Job stress and satisfaction in southwest Chinese hospitals: A cross-sectional study

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Abstract
This paper discusses the job characteristics, satisfaction, and stress levels experienced by clinical neurologists in Guizhou Province, China.

A questionnaire survey was conducted associated with the 2021 Annual Meeting of Neurology in Guizhou province. After obtaining ethical approval to conduct the study, the target group was asked to complete an anonymous online survey that included sociodemographic data, followed by questions related to job stress and satisfaction as well as future aspirations.

Four hundred sixty people participated in the study, including 179 (38.9%) men and 281 (61.1%) women. About 407 (88.5%) felt stress in their job. Three hundred and seventeen (68.9%) experienced depression, 307 (66.7%) experienced anxiety, and 273 (59.3%) had some degree of sleep disturbance. Three hundred fifty-three (76.7%) were disappointed with their wages, 239 (52.0%) were bored with their jobs, and 353 (76.7%) considered their jobs to be somewhat dangerous. Interestingly, 250 (54.3%) would consider becoming doctors again, but 354 (77.0%) preferred their child not to become doctors. While 338 (73.5%) said they were proud to be a neurologist, only 123 (26.7%) indicated they were optimistic concerning doctor-patient relationships.

Neurologists have significant emotional factors associated with their careers, which are more likely to lead to job burnout and decreased job satisfaction. Attention should be paid to these stresses to improve the retention and job satisfaction of neurologists.

Abbreviations: CI = confidence intervals, GPs = general practitioners, SD = standard deviation, WHO = World Health Organization.

Keywords: China, job satisfaction, job stress, neurologists

1. Introduction
According to the latest data from the World Health Organization (WHO), ischemic heart disease and stroke are the first and second leading causes of death worldwide and responsible for approximately 16% and 11% of total deaths, respectively.[1,2] Thus, neurologists are experiencing significant increases in work stress and dissatisfaction.[3,4] Several studies have reported that work-related burnout is common in physicians, including a range of specialties such as surgery, oncology, intensive care physicians, psychiatrists, anesthesiologists, dentists, and radiologists.[4-14] However, few surveys have included the prevalence of job burnout experienced specifically by neurologists.[3,13] One national survey of 7288 US physicians revealed that neurology is the only medical specialty that has one of the worst work-life balances and one of the highest job burnout rates. Zhou et al reported that approximately 53.2% of responding neurologists experienced some degree of job burnout, 37.8% had psychological morbidity, 50.7% developed high job stress levels, 25.7% experienced low levels of job satisfaction, 76.9% had poor doctor-patient relationships, and 58.1% regretted becoming a doctor.[3] Based on this previous data, we investigated the incidence of job stress and satisfaction among neurologists in the Guizhou region of China.

2. Methods
We surveyed neurologists who attended the 2021 Annual Meeting of Neurology in Guizhou province from the 24th to the 26th of March that focused on job satisfaction and stress to
determine the incidence of these experiences as well as associated factors. The anonymous questionnaire was designed to collect and analyze the following information:

1. demographic characteristics and hospital information,
2. underlying health conditions,
3. the levels of job stress and satisfaction as assessed using the modified Health Consultant’s Job Stress and Satisfaction questionnaire (HCJSSQ-modified 1994 version), and
4. the quality of physician–patient relationships.

All participation was voluntary. The resulting data were de-identified before analysis. If the participants chose to complete the survey, they could receive a small gift. Ethics approval for the study was granted by the ethics committee of Guizhou Medical University.

2.1. Statistical analysis
The IBM Statistical Package for Social Science (SPSS version 19.0) was used for the analyses. All data were analyzed for descriptive statistics (mean, median, standard deviation, and frequency) and examined for assumptions of normality and linearity. Missing data responses were analyzed, and, when necessary, responses were weighted to adjust for data missing at random. Associations between all variables were examined using Spearman and Pearson correlations where appropriate and chi-square tests of independence. Depending on assumptions of normality, linear, logistic, ordinal, or multinomial regression were used. All tests of statistical hypotheses used an alpha level of .05 and reported 95% confidence intervals (95% CI).

3. Results
3.1. Personal characteristics of respondents
Four hundred sixty neurologists responded to the survey. Nearly all of the physicians were working in the Guizhou Province of China. Table 1 summarizes the number of responses to the survey questions if they so desired. As seen in Table 1, fewer than half of the physicians were males (n = 179, 38.9%), and more than half of the neurologists were females (n = 281, 61.1%). The mean (standard deviation, SD) age was 33.6 (7.75) years (median, 32 years), and among these physicians, 242 (52.6%) were under the age of 35. Among the participants, 242 (52.6%) were ethnic minorities. Residents (35.2%) and attending (25.7%) neurologists accounted for a large proportion of the total respondents. Most neurologists had a bachelor’s degree (65.2%), the majority were located in secondary and tertiary hospitals. Among the respondents, 156 (33.9%) had a monthly salary of less than 5000 yuan, 210 (45.7%) had a monthly salary of 5000 to 8000 yuan, and only 20 (4.3%) had a monthly salary above 12,000 yuan. We noted that 295 (64.1%) neurologists worked more than 56h per week, and 216 (47.0%) were on-call an average of four to eight nights per month. Most of the physicians (n = 334, 72.6%) were married and had one (n = 172, 37.4%) or two children (n = 140, 30.4%).

Table 1

| Characteristics of the 460 participating neurologists. | n (%) |
|--------------------------------------------------------|-------|
| **Age** |       |
| 33.61 ± 7.75 (x±S) |       |
| <35 | 242 (52.6) |
| 36–50 | 118 (25.7) |
| >51 | 13 (2.8) |
| Missing | 87 (18.9) |
| **Sex** |       |
| Male | 179 (38.9) |
| Female | 281 (61.1) |
| **Nationality** |       |
| Han nationality | 275 (59.8) |
| Minority | 185 (40.2) |
| **Title of technician** |       |
| Intern | 72 (15.7) |
| Resident | 162 (35.2) |
| Attending | 118 (25.7) |
| Senior | 81 (17.6) |
| Missing | 27 (5.9) |
| **Degree** |       |
| College | 91 (19.8) |
| Bachelor | 300 (65.2) |
| Master | 57 (12.4) |
| Doctor | 6 (1.3) |
| Missing | 6 (1.3) |
| **Hospital level** |       |
| Primary | 4 (0.9) |
| Secondary | 220 (47.8) |
| Tertiary | 228 (49.6) |
| Other | 6 (1.3) |
| Missing | 2 (0.4) |
| **Monthly salary, RMB** |       |
| <5000 | 156 (33.9) |
| 5000–8000 | 210 (45.7) |
| 8000–12000 | 74 (16.1) |
| >12000 | 20 (4.3) |
| **Hours worked per week** |       |
| <48 | 43 (9.3) |
| 48–56 | 121 (26.3) |
| >56 | 295 (64.1) |
| Missing | 1 (0.2) |
| **Times of nights on call per month** |       |
| <4 | 154 (33.5) |
| 4–8 | 216 (47.0) |
| >8 | 81 (17.6) |
| Missing | 9 (2%) |
| **Marital status** |       |
| Married | 334 (72.6) |
| Single | 113 (24.6) |
| Have partner | 8 (1.7) |
| Divorced or widowed | 5 (1.1) |
| **Have children** |       |
| 0 | 145 (31.5) |
| 1 | 172 (37.4) |
| 2 | 140 (30.4) |
| >2 | 3 (0.7) |

3.2. Health conditions of participating neurologists
Among the 460 participants, only 198 (43.0%) underwent a yearly physical examination. Of these participants, 317 (68.9%) experienced depression, 307 (66.7%) experienced anxiety, and 307 (66.7%) had experienced pleasure. We observed that 273 (59.3%) participants had some degree of sleep difficulty (Table 2).
3.3. Overall job stress and satisfaction among neurologists

3.3.1. Job satisfaction. Indicators of job satisfaction included the respondents’ overall ratings of how satisfied they were, perceptions of their career progress, and perceptions of their job achievements. Regarding overall job satisfaction, 27.6% (n = 127) of the participants indicated that they were somewhat satisfied with their current job and 43.5% (n = 200) indicated they were more satisfied (Table 3). The majority of the respondents also agreed (n = 225, 48.9%) that they felt their work had made progress (Table 3). The results for job prospects were similar, with n = 256 (55.7%) for the same and n = 111 (24.1%) for better (Table 3). On the whole, the majority of the participants were satisfied with their job achievements (the same, n = 176 (38.3%), more, n = 141 (30.7%), and constantly, n = 31 (6.6%), as shown in Table 3.

3.3.2. Job stress. Nearly all of the 460 respondents who indicated that they felt stress in their job expressed that they were feeling at least some stress (1) commonly, n = 166 (36.1%), (2) more, n = 189 (41.1%) and (3) constantly, n = 52 (11.3%) with a total of n = 407 (88.5%)). Notably, many participants continued to work after going home (1) commonly, n = 173 (37.6%), (2) more, n = 59 (12.8%), and (3) constantly, n = 67 (14.6%), resulting in a total of n = 299 (65.0%). Two hundred ninety-five participants (64.1%) reported that they experienced time management conflicts. Of the 295 responses, 56 (12.2%) thought they did not have any spare time, and 212 (46.1%) reported they had little spare time. Also, “having objective adverse working conditions, including limited equipment or space, and could not finish the job” were rated highly by all participants (58.9%). More than half of neurologists (61.1%) reported that their job affected their family life. Even so, 266 (57.8%) continued to keep up with the latest neurology research.

At the same time, more than 50 percent of the responding neurologists (1) commonly, n = 140 (30.4%), (2) more, n = 91 (19.8%), and (3) constantly, n = 63 (13.7%), for a total n = 294 (63.9%) were required to be involved in management. It was widely acknowledged in the survey that the participants considered their skills were underutilized (1) commonly, n = 200 (43.5%), (2) more, n = 59 (12.8%), and (3) constantly, n = 25 (5.4%), totaling n = 284 (61.7%). Seventy-six point seven percent of the participants were disappointed with their pay (1) commonly, n = 161 (5.0%), (2) more, n = 76 (16.5%), and (3) constantly, n = 116 (25.2%) for a total n = 353 (76.7%). Finally, more than 50% indicated that they experienced burnout with their jobs, and 77% considered their jobs to be somewhat dangerous. All the contents are shown in Table 4.

3.3.3. Neurologists look to the future. Of the total neurologists participating in the survey, 250 (54.3%) indicated they would be willing to become doctors again, but only 22.2% wanted their child to become doctors. Interestingly, despite those who indicated they did not want to become doctors again and did not want their children to become doctors, there were still 338 (73.5%) people who were proud to be a neurologist. However, sadly, only 123 (26.7%) were optimistic about their doctor-patient relationships (Table 5).
4. Discussion

The Chinese economy has experienced rapid growth in the past three decades. At the same time, the Chinese health care system has undergone tremendous changes to meet the needs of 19% of the world’s population. However, medical resources, including human resources, are unevenly distributed, creating the potential for substantial work-related stress. The shortage of physicians is apparent in almost every specialty. At the same time, an estimated 23.2% (244.5 million) of the Chinese adult population 18 years and older have been reported to experience hypertension, approximately 11% of the population has diabetes, and the approximate prevalence of dyslipidemia was 35.8%. Based on the number of stroke patients in China, the inadequate number of neurologists is a severe problem. In addition, the increasing number of high-risk stroke patients adds to the job pressure experienced by neurologists.

There have been numerous reports describing job stress, job satisfaction, job “burnout,” and suicide rates among physicians in China as well as globally. Job stress and burnout among physicians have been identified as significant public health concerns. Job burnout is an extreme form of occupational stress and is experienced, particularly by those working in the health professions. It was characterized by Maslach and Jackson (1981) as including emotional exhaustion, depersonalization, and feelings of reduced personal accomplishment. This classification was updated by the World Health Organization (2018) to include:

1. reduced energy or exhaustion;
2. increased mental distancing from one’s job, or negative feelings or cynicism related to one’s job; and
3. reduced professional efficacy.

The consequences of high stress and burnout include physiological responses such as headaches, musculoskeletal disorders, heart disease, and psychological responses such as headache, depression, and anxiety. These symptoms can lead to decreased productivity and increased turnover rates.

### Table 4
Table 4: Job stress of the 460 participating neurologists.

| Job stress                          | n (%) |
|------------------------------------|-------|
| No                                 | 19 (4.1) |
| Fewer                              | 31 (6.7) |
| Common                             | 166 (36.1) |
| More                               | 189 (41.1) |
| Constantly                         | 52 (11.3) |
| Missing                            | 3 (0.7) |
| Still work after going home No     | 78 (17.0) |
| Fewer                              | 81 (17.6) |
| Common                             | 173 (37.6) |
| More                               | 59 (12.8) |
| Constantly                         | 67 (14.8) |
| Missing                            | 2 (0.4) |
| Time management conflict No        | 74 (16.1) |
| Fewer                              | 98 (19.1) |
| Common                             | 153 (33.3) |
| More                               | 76 (16.5) |
| Constantly                         | 66 (14.3) |
| Missing                            | 3 (0.7) |
| Having spare time No               | 56 (12.2) |
| Fewer                              | 212 (46.1) |
| Common                             | 169 (36.7) |
| More                                | 17 (3.7) |
| Constantly                         | 5 (1.1) |
| Missing                            | 1 (0.2) |
| Having objective condition to finish job No | 74 (16.1) |
| Fewer                              | 113 (24.6) |
| Common                             | 152 (33.0) |
| More                                | 72 (15.7) |
| Constantly                         | 47 (10.2) |
| Missing                            | 2 (0.4) |
| Affecting family life No           | 80 (17.4) |
| Fewer                              | 97 (21.1) |
| Common                             | 183 (39.8) |
| More                                | 54 (11.7) |
| Constantly                         | 44 (9.6) |
| Missing                            | 2 (0.4) |
| Keeping latest research No         | 81 (17.6) |
| Fewer                              | 111 (24.1) |
| Common                             | 159 (34.6) |
| More                                | 74 (16.1) |
| Constantly                         | 33 (7.2) |
| Missing                            | 2 (0.4) |
| Participating management No        | 66 (14.3) |
| Fewer                              | 97 (21.1) |
| Common                             | 140 (30.4) |
| More                                | 91 (19.8) |
| Constantly                         | 63 (13.7) |
| Missing                            | 3 (0.7) |
| Optimized skills in job No         | 76 (16.5) |
| Fewer                              | 97 (21.1) |
| Common                             | 200 (43.5) |
| More                                | 59 (12.8) |
| Constantly                         | 25 (5.4) |

(continued)
anxiety and depression.\textsuperscript{[25]} Furthermore, job satisfaction includes receiving recognition of performing one’s job well, having positive interpersonal interactions in the workplace, and receiving fair wages. The correlation between job satisfaction and performance is well documented, as are the adverse effects of stress on an individual’s ability to carry out their job well.\textsuperscript{[25]} Clinician well-being is an essential component of health care and can be broadly defined as experiencing a sense of wellness (optimized physical and mental health), resiliency, and professional fulfillment.\textsuperscript{[26]} However, few relevant reports on job satisfaction have focused on neurologists.\textsuperscript{[3,15]} Therefore, it is essential to investigate job stress, burnout, and occupational well-being among neurologists. We designed a cross-sectional study that examined survey responses concerning job stress and satisfaction from 460 neurologists from all regions in Guizhou Province, located in southwest China.

Based on the data, we determined that most neurologists in Guizhou province who participated in the survey were younger women. They were less likely to have two or more children and more highly educated (bachelor’s and master’s degrees). In contrast, the income of this subset of participants was less. Men and women worked similar hours per week, and the numbers of nights on call were similar each month (Table 6). These results were comparable to the findings published by Zhou et al.\textsuperscript{[3,13,15,21]}

From this survey, we discovered that although the participants were health care workers and understand the overall importance of physical health, a majority of neurologists (57.0\%) did not undergo yearly physical examinations. Compared with the physical examination items studied in Japan, which included the air conduction pure-tone audiometry, glycated hemoglobin levels, electrocardiogram assessment by a specialist, and others, most of our physicians had not completed the annual routine physical examination.\textsuperscript{[22]} Also, most of the participants experienced one or more periods of depression (68.9\%), anxiety (66.7\%), or sleep disturbances (59.3\%). Interestingly, over 50\% of the participants also reported happy experiences. Whether these favorable experiences were related to career satisfaction is worth further investigation (Table 2).

Reviewing their career, an overwhelming number of participants (80.9\%) reported that they were more satisfied with their work, felt that their career had made progress, were hopeful for their work prospects, and indicated that their work provided a great sense of achievement. Zhou et al found that overall job satisfaction was most strongly associated with sensing a high level of job security, having variety in the job, deriving intellectual stimulation from teaching, and having opportunities for personal learning.\textsuperscript{[3]} In the future, we will design a professional questionnaire for job satisfaction to better examine the relationship between job satisfaction and work stress.

The results from this survey demonstrated that job stress was prevalent among the physicians. Most of the respondents (88.5\%) indicated that they felt some or considerable job stress at least once, with 52.4\% reporting that they felt a great deal of stress. These results were similar to those reported by Kelly et al.\textsuperscript{[11]} Another study found that over 50\% of practicing physicians experienced burnout.\textsuperscript{[28]} Numerous factors contribute to burnout, including perceived loss of control, use of electronic medical records, and problems with work-life balance. Burnout is associated with many adverse consequences in the health of physicians as well as health care delivery. These consequences include reduced patient safety, medical errors, substandard patient care, decreased mental health of providers, and increased thoughts of quitting or changing jobs. It has been estimated that by 2032 there will be a shortage of 46,900 to 121,900 physicians, in part due to the effects of burnout.\textsuperscript{[14,29]} More than half of the participants indicated in this survey that they were currently dealing with work-related issues after going home, and the percentage of those reporting conflicts with work-time management was even higher (64.1\%).

### Table 5

| To be a doctor again | n (%) |
|----------------------|-------|
| Yes                  | 250 (54.3) |
| No                   | 206 (44.8) |
| Missing              | 4 (0.9)    |

| Want your child to be a doctor | n (%) |
|--------------------------------|-------|
| Yes                            | 102 (22.2) |
| No                             | 354 (77.0) |
| Missing                        | 4 (0.9)    |

| Are you proud of being a neurologist | n (%) |
|--------------------------------------|-------|
| Yes                                  | 338 (73.5) |
| No                                   | 118 (25.7) |
| Missing                              | 4 (0.9)    |

| Attitudes towards doctor–patient relationship | n (%) |
|-----------------------------------------------|-------|
| Hopelessness                                  | 70 (15.2) |
| Neutrality                                    | 263 (57.2) |
| Hopeful                                       | 123 (26.7) |
| Missing                                       | 4 (0.9)    |

### Table 6

| Sex and the ages of the 373\textsuperscript{1} participating neurologists. |
|---------------------------------|-----------------|-----------------|
| Age                            | Sex n (%) | P               |
|                                | Male         | Female          |
| x ± 5                          | 37.14 ± 8.22 | 31.35 ± 6.51 | .000\textsuperscript{2} |
| <25                            | 67 (18.0)    | 175 (46.9) | .000\textsuperscript{2} |
| 25–50                          | 68 (18.2)    | 50 (13.4) |                      |
| >50                            | 11 (2.9)     | 2 (0.5) |                      |
| Title of technician            |              |                 |
| Intern                         | 9 (2.1)      | 63 (14.5) | .000\textsuperscript{2} |
| Resident                       | 60 (13.9)    | 102 (23.6) |                      |
| Attending                      | 58 (13.4)    | 60 (13.9) |                      |
| Senior                         | 51 (11.8)    | 30 (6.9) |                      |
| Degree                         |              |                 |
| College                        | 16 (3.5)     | 75 (16.5) | .000\textsuperscript{2} |
| Bachelor                       | 143 (31.5)  | 157 (34.6) |                      |
| Master                         | 15 (3.3)     | 42 (9.3) |                      |
| Doctor                         | 3 (0.7)      | 3 (0.7) |                      |
| Monthly salary, RMB            |              |                 |
| <5000                          | 35 (7.6)     | 121 (26.3) | .000\textsuperscript{2} |
| 5000–8000                      | 88 (19.1)    | 122 (26.5) |                      |
| 8000–12000                     | 42 (9.1)     | 32 (7.0) |                      |
| >12000                         | 14 (3.0)     | 6 (1.3) |                      |
| Have children                  |              |                 |
| 0                              | 41 (9.0)     | 101 (22.0) | .001\textsuperscript{1} |
| 1                              | 64 (14.0)    | 108 (23.6) |                      |
| 2                              | 72 (15.8)    | 68 (14.9) |                      |
| >2                             | 2 (0.4)      | 1 (0.2) |                      |

\textsuperscript{1} Since 87 neurologists had not completed the age submission, so the contents of the table is 373 participants.

\textsuperscript{2} The ages of males and females were compared using the Student t test and analysis of variance.

\textsuperscript{1} Mann–Whitney U tests (ordinal category data) were used to assess associations between variables.
Due to the intense nature of their work, the majority of neurologists revealed that they have no (12.2%) or almost no (46.1%) spare time, for a total of 58.3%. The lack of spare time had some effect on their family life. Due to the lack of adequate numbers of medical management personnel, many participants indicated that they were required to be involved in medical quality management or medical care management.

In January 2018, the number of general practitioners (GPs) was 1.5 per 10,000 people in China, which was still far below the target for 2020 of 2 to 3 GPs per 10,000 people. The number of health care management professionals also did not increase proportionately with the expansion of services that are provided. In practice, these results produce an increased workload for existing healthcare workers. However, based on these published reports, it is unclear whether too many healthcare workers are involved in non-medical work. Nevertheless, 61.7% of physicians reported feeling that their skills were not being fully utilized. In addition, more than two-thirds of the doctors (76.7%) included in this study were dissatisfied with their monthly salary. More than 50 percent (51.9%) felt they were “tied” to their job, and a majority (76.7%) were not optimistic about dangers associated with their job (Table 4).

At the end of our survey, we asked the neurologists if they would consider becoming a doctor again. Despite their tiredness, disappointment with their salary, and other dissatisfaction, more than 50% of the participants (54.3%) indicated they would become doctors again and were proud to be a doctor (73.5%). These observations might be related to the intense satisfaction of the job. However, a majority did not want their child to become a doctor (77.6%). Finally, more people were hopeful about their doctor-patient relationships (Table 5).

5. Conclusion
This cross-sectional survey included nearly all neurologists practicing in the hospitals located in Guizhou province, and 460 questionnaires were collected. In summary, most physicians experienced some degree of physical disease as well as work pressure. However, most respondents indicated that they had some confidence in their future work and doctor-patient relationships. There were some notable differences between men and women concerning their educational background, salary levels, and marital status. We will continue to follow these neurologists in the future to carry out a dynamic observation process, such as a cohort study. Also, similar to the concept of stroke prevention, strategies should be developed to prevent job-related burnout or more dangerous conditions, including depression and suicide among neurologists.

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References
[1] https://www.who.int/zh/news-room/fact-shets/detail/the-top-10-causes-of-death.
[2] Sigshbe B, Bernat JL. Physician burnout: a neurologic crisis. Neurology 2014;83:2302–6.
[3] Zhou X, Pu J, Zhong X, et al. China Neurologist Association. Burnout, psychological morbidity, job stress, and job satisfaction in Chinese neurologists. Neurology 2017;88:1727–35.
[4] Fukui S, Rollins AL, Salyers MP. Characteristics and job stressors associated with turnover and turnover intention among community mental health providers. Psychiatr Serv 2020;71:289–92.
[5] Li H, Zuo M, Gelb AW, et al. Chinese anesthesiologists have high burnout and low job satisfaction: a cross-sectional survey. Anesth Analg 2018;126:1004–12.
[6] Yehya A, Sankaranarayanan A, Alkhal A, et al. Job satisfaction and stress among healthcare workers in public hospitals in Qatar. Arch Environ Occup Health 2020;75:10–7.
[7] Guveli H, Anuk D, Oflaz S, et al. Oncology staff: burnout, job satisfaction and coping with stress. Psychooncology 2015;24:926–31.
[8] Song KW, Kim HK. Job stress and its related factors among Korean dentists: an online survey study. Int Dent J 2019;69:436–44.
[9] Graham J, Ramirez AJ, Field S, Richards MA. Job stress and satisfaction among clinical radiologists. Clin Radiol 2000;55:182–5, discussion 186.
[10] Chichra A, Abbhiyani A, Tharyan P. Job stress and satisfaction in faculty of a teaching hospital in south India: a cross-sectional survey. J Postgrad Med 2019;65:201–6.
[11] Kelly M, Soles R, Garcia E, Kundu I. Job Stress, burnout, work-life balance, well-being, and job satisfaction among pathology residents and fellows. Am J Clin Pathol 2020;153:449–69.
[12] Malcolm N, Boyd L, Giblin-Scalon L, Vineyard J. Occupational stressors of dental hygienists in the United States. Work 2020;65:517–24.
[13] Garcia E, Kundu I, Kelly M, Soles R, Mulder L, Talmon GA. The American Society for Clinical Pathology’s job satisfaction, well-being, and burnout survey of Pathologists. Am J Clin Pathol 2020;153:435–48.
[14] van der Wal RA, Bux MC, Hendriks JC, Scheffer GJ, Prins JB. Work stress and satisfaction in relation to personality profiles in a sample of Dutch anaesthesiologists: a questionnaire survey. Eur J Anaesthesiol 2016;33:800–6.
[15] Pu J, Zhou X, Zhu D, et al. Gender differences in psychological morbidity, burnout, job stress and job satisfaction among Chinese neurologists: a national cross-sectional study. Psychol Health Med 2017;22:680–92.
[16] Wang Z, Chen Z, Zhang L, et al. China hypertension survey investigators. Status of hypertension in China: results from the China hypertension survey, 2012–2015. Circulation 2018;137:2344–56.
[17] Ma RCW. Epidemiology of diabetes and diabetic complications in China. Diabetologia 2018;61:1249–60.
[18] Xing L, Jing L, Tian Y, et al. Epidemiology of dyslipidemia and associated cardiovascular risk factors in northeast China: a cross-sectional study. Nutr Metab Cardiovasc Dis 2020;30:2262–70.
[19] Wu S, Wu B, Liu M, et al. China Stroke Study CollaborationStroke in China: advances and challenges in epidemiology, prevention, and management. Lancet Neurol 2019;18:394–405.
[20] Zang S, Wang J, Xie F, et al. A cross-sectional study of job burnout, psychological attachment, and the career calling of Chinese doctors. BMC Health Serv Res 2020;20:193.
[21] Dyrbye LN, Shanafelt TD, Balch CM, Satele D, Sloan J, Freischlag J. Relationship between work-home conflicts and burnout among American surgeons: a comparison by sex. Arch Surg 2011;146:211–7.
[22] Ito N, Nagata T, Tatemichi M, Takebayash T, Morii K. Needs survey on the priority given to periodical medical examination items among occupational physicians in Japan. J Occup Health 2018;60:502–14.
[23] Wang L, Wang Z, Ma Q, Fang G, Yang J. The development and reform of public health in China from 1949 to 2019. Global Health 2019;15:45.
[24] Terry DL, Woo MJ. Burnout, job satisfaction, and work-family conflict among rural medical providers. Psychol Health Med 2021;26:196–203.
[25] Ewen C, Jenkins H, Jackson C, Jutley-Neilson J, Galvin J. Well-being, job satisfaction, stress and burnout in speech-language pathologists: a review. Int J Speech Lang Pathol 2021;23:180–90.
[26] Mehta LS, Murphy DJ Jr. Strategies to prevent burnout in the cardiovascular health-care workforce. Nat Rev Cardiol 2021;18:455–6.
[27] Ye GY, Davidson JE, Kim K, Zisook S. Physician death by suicide in the United States: 2012–2016. J Psychiatr Res 2021;134:158–65.
[28] Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout. Mayo Clin Proc 2017;92:129–46.
[29] Association of American Medical Colleges. The 2019 update: the complexities of physician supply and demand: projections from 2017 to 2032, Washington, DC: Association of American Medical Colleges 2019. Available at: https://www.aamc.org/data/workforce/reports.