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## Research Article

### Stressors, Stress Reaction, Social Support and Satisfaction of Resident-in-training in Far Eastern University – Nicanor Reyes Medical Foundation Medical Center

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#### ABSTRACT

**Background:** Residency training can render a wide variety of stressors that can affect the residents-in-training's level of well-being and performance. Long hours of duty in the hospital together with physical and mental fatigue had become acceptable as these were believed to impart toughness to prepare physicians for a career in Medicine. This study was done to identify the stressors experienced by Far Eastern University – Nicanor Reyes Medical Foundation (FEU-NRMF) Medical Center residents-in-training using the Brief Job Stress Questionnaire. Likewise, the relationship between the stressors and the demographic profile of the resident was explored.

**Methods:** This is a single-center descriptive cross-sectional study of all resident physicians of the FEU-NRMF Medical Center. The demographic data which includes age, sex, civil status, specialty training, and years in training were sought using a self-administered questionnaire. The stressors, stress reaction, social support, and job satisfaction of residents were identified using the Brief Job Stress Questionnaire (BSQ) which is a validated self-administered questionnaire used in Japan. Data were analyzed using descriptive statistics, presented in tables. The relationships between the stressors and demographic data were analyzed using chi-square and t-test.

**Results:** The mean age of the residents-in-training who responded was 29-years old and the majority were females (71%) and single (85%). Mostly came from Internal Medicine training (23%) and were within the first three years of training (83%). The BSQ showed that the psychological stressors of resident-in-training were lack of meaningfulness of work (94%), skill under-utilization (90%), and unsuitable job (85%). In terms of stress reaction, mostly felt fatigued (65%), and anxious (32%). Residents-in-training social support came from their supervisors (86%) and co-workers (60%). Most of them were satisfied with their job (81%) and family life (78%).

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Among the different stressors, physical demand was the only variable significantly associated with sex (p-value, 0.015) and specialty (p-value, 0.004).

**Conclusion:** The research was able to identify the different job stressors, stress reaction, social support, and satisfaction with job and family life of the residents-in-training in FEU-NRMF Medical Center. This will be a starting point in planning and creating programs that will help residents cope with the stress of residency training.

**Keywords:** -

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## Introduction

Residency refers to an advanced training program in a medical or surgical specialty. The first formal residency programs were established in the Johns Hopkins School of Medicine in the late 19<sup>th</sup> century. Trainees earned the name residents because their rigorous training demands forced them to practically live “in house” (i.e. the hospital). Residents can experience a wide variety of stressors that can affect their level of well-being and performance. Long hours, as well as physical and mental fatigue, have become accepted among training programs as this is believed to impart toughness to prepare physicians for a career in Medicine.

Published research has shown residents-in-training have multiple stressors that lowered their well-being during training, requiring coping strategies to maintain their well-being. Frequently mentioned stressors in the literature include physical exhaustion from sleep deprivation, heavy workloads, the emotional intensity in their work, dysfunctional systems at work, and lack of time for their personal life. As a consequence, burnout may develop which according to Herbert Freudenberger is typically found among helping professions like doctors and nurses who sacrifice themselves for others. Symptoms include exhaustion, characterized by a sense of listlessness or physical and mental fatigue. Other symptoms include alienation from work-related activities and reduced performance. Research by Mata et al (2015) surveyed 18,000 residents over 50 years and they found that 29% of residents will experience depression during their training, four times higher than the depression rate among adults. Given these findings, residents-in-training's mental wellbeing is affected and it was found

that there is an association between residents' level of well-being and their capacity for empathy & patient care (Shanafelt TD et al, 2005). Some questioned whether the stressors of residency may counter the goals of training to promote professionalism and high-quality patient care (Firth-Copzens J, 2001; Mareiniss DP, 2004). Despite the utmost importance of well-being during residency training, few studies have examined stressors in residency training in the local setting.

Psychologically distressed residents need recognition, support & treatment. Cited interventions during training had focused on improving the work environment, job satisfaction, provision of supports, and improving work-related relationships. Training programs should be equipped to effectively identify and manage residents who experience problems. The significance of the problem warrants appropriate remedial actions. Acknowledgment and attempts to resolve any underlying causes should be addressed first and a well-defined plan must be outlined with the resident's input and participation.

This research aims to identify the stressors, stress reaction, social support, and job and family life satisfaction of residents-in-training in FEU-NRMF Medical Center and determine if there is an association between the identified stressor and the demographic characteristics of the residents. This will aid in the creation of programs geared towards helping residents cope positively with the demands of residency training so that they will be fully equipped to face the demands of their specific specialty. This will also be a starting point for further research regarding the topic.

## **Methodology**

### **Study Design**

This was a single-center descriptive cross-sectional study of all resident physicians from the 10 different training departments of the FEU-NRMF Medical Center. A qualitative methodology was selected to explore the phenomenon of residents' well-being from their perspectives using a self-administered questionnaire. Approval was obtained from the FEU-NRMF Institutional Ethics Review Board (IERB).

### **Study setting and population**

The FEU-NRMF Medical Center is a 300-bed capacity hospital located at Fairview, Quezon City. It is licensed as a tertiary training hospital by the Department of Health. The hospital is accredited by Philhealth and is internationally accredited by the Philippine Tripartite for Accreditation of Health Facilities (PTAHF).

FEU-NRMF Medical Center currently has ten (10) residency training programs accredited by their specialty societies, namely, Internal Medicine, Paediatrics, Family Medicine, Obstetrics & Gynecology, Surgery, Ophthalmology, Otolaryngology-Head & Neck Surgery, Anaesthesia, Radiology, Pathology, and Radiology.

All residents-in-training at FEU-NRMF Medical Center were invited to participate in the survey. An invitation was announced via the paging system of the hospital in June 2019. Informed consent was obtained before participation.

### **Survey content**

The questionnaire included demographic variables and information regarding age, sex, civil status, specialty training, and years in training. The questionnaire is self-administered containing closed-ended questions, with the response provided using a 4-point Likert scale. The English-translated questionnaire is a validated questionnaire used in Japan. Permission to use the questionnaire was granted by its developer.

### **The Brief Job Stress Questionnaire**

The Brief Job Stress Questionnaire (BJSQ) is a 57-item validated self-administered questionnaire using a 4-point Likert scale containing close-ended questions which measure 4 domains which are: psychological stressors (17 items), physiological & psychological stress reaction (28 items), social support of workers (9 items) and job and family satisfaction (2 items).

Psychological stressors measure 9 variables: (1) Quantitative job overload, (2) Qualitative job overload, (3) Physical demand, (4) Job control, (5) Skill utilization, (6) Interpersonal conflict, (7) Poor physical environment, (8) Suitable jobs, (9) Meaningfulness of Work.

Physiological and psychological stressors measure 6 variables: (1) Vigor, (2) Anger irritability, (3) Fatigue, (4) Anxiety, (5) Depression, and (6) Physical stress reaction.

Social support of workers measures 3 variables: (1) Supervisor Support, (2) Coworker support, (3) Family and friends support.

Job and family life satisfaction were also measured.

### **Data Management and Analysis**

Two days were allotted for data collection. Anonymity and confidentiality of data were done through proper data handling. Data was encoded in Microsoft Excel and processed using Epi-Info 7. Descriptive statistics presented in tables were used to analyze the different variables being measured in the study. The relationship between the demographics and stressors was analyzed using SPSS software. Comparison of 2 categorical variables, the chi-squared test was used while the comparison of 2 quantitative variable t-test was used, with an alpha set at 0.05.

## **Results**

### **Demographic Profile of Residents-in-Training**

A total of 97 out of the 102 residents-in-training (97%) responded to the survey.

The mean age of the residents in FEU-NRMF who responded to the survey was 29 years old.

The majority of respondents were females (71%) and single (85%), with roughly half (52%) coming from three training departments: Internal Medicine (23%), Child Health (15%), and Obstetrics, and Gynecology (14%). Although this study included residents with one to five years in training, 83% had three years of training or less.

*Table 1 - Demographic Characteristics of Residents of FEU-NRMF Medical Center, 2018 (N=97)*

Characteristics	Number	Percentage
Age (Mean)	29	-
<i>Sex</i>		
Male	28	71
Female	69	29
<i>Civil Status</i>		
Single	82	85
Married	14	14
Widow	0	0
Common law	0	0
Annulled	0	0
Separated	0	0
No response	1	1
<i>Specialty Training</i>		
Internal Medicine	22	23
Child Health	15	15
Obstetrics & Gynecology	14	14
General Surgery	8	8
Community & Family Medicine	3	3
Otolaryngology, Head and Neck	6	6
<i>Surgery</i>		
Ophthalmology	6	6
Pathology	6	6
Radiology	9	9
Anesthesia	7	7
No Response	1	1
<i>Years in Training</i>		
First Year	34	35
Second Year	25	26
Third Year	21	22
Fourth Year	15	15
Fifth Year	2	2
Sixth Year	0	0

### **Brief Job Stress Questionnaire Results**

The Brief Job Stress Questionnaire (BJSQ) employs a four-point Likert scale which includes two favorable and two unfavorable responses. The two responses were combined in this study to illustrate whether the response to a given factor was favorable or unfavorable.

### **Psychological Stressors**

There were several significant findings of the psychological stressors of resident physicians. Ninety-four percent (94%) did not find meaning in their work. Ninety percent (90%) believed their skills were under-utilized, while 85% felt the tasks being assigned to them were not suitable for their skills or experience.

Residents were also not satisfied with the difficulty of the work (87%), nor were they satisfied with the amount of work they were given (69%). Interpersonal conflicts appeared to be a factor for 68% of residents-in-training. Seventy-one percent (71%) did not feel their

work was physically demanding. Sixty-seven percent (67%) were satisfied to some extent with their level of job control, while results were divided when it came to their physical environment.

Table 2 - Psychological Stressors of Resident Physicians. (N=97)

Stressor	Frequency	Percentage	Combined
<i>Quantitative job overload</i>			31 / 69
Very much	4	4	
Moderate	26	27	
Somewhat	47	48	
Not at all	20	21	
<i>Qualitative job overload</i>			13 / 87
Very much	6	6	
Moderate	7	7	
Somewhat	40	41	
Not at all	44	46	
<i>Physical Demands</i>			29 / 71
Very much	3	3	
Moderate	25	26	
Somewhat	38	39	
Not at all	31	32	
<i>Job Control</i>			67 / 33
Very much	31	32	
Moderate	34	35	
Somewhat	22	23	
Not at all	10	10	
<i>Skill utilization</i>			10 / 90
Very much	5	5	
Moderate	5	5	
Somewhat	23	24	
Not at all	64	66	
<i>Interpersonal conflict</i>			68 / 32
Very much	22	23	
Moderate	44	45	
Somewhat	23	24	
Not at all	8	8	
<i>Poor physical environment</i>			56 / 44
Very much	24	25	
Moderate	30	31	
Somewhat	29	30	
Not at all	14	14	
<i>Suitable jobs</i>			15 / 85
Very much	1	1	
Moderate	14	14	
Somewhat	54	56	
Not at all	28	29	

Stressor	Frequency	Percentage	Combined
<i>Meaningfulness of work</i>			6 / 94
Very much	0	0	
Moderate	6	6	
Somewhat	39	40	
Not at all	52	54	

### **Physiologic & Psychological Stress Reactions**

Regarding the physiologic and psychological stress reactions, fatigue was an issue for 65% of resident physicians. Forty-four percent (44%) said they were anxious at times, while 32% said they were depressed more often than

not. The latter may be understated as 15% did not respond. Sixty-nine percent (69%) said they did not experience physical symptoms when they were stressed. Residents were divided when it came to vigor, anger, and irritability.

*Table 3 - Physiologic and Psychological Stress Reactions of Resident Physicians. (N=97)*

Stress	Frequency	Percentage	Combined
<b>Vigor</b>			51 / 49
Almost never	18	19	
Sometimes	32	33	
Often	42	44	
Almost Always	5	5	
<b>Anger irritability</b>			50 / 50
Almost never	19	20	
Sometimes	29	30	
Often	39	40	
Almost Always	10	10	
<b>Fatigue</b>			35 / 65
Almost never	14	14	
Sometimes	20	21	
Often	39	40	
Almost Always	24	25	
<b>Anxiety</b>			55 / 45
Almost never	10	10	
Sometimes	43	44	
Often	21	22	
Almost Always	22	23	
<b>Depression</b>			53 / 32 / 15
Rarely	8	8	
Sometimes	43	44	
Often	22	23	
Almost Always	9	9	
No Response	15	15	
<b>Physical stress reaction</b>			69 / 31
Rarely	24	25	
Sometimes	43	44	
Often	25	26	
Almost Always	5	5	

**Social Support**

In terms of social support, 86% expressed positive support from their supervisors, with 42% stating that their supervisors were extremely supportive. As far as support coming

from their co-workers, 60% said they were very supportive, while 10% said they were extremely supportive. Meanwhile, residents said they got little support (61%) from their family and friends.

Table 4 - Social Support of Resident Physicians. (N=97)

Social Support	Frequency	Percentage	Combined
Supervisor support			86 / 14
Extremely	40	42	
Very Much	43	44	
Somewhat	13	13	
Not at all	1	1	
Coworker support			70 / 30
Extremely	9	10	
Very Much	58	60	
Somewhat	28	29	
Not at all	1	1	
Support from family and friends			39 / 61
Extremely	9	10	
Very Much	28	29	
Somewhat	58	60	
Not at all	1	1	

**Job and Family Life Satisfaction**

Eighty-one percent (81%) of the residents expressed some degree of job satisfaction,

while 78% expressed some degree of satisfaction when asked about family life satisfaction.

Table 5 - Job and Family Life Satisfaction of Resident Physicians. (N=97)

Satisfaction	Frequency	Percentage	Combined
Job Satisfaction			81 / 18 / 1
Satisfied	25	26	
Somewhat Satisfied	53	55	
Somewhat dissatisfied	17	17	
Dissatisfied	1	1	
No Response	1	1	
Family Life Satisfaction			78 / 20 / 2
Satisfied	50	52	
Somewhat Satisfied	25	26	
Somewhat dissatisfied	16	16	
Dissatisfied	4	4	
No Response	2	2	

**Relationship of Stressors as to Residents' Demographic Profile**

Among all the stressors affecting FEU-NRMF residents-in-training, physical demand

was the only variable significantly associated with sex and specialty (Tables 6,7,8, & 9).

Table 6 - Comparison of Stressors by Sex

Stressor	Male Number (%)	Female Number (%)	p-value
Quantitative Job Overload	9 (32.1)	21 (30.4)	0.869
Qualitative Job Overload	3 (10.7)	10 (14.5)	0.621
Physical Demand	13 (46.4)	15 (21.7)	0.015
Job Control	18 (64.3)	47 (68.1)	0.716
Skill Underutilization	5 (17.9)	5 (7.2)	0.119
Interpersonal Conflict	20 (71.4)	46 (66.7)	0.649
Poor Physical Environment	18 (64.3)	36 (52.2)	0.277
Job not suitable	25 (89.3)	57 (82.6)	0.410
Lack of Meaningfulness of Work	26(92.9)	65 (94.2)	0.803

Table 7 - Comparison of Stressor by Civil Status

Stressor	Single Number (%)	Married Number (%)	p-value
Quantitative Job Overload	28 (34.1)	2 (14.3)	0.138
Qualitative Job Overload	10 (12.2)	2 (14.3)	0.827
Physical Demand	26 (31.7)	2 (14.3)	0.185
Job Control	54 (65.9)	11 (78.6)	0.885
Skill Underutilization	8 (9.8)	2 (14.3)	0.608
Interpersonal Conflict	57 (69.5)	9 (64.3)	0.697
Poor Physical Environment	46 (56.1)	7 (50.0)	0.672
Job not suitable	68 (82.9)	13 (92.9)	0.344
Lack of Meaningfulness of Work	78 95.1)	12 (85.7)	0.179

Table 8 - Comparison of Stressor by Year Level of Training

Stressor	First to Second Year Number (%)	Third to Fifth Year Number (%)	p-value
Quantitative Job Overload	28 (30.5)	12 (31.6)	0.911
Qualitative Job Overload	6 (10.2)	7 (18.4)	0.244
Physical Demand	16 (27.1)	12 (31.6)	0.636
Job Control	40 (67.8)	25 (65.8)	0.837
Skill Underutilization	5 (8.5)	5 (13.2)	0.459
Interpersonal Conflict	42 (71.2)	24 (63.2)	0.408
Poor Physical Environment	34 (57.6)	20 (52.6)	0.629
Job not suitable	49 (83.1)	33 (86.8)	0.614
Lack of Meaningfulness of Work	55 (93.2)	36 (94.7)	0.762

Table 9 - Comparison of Stressor by Specialty

Stressor	p-value
Quantitative Job Overload	0.068
Qualitative Job Overload	0.267
Physical Demand	0.004
Job Control	0.887
Skill Underutilization	0.579
Interpersonal Conflict	0.240
Poor Physical Environment	0.109
Job not suitable	0.396
Lack of Meaningfulness of Work	0.817

## Discussion

This study was able to identify the different stressors, stress reactions, social support, and satisfaction of residents-in-training in FEU-NRMF Medical Center. The identified stressors would lead to different physiologic and psychological stress reactions which affect the well-being of a person (Kahn & Byosiére, 1992). Well-being is defined as a balance among multiple domains: professional, family, social, physical, mental, and financial. The domains of well-being that were identified in this study were physical, mental, professional, spiritual, and family domains where residents felt fatigued, angered or irritable, and probably depressed. Although, most of the residents got good social support from their supervisors and coworkers and reported that they were satisfied with their jobs and family life in general. Professional satisfaction and accomplishment were paramount for residents, justifying sacrifice in more personal domains of their well-being. Residents appeared more content if the rewards of professional satisfaction were evident in their daily work. However, these sacrifices did not appear worthwhile if residents felt dissatisfied professionally or if they lost their sense of themselves. Studies have also shown that professional satisfaction was maximized by opportunities that promoted their sense of growth, challenge, learning, autonomy, and responsibility. Work that is necessary for patient care but offers little intellectual challenge, lowered residents' professional satisfaction.

The main psychological stressors of resident physicians in FEU-NRMF Medical Center were as follows: 1) they did not find their work meaningful, 2) their skills were not being utilized, and 3) they did not find their jobs suitable for them. Stressors affected individuals and organizations within different time frames. Stress reactions can occur immediately (short-term reactions) or may take a longer time to develop (long-term reactions) (Sonnentag & Frese, 2003). Physiologic and psychological stress reactions identified in this study were fatigue, anger or irritability, and probably depression. Depression was also a finding in the research by Mata et al. (2015) which surveyed 18,000 residents over 50 years and they found that 29% of

residents experienced depression during their training.

The feeling of the residents that their skills were under-utilized and the task assigned to them were not suitable for their skills or experience may cause ennui according to Malcolm Knowles. Ennui is defined as a feeling of listlessness and dissatisfaction arising from a lack of occupation or excitement, and perfectly encapsulates the residents' feeling toward their work. Malcolm Knowles' five principles for andragogy may provide some insight into the apparent ennui experienced by residents in their training. Knowles posited that adults learn best when the learning is relevant to current roles and experiential, utilizing a student's background knowledge (Peterson, 2019). These findings were not consistent with the findings of this research. Most of the residents stated that they were satisfied with their job, perhaps because they still have social support from their supervisors and co-workers. Although causality cannot be established owing to the cross-sectional design of the study.

Social support can be characterized by resources provided by others and this is an important protective factor to an individual's health and well-being (Cohen & Syme, 1985; Landu & Wartman, 1986). This comprises emotional, informational, and instrumental support (House, 1981). In terms of the social support of the resident physicians, the majority benefited from ample support coming from their supervisors and coworkers. Surprisingly, support coming from friends and family was minimal. This may be because most of their time was spent in the workplace rather than their homes, considering the 36-hour work shifts for residents-in-training. Strong social support may also contribute to the high levels of job satisfaction (81%), despite the psychological stressors encountered by FEU-NRMF residents-in-training.

Although residency is finite, stressors may continue throughout a doctor's career, with associated risks for burnout, depression, and impairment (Gundersen, 2001; Spickard & Gabbe, 2002; Center & Davis, 2003; Torre & Wang, 2005). The coping and wellness promotion strategies may have established habits for a

doctor's career, leading to the continued sacrifice of personal domains for the sake of professional responsibilities.

Residents' ability to accept temporary imbalance may serve as a coping strategy that allows them to deal with the stressors of residency. This is consistent with research on "positive reappraisal", by which people ascribe positive meaning to a stressor by focusing on its contribution to personal growth. A type of "emotion-focused coping", this process may allow residents to modulate their emotional responses to stressors in residency, without necessarily changing the stressors themselves (Lazarus & Folkman, 1984). This coping mechanism may be preferred when the stressors seem immutable.

Medical educators may enhance resident well-being and empower residents in developing valuable coping strategies. Opportunities for professional growth and challenge may promote residents' professional satisfaction. Forums in which residents can vent concerns and frustrations serve to acknowledge residents' opinions and uncover problems in need of reform. Flexibility in scheduling-the ability to coordinate days off or vacations with loved ones – may allow crucial time for residents to nurture their sense of themselves. Finally, some residents may benefit from program assistance in identifying available coping resources and strategies to re-establish balance.

Residents may also have employed "problem-focused coping processes" directed towards changing or reducing the underlying stressors (Lazarus & Folkman, 1984). By delivering feedback to their programs, residents tried to contribute to systematic changes to reduce their workplace stressors. Further, in appointing personal time to meaningful activities and cherished people, residents reclaimed their sense of themselves.

Several interventions centered around improving the mental health and well-being of FEU- NRMF healthcare workers have been implemented since the survey was taken in June of 2019. Among them are regular mental health debriefings, indefinite access to online and telephone support, mindfulness seminars.

## Conclusion

The research was able to identify the different job stressors, stress reactions, social support, and satisfaction with job and family life of the residents-in-training in FEU-NRMF Medical Center. This will be a starting point in planning and creating programs that will help residents cope with the stress of residency training.

## Recommendation

Since this was single-center research, inferences regarding the results to other resident physicians in other institutions cannot be done. The results of the study only hold for resident physicians working in FEU-NRMF Medical Center. The research was a cross-sectional study, therefore causality of stressors and reaction to stress cannot be concluded. A longitudinal study with a long follow-up is recommended to establish causality.

It is recommended that the issues about the psychological stressors of residents be explored in rich detail to have a deeper understanding of the shared experience of the residents using qualitative research through a focused group discussion.

Intervention to address the stressors reported by residents-in-training should be addressed because based on published literature this can lead to consequences that can be detrimental to the person, his or her family, and to the institution he or she serves.

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