



## Review Article

# Physicians' Workload and Quality Healthcare in Indonesia

Rovy Pratama<sup>1\*</sup> and Amanda Yufika<sup>2</sup>

<sup>1</sup>Occupational Health Division, Public health and Community Medicine Department, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh-Indonesia, <sup>2</sup>Department of Family Medicine, Faculty of Medicine, Universitas Syiah Kuala, Aceh, Indonesia

\*Correspondence:

**Rovy Pratama**  
Occupational Health  
Division, Public health  
and Community Medicine  
Department, Faculty of  
Medicine, Universitas  
Syiah Kuala, Banda Aceh,  
Indonesia

E-mail address:  
rovy.pratama@usk.ac.id

## Abstract

Indonesian law regulates that physicians might work in maximum three places. This policy results in increased workload, which might lead to burnout, affecting the quality care. This review aimed to explore how physicians' workload affect the quality healthcare in Indonesia. We found that most Indonesian physicians worked long hours due to the current policy allowing them to work in maximum three medical centers. Vast majority of doctors in Indonesia also had to deal with abundant administrative works, especially since the implementation of *Jaminan Kesehatan Nasional (JKN)*. Excessive workload increased work-related stress and job dissatisfaction, which eventually increased physician's burnout. All these results in poorer quality healthcare. One of the solutions is to regulate physicians to only work at one healthcare facility (Mono-loyalty). However, a careful consideration and thorough preparation to adopt this policy is warrant.

**Keywords:** Workload, healthcare quality, physicians' burnout, mono-loyalty, health policy

## Introduction

Physicians play a pivotal role in ensuring the quality of healthcare; however, they often have poor well-being due to heavy workload. Physicians' workload, refers to the amount and structure of the work, is often measured as total work hours or time pressure (Williams et al., 2007a). In regards to work hours, doctors tend to have longer workweek than general population, not to mention on-call weekends (Williams et al., 2007a). In terms of the amount of work, physicians are not only responsible to take care of patients, but also do administrative works such as prior authorizations, clinical documentations, medication reconciliation, and maintenance of certification (Rao et al., 2017). Some physicians are also responsible for managerial duties as some of them also serve as the head of departments or hospitals. All these results in increased workload for the physicians.

Investigations showed that increased workload might lead to increased work-related stress and job dissatisfaction, which eventually results in burnout (Karasek and Theorell, 1992; Rao et al., 2017; Shanafelt et al., 2015; Shanafelt et al., 2019; Shapiro et al., 2000). Moreover, studies suggested that stress, job dissatisfaction, and burnout were negatively associated with physicians' wellbeing (Oreskovich et al., 2012; Rathert et al., 2018; van den Hombergh et al., 2009; Williams et al., 2020) and performance (Haas et al., 2000; Mosadeghrad, 2014; van den Hombergh et al., 2009; Williams et al., 2020). Heavy workload will not only affect physicians' factor in providing quality healthcare, but also create less supportive environment for an optimum quality of care.

Indonesia, the largest archipelago country with over 17.000 islands, is the world's fourth most populous nation with a population of more than 270 million people (World Bank, 2018). Difficult geographical condition and huge population present great challenges to health service delivery in Indonesia (Efendi, 2012; Jacobalis, 1989). To ensure the availability of healthcare services across the country, Indonesian government allows physicians to work at a maximum of three healthcare facilities (President of Republic of Indonesia, 2004). On the other hand, the number

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of patients visiting health centers has been increasing since the implementation of *Jaminan Kesehatan Nasional (JKN)* – a national health insurance program – in 2014 (BPJS, 2014; BPJS 2015; Maharani et al., 2019a).

Working in more than one places means longer working hours and more patients to see, results in heavier workload for Indonesian physicians. In addition, healthcare deliveries are not uniform, especially in remote islands and impoverished regions where doctors are not equipped with proper facilities, technologies, or supported staffs (Indonesian Ministry of Health, 2013; Indonesian Ministry of Health 2015a), which also increase workloads for physicians in Indonesia.

The effect of physicians' workload has been studied intensively over the past years, yet most of the studies are done in developed countries and focused on the consequences of workload on the physicians rather than the healthcare quality. This review aims to elaborate the effect of workload on quality healthcare in Indonesia, to serve an insight on the improvement of healthcare service quality in low- and middle-income countries.

## Quality of Healthcare in Indonesia

In Indonesia, primary healthcare programs such as family planning, vaccination, mother and child care, dental care, nutritional improvement, and health education are provided by general physicians in public healthcare centers (PHC) (known locally as *Puskesmas*) and private healthcare facilities at the district levels, with some auxiliary health centers located in sub-districts (Indonesian Ministry of Health, 2016). Meanwhile, secondary and tertiary healthcare are provided by public and private hospitals at the cities and provincial levels (President of Republic of Indonesia, 2012).

Most health service costs in Indonesia were out-of-pocket until the implementation of the mandatory national health insurance, JKN, on 1 January 2014. *Jaminan Kesehatan Nasional (JKN)* is managed by the Social Health Insurance Administration Body (*BPJS Kesehatan*) as the single payer, aims to achieve universal health coverage (Maharani et al., 2019b).

To ensure access to healthcare for all its citizen, Indonesian government also established more healthcare centers and placed more medical personnel (including doctors) across the country, especially in remote islands and impoverished regions (Maharani et al., 2019b). The number of primary health centers increased from 13,209 in 2012 to 19,969 in 2015 (BPJS, 2015). The government also implemented several policies to recruit doctors to remote and impoverished communities, one of them was by imposing a compulsory rural service for new graduates (Efendi, 2012). The improved quantity and accessibility of healthcare in Indonesia results in increased healthcare utilization, higher life expectancy, as well as decreased maternal and child mortality, including among the impoverished and near-impoverished people (Indonesian Ministry of Health, 2018; Rolindrawan, 2015; Teplitskaya and Dutta, 2018).

In addition to quantity, Indonesian government also tried to improve the quality of healthcare services. Indonesian government developed quality assurance programs such as accreditation to standardize the quality of healthcare services at the primary, secondary, and tertiary health centers (Maharani et al., 2019a). The accreditation for PHCs (including *Puskesmas*) started in 2015, with the target to have all PHCs in Indonesia to be accredited at least once in every three years (Indonesian Ministry of Health, 2015b). Meanwhile, the accreditation program for hospitals in Indonesia began in 1995 and is managed by the Indonesian Commission on Accreditation of Hospitals (ICAH) (Hort et al., 2013). The government made accreditation mandatory for all hospitals through the issuance of the Indonesian Hospital Act in 2009 to ensure the quality of healthcare (Wardhani et al., 2019). To

achieve international quality, Indonesian government has adopted the Joint Commission International (JCI) hospital accreditation standard since 2013, which focused more on the process of care (Broughton et al., 2018). Last, the credentialing of healthcare providers is done by BPJS under the universal health care quality coverage policy (Broughton et al., 2018; Hort et al., 2013).

## Physicians' Workloads in Indonesia

The demand-control model suggested workload as the source of stress and job dissatisfaction among physicians (Karasek and Theorell, 1992). Physicians' workload is often defined as the amount and structure of work doctors have to do and is usually measured as work hours (Williams et al., 2007b). Doctors often have long workweeks, on-call weekends and inconvenience as they provide care to the patients (Williams et al., 2007a). Surveys reported that physicians worked 50-60 hours per week, exclusive of on-call activities (Martin, 2002; Rice, 2001). Long working hours increased physician's workload and was associated with increased work-related stress, resulted in burnout (Williams et al., 2007a). A study reported that the odds of burnout among physicians increased by 12-15% for each additional 5 work hours per week over 40 hours (McMurray et al., 2000). An investigation by Linzer et al (Linzer et al., 2002) found that both number of work hours and time pressure were significantly associated with stress among US physicians, even after controlling for age, gender, medical specialty and practice setting. Furthermore, a study among physicians in Taiwan showed that longer work hours was associated with higher job dissatisfaction and more burnout (Tung et al., 2020).

Apart of clinical responsibilities, physicians also have to perform administrative and managerial tasks such as holding meetings and writing reports (Friedberg et al., 2014; Rao et al., 2017; Teirstein, 2015). In average, physicians spent 16-22% of their work hours on administrative tasks and paperwork (Woolhandler and Himmelstein, 2014). Previous studies suggested that physicians who spent longer hours on administrative duties had higher job dissatisfaction (Woolhandler and Himmelstein, 2014), higher levels of burnout (Rao et al., 2017; Shanafelt et al., 2015; Shanafelt et al., 2019), and were more likely to see fewer patients (Rao et al., 2017). However, one study found that physicians with managerial tasks were significantly more satisfied with their jobs than those without managerial tasks (Maharani et al., 2019a).

In Indonesia, physicians are allowed to work at a maximum of three facilities due to limited and less-distributed doctors across the country (President of Republic of Indonesia, 2004). Despite the growing medical schools in the country, the ratio of physicians per 100.000 people remains low in Indonesia (around 16.04), even below the World Health Organization (WHO) recommended ratio (Indonesian Ministry of Health, 2016; Maharani et al., 2019a). A lot of physicians work as civil servants in public hospitals or healthcare centers in the morning and work at private clinics or solo practices in the afternoon (Heywood et al., 2011). In addition, doctors also provide inpatient care and have on-call duties even during weekends. Many of them also provide care outside their practice schedules, usually for neighbors and relatives, due to the Indonesian cultural values (Maharani et al., 2019b). These practices result in longer working hours and heavier workload.

Changes in the financing, organization, and delivery of care in Indonesia within the last few years have also increased physician workload. As the number of healthcare facilities increased, and more people could afford healthcare services through JKN, the number of patients visiting health centers also increased (BPJS 2014; BPJS 2015). Working in more than one facility means longer working hours, more patients to see, and more administrative duties to do, all of which resulted in increased workload. As mentioned before, heavy workload might lead to higher

stress levels, lower job satisfaction, and higher risk of burnout (Karasek and Theorell, 1992; Williams et al., 2017a; Woolhandler and Himmelstein 2014). A study by Maharani assessing job satisfaction among primary care physicians in Semarang and Demak, West Java, Indonesia showed that 26.8% of respondents were not satisfied with their workload as a JKN physician. The study also indicated that workload was associated with job dissatisfaction regardless what type of practice physicians did (health centers, health centers with inpatient care, PHC clinics, or solo practices) (Maharani et al., 2019a).

## The Impact of Physicians' Workload on Quality of Healthcare Service

The impacts of workload on physicians' health have been intensively studied within the last few years. Excessive workload increased work-related stress and job dissatisfaction, which might lead to burnout (Karasek and Theorell, 1992; Tung et al., 2020; Williams et al., 2007b). Physicians' heavy workload and stress have been associated with alcoholism (Oreskovich et al., 2012), drug abuse (Spurgeon et al., 1995), problems in social relationships, occupational diseases, depression, anxiety, and suicide (van den Hombergh et al., 2009).

Not only does it affect physicians' health, heavy workload and work-related stress also affect the quality of care delivered by the physicians. Studies showed that doctors burdened with heavy workload, poor compensation packages, low quality of work life, and poor leadership tended to deliver poor quality of patient services (Haas et al., 2000; Mosadeghrad, 2014; van den Hombergh et al., 2009). Stressed physicians were less likely to have effective doctor-patient interaction (Bakker et al., 2000), which might lead to patient dissatisfaction (Haas et al., 2000), lower treatment compliance (DiMatteo et al., 1993), decreased patient-physician trust and increased patient intention to change physicians (Keating et al., 2002). One study also found positive association between stress among physician and the risk of malpractice (Jones et al., 1988).

A study in UK examining physicians' perception regarding the association of stress and quality care reported that 50% respondents said stress made them lowering their standard of care, 40% respondents said stress caused them to be angry or irritable with the patient or colleagues, 7% respondents said that stress led to a serious but not fatal incidents, while 2% admitted that stress resulted in a patient's death (Firth-Cozens and Greenhalgh, 1997). Heavy workload and stress were also associated with absenteeism, suggesting that physicians who had excessive workload and job stress were more likely to take time away from work (Williams et al., 2007a). In contrary, physicians who experienced less job stress and were more committed to their job demonstrated better performance as evidenced by patients' evaluation (van den Hombergh et al., 2009).

Heavy workload also leads to higher job dissatisfaction among physicians. Previous studies drew negative association between physicians' job dissatisfaction, quality of care, and patients' satisfaction. A study by DeVoe *et al.*, (DeVoe et al., 2002) showed that job dissatisfaction had a significant inversed association with six separate measures of care quality. Studies suggested that job dissatisfaction had a significant linear association with turnover intentions among physicians (Landon et al., 2006; Pathman et al., 2002; Williams et al., 2020). In contrast, a study by Maharani *et al.*, (Maharani et al., 2019a) on general physicians in Indonesia suggested that higher job satisfaction was negatively associated with turnover among general physicians, wherein every point increased in job satisfaction the odds of intention to leave decreased by 67.7%.



Physicians' job dissatisfaction was also associated with lower patients' satisfaction and treatment compliance (van den Hombergh et al., 2009). In reverse, physicians who were satisfied with their jobs had happier staffs, lower rates of medical errors (Williams et al., 2007b), and delivered better care (Mosadeghrad, 2014). Moreover, physicians' job satisfaction was positively associated with patients' satisfaction (DeVoe et al., 2002; Haas et al., 2000; Hong and Goo, 2004; Mosadeghrad et al., 2008) and adherence to treatment (DiMatteo et al., 1993). One study also found positive association between job satisfaction and organizational performance (Williams et al., 2007a).

Work-related stress and job dissatisfaction among physician often resulted in burnout, and a significant negative association between burnout and patient satisfaction/quality of care was found in several studies (Anagnostopoulos et al., 2012; Halbesleben and Rathert, 2008; Ratanawongsa et al., 2008; Weng et al., 2011). Stressed, dissatisfied, and burned-out physicians might interact differently with the patients such as distancing themselves from the patients, resulting in failed patient-doctor interaction (Bakker et al., 2000). Previous investigations also suggested that physicians' burnout was associated with significantly higher odds of medical errors (Hayashino et al., 2012; Shanafelt et al., 2010; Wen et al., 2016). In line with those studies, a study by Klein *et al.*, (Klein et al., 2010) found high burnout was significantly associated with diagnostic error, therapeutic error, suboptimal psychosocial care, suboptimal diagnosis and treatment, and suboptimal quality assurance. Moreover, burnout was also negatively associated with productivity (e.g., early retirement, work cutback and quitting), which might lead to fewer available healthcare resources (Dewa et al., 2014).

### **Mono-Loyalty as a Solution**

Mono-loyalty, refers to a regulation in which physicians working at only one facility, has been a debatable topic among physicians and hospitals owners in Indonesia (Kompasiana, 2019). Some people think that the idea was against the law, for it restricted physicians right to work in more than one facility as regulated by the government (President of Republic of Indonesia, 2004), while some others argued that working at only one facility will reduce physicians' workload, improve their well-being, lead to better performance and quality care.

Working in more than one healthcare facility increases physicians' workload as they have to work longer hours, see more patients, and do more administrative and managerial tasks. Heavier workload might increase job-related stress and job dissatisfaction among physicians, and in the longer run could lead to burnout (Karasek and Theorell, 1992; Tung et al., 2020; Williams et al., 2007a). This condition might negatively affect quality healthcare in Indonesia (Haas et al., 2000; Mosadeghrad, 2014; van den Hombergh et al., 2009). In contrary, working at only one facility will reduce physicians' work hours as well as administrative and bureaucratic tasks, allowing physicians to spend longer time in each patient encounter, which might lead to better patient-doctor relationship and higher patients' satisfaction (DeVoe et al., 2007; Haas et al., 2000; Hong and Goo, 2004; Mosadeghrad et al., 2008). Less working hour will give physicians more personal rewarding hours per day to rest, spend time with family/friends', or do self development activities (e.g., attending seminars or taking online courses), which was associated with less job dissatisfaction and burnout (Tung et al., 2020). The association of workload and quality care is illustrated in **Figure 1**.



Figure 1. The association of workload and quality of care. Increased workload will lead to increased work-related stress, low job satisfaction, and eventually increased burnout, all of which resulting in poor quality of care (the red arrows). In contrast, reduced workload will result in lower stress and higher job satisfaction, leading to less burnout, and will finally manifest in better quality of care (blue arrows).

However, mono-loyalty should be carefully and meticulously planned before being implemented in Indonesia. Hospitals should be allowed to implement mono-loyalty system, but physicians should also be given the freedom to choose to work at only one facility or to work in more than one facility as regulated by law (President of Republic of Indonesia, 2004). The payment model should also be carefully considered and discussed between the hospitals and doctors, as financing system and payment model are important factors that influence physicians' job satisfaction (Green et al., 2009) and might be the reason why doctors work in more than one healthcare facility. For example, pay for performance (P4P) financing model may encourage physicians to see more patients although they have to work long hours. On the other hand, bundled payment system can drive physicians to coordinate care through the standardization of healthcare delivery (Tung et al., 2020).

Last, the government also has to improve the distribution of physicians in Indonesia, as most doctors are centralized in urban areas and particularly Java Island. Since 1991, the government of Indonesia has implemented a compulsory rural service program with high incentives for fresh medical graduates. Although the program has significantly increased recruitment, yet the retention has been poor (Efendi, 2012). A study identifying motivations of doctors in rural areas in Indonesia mentioned difficulties in making money, family, education for children, career development, and difficulties in adjusting to local culture as factors contributing to the decision to leave rural areas (Handoyo et al., 2018). The physical condition of *Puskesmas* in such areas also vary widely. A national survey in 2013 showed that only 64% of PHCs in the country were in good physical condition, the availability of electricity in one healthcare ranged from 35.6 to 99.8% within 24-h period, and the availability of clean water ranged from 29.5 to 89% (Maharani et al., 2019b). These conditions make less physicians want to work in isolated and impoverished regions.

## Conclusion

Physicians' well-being is essential in ensuring quality healthcare. Heavy workload will increase work-related stress and job dissatisfaction, which lead to physicians' burnout. Not only will it affect physicians' health and well-being, heavy workload will also bring negative impacts on healthcare quality. Thus, it is important to create a healthcare work environment that can reduce physicians' workload to achieve quality healthcare. Mono-loyalty can serve as a solution to reduce physicians' workload in Indonesia. However, the implementation of this system has to be carefully considered and thoroughly prepared.

## Authors' contributions

Conceptualization: RP; Investigation: RP and AY; Writing-original draft preparation: RP; Writing-review and editing: AY.

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## Conflict of interest

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## References

- Anagnostopoulos F, et al. Physician burnout and patient satisfaction with consultation in primary health care settings: evidence of relationships from a one-with-many design. *J Clin Psychol Med Settings* 2012; 19(4):401-410.
- Bakker AB, et al. Patient demands, lack of reciprocity, and burnout: a five-year longitudinal study among general practitioners. *J Organ Behav* 2000; 21(4):425-441.
- BPJS. 2014. Financial management report 2014 and financial report 2015. <https://www.bpjs-kesehatan.go.id/bpjs/arsip/detail/623> (Accessed: 2022, 15 December).
- BPJS. 2015. Financial management report 2015 and financial report 2016. <https://www.bpjs-kesehatan.go.id/bpjs/arsip/detail/624> (Accessed: 2022, 15 December).
- Broughton E, et al. Hospital accreditation process impact evaluation. USAID 2018 report. 2018. [https://pdf.usaid.gov/pdf\\_docs/PA00T5ZF.pdf](https://pdf.usaid.gov/pdf_docs/PA00T5ZF.pdf) (Accessed: 2022, 20 December).
- DeVoe J, et al. Congruent satisfaction: is there geographic correlation between patient and physician satisfaction? *Med Care* 2007; 45(1):88-94.
- DeVoe J, et al. Does career dissatisfaction affect the ability of family physicians to deliver high-quality patient care? *J Fam Pract* 2002; 51(3):223-228.
- Dewa CS, et al. How does burnout affect physician productivity? A systematic literature review. *BMC Health Serv Res* 2014; 14:325.

- DiMatteo MR, et al. Physicians' characteristics influence patients' adherence to medical treatment: results from the Medical Outcomes Study. *Health Psychol* 1993; 12(2):93-102.
- Efendi F. Health worker recruitment and deployment in remote areas of Indonesia. *Rural Remote Health* 2012; 12:2008.
- Firth-Cozens J and Greenhalgh J. Doctors' perceptions of the links between stress and lowered clinical care. *Soc Sci Med* 1997; 44(7):1017-1022.
- Friedberg MW, et al. Factors Affecting Physician Professional Satisfaction and Their Implications for Patient Care, Health Systems, and Health Policy. *Rand Health Q* 2014; 3(4):1.
- Green ME, et al. Financial and work satisfaction: impacts of participation in primary care reform on physicians in ontario. *Health Policy* 2009; 5(2):e161-176.
- Haas JS, et al. Is the professional satisfaction of general internists associated with patient satisfaction? *J Gen Intern Med* 2000; 15(2):122-128.
- Halbesleben JR and Rathert C. Linking physician burnout and patient outcomes: exploring the dyadic relationship between physicians and patients. *Health Care Manage Rev* 2008; 33(1):29-39.
- Handoyo NE, et al. Identifying motivations and personality of rural doctors: A study in Nusa Tenggara Timur, Indonesia. *Educ Health (Abingdon)* 2018; 31(3):174-177.
- Hayashino Y, et al. Hope modified the association between distress and incidence of self-perceived medical errors among practicing physicians: prospective cohort study. *PLoS One* 2012; 7(4):e35585.
- Heywood P, et al. Recent changes in human resources for health and health facilities at the district level in Indonesia: evidence from 3 districts in Java. *Human Resources for Health* 2011; 9(1):5.
- Hong S-C and Goo YJJ. A Causal Model of Customer Loyalty in Professional Service Firms: An Empirical Study. *The International Journal of Management* 2004; 21:531.
- Hort K, et al. Regulating the quality of health care: Lessons from hospital accreditation in Australia and Indonesia – 2013 report. 2013. [https://mutupelayanankesehatan.net/images/2013/file/WP\\_28%20Hospital%20accreditation%20Aust%20&%20Indonesia.pdf](https://mutupelayanankesehatan.net/images/2013/file/WP_28%20Hospital%20accreditation%20Aust%20&%20Indonesia.pdf) (Accessed: 2022: 15 December).
- Indonesian Ministry of Health. Basic data of health center. Indonesian Ministry of Health. 2013. <https://www.kemkes.go.id/article/view/15011300001/data-dasar-puskesmas-2013.html> (Accessed: 2022; 23 December).
- Indonesian Ministry of Health. *Profil Kesehatan Indonesia 2014*. Indonesian Ministry of Health, Jakarta. 2015a. <https://www.kemkes.go.id/article/view/15052900001/profil-kesehatan-indonesia-tahun-2014.html> (Accessed: 2022; 18 December).
- Indonesian Ministry of Health. Regulation Number 46 year 2015 on Accreditation of Puskesmas, Private Primary Health Clinics, Physicians Solo Practices and Dentists Solo Practices. Indonesian Ministry of Health, Jakarta. 2015b. <https://peraturan.bpk.go.id/Home/Details/139228/permenkes-no-46-tahun-2015> (Accessed: 2022, 26 December).
- Indonesian Ministry of Health. Indonesian health profile 2015. Indonesian Ministry of Health, Jakarta. 2016. <https://www.kemkes.go.id/article/view/15052900001/profil-kesehatan-indonesia-tahun-2014.html> (Accessed: 2022; 18 December).
- Indonesian Ministry of Health. Basic Health Research 2018. Indonesian Ministry of Health, Jakarta. 2018. <https://www.kemkes.go.id/article/view/15052900001/profil-kesehatan-indonesia-tahun-2014.html> (Accessed: 2022; 18 December).
- Jacobalis S. Basic issues related to quantity and quality of health care, and quality assurance in Indonesia. *Aust Clin Rev* 1989; 9(3-4):149-154.



- Jones JW, et al. Stress and medical malpractice: organizational risk assessment and intervention. *J Appl Psychol* 1988; 73(4):727-735.
- Karasek R and Theorell T. *Healthy Work: Stress, Productivity, and the Reconstruction of Working Life*, Revised edition ed. Basic Books, 1992. Chicago, IL.
- Keating NL, et al. How are patients' specific ambulatory care experiences related to trust, satisfaction, and considering changing physicians? *J Gen Intern Med* 2002; 17(1):29-39.
- Klein J, et al. Burnout and perceived quality of care among German clinicians in surgery. *Int J Qual Health Care* 2010; 22(6):525-530.
- Kompasiana. The implementation of mono-loyalty for physicians. Is it legal? Kompasiana. 2019. [https://www.kompasiana.com/ipiet\\_priyono/5c3b4bfe677ffb6d20122808/penerapan-sistim-mono-loyalitas-dokter-legal-kah?page=1&page\\_images=1](https://www.kompasiana.com/ipiet_priyono/5c3b4bfe677ffb6d20122808/penerapan-sistim-mono-loyalitas-dokter-legal-kah?page=1&page_images=1). (Accessed: 2022, 23 December).
- Landon BE, et al. Leaving medicine: the consequences of physician dissatisfaction. *Med Care* 2006; 44(3):234-242.
- Linzer M, et al. Physician stress: results from the physician worklife study. *Stress and Health* 2002; 18(1):37-42.
- Maharani C, et al. Primary care physicians' satisfaction after health care reform: a cross-sectional study from two cities in Central Java, Indonesia. *BMC Health Services Research* 2019a; 19(1):290.
- Maharani C, et al. A scoping analysis of the aspects of primary healthcare physician job satisfaction: facets relevant to the Indonesian system. *Hum Resour Health* 2019b; 17(1):38.
- Martin S. More hours, more tired, more to do: results from the CMA's 2002 Physician Resource Questionnaire. *CMAJ* 2002; 167(5):521-522.
- McMurray JE, et al. The work lives of women physicians results from the physician work life study. The SGIM Career Satisfaction Study Group. *J Gen Intern Med* 2000; 15(6):372-380.
- Mosadeghrad AM. Factors influencing healthcare service quality. *Int J Health Policy Manag* 2014; 3(2):77-89.
- Mosadeghrad AM, et al. A study of the relationship between job satisfaction, organizational commitment and turnover intention among hospital employees. *Health Serv Manage Res* 2008; 21(4):211-227.
- Oreskovich MR, et al. Prevalence of Alcohol Use Disorders Among American Surgeons. *Archives of Surgery* 2012; 147(2):168-174.
- Pathman DE, et al. Physician job satisfaction, dissatisfaction, and turnover. *J Fam Pract* 2002; 51(7):593.
- President of Republic of Indonesia. Law of Republic of Indonesia number 29 about medical practice. Republic of Indonesia. 2004.
- President of Republic of Indonesia. Presidential regulation on national health system number 72. Republic of Indonesia. 2012.
- Rao SK, et al. The Impact of Administrative Burden on Academic Physicians: Results of a Hospital-Wide Physician Survey. *Acad Med* 2017; 92(2):237-243.
- Ratanawongsa N, et al. Physician burnout and patient-physician communication during primary care encounters. *Journal of general internal medicine* 2008; 23(10):1581-1588.
- Rathert C, et al. Evidence for the Quadruple Aim: A Systematic Review of the Literature on Physician Burnout and Patient Outcomes. *Med Care* 2018; 56(12):976-984.
- Rice B. Are you really working harder now? *Med Educ* 2001; 78:22-25.
- Rolindrawan D. The Impact of BPJS Health Implementation for the Poor and Near Poor on the Use of Health Facility. *Procedia - Social and Behavioral Sciences* 2015; 211:550-559.

- Shanafelt TD, et al. Burnout and medical errors among American surgeons. *Ann Surg* 2010; 251(6):995-1000.
- Shanafelt TD, et al. Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014. *Mayo Clin Proc* 2015; 90(12):1600-1613.
- Shanafelt TD, et al. Changes in Burnout and Satisfaction With Work-Life Integration in Physicians and the General US Working Population Between 2011 and 2017. *Mayo Clin Proc* 2019; 94(9):1681-1694.
- Shapiro SL, et al. Stress management in medical education: a review of the literature. *Acad Med* 2000; 75(7):748-759.
- Spurgeon P, et al. Types of work stress and implications for the role of general practitioners. *Health Serv Manage Res* 1995; 8(3):186-197.
- Teirstein PS. Boarded to death - why maintenance of certification is bad for doctors and patients. *N Engl J Med* 2015; 372(2):106-108.
- Teplitskaya L and Dutta A. Has Indonesia's national health insurance scheme improved access to maternal and newborn health services?. 2018. [http://www.healthpolicyplus.com/ns/pubs/8226-9416\\_HPPlusIndonesiaJKNAccesstoMNHservices.pdf](http://www.healthpolicyplus.com/ns/pubs/8226-9416_HPPlusIndonesiaJKNAccesstoMNHservices.pdf) (Accessed: 2022, 16 December).
- Tung YC, et al. Association of intrinsic and extrinsic motivating factors with physician burnout and job satisfaction: a nationwide cross-sectional survey in Taiwan. *BMJ Open* 2020; 10(3):e035948.
- van den Hombergh P, et al. High workload and job stress are associated with lower practice performance in general practice: an observational study in 239 general practices in the Netherlands. *BMC Health Serv Res* 2009; 9:118.
- Wardhani V, et al. Hospitals accreditation status in Indonesia: associated with hospital characteristics, market competition intensity, and hospital performance? *BMC Health Services Research* 2019; 19(1):372.
- Wen J, et al. Workload, burnout, and medical mistakes among physicians in China: A cross-sectional study. *Biosci Trends* 2016; 10(1):27-33.
- Weng HC, et al. Associations between emotional intelligence and doctor burnout, job satisfaction and patient satisfaction. *Med Educ* 2011; 45(8):835-842.
- Williams ES, et al. The relationship of organizational culture, stress, satisfaction, and burnout with physician-reported error and suboptimal patient care: results from the MEMO study. *Health Care Manage Rev* 2007b; 32(3):203-212.
- Williams ES, et al. The Personal and Professional Consequences of Physician Burnout: A Systematic Review of the Literature. *Medical Care Research and Review* 2020; 77(5):371-386.
- Williams ES, et al. Heavy physician workloads: impact on physician attitudes and outcomes. *Health Serv Manage Res* 2007a; 20(4):261-269.
- Woolhandler S and Himmelstein DU. Administrative work consumes one-sixth of U.S. physicians' working hours and lowers their career satisfaction. *Int J Health Serv* 2014; 44(4):635-642.
- World-Bank. Functional and regulatory review of strategic health purchasing under JKN: purchasing of primary health care under JKN – 2018 Report. 2018. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/792001534743821191/pdf> (Accessed: 2022, 23 December).