MLRA on Doctors’ Quality of Life in 3-A-Class Comprehensive Hospitals

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Abstract. Doctors’ Quality Of Life (QOL) has a direct impact on doctors’ medical behavior and medical effects, as well as on the development of the health service. 620 doctors from 16 3-A-class hospitals of Gansu province are studied in the paper. On the basis of investigation and statistics, the quality of life and its influencing factors are analyzed by Multivariate Linear Regression Analysis (MLRA), and meanwhile, some specific measures and suggestions are put forward to improve the quality of life of doctors.

Introduction
Quality of life is called by WHO in 1993, and its definition is that quality of life is the individual experience in different culture and value system to the life condition which is related to their goals, expectations, standards and what they concern[1]. With the social development and the tension doctor-patient relationship, medical workers have to bear more and more physiological, psychological pressure[2,3]. Lots of researches show that doctors generally have mental health problems in China. The work load is so big that the occurrence rate of job burnout reaches 55.3 percent[4]. With the many patients every day and the high level operation and the high risk, the doctors in 3-A-class comprehensive hospitals are often in the overload working condition, and they often feel the work pressure very big. In addition to clinical work, doctors also undertake research, teaching, job promotion and other aspects of the pressure, which make the more serious psychological problems appear. So it is very important to study the quality of life in 3-A-class hospitals. In this study, objects are 620 doctors from 16 hospitals in Gansu province. By a questionnaire survey and interviews, the status and influencing factors of QOL of doctors are gotten, and the measures of health intervention are put forward to improve QOL of doctors, which provide references for clinicians to improve the quality of life as well as the quality of their work.

Objects and Methods

Objects
620 doctors from 16 hospitals are randomly sampled as the objects. Those who have been clinical physicians for at least 2 years are our sample selection source, without the nursing staff and interns. A total of 620 questionnaires are issued, 601 questionnaires are recovered, and the effective rate is 96.93%.

Methods
The data are collected by the questionnaire, and then the statistical analysis is conducted by the statistical software SPSS. The content in questionnaire is acquired by means of Delphy technology, including the following two parts: (1) the basic demographic characteristics, including gender, age, position, educational background, professional title, marital status, and so on. (2) indicators on the quality of life. The indicators from WHOQOL-BREF in WHO are referenced including the four fields: physiological field, psychological field, social field and environmental field[5]. The objects of
the study evaluate themselves the quality of life based on each indicator. The 5-level grade is adopted during evaluation, and each indicator scores from 1 to 5 points. The objects give the score for each indicator according to their own situation. The total score of each domain is calculated by a special formula, and the specific value is acquired by the average of all the entries multiplied by 4. The higher the score is, the better the doctor’s quality of life is, and on the contrary, the lower the doctor's quality of life. Each of the indicators is explained and the scoring criterion is also clear in order to ensure the more objective evaluation.

Statistical Analysis
The software EPiData and SQSS13.0 are used for data processing and analysis. Measurement data is expressed by \( x \) (mean differences) \( \pm s \) (standard deviation), and the results are tested by \( t \)-test or variance analysis, statistical data are expressed as ratio, not absolute values, and the missing data are replaced by the mean, analyzing by multiple regression, with \( p<0.05 \), the difference was statistically significant.

Results

General Information
The simple doctors are all from 3-A-class hospital of Gansu province. Among them, there are 316 men, accounting for 52.57%, 285 women, accounting for 47.42%, and married 427, accounting for 71.05%, unmarried 174 people, accounting for 28.95%. About age, the average age of respondents is 37.64 years old, in which there are 118 under 30 years old, accounting for 19.63%, the number of people in 30 to 39 years old is 246 , accounting for 40.93%, the number in 40 to 49 is 196, accounting for 32.61%,the number above 50 is 41,accounting for 6.82%. In terms of education, college educated doctors 43, accounting for 7.15%, bachelor's degree 487, accounting for 81.04%, master's degree 71, accounting for 11.81%. From the professional title of view, the primary and the other primary titles have 93, accounting for 15.47%, the medium professional title 189, accounting for 31.45%, the associate senior professional title 232, accounting for 38.60%, and the senior professional title 87, accounting for 14.48%.

Self-evaluation and Health Satisfaction
The results show that the self-evaluation from 601 doctors is 3.1 \( \pm 0.7 \), and the health satisfaction is 3.0 \( \pm 0.6 \), and the scores in the four fields are 13.9 \( \pm 2.8 \), 13.1 \( \pm 3.3 \), 13.8 \( \pm 2.7 \), 12.1 \( \pm 3.1 \) respectively. Comparing the scores with norm data in China, we found that the different between them is statistically significant with \( p<0.05 \), the scores in the three fields of the physiological field, psychological field and environment field are lower than the norm, see table 1.

<table>
<thead>
<tr>
<th>Quality of life</th>
<th>Doctors'</th>
<th>The norms</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>physiological field</td>
<td>14.1 ( \pm 2.8 )</td>
<td>15.8 ( \pm 2.9 )</td>
<td>-12.323</td>
<td>0.000</td>
</tr>
<tr>
<td>psychological field</td>
<td>13.1 ( \pm 3.3 )</td>
<td>14.3 ( \pm 2.5 )</td>
<td>-3.212</td>
<td>0.001</td>
</tr>
<tr>
<td>social field</td>
<td>13.9 ( \pm 3.2 )</td>
<td>13.7 ( \pm 3.0 )</td>
<td>4.608</td>
<td>0.000</td>
</tr>
<tr>
<td>environment field</td>
<td>12.1 ( \pm 3.1 )</td>
<td>13.2 ( \pm 2.4 )</td>
<td>-7.050</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Analysis on the Demographic Factors
The results acquired by \( t \) test and variance analysis show that male doctors score higher than female in three fields of physiological field, psychological field and social field, and gender is the statistically significant factor in physiology field without the effect in the other three fields. There are significant differences statistically for different ages of doctors except those in social domain, and over 50 doctors in the fields of physical and psychological and environmental domain score higher than other age groups of doctors. When it comes to education, those who have bachelor degree often score...
higher than others in the three fields, no and significant statistically effect obviously about their academic qualification. In aspect of marriage, married doctors’ score in the 4 fields are higher than the others, and there are significant effects statistically on marriage not in physiological and social areas but in psychological and environment domains. Differences in different professional title of doctors are significant statistically in the field of psychology and environment, no significant differences in the physiological and social areas; senior doctors’ score are higher than other professional doctors in the 4 fields. Comparison of different demographic characteristics about QOL sees Table 2.

<table>
<thead>
<tr>
<th>Items</th>
<th>Physiological</th>
<th>Psychological</th>
<th>Social</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>P</td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>gender</td>
<td>2.596</td>
<td>0.010</td>
<td>1.154</td>
<td>0.249</td>
</tr>
<tr>
<td>age</td>
<td>3.458</td>
<td>0.017</td>
<td>7.751</td>
<td>0.000</td>
</tr>
<tr>
<td>education</td>
<td>1.739</td>
<td>0.155</td>
<td>0.209</td>
<td>0.889</td>
</tr>
<tr>
<td>marriage</td>
<td>1.963</td>
<td>0.139</td>
<td>6.675</td>
<td>0.001</td>
</tr>
<tr>
<td>title</td>
<td>2.594</td>
<td>0.051</td>
<td>8.278</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Multivariate Linear Regression Analysis

In order to discuss the influence of demographic factors to the doctor quality of life, the four dependent variables correspond to the four fields respectively, with predictor variables corresponding to gender, age, education, marital status, profession title, we analyze the demographic factors and doctors’ quality of life using multivariate regression analysis. The results, seeing table 3, show that the contribution rate of gender and education to the physiological field is 4.26%, the contribution rate of the title to the psychological field is 6.16%, and the influence factors in the environmental field are gender and professional title, the total contribution rate is 10.18%.

Table 3. Influence factors of doctors’ quality of life with MLRA.

<table>
<thead>
<tr>
<th>QOL</th>
<th>Predictor variables</th>
<th>B</th>
<th>B</th>
<th>t</th>
<th>P</th>
<th>R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>physiological</td>
<td>gender</td>
<td>-0.430</td>
<td>-0.093</td>
<td>-2.269</td>
<td>0.024</td>
<td>0.0426</td>
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<tr>
<td></td>
<td>education</td>
<td>0.631</td>
<td>0.168</td>
<td>3.521</td>
<td>0.000</td>
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<tr>
<td>psychological</td>
<td>title</td>
<td>0.609</td>
<td>0.156</td>
<td>3.376</td>
<td>0.001</td>
<td>0.0616</td>
</tr>
<tr>
<td>environmental</td>
<td>gender</td>
<td>0.0573</td>
<td>0.109</td>
<td>2.722</td>
<td>0.007</td>
<td>0.1018</td>
</tr>
<tr>
<td></td>
<td>title</td>
<td>0.333</td>
<td>0.136</td>
<td>2.011</td>
<td>0.046</td>
<td></td>
</tr>
</tbody>
</table>

Discussion and Suggestion

Discussion

With the development of management science, the research of QOL has been paid attention to by many scholars, and has been widely applied in the field of medical treatment and management. Especially in the enterprise management, QOL has been used as an important measure of human resource management. With higher QOL, the employees’ enthusiasm is aroused. In China, since the research on the application of QOL to the doctors is very few, with the tension doctor-patient relationship, and heavy workload and pressure of doctors, the quality of work and life of the medical staff is declining day by day. It is bound to affect the behavior and health of the doctor, which is detrimental to the development of doctors and hospitals, and ultimately affects the development of health services. Through the empirical research on QOL of doctors, we can improve and enhance about QOL, not only conducive to the promotion of the doctor's physical and mental health and work efficiency, but also help to improve the management of the hospital, enhance the hospital's human resource, and promote the development of China's health services.

The results of this research show that the self-evaluation of QOL and the satisfaction about doctors’ health status are both in the middle and lower level in Gansu province, which is consistent with the relevant research results in China[8], and the score of QOL are lower than the national norm,
all those show that the doctors’ QOL is in the lower level in our country, which has a direct relationship with underdeveloped economy, the lack of medical resources, poor medical environment and heavy workload and imperfect support system.

The single factor variance analysis indicates that there is no apparent difference between the effect of gender on the psychological field, social field and environment field, which may be related to our country's health system. There is no obvious preferential treatment for female doctors in workload, work time, holidays, title assessment, compensation and other significant benefits. Male doctors score higher than the female, which is similar to the results in reference [9], their research is mainly about doctors in Shenzhen city. Physical differences become the mainly reason, since female doctors have no the same endurance as the male at the same workload. From the perspective of age, doctors in 30s to 39s are on their rising career, and meanwhile they have to face the pressure not only from family but also from their professional title and occupation lassitude. The score is affected by marriage in psychological field and environment field, especially for the unmarried, mainly because many doctors are young, less experience of surgical operation and solving the doctor-patient dispute, which has greater impact on their psychology. The QOL is no significant difference in education, which may be related to the nature of doctors’ job, and since medical risk is uncertain and complex, the probability of occurrence of medical security incidents is in no relation to doctors’ education. About professional title, psychology and environment are the main factors to affect the doctors’ QOL, the higher the title level, the better the doctors’ QOL, this is mainly because the salary distribution system of public hospitals are mostly affected by the title rather than academic.

**Suggestions**

The doctors’ QOL is not only related to their personal health, but also affects their service status and service quality for patients. By statistical analysis, it should be paid enough attention that Gansu doctors’ QOL is lower than the national level. The results of multiple regression analysis show that the different gender of doctor has different performance in field of physiology and the environment, with the interaction between different demographic factors. So some suggestions are follows.

1. The investment of health resources should be strengthened, and the working situation also should be optimized. One of the very important reasons that Gansu doctors’ QOL lower is the pressure of work and life, poor working conditions, work pressure, low income and other factors. Therefore, the primary task is to increase investment, improve health resources and facilities, reduce work pressure and increase income.

2. Doctors should be guided and eased. The doctors’ low QOL should be paid enough attention, the hospital should regularly carry out health examination for the doctors, and build the employee health management files. For the sake of the mental health status of doctors, actively guide and intervention are very important, and when necessary, EAP management system should be introduced to timely relieve the doctors’ psychological pressure. When it works, the unified standard one size fits all should be prevented, and different QOL levels should have the different countermeasures.

3. Individual doctors should establish the concept of health management and health awareness, change bad personal habits and ways of life, and strengthen exercise. Doctors should change health management from the passive to the initiative, doing their own health management.

4. Establish and improve social support system. In addition to the influence factors of demographic characteristics, job stress, burnout, doctor-patient dispute, misunderstanding from social, the relevant studies have shown that intervention the violence in doctors’ workplace can relieve doctors working pressure and be also helpful to improve the doctor QOL.

All in all, the current medical professional pressure has become a common social problem. Health administrative departments and hospitals should establish a sound health management support system for doctors to enhance the doctors’ QOL, which will help doctors to provide patients with better quality of medical services, and promote the steady development of China's medical and health undertakings.
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References


