Assessment of Family Function of Academic Physicians

Tayseer M. Metwally\textsuperscript{1*}, Samy A. Abdelazim\textsuperscript{2}, Mohamed A. Hefny\textsuperscript{3}, and Ahmed G. Abdelrahman\textsuperscript{2}

\textsuperscript{1}Department of Family Medicine, Faculty of Medicine, Suez University, Suez, Egypt, \textsuperscript{2}Department of Family Medicine, Faculty of Medicine, Suez Canal University, Ismailia, Egypt, \textsuperscript{3}Department of Rheumatology, Faculty of Medicine, Suez Canal University, Egypt

Abstract

Background: A balance between Work and family is required to maintain a stable professional and personal life. It is necessary for well-being, job satisfaction, and productivity; Academic physicians' family function usually affected by multiple responsibilities at work. Aim: To assess the family function of the academic staff and to identify the risk factors of family dysfunction. Subjects and Methods: A Cross-sectional descriptive study on 277 academic physicians from different specialties working at the faculty of medicine, Suez Canal University, Ismailia, Egypt, participated in an online anonymous questionnaire assessing sociodemographic characteristics, work duties, and family function using APGAR score. Results: Mean age of participants was 38.38 years; Females represented 60.6%. Seventy-two percent of the medical staff had severe family dysfunction, 21% had moderate family dysfunction and only 7% of them were highly functional. There was a statistically significant relation between family dysfunction and age, gender, marital status, having children, job title, and the number of working hours per week. Conclusion: This study showed that most of the academic physicians were suffering from severe family dysfunction. Further studies about work stress in faculties of medicine in Egypt and its impact on family function are needed for further assessment and improvement.

Key words: APGAR score; Doctors; Family dysfunction

Introduction

Academic physicians have several roles, the most important is the managerial functions including planning, implementing an educational plan and evaluating the educational process not only the progress and achievements of the students, but also academic physicians are responsible about providing important information towards modification and improvement of the learning process\textsuperscript{(1)}. The emphasis of family medicine on the value of the family relies on sufficient understanding of the biopsychosocial approach\textsuperscript{(2)} Family is considered the most

\textsuperscript{*}Corresponding Author: Tayseer.metwally@med.suezuni.edu.eg
important aspect of patients’ social environments and resource that supports family member to function\(^3\). Families have a powerful impact on health similar to traditional medical risk factors \(^4\). The social support inherent in a set family functionality allows for the reduction of vulnerability to stressful events \(^5\). The medical profession is characterized by an intense and high work commitment. Physicians working in clinics have often reported facing a high workload, low autonomy, and job control. In addition, physicians often report that the time of residency coincides with the family. Young physicians are more likely to have young children, and consequently experience high family or parenting demands, resulting in high levels of work family conflicts. This has been found to be significantly associated with physicians’ job workload \(^6\). Doctors are achievers, they have a certain standing in society as professional people who have had to pass endless examinations and endure years of higher training. This can place considerable stress on their children \(^7\). Family function is an important aspect of academic physicians’ wellbeing. They provide health care, teaching, and researching duties. Some also work in managerial activities and has a private work beside familial responsibilities which increase stresses and expose them to burnout. The family function assessment is not studied previously between doctors working in faculties of medicine in Egypt. This research is an attempt to show the importance of this topic on the Egyptian academic physicians and their families.

**Subjects and Methods**

Faculty of medicine, Suez Canal University, Ismailia, Egypt, is a governmental institution. According to the last staff record of 2020 there is a total of 1315 academic staff, 138 Emeritus Professor, 126 Professor, 160 Assistant Professor, 436 lecturer, 350 Assistant Lecturer, and 105 Demonstrator. According to the sample size, 270 participants should be responding to the questionnaire. Participants in this study were recruited from the academic medical staff by using an online Google Forms questionnaire during the curfew of COVID-19 epidemic. A total of 277 participants responded to the questionnaire in the period from January to March 2020. The questionnaire was anonymous and consisted of two parts, The first part was for collecting the sociodemographic and work data (age, gender, marital status, number of children, job title, department (academic or clinical), weekly working hours, distance from workplace, any co-morbidities). The second part allowed us to assess family function through APGAR score scale of Smilkstein (1978). The APGAR questionnaire consisted of five easy and quick questions; with three possible answers (“almost always”, “sometimes”, and “hardly ever”). The score varies between (2, 1, and 0) points consequently. Families can be stratified as a functional family when the total score (8-10), or dysfunctional family when the total score (<8). A dysfunctional family can still be categorized as moderate (4-7) and severely dysfunctional (0-3). The acronym APGAR means: A): Adaptability - sharing of resources, and satisfaction with the attention received. P) Participation: family communication to solve a problem and making decision. G) Growth: emotional growth and the flexibility within the family to change roles. A) Affection: satisfaction with the intimacy between family members, and the family interactions. R) Resolution: sharing time, space, and money.

**Statistical Analysis**
Data were analyzed using SPSS software package version 26. Quantitative data were described as mean and standard deviation (SD). Qualitative data were expressed as frequencies (n) and percentages (%). Chi-square and Fisher's exact tests were used to determine the association between qualitative variables, and a p-value ≤ 0.05 was considered significant.

### Table 1: Frequency distribution of the studied population according to their Sociodemographic and work characteristics (N=277)

| Socio-demographic and work characteristics | N    | %    |
|-------------------------------------------|------|------|
| Gender                                    |      |      |
| Male                                      | 109  | 39.4 |
| Female                                    | 168  | 60.6 |
| Age                                       | Mean ± SD | 38.38 (10.061) |
| Range                                     | Range | Range |
| Marital status                            |      |      |
| Single                                    | 132  | 47.7 |
| Married                                   | 123  | 44.4 |
| Divorced                                  | 10   | 3.6  |
| Widowed                                   | 12   | 4.3  |
| Children                                  |      |      |
| No                                        | 135  | 48.7 |
| Yes                                       | 142  | 51.3 |
| Number of children                        |      |      |
| No children                               | 135  | 48.7 |
| 1                                         | 37   | 13.4 |
| 2                                         | 74   | 26.7 |
| 3                                         | 27   | 9.7  |
| 4                                         | 4    | 1.4  |
| Job Title                                 |      |      |
| Demonstrator                              | 10   | 3.6  |
| Assistant Lecturer                        | 147  | 53.1 |
| Lecturer                                  | 49   | 17.7 |
| Assistant Professor                       | 20   | 7.2  |
| Professor                                 | 37   | 13.4 |
| Full-time professor                       | 14   | 5.1  |
| Department                                |      |      |
| Academic                                  | 64   | 23.1 |
| Clinical                                  | 213  | 76.9 |
| Suffering from any medical condition      |      |      |
| No                                        | 231  | 83.4 |
| Yes                                       | 46   | 16.6 |
| Is your place of work far from home       |      |      |
| No                                        | 205  | 74.0 |
| Yes                                       | 72   | 26.0 |
| Number of working hours per week          |      |      |
| 1 - 10                                    | 9    | 3.2  |
| 11 - 20                                   | 53   | 19.1 |
| 21 - 30                                   | 63   | 22.7 |
| 31 - 40                                   | 141  | 50.9 |
| 40 and over                               | 11   | 4.0  |

### Results

#### Sociodemographic characteristics

The number of participants was 277, from January to March 2020, with a mean age of 38.38 years; females represented (60.6%).
Almost half of the participants (47.7%) were single, 44.4% married and 51.3% of all participants had at least one offspring. About 53.1% of the Academic staff were assistant lectures, 17.7% were lecturers and 13.4% were professors. Three quarters of all participants (76.9%) were affiliated to clinical departments and 23.1% to academic departments. Most of the studied physicians had no co-morbidities, while 16.6% had one or more medical conditions. The majority the studied physicians reported that their place of work is near the residence. Fifty percent (50.9%) of all participants worked 31 to 40 hours per week (Table 1).

| Table 2. Distribution of family function/dysfunction among academic physicians (N=277) |
|---------------------------------|-----------------|-----------------|-----------------|
| Socio-demographic and work characteristics | Severe Dysfunction | Moderate Dysfunction | Highly Functional |
| Age | N | % | N | % | N | % |
| 27 - 38 | 150 | 86.7% | 17 | 9.8% | 6 | 3.5% |
| 39 - 49 | 33 | 61.1% | 13 | 24.1% | 8 | 14.8% |
| 50 - 60 | 12 | 34.3% | 18 | 51.4% | 5 | 14.3% |
| ≥ 60 | 4 | 26.7% | 11 | 73.3% | 0 | 0.0% |
| Gender | Male | 90 | 82.6% | 17 | 15.6% | 2 | 1.8% |
| | Female | 109 | 64.9% | 42 | 25.0% | 17 | 10.1% |
| Marital status | Single | 122 | 92.4% | 6 | 4.5% | 4 | 3.0% |
| | Married | 63 | 51.2% | 46 | 37.4% | 14 | 11.4% |
| | Divorced | 8 | 80.0% | 1 | 10.0% | 1 | 10.0% |
| | Widowed | 6 | 50.0% | 6 | 50.0% | 0 | 0.0% |
| Children | No | 125 | 92.6% | 7 | 5.2% | 3 | 2.2% |
| | Yes | 74 | 52.1% | 52 | 36.6% | 16 | 11.3% |
| Job Title | Demonstrator | 10 | 100.0% | 0 | 0.0% | 0 | 0.0% |
| | Assistant lecturer | 134 | 91.2% | 12 | 8.2% | 1 | 0.7% |
| | Lecturer | 28 | 57.1% | 13 | 26.5% | 8 | 16.3% |
| | Assistant Professor | 11 | 55.0% | 5 | 25.0% | 4 | 20.0% |
| | Professor | 12 | 32.4% | 19 | 51.4% | 6 | 16.2% |
| | Emeritus Professor | 4 | 28.6% | 10 | 71.4% | 0 | 0.0% |
| Department | Academic | 48 | 75.0% | 10 | 15.6% | 6 | 9.4% |
| | Clinical | 151 | 70.9% | 49 | 23.0% | 13 | 6.1% |

Family function assessment
Seventy two percent (72%) of medical staff suffered from severe family dysfunction, 21% suffered from moderate family dysfunction and only 7% of them were found to be highly functional (Figure 1). Severe family dysfunction was more frequent among younger physicians. severe dysfunction was found in 86.7% in physicians younger than 38 years of age and in 61.1% in physicians aged between 38 to 48 years old. Most of physicians aged between 49 to 59 years and 60 years or more had moderate dysfunction (51.4% and 73.3%) respectively. Among all male participants, 82.6% of them had severe family dysfunction and most of female participants suffered from severe dysfunction (64.9%). Despite of being single, married, divorced, or widowed, family APGAR score assessment revealed severe dysfunction for most of the participants. All demonstrators suffered from severe family dysfunction, On the other hand most of assistant lectures, lecturers and assistant professors...
suffered from severe family dysfunction (91.2%, 57.1% and 55.0%) respectively. Moderate family dysfunction was more prevalent among professors (51.4%) and Emeritus Professor (71.4%). Seventy-five percent (75.0%) of academic departments’ staff had severe family dysfunction compared to 70.9% of clinical department’s staff members (Table 2). Table 3 showed that there was a statistically significant relation between family dysfunction and other independent variables as age, gender, marital status, having children, job title, and number of working hours per week. While, no significant associations were found with other variables (department, suffering from medical conditions, and how far the place of work).

![Pie chart showing family function/dysfunction among academic physicians](image)

**Figure 1**: Prevalence of family function/dysfunction among the academic physicians

**Discussion**

The 277 participants had a mean age of 38.38 years, which makes normal sense as it is the normal age range of academic physicians in all our universities, the majority were females (60.6%) and this indeed represents a slightly higher female to male ratio according to the latest population survey in Egypt (2018). Also, about half of the participants (47.7%) were single, 44.4% married and this coincides with our latest marriage status in Egypt and 51.3% of all participants had at least one son or daughter. About a fifty-three percent (53.1%) were assistant lectures, 17.7% lecturers and 13.4% professors. Three quarters of all participants (76.9%) were affiliated to clinical departments and 23.1% to academic. Most of the studied staff had no medical conditions, while 16.6% of them had one or more medical conditions. The majority reported that their places of work are not far from their residences. Fifty percent (50.9%) of all participants worked 31 to 40 hours per week. Seventy two percent (72%) of medical staff had severe family dysfunction, 21% had moderate family dysfunction and only 7% of them were highly functional which is comparable to data in the literature. Among all the male participants, 82.6% of them had severe family dysfunction and most of the females participates as well have severe dysfunction (64.9%) with 25% of them...
with moderate dysfunction, and this goes with the studies that identified associations between job satisfaction and sociodemographic, occupational as well as organizational factors among physicians such as gender bias, workload, number of children, job stress, and support in the workplace\(^{(15, 13)}\).

**Table 3: Relations between medical staff characteristics and family function scores**

| Medical staff characteristics       | Apgar score                                                                 |        |        | P-value |
|------------------------------------|-----------------------------------------------------------------------------|--------|--------|---------|
|                                    | Highly Functional | Moderate/Severe Dysfunctional | N | % | N | % |
| Age (yrs.) 27 - 38 - 49 - 50 - 60 | 6 | 31.6% | 167 | 64.7% |
|                                    | 8 | 42.1% | 46 | 17.8% |
|                                    | 5 | 26.3% | 30 | 11.6% |
|                                    | 0 | 0.0% | 15 | 5.8% |
| Gender Male | 2 | 10.5% | 107 | 41.5% |
| Female | 17 | 89.5% | 151 | 58.5% |
| Marital status | Single | 4 | 21.1% | 128 | 49.6% |
| Married | 14 | 73.7% | 109 | 42.2% |
| Divorced | 1 | 5.3% | 9 | 3.5% |
| Widowed | 0 | 0.0% | 12 | 4.7% |
| Number of children | No children | 3 | 15.8% | 132 | 51.2% |
| 1 | 2 | 10.5% | 35 | 13.6% |
| 2 | 9 | 47.4% | 65 | 25.2% |
| 3 | 4 | 21.1% | 23 | 8.9% |
| 4 | 1 | 5.3% | 3 | 1.2% |
| Job Title | Demonstrator | 0 | 0.0% | 10 | 3.9% |
| Assistant Lecturer | 1 | 5.3% | 146 | 56.6% |
| Lecturer | 8 | 42.1% | 41 | 15.9% |
| Assistant Professor | 4 | 21.1% | 16 | 6.2% |
| Professor | 6 | 31.6% | 31 | 12.0% |
| Professor Emeritus | 0 | 0.0% | 14 | 5.4% |
| Department | Academic | 6 | 31.6% | 58 | 22.5% |
| Clinical | 13 | 68.4% | 200 | 77.5% |
| Suffering from any medical condition | No | 13 | 68.4% | 218 | 84.5% |
| Yes | 6 | 31.6% | 40 | 15.5% |
| Is the place of work far from home | No | 16 | 84.2% | 189 | 73.3% |
| Yes | 3 | 15.8% | 69 | 26.7% |
| Number of working hours per week | 1 - 10 | 2 | 10.5% | 7 | 2.7% |
| 11 - 20 | 4 | 21.1% | 49 | 19.0% |
| 21 - 30 | 6 | 31.6% | 57 | 22.1% |
| 31 - 40 | 4 | 21.1% | 137 | 53.1% |
| 40 and over | 3 | 15.8% | 8 | 3.1% |
All demonstrators suffered from severe family dysfunction, while most assistant lectures, lecturers and assistant professors also had severe family dysfunction (91.2%, 57.1% and 55.0% respectively) and this decline of severity might be attributed to the fact the workload on lessens as the academic degree improves as a part of the normal hierarchy of positions in the academic pyramid. Moderate family dysfunction was more prevalent among professors (51.4%) and Emeritus Professor (71.4%), and this enforces the previous explanation regarding workload in Egyptian universities, and this is supported by several studies measuring the effect of workload on the family and family functions\(^{(14, 16)}\). Seventy-five percent (75.0%) of academic departments’ physicians have severe family dysfunction compared to 70.9% of clinical department’s physicians, and this is relatively high in both sectors, and is usually attributed to the fact that academic physicians do complex work in an increasingly demanding environment, as academic physicians are asked to fulfill three domains; teaching, research, and service, with primary emphasis placed upon the teaching, and research aspects and secondary emphasis upon service or administration, and this coincides with most of the studies focusing on this issue\(^{(17-19)}\).

**Limitations, Future Studies, and Practical Implications**

This study has some confines that should be cited. First, the study used a self-report measure (online questionnaire) that entails the problems of common method variance, and consistency bias, however, as referred to by Spector \(2006\)^{(20)}, common method variance concerns associated with heavy reliance on self-reported data measurements may be exaggerated. Second, analyses are based on a cross-sectional design. Thus, the fundamental ordering suggested by these results requires further validation in future longitudinal study. Third, we studied here the effect of work on the family, and this was confirmed in previous studies\(^{(15, 19)}\), but we didn’t study the effect of family on work as recent studies mentioned\(^{(21, 22)}\), and this might be tackled in future studies. It should also be re-nowned that the present study may deliver some evidence for the development of interference agenda considering anticipation of burnout and therefore, deterrence of doctors’ mental health and family relations worsening. This study strengthens that job characteristics should be a priority in the future research agenda. Additionally, the results propose that any intervention intended to lessen the physicians’ burnout may have actual results for both men and women, and their families.

**References**

1. Reddy K. The Duties and Responsibilities of a Medical Teacher. J Gandaki Med Coll. 2018;11(1):52–5.
2. Takenaka H, and Ban N. The most important question in family approach: The potential of the resolve item of the family APGAR in family medicine. Asia Pac Fam Med. 2016;15(1):1–7.
3. Keitner GI. Family assessment in the medical setting. Psychosom Assess Strateg to Improv Clin Pract. 2011;32:203–22.
4. Campbell TL. The effectiveness of family interventions for physical disorders. J Marital Fam Ther. 2003;29(2):263–81.
5. Wang J, and Zhao X. Family functioning and social support for older patients with depression in an urban area of Shanghai, China. Arch Gerontol Geriatr.
6. Mache S, Bernburg M, Vitzthum K, Groneberg DA, Klapp BF, Danzer G. Managing work-family conflict in the medical profession: working conditions and individual resources as related factors. BMJ Open. 2015;5(4):e006871.

7. Pereira Jill. The doctor’s family: some problems and solutions. J Royal College of General Practitioners. 1982; 75–9.

8. Egypt Demographics Profile 2019. (2019). Retrieved November 02, 2020, from https://www.indexmundi.com/egypt/demographics_profile.html

9. van Hooff ML, Geurts SA, Taris TW, Kompier MA, Dikkers JS, Houtman IL, et al. Disentangling the causal relationships between work-home interference and employee health. Scand J work, environ & health. 2005;31(1):15-29.

10. Greenhaus JH, and Beutell NJ.: Sources and conflict between work and family roles. Acad. Manage. Rev., 1985; 10, 76–88.

11. Frone MR, Russell M, Cooper ML.: Prevalence of work-family conflict: are work and family boundaries asymmetrically permeable? J. Organ. Behav. 1992; 13, 723–729.

12. Robinson GE.: Stresses on women physicians: consequences and coping techniques. Depress. Anxiety. 2003; 17, 180–189.

13. Bovier PA, and Perneger TV.: Predictors of work satisfaction among physicians. Eur. J. Public Health, 2003; 13, 299–305.

14. Fisher GG, Bulger CA, Smith CS: Beyond work and family: a measure of work/nonwork interference and enhancement. J Occup Health Psychol. 2009; 14 (4): 441-456. doi:10.1037/a0016737

15. van Steenbergen EF, Ellemers N, Mooij-aat A. How work and family can facilitate each other: distinct types of work-family facilitation and outcomes for women and men. J Occup Health Psychol. 2007; 12 (3): 279-300. doi:10.1037/1076-8998.12.3.279

16. Demerouti E, Peeters MC, van der Heijden BI. Work-family interface from a life and career stage perspective: the role of demands and resources. Int J Psychol. 2012; 47(4):241-258.

17. Malhotra N, Sahadev S, Sharom NQ. Organisational justice, organisational identification and job involvement: the mediating role of psychological need satisfaction and the moderating role of person-organisation fit. Int J Human Resource Manag. 2020;1-36. https://www.tandfonline.com/doi/full/10.1080/09585192.2020.1757737

18. Han J, Yin H, Wang J, Zhang J. Job demands and resources as antecedents of university teachers’ exhaustion, engagement and job satisfaction. Educat Psychol. 2020; 40(3): 318-35.

19. Julia Miller. Where does the time go? An academic workload case study at an Australian university. J Higher Edu Policy and Management. 2019; 41:6, 633-645.

20. Spector PE. Method Variance in Organizational Research: Truth or Urban Legend? Organ Res Methods 2006; 9(2): p. 221-232.

21. Gragnano A, Simbula S, Miglioretti M. Work–Life Balance: Weighing the Importance of Work–Family and Work–Health Balance. Int J Environ Res Public Health. 2020; 17(3):907.

22. ten Brummelhuis LL, van der Lippe T, Kluwer ES, Flap H. Positive and negative effects of family involvement on work-related burnout. J Vocat Behav. 2008;73(3):387-96.