual level, the other two interventions had a positive impact both on individual and organizational level. Similar results were observed in

earlier studies (Van der Hek & Plomp; Van der Klink *et al*). The study by Hassard & Cox also highlights the importance and benefits with the use of a multidimensional approach containing a set of strategies focused both on the healthcare professionals and on the organization for an effective prevention and management of the causes and consequences of stress. In general, stress prevention and management should include strategies that address both the preceding events of work related stress and the effects on health (Giga *et al*). This means that a single intervention is ineffective and it is necessary to realize the programs that combine more interventions, because they are more appropriate to obtain a reliable analysis of the problem (Sutherland & Cooper).

Given the complexity of the factors that contribute to the manifestation of violence episodes and correlated stress, it is necessary to assume a model of integrated multidimensional intervention that takes into account all the elements contributing to the phenomenon and shall be realized A) at individual level on the healthcare professional, B) at organizational level on the causal factors of the organization C) at environmental level on situational causal factors.

A) The intervention on the health professionals is based on early recognition of the stress signs and on possible treatment, it acts directly on the psychological wellbeing and health of the "victim of violence" and indirectly on *job satisfaction*. The intervention allows to avoid the onset of some mental disorders such as burnout (de Vente *et al*) and of mood disorders and/or incorrect lifestyle, for example the increase in use of tobacco, alcohol, drugs and psychoactive substances or even narcotics, which, in turn, are considered to be important risk factors of developing physical and/or mental diseases. In addition it is advisable to intervene early also on the presence of changes in daily habits such as change in interests and reduction of the hours spent in non work time that may be the warning sign for the discomfort of the healthcare worker.

B) The intervention on organizational causal factors is aimed directly at improving *job satisfaction* through specific interventions intended for the improvement of the working conditions. Improving *job satisfaction* will, in turn, lead indirectly to an improvement in wellbeing and health of the "victims of violence". Or we can even assume a direct intervention to improve *job satisfaction* through the implementation of "motivational" training courses.

Violence prevention and management training courses are also very important to teach the staff to react to violence in professional manner by using effective communication, conflict resolution, defusing and deescalation techniques and effective coping strategies. In this regard, it has been shown that the use of avoidance strategies may interfere with the recovery process, because problems at work or during absence from work are resolved improperly, leading to the prolongation of negative emotion (Folkman & Lazarus). The use of the avoidance technique can also cause dysfunctional lifestyle behaviors, which, in turn, could delay recovery (Folkman & Lazarus; Frone & Windle). On the contrary, using fewer avoidance strategies was associated with fewer stress related disorders (Cushway & Tyler) and with recovery of depression (Rohde *et al*). It can be also useful to educate the healthcare professionals on how to manage stress by use of relaxation techniques, such as mindfulness, for the improvement of resilience.

Lacking support from colleagues can reveal the presence of internal conflicts that can affect health even during the absence from work and deliver more frequent health problems (De Raeve *et al*). High levels of support, instead, have a protective effect on mental health (Stansfeld *et al*, 1997; Stansfeld & Candy).

C) The intervention on situational causal factors involves a direct action aimed at improving the external characteristics of work environments. This intervention will directly improve *job satisfaction* and also have indirectly an influence on improving the wellbeing and health of the workers.

For example, we should increase security measures and resolve the lack of correspondence between the expectations of the patients and of their family members and the services that are offered, by providing more information to the family members on waiting times and updating them, when possible and by respecting patient privacy, on the clinical situation of their loved one and on possible medical examinations in course.

Occupational doctors can have an important role in recognizing the worker's discomfort and in urging the employer to improve the working conditions. For example, employers can provide support by a supervisor in order to promote a more effective management of job demands and encourage the colleagues to offer support to an absent colleague. It has been shown that the supervisor's support allows for a quicker return to work (Nieuwenhuijsen *et al*, 2004, 2006).

Finally, the commitment to create an atmosphere of serenity and trust among consumers, workers and patients is crucial to ensure that the hospital is the place where consumers find reliable information for their serious health issues.

But there are predictors that cannot be modified by interventions in any way, such as gender, age, cultural level and precarious work. These are considered indicators of groups at risk, for which specific interventions must be planned. Nieuwenhuijsen affirmed that age and cultural level are predictors that can be used by the occupational doctor to identify cases at risk of adverse outcomes. In fact, the workers with lower cultural level tend to have more stressors such as economic problems (Van Oort *et al*) and have more health issues (Mackenbach *et al*), which can decrease their recovery. The older healthcare workers need a longer recovery time than the young ones (Kiss *et al*) and old age is a predictor of long absences from work due to illness in patients with mental health problems, adaptation disorders or chronic fatigue (Huijs *et al*; Huibers *et al*). Finally, precarious workers are left at greater risk of health problems (Mohren *et al*; Storseth) and mental health such as depression and anxiety (D'Souza *et al* 2003, 2005).

Conclusions

In light of the foregoing, it can be stated that "*violence at work*" is a specific stress risk factor, predictor of stress and possible stress related diseases among the emergency healthcare workers. In fact, both men and women who had suffered frequent episodes of violence presented higher levels of stress than those who had never suffered any aggression. In relation to the differences between genders, women suffer more consequences on wellbeing and health than men. It is therefore important to recognize violence at the workplace as a cause of stress and to intervene in advance in order to prevent a decrease in wellbeing and physical condition of the healthcare professionals, an increase in job dissatisfaction and reduction of the quality of care for the patients, implementing support strategies for the victims of violence in order to create a safe environment for both the healthcare staff and the patients (Cannavò *et al* 2017, 2019; Cinti *et al*).

Stress prevention and management strategies must be based on a multidimensional intervention model, integrated and coordinated, aimed at modulating all the single components of the phenomenon. In general, it is possible to intervene on all three levels; specifically, on the individual level we can intervene at a preventive and management level. At preventive level to recognize the presence of stress and avoid the onset of mental disorders and at management level to treat the existing diseases. Stress perception, in fact, modifies the relationships between the three levels described above to the point that the three levels are perceived in a different way. In particular, when the situation is stressful, stress modifies the perception of the situation, which in turn, becomes more and more stressful due to the changes that have been implemented.

However any psychological intervention, if it is used alone and without a contemporary intervention on the various external contributory elements, will result in an unstable and unproductive effect over time. For example, the improvement of the workers' mental health will not necessarily improve the relationships at work, if no direct intervention is implemented on the relationship. This may be due to a specific selectivity of the interventions or to the fact that one of the stress effects is not to determine the various symptoms on behavioral level, but a disintegration of ability of interaction and integration. There is an urgent need to tackle the problem of violence/stress at work in order to cope with the new demand for health and to assess the consequences on mental health for the healthcare professionals even after a certain time from the suffered violence (Zafar *et al*).

Furthermore, the efficacy of interventions of prevention on mental condition of health professionals subjected to incidents of violence should be evaluated (Gillespie *et al*).

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