



Review Article

Challenges and adversities among doctors in the era of healthcare disruption: Reflection from COVID-19 pandemic

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Abstract

The doctor's profession is noble and tied up with quite strict rules, both in terms of ethics as well as discipline. Naturally, there is a problem of asymmetrical information between doctors and patients, often leading to misunderstandings. The purpose of this review is to map the available evidence related to the challenges and difficulties faced by doctors in the era of disruption. The evidence indicate that disruption of health services has both positive and negative effects. Many aspects related to the use of technology in the medical practices including innovation, cost-effectiveness, and quality improvement. However, psychologically, the doctors often get frustrated by internal or external triggers. The external factors, ranges from the equipment and work procedures, for instance, using high technology, communication with management, inter-professional relationships, patients, and their families. Volatility, uncertainty, complexity, and ambiguity (VUCA) could cause stress and burnout. In this case, doctors are highly vulnerable, and consequently, have the potential to make mistakes. Therefore, the adversity faced by doctors ought to be mapped. Resilience is a barrier against stress and burnout and the ability to adapt in resilience among doctors is important factor in dealing with the disruption era.

Keywords: Adversity, challenge, healthcare disruption, burnout, resilience

Introduction

The world is currently changing rapidly, and witnessing the disruption era. According to the Oxford Learners Dictionary, disruption means disturbance or problems interrupting an event, activity, or process. Conversely, disruption refers to interference or a trend break. In other words, disruption is regarded as an innovation, where a system changes from the old to the new one. In this development, disruption, among others, touches on old, all-physical technology, with digital technology, and ultimately produces a truly new, more efficient, and highly useful thing [1, 2]. Disruption has penetrated many fields, including the economy, education, business, construction, social relationships, and health services [1-3] (**Table 1**). The studies described disruption as rapid changes occurring in a small number of industries, including financial services, real estate, transportation, healthcare, human resources management, global container shipping, and ports [3-7].



Table 1. The differences between elements in the prior era and the era of disruption

| Elements | Prior era | Disruption era |
|------------------|----------------|----------------|
| Focus | Owning | Sharing |
| Quality | Standard | Improved |
| Cost | More expensive | Cost effective |
| Procedure | Complex | Simple |
| Using technology | Less | More |
| Innovation | Less | More |

The era of disruption was divided before the coronavirus disease 2019 (COVID-19) pandemic and during the COVID-19 pandemic. Starting at the end of 2019 until this paper was written the pandemic is still ongoing [4-7]. Before the COVID-19 pandemic, the era of industrial revolution 4.0 began in 2000–2005, when the internet began to develop and speed up [4-6,8]. Beginning in 2010, when the internet system began to penetrate all products including public services such as medical care, cloud storage, and big data, industrial revolution 4.0 grew much bigger [9-10]. The 2008–2009 global financial crisis occurred between the beginning of the internet era and the development of the internet era. This is the most serious financial crisis and under such circumstances, the era of disruption especially in healthcare began to develop [4,5,9-11]. The pandemic era began at the end of 2019, when COVID-19 broke out in Wuhan, and until this manuscript was written, the pandemic continued [12,13].

In fact, disruption in any field contains innovation and is therefore positive. Disruption is bound to have a significant effect in the case of quality and cost [14]. In terms of quality, a quality improvement occurs at a lower cost. This means all aspects become more effective and efficient in the disruption era. In the disruption era in the field of healthcare, innovations such as telemedicine and artificial intelligence (AI) mean low costs and efforts to prevent the risk of disease transmission among citizens, especially in a pandemic situation [15,16]. On the other side, the disruption era causes volatility, uncertainty, complexity, and ambiguity (VUCA) that leads to stress, burnout, and mental disorder for doctors [13,17,18]. In relation to this, the use of sophisticated tools, for instance, computers and the internet, can cause stress too for some doctors [19]. This stress in turn has the capacity to make doctors vulnerable to the occurrence of misconduct, failure, and poor quality [20].

Prior to the disruption era, the focus was on own resources, but in the era of disruption, the focus actually shifted towards sharing. This does not have any resources, however, with various models of cooperation, competitively priced services or products with improved quality are produced [2]. This was also followed by procedures implemented. In the prior era, the procedure was quite complex, however, in the disruption era, the procedure was simpler [2].

In this review, we discuss the challenges and difficulties faced by doctors in the disruption era. We also discuss the positive and negative effects of disruption in health systems including for the doctors. It is hoped that the difficulties faced by doctors can be mapped and therefore the prevention and control measures can be implemented.

Positive effects of healthcare disruption

In the field of health services, disruption causes the development in the use of computerization as well as other sophisticated tools aimed to greatly assist patient services. In addition, telemedicine has become more developed (**Table 2**). Thus, services aided by artificial intelligence systems have also experienced rapid development [10, 16]. Therefore, in the health sector, there are enough aspects influenced by disruptive mindset, including e-medical center, smart hospital, telemedicine, Google Deepmind, and AI [2]. A case study of disruption in dialysis services for underprivileged Indonesians was carried out by technical experts, not doctors. The study used a long-standing clinic with a fairly strong analysis, and offered dialysis services at a 50–70% rate of the actual hospital price [2].

Medicine is a noble profession that is bound to various ethics and disciplines. This makes medicine distinguished from other occupations because of its qualities such as formal education, control over training standards, and unique disciplinary mechanisms. In snapping these, there

are scientific journals that discuss the relatively high standards of the social status of practitioners, protection from state regulations, and market pressures [21].

Table 2. Achievement of disruption era in health care

| Achievement | Prior era | Disruption era |
|----------------------------------|----------------------------------|------------------------------------|
| Using technology in doctor visit | Traditional doctor visit | Telemedicine |
| Clinical Management data | Separated data | Big data (artificial intelligence) |
| Medical Center | Manually operated medical center | e-medical center |
| Hospital | Traditional hospital | Smart hospital |
| Insurance | Traditional insurance companies | e-Insurance |

Negative effects of healthcare disruption

In addition to the highly positive and beneficial effects of disruption on the health services sector, health workers experience challenges and even difficulties. Adversities faced by health workers are classified into 2 aspects, internal and external factors. Internal factors include the doctor's mindset about whether disruption is going to provide help or present a challenge [22-23]. External factors do not come from within the doctors but from job demands such as patients, management demands, no support from management, and COVID-19 pandemic factors.

Work stress and burnout

Healthcare in a disruption scenario, especially during the COVID-19 pandemic, faces various challenges and difficulties, including VUCA [17,18]. These challenges and difficulties expose doctors to a risk or even occurrence of physical and psychological disorders while performing their noble duties. Therefore, it is no exaggeration by categorizing medicine as one of the professions in the health sector especially human services, as professions with high challenges as well as adversity, and consequently, susceptibility to stress as well as burnout [22-23]. According to Oxford Learners Dictionary, burnout is physical or mental collapse caused by overwork or stress. Burnout is characterized by emotional fatigue, lack of empathy, and low achievement [23]. The impact of disruption on the medical profession results in vulnerability caused by internal and external factors.

Based on the annual Medscape Lifestyle Report survey on thousands of respondents, doctors in the United States have shown a significant increase in burnout rates. From the report, the burnout percentage was about 40% in 2013, and had reached 53% by 2017 [24-26]. In addition, female doctors are more likely to experience burnout, compared to male counterparts. The report discovered that burnout was experienced by 51% of female doctors and 43% of male doctors. However, by 2016 and 2017, 55% and 45% of female and male doctors, respectively, reported burnout [26,27]. Burnout were found to be experienced by almost all doctors, whether junior, student-specialists (residents), or doctors practicing in the community [24-28].

The type of expertise or specialization experiencing burnout was also discovered to increase from 25 specialties in 2016 to 30 specialties in 2017, with varying severity. In 2015 and 2017, doctors in the emergency department were consistently in the 2nd highest percentage of doctors experiencing burnout [24,25]. Meanwhile, in terms of severity, doctors in the critical patient care section also ranked first in 2016 with a mean of 4.7 on a scale of 1 to 7, where a value of 1 means no effect on life and a value of 7 means highly influential to the point where the doctor considers a career change. However, in 2017, the first position was replaced by the urology and otolaryngology section, although the critical care and emergency department retained a high burnout severity rate [26].

A study showed the causes of burnout involve many factors, and some of these factors are personal, family, or work-related [23]. The most frequent and consistent top-ranking causes of burnout in doctors over the past several years include a high level of bureaucracy-related tasks, long hours of work, inadequate pay, the use of computerization (information systems) in medical services, lack of requirements on professionalism, and the threat of malpractice accusations [24-26]. Other common causes of burnout in doctors as the organization's driving force include a high number of difficult patient cases, numerous insurance-related issues, the struggle to maintain certificate requirements, inadequate professionalism requirements, too many patient-visits in a

single day, issue with staff and colleagues' relationship, the impact of the Affordable Care Act, inability to provide health services required by the patient, family stress, and uncertainty [24-26] (**Table 3**).

Table 3: The challenges and adversities among doctors with the capacity to cause burnout from internal and external factors

| Challenges and adversities | Factors | | Commentary |
|--|----------|----------|---------------------------------------|
| | Internal | External | |
| High workload | | ✓ | Job demands as adversity |
| Long working hours | | ✓ | Job demand as adversity |
| Lack of skill related IT/computer | ✓ | | Lack of personal capacity |
| Lack of interpersonal Communication | ✓ | | Lack of personal capacity |
| Lack of Equipment | | ✓ | Lack of job resource |
| No procedure operational standard related to recent technology | | ✓ | Lack of job resource |
| Bad communication because doctors focused on technology, not human | | ✓ | Lack of personal capacity |
| Bad communication with management | | ✓ | Lack of job resource |
| Bad interprofessional relationship | | ✓ | Lack of job resource |
| Insurance issues (alignment cost and quality) | | ✓ | Complexity and uncertainty |
| Low satisfaction of patient | | ✓ | Complexity and uncertainty |
| Family problem | ✓ | | Lack of family support |
| Financing problem | ✓ | ✓ | Both internal and external problem |
| Lack of support related to the implementation of standard operating procedures (SOP) from existing sophisticated tools | | ✓ | Lack of job resources from management |
| COVID-19 pandemic | | ✓ | Volatility, unpredictable |

A cross-sectional study on burnout and depression among doctors in Cape Town, South Africa discovered that the number of work hours, workload, workplace conditions, as well as frustration associated with the system are factors contributing to burnout [29]. In this study, burnout was assessed using Maslach Burnout Inventory (MBI) and found that 76% of the 132 respondents experienced burnout. In the same study, depression was assessed using Beck Depression Inventory (BDI) and discovered that 27%, 3%, and 70% were categorized as moderate, severe, and mild, respectively. Meanwhile, another international study showed that 22% to 60% of doctors had reported burnout experience [29]. The situation during the COVID-19 pandemic was fully volatile, uncertain, complex, and ambiguous. The pandemic was a strong stressor of burnout among doctors [18,30].

Impact of burnout

The incident of burnout among doctors in hospitals is wide-ranging and its negative effect causes harm to the doctor himself, the patient, and the organization. Burnout and other forms of psychological stress cause symptomatic conditions among doctors. Other forms of psychological pressure include feelings of unhappiness, depression, and stress [25-29]. Not only burnout promotes physiological issues, but also causes physical problems such as sleep disturbance, tension headache, and their impact. Alcohol and drug abuse by doctors often happened in some countries [26,27]. Burnout also makes doctors experience discomfort. Furthermore, in the advanced stage, combined with other additional problems, the burnout is heavy and is bound to cause a significant loss. In many cases, the reports on actions considered as malpractice to the legal department or mass media can cause the second stage of burnout.

Burnout is directly related to many aspects associated with the doctors' undesirable consequences including patient dissatisfaction, low quality of care, high rate of medical errors, and malpractice risk [31]. In organizations or workplaces, a doctor who is experiencing burnout will potentially make mistakes, especially in cases where medical errors, malpractices, or failures occur [31,32]. In terms of quality and costs, burnout in doctors causes a decline in quality. The impact of a decline in quality will rise the cost of poor quality [32].

Against burnout: Does it require resilience?

Individual resilience is described as a person's capacity to manage stress and adversity in all stages and areas of life and will bounce back after adversity [33]. To identify resilience, two conditions are needed: the presence of a significant threat to the individual (high-risk status) and the adaptive capacity [34]. Nowadays, the term resilience has been widely used to describe a substance's elastic qualities, capacity for successful adaptation to a changing environment and the character of hardiness, and immunity [33,35].

The historical journey of resilience has two important points of view, namely psychological resilience and physiological resilience. Psychological resilience is one of the most important things related to individual well-being and happiness, while physiological resilience is a homeostatic mechanism in developing resilience when humans face various stressors in their lives. Resilience has a multifactorial concept. Some define that resilience is a process and others interpret it as an outcome [36].

The era of disruption that presents a lot of advanced technology and equipment including computers provides many advantages in terms of health care for patients. However, in taking advantage of this advanced technology, doctors must adapt and take some time to learn the equipment [4,5,10].

A study reported that certain doctors experienced special stressors while dealing with advanced technology and computers, especially doctors from baby boomers and generation X [37]. Some doctors feel less familiar with or do not understand the existing technology. Increasing computerization in practice, lack of knowledge or skill to operate computers or sophisticated devices, and inability to deal with technology often cause unwillingness and eventually lead to stress or even burnout [24-26,37]. Technology sometimes becomes a barrier to doctor's inpatient treatment. In the provision of services to patients using a computer device, doctors tend to focus more on computers while inputting data or looking at charts, rather than pay attention to patients. It causes the high number of a patient-doctor misunderstanding and presents a unique concern. Furthermore, another study reported that empathy was missing in the health service using information technology and thereby proposed the design of a human center [38]. The entry of technology is considered to threaten the autonomy of doctors' inpatient treatment. It occurs in the form of pressure from outside parties, including workplace management, health insurance payers, or even patients. In many cases, patients often ask for a check with sophisticated tools, and it is sometimes unnecessary [38].

The use of advanced technology in health care leads to quality improvements, but from a cost perspective, the possibilities for improvement are large [5]. Therefore, it is difficult to control the quality of cost control demanded by health insurance. It can be concluded that in healthcare, most of the technologies have failed higher quality, with lower cost and ease of access [5]. Doctors often feel stressed leading to burnout, among others, and this is influenced by the conflict factors of doctors and insurance parties, regarding the cost and quality of health services. A feeling of guilt occurs when a doctor is unable to provide help to patients according to individual needs, due to various limitations [24,38].

Internal and external factors influencing the rise in doctors' vulnerability to challenges and difficulties often lead to stress, and even burnout. In the case of burnout, the term "professional burnout phenomenon", a burnout condition affecting professionals, including doctors, was recently developed [23]. Burnout has a worrisome impact and is bound to endanger the safety of patients. Therefore, in a doctor experiencing burnout phenomenon, the requirements to become a professional stock in the attitude towards patients are bound to decrease and even disappear, consequently, reducing professionalism greatly. In cases where a doctor's professionalism decreases due to burnout, more problems are bound to occur, including service quality failure, error, and poor quality [39]. The next consequence is going to be a great financial difficulty (cost of poor quality), leading to inefficiency.

Based on all the explanations, one way to mitigate the risk of burnout is to promote resilience for doctors. Resilience becomes the competence that should be one of those compulsory things owned by the physicians because the challenge and dynamics of physician work will always be full of stressors [18,40-42]. Therefore, resilience becomes the program or competence that must be introduced to the physicians during their education. Resilience, especially at work, becomes

significant not only as psychological resilience but also that one developed by virtue of combination between in-built program (the existing talent) and something built as to how to build a network that is also even related to the medical status of the doctors [36]. The willingness and capability of the doctors to improve body fitness and maintain body intake, and ability to carry out resting management will highly affect the emotional condition of the doctors. Resources become real support for building resilience [43]. Therefore, the resources and resilience will strengthen each other in the face of burnout. Finally, in order to anticipate the challenges and difficulties occurring due to disruption scenarios, doctors are required to know and apply resilience in practice.

Conclusion and future research

The era of disruption in the field of health services is inevitable and the medical profession can become vulnerable. Resilience is an effort to strengthen doctors in facing challenges and adversities during this disrupted era, in a bid to maintain professionalism. More specific challenges and adversities such as the type of them for further study are recommended. It is important to investigate the mechanism of doctors' coping with facing specific challenges and adversities.

Ethics approval

Not required.

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Competing interest

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Underlying data

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