AME survey-003 A1-part 2: the motivation factors of medical doctors in China

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Background: The professional moral and job satisfaction of medical profession remain highly disputed in media in China. On the other hand, there is wide disaffection of patients toward doctors in China. This survey aims to obtain a better understanding of the motivation of Chinese medical professionals.

Methods: An anonymous online cross-sectional survey, *AME survey III*, was conducted using the platform provided by DXY (www.dxy.cn) during the period of September 10-23, 2015. In total 2,356 DXY users completed the survey, including 1,740 males and 617 females, with a mean age of 31.96±7.03 yrs.

Results: The reasons (multiple choices) for career disaffection included poor patient/doctor relationship (88.6%), imbalance between workload and pay (79.5%), could not enter the preferred specialty (14.14%), and working in small clinics with no career progress (11.17%). If given the choice to enter the specialty as well as the hospital grade of their choice, 73.8% dissatisfied respondents replied they would like to be a doctor. For the dis-satisfied respondents, university teacher appeared to be the most popular career choice. The cited high workload was considered to be due to (I) imbalance in geographical allocation of doctors and insufficient training of doctors; (II) many red-tapism formalities; (III) Chinese patients often have unreasonable requests; (IV) over-examination and over-treatment; (V) high pressure to publish papers. One hundred and twelve respondents have their child/children attending university or graduated from university, 25.0% of them are pursuing a career in medicine. Nine hundred and ninety respondents have child/children while did not reach university age yet, among them 23.62% would like their child/children to study medicine. 64.87% of the 2,356 participants favor China to open up medical market to qualified foreign medical organizations to take part in fair competition, and 57.91% favor the government supporting regulated private hospitals.

Conclusions: The moral and motivation of medical doctors in China are likely to be similar to other continuously evolving societies. Cost-effective use of existing resources should be explored as the first priority.

Keywords: China; survey; job satisfaction; stress; clinical specialty; social support; career

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Background

Occupational stress and dissatisfaction of physicians are widely experienced phenomena globally (1-10). Medical professionals' social welfare is also related to patients' satisfaction. The dissatisfaction of patients and their relatives can lead to violence against health personnels, as reported in various countries and regions such as USA, UK, Saudi Arabia, Australia, Italy (11-18), as well as recently notable in China (19,20). In a 2005 report on work-related violence experienced by attending emergency physicians in Michigan, USA, during the preceding 12 months 74.9% of physicians experienced at least one verbal threat, 28.1% were victims of a physical assault, 11.7% were confronted outside of the emergency department, and 3.5% experienced a stalking

event (15). Most emergency physicians were occasionally fearful of workplace violence, whereas 9.4% were frequently fearful. Forty-two percent of emergency physicians sought various forms of protection as a result of the direct or perceived violence, including obtaining a gun (18%), knife (20%), concealed weapon license (13%), mace (7%), club (4%), or a security escort (31%) (15). In a 1995 report, at St. James's Hospital Dublin, the largest hospital in Ireland, it was found that 60% of nurses had been physically assaulted at least once while working in an Accident and Emergency Department and that 40% had been assaulted within the past 12 months (21). It was suggested that assaults on nurses were treated less seriously than similar incidents involving private citizens (21). In a 2011 report on doctors in Nara Prefecture, Japan, of 758 survey respondents 119 encountered work-related aggression and violence by patients and their relatives at least once over the previous 12 months, and some doctors developed post-traumatic stress disorder (17).

Medical doctors' moral and job satisfaction, and the attractiveness of medical profession career to younger generation in China remain highly disputed in media. Some reported wide dissatisfaction and low moral among medical doctors in China (11), while others reported high competition to enroll into good medical schools in China and the decades long tradition that vast majority of medical students choose to pursue graduate studies in clinical subjects instead of basic medical research (22,23). Liu et al. (24) reported staff in township health centers in China had a mean job satisfaction score of 83.3 (0: extremely dissatisfied to 100: extremely satisfied). However, there is also wide spread disaffection of patients toward medical professionals in China (25). In order to obtain a better understanding of the current morale of Chinese medical professionals, an anonymous online cross-sectional survey, AME survey III, was conducted using the platform provided by DXY (www.dxy.cn) during the period of September 10-23, 2015. In total 2,356 DXY users completed the survey (26). The data showed slightly more than half of the survey participants (51.4%) reported they did not regret entered medical profession (P>0.05). The positive responders (not regretted entered profession) was likely to be under-represented as the number of participants from primary care and small clinics was small (2.6%) and few principle doctors (zhuren yishi, 3.73%) participated in this survey. Both participants from primary care and small clinics and senior doctors are more likely to give positive reply (7,11). This article provides further analysis on medical

doctors' motivation with the data collected for *AME survey III*. The methodology details are available in our previous report (26) (*Figure S1*).

Results

The replies to the questionnaire are shown in *Figure 1*. By the total 1,146 participants (1,146/2,357, 48.6%) who *regretted* entered medical profession, poor healthcare environment and poor patient/doctor relationship was cited 1,015 times (88.6%); imbalance between workload and pay cited 911 times (79.5%); could not enter the preferred specialty cited 162 times (14.1%); and working in small clinics with no career progress cited 128 times (11.2%, question-2).

One hundred and sixty-two participants replied to question-3 (if you *regretted* being a doctor, what is your preferred profession). Among them 25 (15.4%) liked surgical specialties; 33 (20.3%) liked clinical nonsurgical specialties; 17 (10.5%) liked public health or medical research; 17 (10.5%) preferred IT or electronic communication technologies; 16 (9.9%) preferred to be a foreign language professional; 15 (9.3%) preferred to be in fields of economics or management; other 15 (9.3%) preferred engineering or physical sciences. The remaining choices included news and media (5, 3.1%), veterinary science (3, 1.8%) and other diversified choices (total: 16, 9.9%).

Forty-two participants replied to question-4 (for those *regretted* to be doctor, if they could join the specialty of their choice as well as the hospital grade of their choice? would they like to be a doctor?), 31 (73.8%) replied they would like to be a doctor, while only 11 (26.2%) replied they still would not like to be a doctor.

For question-5 and among these 1,146 participants who *regretted* to be doctor, when asked comparing with other professions such as computer scientist or university teacher, would they feel being a medical doctor is a good choice? A total of 206 (18.0%) replied being a medical doctor is a good choice, while 940 (82.0%) replied being a medical doctor is not a good choice.

For the 1,146 participants who *regretted* to be doctor, preferred professions (question-6) included university teacher (460 citations), finance sector professional (395 citations), engineer (366 citations), civil servant (288 citations), independent businessman (289 citations), and company manager (152 citations).

For question-7, to compare their income (inclusive of



(VII) If the government strong	ly promotes regulated private hc	sspitals, how would you think of it?
(Answers in total: 2,357)		
a) Good (1,365, 57.9%)	b) Not good (172, 7.3%)	c) Hard to tell (820, 34.8%)

Figure 1 Answers to the questionnaire.

bonus and all other incomes) with the income of local R&D personnels in their regions, 1,694 replied their income was lower (71.9%); 486 (20.6%) replied similar income; 177 replied their income was higher (7.5%).

To question-8, when asked comparing their workload to the workload to doctors in Korea, Japan, and Canada. A total of 2,267 respondents gave estimations. A total of 2,106 (89.4%) respondents replied their own workload would be greater; 221 (9.4%) respondents replied the workload would be same; and 30 (1.2%) respondents replied the workload would be lesser. To question-9, of the 2,106 respondents who replied their own workload was greater, the cited reasons included: (I) imbalance in geographical allocation of doctors and insufficient training of doctors in China (1,290, 61.3%); (II) Chinese patients are harder to deal with, they often have unreasonable requests (1,077, 51.1%); (III) over examination and over-treatment are common in the healthcare system in China (834, 39.6%); (IV) higher pressure to conduct research (737, 35.0%); (V) many redtapism formality activities waste a lot of time in China (1,318, 62.6%). Other particularly comments including too much doctor's time is spent on matters unrelated to patient care, poor regulation in physical examination system, not enough physician assistants, poor coordination among different specialties.

To the question-10, when asked why some Chinese doctors complain they are too busy, imbalance of allocation of patients to hospitals of different professional grades was cited most often (1,838 citations), followed by the number of doctors in China is not enough (935 citations), not enough physician assistants in China (868 citations), and the training of Chinese doctors is insufficient (566 citations).

A total of 112 respondents have their child/children attending university or graduated from university, of them 38 (33.9%) are in physical sciences, engineering or mathematics/statistics professions; 28 (25.0%) are pursuing a medical career; 18 (16.1%) are in the professions of finance, management or law; five are in the profession of arts; another five are in the profession of foreign language studies; four are in news and media; one studied biochemistry and another studied pharmacy; while 13 respondents (10.7%) did not specify this question.

A total of 990 respondents have child/children and did not reach university age yet, among them 236 (23.8%) replied they would like their child/children to study medicine. A total of 718 (72.6%) replied they would not like their child/children to study medicine, while 36 (3.6%) replied it would be up to the interests of their children.

Wáng et al. Motivation of Chinese doctors

Among the 236 respondents who would like their child/ children to study medicine, a total of 147 (62.3%) preferred their child/children to enter *first-line* specialties such as cardiology and orthopedics, while 83 (35.2%) preferred their child/children to enter *second-line* specialties such as radiology, electrocardiography (ECG), or pathology etc., six replied it would be up to the interests of their children. Among the 718 respondents who would not like their child/ children to study medicine, the primary concerns including: (I) medical profession involving long working hours and heavy work load (329, 71.9%); (II) poor healthcare environment and poor patient/doctor relationship (216, 30.1%); (III) pay is not proportional to work load (54, 7.5%).

Regarding whether China should open up medical market to qualified foreign medical organizations (for example medical organizations from Taiwan or Thailand) to enter China and participate in fair competition, 1,544 (65.5%) participants replied they would welcome this move, as this could reduce the workload on Chinese doctors; 348 (14.8%) participants replied they would not like the idea, as it could bring pressure on Chinese doctors; 25 (1.1%) participants thought it would not change the situation in China unless the system changes, while 440 (18.6%) participants replied they do not mind.

Regarding whether government should promotes regulated private hospitals (question-17), the majority 1,365 (57.9%) replied it would be good, 820 (34.8%) replied 'difficult to assess', only 172 (7.3%) replied it would not be good.

Discussion

A number reports suggested medical professionals in many countries have worsening job satisfaction. A recent survey by the British Medical Association with 15,560 responses from across the UK reported 34% of general practitioners were considering resigning from practice. Over two thirds of general practitioners said that they experienced a significant amount of manageable workrelated stress, but 16% said that they thought that their stress was significant and unmanageable (27). Doctors in USA are concerned about their falling incomes, and some resented that other specialties made more money. A paper published in 2012 reported the income of US doctors in most specialties fell from 2010 to 2011, while their unhappiness with practicing medicine rose (28). Only 54% said that they would choose medicine again as a career if considered again, and only about half the doctors believed

that they were fairly compensated for their work (28). With a 10-item and seven-point Likert scale (1= dissatisfaction; 7= satisfaction, the sum score: 10~70), a 2008 report of German doctors demonstrated an average job satisfaction of 44.3. The younger age group and those with a status as junior physician were significantly dissatisfied (7). Comparing different specialties, physicians in radiology had the highest (47.6) and in surgery (43.0) the lowest level of job satisfaction (7). These data are mirrored in the situation in South Korea and in this current study that in China diagnostic specialists such as Radiologists had a more positive response for their profession (26,29). While previously considered to be less desirable specialties, of those parents who would like their children to study medicine, 30.93% preferred their child/children to enter second-line specialties such as Radiology and ECG.

One study conducted in Brazil reported 64.9% of participants were satisfied with their work (30). In other surveys job satisfaction rate varies and has been reported to be 44.8% in India (2), and 55.0% for male doctors and 61.4% for female doctors in Japan (31). In Karachi, Pakistan, 68% of the doctors were not satisfied with their jobs (32). Further in Bahawalpur, Pakistan, 56% doctors were not satisfied with their income, 92% were dissatisfied with service structure and career prospects (33). When surveyed for a Brazilian sample, Ribeiro et al. (30) reported that 23.8% physicians studied were experiencing a common mental disorder which refer to the less severe range of mental disorders, with symptoms include forgetfulness, difficulty concentrating and making decisions, irritability, fatigue, and somatic complaints (headache, poor appetite, tremors) disorders. Prolonged periods of over-working can adversely affect the welfare of physicians and lead to manifestations of neurotic mental illness, problems in personal relationships, and depression (34,35).

While in the current study 48.6% of the participants replied they *regretted* joined medical profession, a closer look at the answers showed some contradictory evidences. To question-3 (if you regretted being a doctor, what is your preferred profession), 15.9% of the respondents *still* preferred clinical surgical specialties and 20.3% *still* preferred clinical non-surgical specialties. To question-4 (for those *regretted* to be doctor, if they could enter the specialty of their choice as well as the hospital grade of their choice), 73.8% of the respondents would *still* like to be a doctor. For question-5 and among these 1,146 participants who *regretted* to be doctor, when asked compared with other professions such as computer scientist or university teacher, would they feel to be a medical doctor is a good choice? Eighteen percent respondents replied being a medical doctor is a good choice. These contradictory answers further suggested the subjectivity of the answers for surveys of similar kinds, and all answers should be scrutinized with caution. Of note, for the children of survey participants at university or graduated from university, 25% have chosen clinical medicine as their professional. This demonstrates a relatively strong association of parents being a medical doctor and their child/children becoming a doctor. This figure is also in line with the reply of respondents who have child/children but did not reach university age yet, among them 23.62% replied they would like their child/children to study medicine.

As mentioned previously, this survey suggests the moral of medical doctors in China is not as low as described in some reports (11). In fact, the current study suggests it is highly likely that job satisfaction in China is overall similar to most of other continuously evolving societies. Satisfaction is an expression of an individual's judgment of the gap between his or her actual professional life and that which he or she envisioned. Satisfaction with life implies contentment or acceptance by individuals of the conditions of their existence and is associated with the way they perceive the fulfillment of that which they desire or need. The perceived inequality may substantially contribute to professional dissatisfaction. Bernstein noted that orthopaedic surgeons in USA all too frequently discover that a colleague of seemingly similar talent earns substantially more. That realization can make the wellpaid feel poor (3). Even people who fully understand that money does not buy happiness can be subject to irrational dissatisfaction. One of the common misconceptions is that medical doctors in China are now lowly paid. This is to much extent due to many news and websites in China use USA specialist doctor data as the singular comparator, disregarding the fact that most of Japanese and continental Europe colleagues in public medical institutions do not have a high income as well. The perceived inequality can heightens the sense of frustration. According to a study in USA, orthopaedic surgeons earn on average more than physicians in every other field, nevertheless a majority of orthopaedic surgeons reported dissatisfaction with their income and more than most other specialties (3). Our survey also shows the absolute income is not the most concerned factor for Chinese doctors (26). Although a large income provides a great deal of potential happiness, this potential may often go unrealized (36). When individuals

are merely reminded of money, they become less inclined to help others (37), but helping others offers a reliable route to happiness (38,39).

There are negative consequences of physician dissatisfaction on the quality of medical services (40). One-sided information of USA doctor's income is likely to incent even more job dissatisfaction among Chinese doctors. In fact, the USA healthcare system is widely considered to be a high-cost model (41,42). On the other hand, China's neighbor to the east Japan achieved universal health coverage in 1961 (43,44). Over the past 50 years, Japan has transformed its health-care system through incremental changes in expanding universal coverage and containing costs, while increasing fairness, and reducing inequities across different health plans (45). Japan is ranked 20th among Organisation for Economic Co-operation and Development (OECD) nations in the proportion of gross domestic product (GDP) spent on health (46). This success in containment of costs has been a key factor for improvement of the equity of the system among plans and beneficiaries (43).

The main concerns of Chinese doctors included poor patient/doctor relationship and too busy schedule in some grade IIIA hospitals. These issues are likely to be addressed by increasing the supply of doctors, improving their skills and improving patients' confidence on doctors at grade I and grade II hospitals (47). Cost-effective use of existing resources should be explored as the first priority. A better facilitated and balanced dialogue between healthcare providers and patients will certainly help. Some other measures can be taken to reduce the pressure on doctors, such as decreasing the amount of red-tapism formality activities, decreasing the amount of over examination and over-treatment, decreasing the amount of repetitive and unnecessary research work (48). Moreover, the building up of non-monetary incentives is essential. Social support is the availability of interpersonal relationships based on mutual trust, which provide opportunities for recognizing the self-worth of individuals and for providing help when needed. Social support modulates the impact of stress on the individual's health and job satisfaction (49). Ribeiro et al. reported the proportion of satisfied physicians was significantly higher among those who experienced a high level of social support at work (30). Wada et al. (31) showed a statistically significant association between Japanese physicians' job satisfaction and a good relationship with colleagues and management. On the other hand, working under conditions of high psychological demands and minimal control over activities is associated

with a significantly lower proportion of individuals being satisfied with their jobs (30). Policies that promote social support in the workplace, as well as strategies to increase physicians' control over their work activities, will have a positive effect on the job satisfaction.

As noted previously, a survey like this is likely to be tainted by potential biases (3). The high subjectivity of answers was also evidenced in this survey. The participant number in this study was still small when we look at the individual regions and individual specialties. In order to provide more conclusive answer to the questions we are concerned, we are continuing our survey to recruit more participants. Further results will be published in a followed report.

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Footnote

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Quantitative Imaging in Medicine and Surgery, Vol 5, No 6 December 2015

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Wáng et al. Motivation of Chinese doctors

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924



Part I



Figure S1 AME survey-003 questionnaire flow chart.