Interrelationships between romance, life quality, and medical training of female residents

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Abstract

Background: For the past 30 years, there has been a steady increase in the number of female physicians, but the relationship between their romantic lives and their pattern of training has been inadequately reported. This study was designed to investigate the interrelationships between medical training, quality of life, and the attitudes that female residents have toward romance.

Methods: Of the 106 female medical residents at our medical center in 2009, a total of 78 residents (73.6%) were enrolled for the study. Structured questionnaires (Cronbach α = 0.878), which included questions about female resident quality of life, attitude toward spousal choice, and the impact of programmed professional medical training, were self-administered through an anonymous process.

Results: Female residents, especially ward-care specialists, were determined to have excessively long working hours (84.6% > 88 work hours/week), insufficient and irregular sleep (44.9%), and inadequate personal time (73.1% < 24 hours/week) on average. Of the 48 residents with ongoing romances, 87.5% (n = 40) of romantic partners were physicians and 58.3% (n = 28) initiated their relationships when they were medical students, but exhibited no preferential dating of senior medical students or physicians. Factors affecting the choice of spouses included time limitations, a limited circle of friends, differences in values, and work-related stress. Those presumptive factors influencing romance between the assumed partner being a doctor or a “nondoctor” were significantly different with regard to lack of time (p = 0.002), values (p < 0.001), work-related stress (p < 0.001), and family background (p = 0.004).

Conclusion: Romance and quality of life were significantly influenced by the pattern of medical training in female residents. Setting duty-hour limits and initiating a new hobby were determined to be potentially beneficial to their quality of life and attitudes toward romance.

Keywords: clinical education; duty hours; female physician; professional training; spousal choice

1. Introduction

In the United States, the percentage of female physicians increased from 7.6% to 27.8% of total physicians from the 1970s to 2006.1 At present, half of the first-year medical students in the US are women.2 In 1980–1981, the ratio of male to female physicians in Taiwan was 22:1; however, female physicians accounted for 12.0%, 13.1%, 14.2%, and 15.4% of practice physicians in 2003, 2005, 2007, and 2009, respectively.3 The proportion of female students among Taiwan medical school graduates reached 31% in 2005.4

Obviously, there has been a steady increase in female physicians in this previously male-dominated professional field, not only in the US but also in Taiwan.

Previous studies have indicated that women suffer from professional obstacles related to being newcomers in a traditionally male-dominated field, and suffer from residual sexism associated with this phenomenon.5 In the US, as reported in previous studies, women were shown to report higher levels of...
stress reaction to residency than did their male counterparts. The phenomenon has been attributed to isolation and anxiety related to role stress, loneliness, depression, and the problems associated with balancing family and career. Female medical students and residents have higher rates of major depression and suicidal ideation. In addition, women are less likely to be promoted or to serve in leadership positions in their academic disciplines. A few studies have discussed the stress level of female physicians resulting from imbalance between career and family, and their professional performance as it relates to these issues. Because romance is a universal issue for female physicians, more studies are needed that address the quality of life, spousal choices, and how medical life affects female physicians in the area of romance.

The medical education system is an extended, involved program that includes 6–8 years of medical school after completion of high school. After applying for different specialties as residents, it may take another 4–8 years for the students to complete the necessary residency and internship. This period, which impacts most residents when they are 25–33 years of age, is the most stressful and has the least free time of any stage in a physician’s life. However, this is also the most crucial time in which residents might develop a marriage or a marriage-oriented relationship. Compared with other female professionals, female physicians have a tendency to choose a member of their own profession as their spouse. Correspondingly, it would appear that female doctors marry late and have elevated requirements regarding their choice of spouse. However, the relationship between a spouse’s highly specialized occupation and the lifestyle or personal values of female physicians is largely unknown. Furthermore, it is beneficial to investigate how a professional training program affects the quality of life of female physicians. To better determine the influence of professional medical training systems on spousal choices and on the love interests and dating habits of female physicians, we focused on female residents at their spouse-choosing stage. In this study, we aimed to clarify the quality of female residents’ lives, their attitudes toward their choices in a spouse, and how their professional medical training program affects their lives and attitudes.

2. Methods

2.1. Participants

In 2009, there were 113 female resident physicians registered at National Cheng Kung University Hospital, a tertiary care medical center. Excluding those who were trained in other affiliated hospitals, only 106 female resident physicians were available for this survey. Questionnaires were distributed to each female resident and collected through an anonymous process during a 2-week period in 2009. A total of 78 questionnaires were collected, with a response rate of 73.6%. It can be assumed that all doctors have stressful jobs, whether they work in a classroom, an office or laboratory, or in an operation-based or emergency services environment. We purposefully divided the respondents into two groups: ward care (work at ward/bedside with frequent consecutive on-duty shifts of over 24 hours), and nonward care, with their specialty distribution shown in Table 1. This study was approved by the Ethical and Clinical Trial Committee of National Cheng Kung University Hospital (NCKU IRB ER-98-117).

2.2. Design of the questionnaire

Our questionnaire was based on a literature review and interviews with 10 medical students from 3rd to 7th year and 6 female physicians from varied medical specialties. The questionnaire was also revised according to the responses from a pretest that was repeated four times on five female residents. The final questionnaire had 59 items. These items included basic information (3 items), hours on duty and time spent pursuing leisure activities (6 items), romance status and requirements (10 items), spousal choice (18 items), as well as maintenance and development of romantic relationships (22 items).

2.3. Validity and reliability of questionnaire

The soundness of the content of our questionnaire was validated by two experts, one with >20 years of clinical practice and the other one is a professional in sociology for 20 years. Study reliability regarding spousal choice and the challenges of development of romantic relationships was deemed acceptable as measured by a Cronbach α-coefficient of 0.878.

2.4. Statistics

The analyses were performed using SPSS for Windows, version 12.0 (SPSS Inc., Chicago, IL, USA). Descriptive data were accordingly expressed in mean/SD or number/percentile. Continuous variables were analyzed using an independent t test, and categorized variables were analyzed using a Chi-square test with Fisher’s exact test and the nonparametric McNemar–Bowker test. In factor analysis, the varimax rotation with Kaiser normalization was used to identify the independent components for both the assumed partner as a doctor and as a nondoctor groups. The statistical power regarding the comparisons between ward-care and nonward-care residents ranged from 0.359 to 0.959. Statistical significance was defined as p < 0.05.

3. Results

The mean age of the 78 respondents was 27.87 ± 2.09 years. Study respondent ages were all within the appropriate
age interval (24–33 years) for romance and marriage, and 87.2% (n = 68) were in the 25–30-year-old range. Among all respondents, 37 (47.4%) had boyfriends and 11 (14.1%) had married while they were still students. Among the 48 nonsingle female residents, 28 (58.3%) had initiated their current romance in medical school, and 87.5% (n = 42) had chosen doctors as a partner. There was no significant difference between the categories of age, nonsingle and two-physician couple rates, and the stage during which they initiated their current romance (Table 1).

Further inquiry of the 78 residents revealed that 40 (51.3%) would choose between the ages of approximately 25 and 29 as an ideal time to marry, and 26 (33.3%) indicated that they would choose the ages of 30–34. Compared with the 2008 average marrying age of females (29.5 years) in Taiwan,21 there was no tendency to delay marriage or apparent reluctance to marry. Only 38.5% of the total respondents agreed that they would consider marriage and family as a factor when choosing their specialties, and there was no significant difference between the ward and nonward groups. Although the stage during which they initiated their present romance was similar between the ward and nonward groups, the ideal time to marry was expressed as significantly earlier in the nonward-care group (p = 0.024) (Table 1).

In this study, 66 (84.6%) female residents worked >88 hours/week, 28.2% worked 100–120 hours/week, and 15.4% worked >120 hours/week. Up to 87.2% (n = 68) of the female residents lacked sufficient sleep, and 55.2% (n = 43) had irregular sleep. After deducting duty hours, study time, preparation of case reports, and hospital-related work, only 26.9% reported >24 hours of personal time/week. Compared with the nonward-care group, the ward-care group had much (p < 0.001) longer duty hours, longer consecutive on-call hours, less personal time, and reduced quality of sleep (Table 2).

Of the 78 female residents (87.2%), 68 indicated that they would consider either a doctor or a nondoctor as a candidate for marriage. Personality, hobby, and workplace distance were the top three concerns that affected the choice of a spouse for female residents, regardless of whether the assumed partner was a doctor or not (Table 3). However, occupation (p < 0.001), income (p < 0.001), workplace distance (p = 0.01), and family background (p = 0.004) were of greater concern in nondoctor choices of spouses. When

<table>
<thead>
<tr>
<th>Case (n)</th>
<th>Total, N (%)</th>
<th>Ward care, N (%)</th>
<th>Nonward care, N (%)</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.87 ± 2.09</td>
<td>28.02 ± 2.05</td>
<td>27.42 ± 2.22</td>
<td>0.283</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Romance status</th>
<th>Case (n)</th>
<th>Total, N (%)</th>
<th>Ward care, N (%)</th>
<th>Nonward care, N (%)</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>30 (38.5)</td>
<td>23 (39.0)</td>
<td>7 (36.8)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Nonsingle</td>
<td>48 (61.5)</td>
<td>36 (61.0)</td>
<td>12 (63.2)</td>
<td>0.631</td>
<td></td>
</tr>
<tr>
<td>- Dual-doctor couple**</td>
<td>42 (87.5)</td>
<td>32 (88.9)</td>
<td>10 (83.3)</td>
<td>0.737</td>
<td></td>
</tr>
<tr>
<td>- Stage when initiating the present romance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before graduation</td>
<td>28 (58.3)</td>
<td>20 (55.6)</td>
<td>8 (66.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During residency</td>
<td>20 (41.7)</td>
<td>16 (44.4)</td>
<td>4 (33.3)</td>
<td>0.024</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ideal age for marriage (y)</th>
<th>Case (n)</th>
<th>Total, N (%)</th>
<th>Ward care, N (%)</th>
<th>Nonward care, N (%)</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>25–29</td>
<td>40 (51.3)</td>
<td>25 (42.4)</td>
<td>15 (78.9)</td>
<td>0.024</td>
<td></td>
</tr>
<tr>
<td>30–34</td>
<td>26 (33.3)</td>
<td>23 (39.0)</td>
<td>3 (15.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;34</td>
<td>2 (2.6)</td>
<td>2 (3.3)</td>
<td>0 (0)</td>
<td>0.631</td>
<td></td>
</tr>
<tr>
<td>Not considering yet</td>
<td>10 (12.8)</td>
<td>9 (15.3)</td>
<td>1 (5.3)</td>
<td>0.421</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considering marriage/family when choosing specialty</th>
<th>Case (n)</th>
<th>Total, N (%)</th>
<th>Ward care, N (%)</th>
<th>Nonward care, N (%)</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely agree</td>
<td>2 (2.6)</td>
<td>0 (0)</td>
<td>2 (10.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>28 (35.9)</td>
<td>21 (35.6)</td>
<td>7 (36.8)</td>
<td>0.421</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>30 (38.5)</td>
<td>23 (39.0)</td>
<td>7 (36.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely disagree</td>
<td>18 (23.1)</td>
<td>15 (25.4)</td>
<td>3 (15.8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Specialty distribution | Internal medicine | Pathology | Surgery | Dermatology | OBGYN | Radiology | Pediatrics | Anesthesiology | Family medicine | Ophthalmology | Psychiatry | Emergency | Neurology | Radiation oncology | Rehabiliation | Urology | ENT |
|-----------------------|-------------------|-----------|---------|-------------|-------|-----------|------------|----------------|----------------|---------------|------------|-----------|-----------|-------------|----------------|---------|------|-----|
|                       | 17                | 5         | 8       | 3           | 6     | 3         | 7          | 2              | 7              | 2            | 5         | 2         | 3          | 1            | 3       | 2    | 1   |

ENT = ear, nose, and throat; OBGYN, obstetrics and gynecology.

* Independent t test for continuous variables, Chi-square with Fisher’s exact test for categorical variables.

** The partner of female resident is also a doctor, percentile of 48 nonsingle residents.

Table 1
Comparison of romance status and attitude between ward-care and nonward-care female residents in medical center.
comparing ward-care with nonward-care residents, only the family background in which the partner was assumed to be a doctor was different between the two groups. In spousal choice, the ward-care group showed 63.7% of the respondents to either completely agree or agree, but only 52.7% of residents in the nonward-care group \((p = 0.034, \text{ data not shown})\) expressed this same sentiment. Factor analysis revealed three major components that could explain variances of 68.093% and 71.180% of measured characteristics for the doctor and nondoctor group, respectively.

In Table 4, over 80% of the respondents either fully agreed with or agreed with all of the major five factors that influence romance between the prospective partner as a doctor and nondoctor. “Values” (personal values or attitudes toward property) were the area of greatest concern to the residents. The McNemar–Bowker test indicated that “value” \((p < 0.001)\), “time limitations” \((p = 0.002)\), and “work-related stress” \((p < 0.001)\) were more concerning factors for female residents in cases where their prospective partner was a nondoctor. However, just 47.4% of residents indicated that a professional medical training program is related to the ending of romance during residency, which was lower than expected (data not shown in table).

Up to 89.7% of the female residents agreed that it is much more difficult for them to develop a romance than females in other professional occupations. Among the possible factors related to such difficulty, there was a high level of resident concurrence regarding insufficient time, a limited circle of friends, work fatigue, a limited number of suitable admirers, and work-related stress, which were 92.3%, 92.3%, 87.2%, 82.0%, and 83.3%, respectively (data not shown in table).

Of the 78 residents, initiating a new hobby was possibly believed to offer some benefits regarding the development of a new romance, or retaining a present love interest (83.9% agreed). On the other hand, setting duty-hour limitations (67.9%), afternooon off on the next day of on call (59.0%), and internal/external group blind dates arranged by the hospital (55.1%) also received positive resident support. However, a total of 70.5% female physicians admitted that the development of a new romance or the ability to retain a present romance are matters of a personal nature and cannot be easily changed (data not shown in table).

### 4. Discussion

This study demonstrated the interrelationships between long work hours, poor quality of life, and the stressful romantic relationship characteristics of female residents. The weekly duty hours for 66 (84.6%) residents was >88 hours, which exceeds the upper limit of the Accreditation Council for Graduate Medical Education (ACGME) Common Duty Hour Standards.22,23 This means that about 30% of the female residents, on average, worked approximately 14.3–17.1 hours/day, and 15% worked >17 hours/day. Across the country, Taiwan National Health Insurance covers >98% of the population, ranked second among 27 major countries in terms of population health status and the quality of medical care provided, according to the 2000 Economist Intelligence Unit report.24 However, there is no duty-hour limit for residents, who provide much of the medical direction and perform myriad tasks in hospitals. It is interesting to note that the Labor Standard Law of Taiwan sets the upper limit on working hours at 48 hours/week, similar to the 48-hour limit which exists under collective agreements of the European Commission. Many industrialized countries have also set weekly duty-hour limits: 37 hours in Denmark, 52.5 hours in France, 72

### Table 2

<table>
<thead>
<tr>
<th>Case (n)</th>
<th>Total, N (%)</th>
<th>Ward care, N (%)</th>
<th>Nonward care, N (%)</th>
<th>(p^*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duty hours (h/wk)</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt;88</td>
<td>12 (15.4)</td>
<td>4 (6.8)</td>
<td>8 (42.1)</td>
<td></td>
</tr>
<tr>
<td>88–100</td>
<td>32 (41.0)</td>
<td>24 (40.7)</td>
<td>8 (42.1)</td>
<td></td>
</tr>
<tr>
<td>100–120</td>
<td>22 (28.2)</td>
<td>20 (33.9)</td>
<td>2 (10.5)</td>
<td></td>
</tr>
<tr>
<td>&gt;120</td>
<td>12 (15.4)</td>
<td>11 (18.6)</td>
<td>1 (5.3)</td>
<td></td>
</tr>
<tr>
<td>Most frequent consecutive on-call hours</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt;24</td>
<td>3 (3.8)</td>
<td>0 (0)</td>
<td>3 (15.8)</td>
<td></td>
</tr>
<tr>
<td>24–36</td>
<td>36 (46.2)</td>
<td>25 (42.4)</td>
<td>11 (57.9)</td>
<td></td>
</tr>
<tr>
<td>36–48</td>
<td>34 (43.6)</td>
<td>30 (50.8)</td>
<td>4 (21.1)</td>
<td></td>
</tr>
<tr>
<td>&gt;48</td>
<td>5 (6.4)</td>
<td>4 (6.8)</td>
<td>1 (5.3)</td>
<td></td>
</tr>
<tr>
<td>Personal time (h/wk)</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt;12</td>
<td>11 (14.1)</td>
<td>10 (16.9)</td>
<td>1 (5.3)</td>
<td></td>
</tr>
<tr>
<td>12–18</td>
<td>24 (30.8)</td>
<td>19 (32.2)</td>
<td>5 (26.3)</td>
<td></td>
</tr>
<tr>
<td>18–24</td>
<td>22 (28.2)</td>
<td>17 (28.8)</td>
<td>5 (26.3)</td>
<td></td>
</tr>
<tr>
<td>&gt;24</td>
<td>21 (26.9)</td>
<td>13 (22.0)</td>
<td>8 (42.1)</td>
<td></td>
</tr>
<tr>
<td>Quality of sleep</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sufficient and regular</td>
<td>2 (2.6)</td>
<td>1 (1.7)</td>
<td>1 (5.3)</td>
<td></td>
</tr>
<tr>
<td>Sufficient but irregular</td>
<td>8 (10.3)</td>
<td>6 (10.2)</td>
<td>2 (10.5)</td>
<td></td>
</tr>
<tr>
<td>Insufficient but regular</td>
<td>33 (42.3)</td>
<td>22 (37.3)</td>
<td>11 (57.9)</td>
<td></td>
</tr>
<tr>
<td>Insufficient and irregular</td>
<td>35 (44.9)</td>
<td>30 (50.8)</td>
<td>5 (26.3)</td>
<td></td>
</tr>
</tbody>
</table>

* Chi-square with Fisher’s exact test.
Table 3
Concerns regarding spousal choice between the assumed partner as a doctor and nondoctor.

<table>
<thead>
<tr>
<th>Concerns about assumed partner</th>
<th>Assumed partner as</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doctor, N (%)</td>
<td>Nondoctor, N (%)</td>
</tr>
<tr>
<td><strong>Case (n)</strong></td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Specialty/occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely agree</td>
<td>10 (12.8)</td>
<td>39 (50.0)</td>
</tr>
<tr>
<td>Agree</td>
<td>34 (43.6)</td>
<td>33 (42.3)</td>
</tr>
<tr>
<td>Disagree</td>
<td>23 (29.5)</td>
<td>4 (5.1)</td>
</tr>
<tr>
<td>Completely disagree</td>
<td>11 (14.1)</td>
<td>2 (2.6)</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td>6 (7.7)</td>
<td>18 (23.1)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>32 (41.0)</td>
<td>45 (57.7)</td>
</tr>
<tr>
<td>Agree</td>
<td>29 (37.2)</td>
<td>12 (15.4)</td>
</tr>
<tr>
<td>Disagree</td>
<td>11 (14.1)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Personality</td>
<td>73 (93.6)</td>
<td>73 (93.6)</td>
</tr>
<tr>
<td>Fully agree</td>
<td>5 (6.4)</td>
<td>5 (6.4)</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hobby</strong></td>
<td>59 (75.7)</td>
<td>62 (79.5)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>16 (20.5)</td>
<td>13 (16.7)</td>
</tr>
<tr>
<td>Agree</td>
<td>3 (3.8)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Workplace distance</strong></td>
<td>27 (34.6)</td>
<td>40 (51.3)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>45 (57.7)</td>
<td>35 (44.9)</td>
</tr>
<tr>
<td>Agree</td>
<td>4 (5.1)</td>
<td>2 (2.6)</td>
</tr>
<tr>
<td>Disagree</td>
<td>2 (2.6)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Appearance</td>
<td>12 (15.4)</td>
<td>15 (19.2)</td>
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<tr>
<td>Completely agree</td>
<td>48 (61.5)</td>
<td>48 (61.5)</td>
</tr>
<tr>
<td>Agree</td>
<td>16 (20.5)</td>
<td>14 (17.9)</td>
</tr>
<tr>
<td>Disagree</td>
<td>2 (2.6)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Family background</td>
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<td>10 (12.8)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>41 (52.6)</td>
<td>44 (56.4)</td>
</tr>
<tr>
<td>Agree</td>
<td>25 (32.0)</td>
<td>18 (23.1)</td>
</tr>
<tr>
<td>Disagree</td>
<td>6 (7.7)</td>
<td>6 (7.7)</td>
</tr>
</tbody>
</table>

* Comparison between doctor and nondoctor, the McNemar—Bowker test.

hours in New Zealand, and 56–64 hours in the United Kingdom.23 Because there is no clear regulation regarding duty-hour limitations in Taiwan, the results of this study are worth comparing with the ACGME Common Duty Hour Standards which were developed in 2003. According to the ACGME Common Duty Hour Standards, continuous on-site duties (including in-house call) must not exceed 24 consecutive hours. There is an exception for 6 additional hours which can be used to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.22 Our study indicated that approximately 50% of female residents frequently have >36 consecutive on-call hours, and only 3.8% of the female residents considered in this study met the ACGME standard.

Residents in ward-care specialties work significantly longer duty hours, longer on-call hours, enjoy less personal time, and have more irregular sleep than their nonward-care counterparts. Although both ward-care and nonward-care residents have stressful hospital lives, the ward-care role indeed increases resident workload, and results in female residents sacrificing their sleep and personal time for their profession. This report also revealed that female residents involved in ward care presumed that they would marry within a certain ideal period, which was later than the similar period for nonward physicians. However, there was no significant difference between the two groups on other issues including nonsingle status, initiation time of present romance, and marriage or family concerns in regard to their choices of specialty areas. Previous studies have suggested that female physicians often choose “nonward specialties” because they are taking the possibility of future married life into consideration.19 Our study does not support this finding, and also indicates that marriage concerns may not significantly influence female residents in their choice of specialty. Furthermore, our study further suggests that ward care is not a factor that interferes with starting a romance, though extra time spent in ward care may cause female residents to consider postponing marriage.

It appears that occupation, income, workplace distance, and family background play a more prominent role in nondoctor choices of a spouse. There are several possible explanations for this phenomenon. Compared with other occupations, doctors are engaged in a relatively stable profession, and customarily have higher incomes, with better family

Table 4
Presumptive factors of influence on romance between the assumed partner as a doctor and nondoctor.

<table>
<thead>
<tr>
<th>Concerns about assumed partner</th>
<th>Assumed partner as</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doctor, N (%)</td>
<td>Nondoctor, N (%)</td>
</tr>
<tr>
<td><strong>Case (n)</strong></td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Time limitations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely agree</td>
<td>36 (46.2)</td>
<td>50 (64.1)</td>
</tr>
<tr>
<td>Agree</td>
<td>29 (37.2)</td>
<td>26 (33.3)</td>
</tr>
<tr>
<td>Disagree</td>
<td>11 (14.1)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Completely disagree</td>
<td>2 (2.6)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Values</td>
<td>36 (46.2)</td>
<td>51 (65.4)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>34 (43.6)</td>
<td>26 (33.3)</td>
</tr>
<tr>
<td>Agree</td>
<td>7 (9.0)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely disagree</td>
<td>1 (1.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>New partner</td>
<td>21 (26.9)</td>
<td>29 (37.2)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>43 (55.1)</td>
<td>38 (48.7)</td>
</tr>
<tr>
<td>Agree</td>
<td>12 (15.4)</td>
<td>9 (11.5)</td>
</tr>
<tr>
<td>Disagree</td>
<td>2 (2.6)</td>
<td>2 (2.6)</td>
</tr>
<tr>
<td>Workplace distance</td>
<td>27 (34.6)</td>
<td>33 (42.3)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>46 (59.0)</td>
<td>41 (52.6)</td>
</tr>
<tr>
<td>Agree</td>
<td>4 (5.1)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Disagree</td>
<td>1 (1.3)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Work-related stress</td>
<td>25 (32.1)</td>
<td>41 (52.6)</td>
</tr>
<tr>
<td>Completely agree</td>
<td>42 (53.8)</td>
<td>32 (41.0)</td>
</tr>
<tr>
<td>Agree</td>
<td>9 (11.5)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Disagree</td>
<td>2 (2.6)</td>
<td>2 (2.6)</td>
</tr>
</tbody>
</table>

* Comparison between doctor and nondoctor, the McNemar—Bowker test.
backgrounds than is characteristic of the general population. Therefore, the last two factors are less scrutinized if the assumed partner is a doctor. As for workplace distance is concerned, it is possible that assumed nondoctor partners may not understand the time constraints placed on residents and may seek more time together than would be the case for partners who are also doctors. Our study also suggested that female residents are more concerned with “value differences,” “time limitations,” and “work-related stress” if their partner is a nondoctor. In addition, dual-doctor couple may benefit from additional enjoyment and satisfaction which can arise from shared professional experiences. On the other hand, a physician—partner relationship, while providing more support and understanding with regard to the stress, fatigue, and limited time available from female residents, may also result in greater challenges with regard to balancing personal and professional life.

Most female residents indicated that they feel that it is much more difficult for them to develop a romantic relationship than for other females of the same age. An absence of time, a narrow circle of friends, work fatigue, limited suitable romantic candidates, and work-related stress were all seen as important contributing factors. Considering the concerns of changing partners, it is obvious that hospital life imposes a limitation on female residents’ romantic opportunities. This may explain why 87.2% (n = 68) of female residents posit an assumption of a doctor or a nondoctor partner, but in actuality, 87.5% (n = 42) of nonsingle female residents are involved in two-physician romances. In contrast, only 47.4% of female residents agreed that professional medical training has any correlation to termination of romantic relationships during the residency period. One possible explanation for this discrepancy is that professional medical training does affect the romantic relationships of female residents, but may not be the primary cause that ends relationships.

In contrast to our expectation, the questionnaires indicated that the female residents believe that it would be more useful to make their own internal changes than to change their current professional training program. The questionnaires also revealed that setting duty-hour limitations (67.9%), with afternoons off on the second day of the off call (59.0%), and internal/external group blind dates arranged by hospitals (55.1%) had a higher degree of support among female residents. Moreover, 83.3% of the female residents agreed that starting a new hobby might provide some benefits toward the development of a new romance or toward preserving a current relationship. People pursue self-improvement while communicating with their partners in various ways. Developing a new hobby may be viewed as a means of self-improvement, assisting female residents in their efforts to expand an otherwise limited circle of friends, possibly resulting in exposure to a potential partner and further offering an effective avenue to renew a present relationship. These findings may be useful in helping female physicians to improve the quality of their romantic lives.

Our study has two limitations. First, the number of female physicians in our data was small. However, the response rates for the questionnaire survey from doctors in centers or elsewhere are typically <50%. Our study had a response rate of up to 73.6%, which is relatively high enough to reflect the whole range of possible respondents accurately. In addition, the reliability of the spousal choices and romantic relationship development questions was acceptable (Cronbach’s coefficient of 0.878). Thus, it can be inferred that the information provided by this survey is valuable, despite the small number of participants. However, the findings derived from this small case number are still inadequate to reach a consensus. We hope that our findings can initiate a National Survey. The second limitation is that our data were gathered from only one medical center. Because approximately 70% of all residents work in medical centers in Taiwan, and most of the residents are being trained in medical centers worldwide, we believe that our data are plausible and to some degree representative of female residents in general.

Previous studies have shown that work environment factors, particularly night duty, play an important role in modulating psychological stress among female doctors. The relationship between hospital life and choices of marital partners, romantic relationships, or other social—psychological conditions of female residents is a possible direction for further research. Restrictions on resident duty hours have balanced the importance given to resident well-being, resident education, and patient care. Many studies have indicated that duty-hour limitations do not significantly improve or worsen the quality of medical care, but do decrease resident fatigue and afford them health-related benefits. Furthermore, it has been shown that the implementation of diagnosis-related groups could have a dramatic impact on the medical care system in Taiwan, and this issue warrants further study.

In conclusion, compared with previous reports, our study is the first one focused on romance, marriage, and quality of life of female residents at the same time. The results of our study indicate that female residents work long hours and have poor sleep quality, and that they have limited personal time, especially in the case of ward-care physicians. The high tendency to choose two-physician romances may not be a result of a reluctance to accept partners having other occupations but is more likely due to limitations in the number of friends, lack of time, and work-related stress. Setting duty-hour limitations may provide some benefits that could lead to the development of new romances or the retention of those already in place, and most female residents agreed that starting a new hobby might result in improved opportunities for romance and enhance their quality of life. It is hoped that the results of this research can give a clearer idea of the viewpoints of female physicians, and contribute to a more female-friendly professional medical training program.

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References

16. Liu HL. Career, marriage and the family of physicians in Taiwan—With special focus on the role of female physicians. Master’s Thesis, Department of Public Health, National Taiwan University, 1985, Taipei, Taiwan [in Chinese].
22. Accreditation Council for Graduate Medical Education (ACGME), http://www.acgme.org/acWebsite/home/home.asp. [accessed 06.09].