Perceived Depression, Anxiety and Stress Among Dubai Health Authority Residents, Dubai, UAE

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Abstract

Background: High level of perceived stress may cause: depression, burnout, anxiety, sleep disturbance, fatigue and substance abuse. Worldwide many studies were done on the prevalence of stress, anxiety and depression among resident doctors which showed increase in the prevalence of stress, anxiety and depression among this group. *Objectives*: To study the perceived prevalence of stress, anxiety and depression among resident doctors in Dubai Health Authority (DHA), and to study demographic, socioeconomic and residency related factors that affect their level. *Methods*: Cross sectional study was done among DHA resident from April 2012 to February 2013, population consisted of 216 resident doctors working in DHA hospital and peripheral clinics. Depression Anxiety Stress Scales (DASS 21) was used as the main instrument of this research. *Results*: Response rate for residents participated in the study was 78.2%. Prevalence of stress was 42%, prevalence of anxiety was 57.4%, and the prevalence of depression was 63.3%. Stress was more prevalent among residents who wanted to change their specialty (69.7%) and difference from those who doesn't want to change their specialty was statistically significant (p value 0.000) and odd ratio (0.262). Depression was more prevalent among residents who have income less than 10,000 Dirhams (69.1%) and the difference from other groups was statistically significant (p value 0.046). *Conclusions*: The perceived prevalence rates of depressive, anxiety and stress symptoms among residents as studied by DASS were high. Establishing residency counseling office is suggested to deal with residents problems in way that supports their needs and leads to a best working environment.

Keywords

1. Background

Stress is an important factor that affects all individuals, but particularly affecting resident doctors more than others as their job requires them to make balance between academic activity and clinical work. High level of perceived stress may cause: depression, burnout, anxiety, sleep disturbance, fatigue and substance abuse. Stress is defined as: state of mental or emotional strain or tension resulting from adverse or demanding[1]. Doctors like other human being are subject to stress, anxiety and depression. Depression seems to be one of the most common disorder in physicians[2].

Due to the nature of their professions, the mental health of doctors is not only of concern to them, but also is concern to

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the greater society served by them[3]. The residency training is the period of training after the internship in a specialization the doctor chose, and residents will have academic and practical training during the years of residency in addition to their job in the hospitals.

It is also a stressful course where they frequently encounter severely ill patients, lengthy work hours and a need to study regularly to keep up to date[2]. A comprehensive review of the resident' stress and association with program directors in internal medicine[4] has classified the leading causes of stress under three main categories: Situational stressors such as working hours, Personal stressors such as conflicts with family or friends and financial difficulties, and Professional stressors such as patient's responsibilities and teaching[5].

Numerous studies have found favorable psychometric properties of the Depression Anxiety Stress Scales (DASS) in adults with anxiety, stress and depression [Antony et al., 1998[6]; Brown et al., 1997[7]; Clara, Cox, & Enns, 2001[8]], in Spanish-speaking patients (Daza et al., 2002)[9], and in community-dwelling adults [Crawford & Henry, 2003[10]; and Andrew T et al, 2008[11]]. All studies have demonstrated excellent internal consistency of the DASS in both the 42-item (DASS-42) and 21-item (DASS-21) versions: Depression (range=.91 to .97); Anxiety (range=.81 to .92); and Stress (range=.88 to .95). A three-factor solution reflecting the three scales has been found consistently across samples and factor-analytic techniques with only minor variations.

This study was planned using DASS-21 to find the perceived prevalence of depression, Anxiety and stress in resident doctors working in Dubai Health Authority and factors affecting them such as specialty, demographic data and other factors.

2. Objectives

To study prevalence of stress, anxiety and depression among resident doctors in DHA. To study demographic, socioeconomic and residency related factors that affect stress, anxiety and depression level among resident doctors in DHA.

3. Methodology

The study was conducted among resident doctors in Dubai Health Authority using cross-sectional design. Open Epi website is utilized to calculate the sample size[12]. 169 residents answered the questionnaire after informed consent. The questionnaire contained information about socio-demographic data plus DASS-21 scale. The severity labels are used to describe the full range of scores in the population,

so 'mild' for example means that the person is above the population mean. The DASS is a reliable and valid measure of the constructs it was intended to assess[10]. All the scales of DASS have been shown to have high internal consistency, it is suitable for screening adolescents and adults[6],[13]. Factors associated with stress, anxiety and depression among resident doctors are: speciality, year of residency, total income, time distance to work and 24 hours duties, severity level of stress, anxiety and depression among resident doctors in different specialties including Family medicine, Community, Emergency, Surgical, Internal Medicine, Pediatrics, Radiology, Psychiatry, Obstetrics and Gynecology.

4. Results

Figure (1) illustrates that the prevalence rate of stress among residents in Dubai residency training program (DRTP) was 42%.
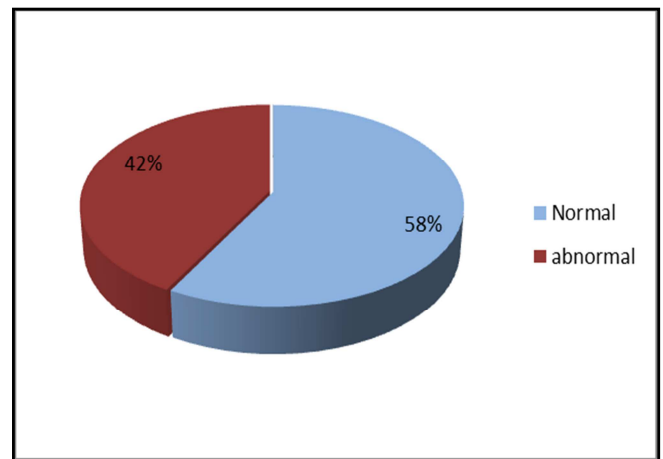

Figure 1. Prevalence of stress among residents in DRTP, 2012.

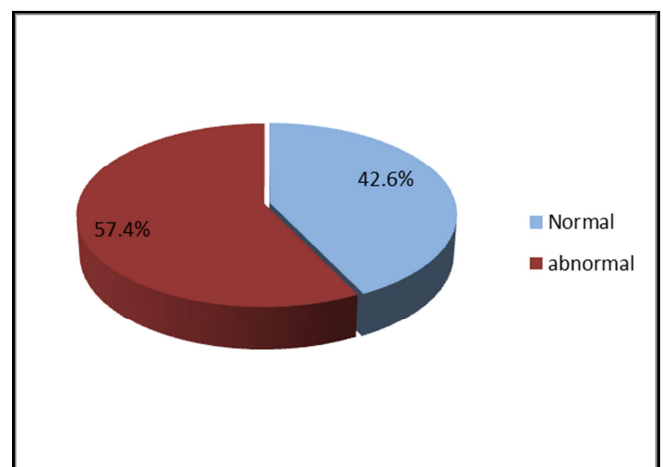Figure (2) illustrates that the prevalence rate of anxiety among residents in Dubai residency program was 57.4%.

Figure 2. Prevalence of Anxiety among residents in DRTP, 2012.

Figure (3) illustrates that the prevalence rate of depression among residents in Dubai residency program was 63.3%.
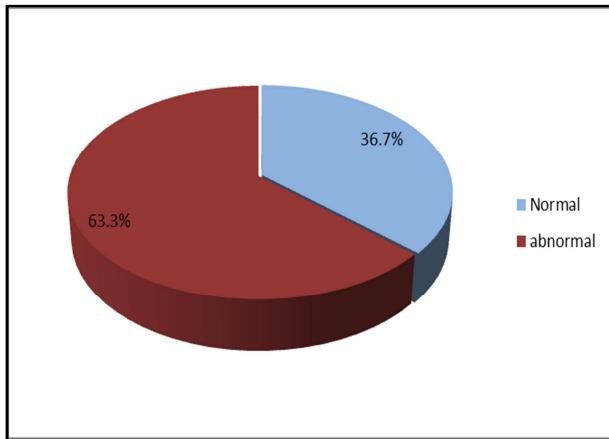

Figure 3. Prevalence of Depression among residents in DRTP, 2012.

Table (1) shows that Stress, depression and anxiety were more common among female than males but the difference is statistically insignificant, with stress (43.3%), depression (65.5%) and anxiety (57.6%). Stress, depression and anxiety were more common among Married residents than Single and divorced, and the difference is statistically insignificant, with stress (50.7%), depression (72%) and anxiety (60%). Stress, depression and anxiety were more common among residents who have children 48.9%, 73.3%, and 62.2% respectively.

Table (2) revealed that stress is more common among family medicine residents (56.1%) but the difference from other specialty was statistically insignificant (p value: 0.943). Depression was more common in General pediatric residents (75%) and the difference from other groups was statically insignificant (p value 0.463). Anxiety was more common in General surgery residents (75%) and the difference from other groups was statically insignificant (p value 0.802). Stress, depression and anxiety were more common among second year residents with stress (56.4%), depression (69.2%), and anxiety (66.7%).

Table 1. The distribution of the demographic variables of the DHA residents according to anxiety, stress and depression.

Data		Stress		Depression		Anxiety	
		Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
Age	21-	29	22	19	32	17	34
		56.9%	43.1%	37.3%	62.7%	33.3%	66.7%
	26-	64	46	38	72	51	59
		58.2%	41.8%	34.5%	65.5%	46.4%	53.6%
	30 +	5	3	5	3	4	4
		62.5%	37.5%	62.5%	37.5%	50%	50%
	P	0.88		0.65		0.14	
Gender	M	16	8	12	12	12	12
		66.7%	33.3%	50%	50%	50.0%	50.0%
	F	82	63	50	95	60	85
		56.6%	43.4%	34.5%	65.5%	41.4%	58.6%
	P	0.38		0.17		0.50	
Marital Status	Single	60	32	40	52	41	51
		65.2%	34.8%	43.5%	56.5%	44.6%	55.4%
	Married	37	38	21	54	30	45
		49.3%	50.7%	28.0%	72.%	40%	60%
	Divorce	1	1	1	1	1	1
		50%	50%	50%	50%	50%	50%
	P	0.05		0.09		0.65	
Children	Yes	23	22	12	33	17	28
		51.1%	48.9%	26.7%	73.3%	37.8%	62.2%
	No	75	49	50	74	55	69
		60.5%	39.5%	40.3%	59.7%	44.4%	55.6%
	P	0.09		0.12		0.19	

Table 2. The distribution of DHA residents according to work related data (Specialty and year of residency) and presence of anxiety, stress and depression.

Work Related Data		Stress		Depression		Anxiety	
		Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
Specialties	Community Medicine	4	1	2	3	4	1
		80.0%	20%	40%	60%	80%	20%
	Emergency	24	12	12	24	18	18
		66.7%	33.3%	33.3%	66.7%	50%	50%
	Family Medicine	18	23	15	26	12	29
		43.9%	56.1%	36.6%	63.4%	29.3%	70.7%
	General Surgery	9	3	5	7	3	9
		75%	25%	41.7%	58.3%	25.0%	75%
	General Pediatrics	13	7	5	15	8	12
		65%	35%	25%	75%	40%	60%
	Internal Medicine	9	11	9	11	12	8
		45%	55%	45%	55%	60%	40%
	Obstetrics and Gynecology	9	10	6	13	6	13
		47.4%	52.6%	31.6%	68.4%	31.6%	68.4%
	Psychiatry	7	3	4	6	6	4
		70%	30%	40%	60%	60%	40%
	Radiology	5	1	4	2	3	3
		83.3%	16.7%	66.7%	33.3%	50%	50%
	P Value	0.94		0.46		0.80	
Year of Residency	first year	40	23	24	39	29	34
		63.5%	36.5%	38.1%	61.9%	46%	54%
	second year	17	22	12	27	13	26
		43.6%	56.4%	30.8%	69.2%	33.3%	66.7%
	third year	17	12	10	19	13	16
		58.6%	41.4%	34.5%	65.5%	44.8%	55.2%
	forth year	14	11	8	17	11	14
		56%	44%	32.0%	68.0%	44%	56%
	fifth year and above	9	3	8	4	6	6
		75%	25%	66.7%	33.3%	50%	50%
	P Value	0.85		0.42		0.85	

Table 3. The distribution of DHA residents according to Socioeconomic data (sponsorship, Income, on call duties, change specialty and distance) and presence of anxiety, stress and depression.

Socio-economic Data		Stress		Depression		Anxiety	
		Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
Sponsorship	DHA	95	69	59	105	69	95
		57.90%	42.10%	36%	64%	42.10%	57.90%
	MOH	3	0	3	0	3	0
		100%	0%	100%	0%	100%	0%
	Dubai Police	0	2	0	2	0	2
		0%	100%	0%	100%	0%	100%
	P value	0.56		1		1	
Income (AED)	<10000	51	43	29	65	40	54
		54.30%	45.70%	30.90%	69.10%	42.60%	57.40%
	10000-20000	20	13	13	20	14	19
		60.60%	39.40%	39.40%	60.60%	42.40%	57.60%
	20000 and above	27	14	20	21	17	24
		65.90%	34.10%	48.80%	51.20%	41.50%	58.50%
	P value	0.22		0.04		0.92	
On Call Duties	Yes	79	49	50	78	56	72
		61.70%	38.30%	39.10%	60.90%	43.80%	56.20%
	No	19	22	12	29	16	25
		46.30%	53.70%	29.30%	70.70%	39%	61%
	P value	0.1		0.27		0.71	

Socio-economic Data		Stress		Depression		Anxiety	
		Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
Change specialty	Yes	10	23	8	25	9	24
		30.30%	69.70%	24.20%	75.80%	27.30%	72.70%
	No	88	48	54	82	63	73
		64.70%	35.30%	39.70%	60.30%	46.30%	53.70%
	P value	0		0.11		0.05	
Distance (minutes)	less than 30	39	21	23	37	25	35
		65%	35%	38.30%	61.70%	41.70%	58.30%
	30-60	41	40	26	55	33	48
		50.60%	49.40%	32.10%	67.90%	40.70%	59.30%
	More than 60	18	10	13	15	14	14
		64.30%	35.70%	46.40%	53.60%	50.00%	50%
	P value	0.65		0.73		0.57	

Table (3) shows that Stress, depression and anxiety were more common among residents who are sponsored by Dubai Police that who are sponsored by MOH and DHA with stress (100%), depression (100%) and anxiety (100%).

Stress was more common among residents who have income <10000 AED (45.7%), depression was more common among resident who have income <10000 AED (69.1%), and anxiety were more common in residents who have income 20000 AED and above (58.5%). Differences are statically insignificant.

Stress, depression and anxiety were more common among residents who are not doing on call duty than who are doing on call duty, with stress (53.7%), depression (70.7, and anxiety (61%).

Stress, depression and anxiety were more common among residents who want to change their specialty than who doesn't want to change their specialty, with stress (69.7%), the difference was statistically significant, depression (75.8%) with statistically insignificant difference, and anxiety (72.7%) with statistically insignificant difference.

Stress, depression and anxiety were more common among residents who are taking 30-60 minutes to reach their work with stress (49.4%), depression (67.9%), and anxiety (59.3%).

Table (4) shows the results of binomial logistic regression analysis of factors affecting stress among residents in Dubai Health Authority. Only one variable (change specialty) showed statistical significance. The odds ratio for change specialty variable is 0.2 this explains that those who don't want to change specialty are less likely to have stress. The odds ratios for marital status and on call duties are 1.772 and 1.476 respectively. This means that those who are married are more likely to have stress than other categories, and those who are not doing the on call duties are more likely to have stress than those who do.

Table 4. Results of binomial logistic regression analysis of factors affecting Stress among residents in Dubai residency program.

Socio-demographic Data	Stress	
	P Value	Odds Ratio
Age	0.54	0.789
Gender	0.36	0.627
Marital Status	0.29	1.772
Children	0.94	1.022
Specialties	0.70	0.969
Year of Residency	0.96	0.935
Sponsorship	0.81	1.182
Income	0.22	0.774
On Call Duties	0.36	1.476
Change specialty	0.00	0.262
Distance	0.93	1.022

Table (5) shows the results of binomial logistic regression analysis of factors affecting Depression among residents in Dubai Health Authority. One only was significant (Income). The odds ratio of change specialty variable is 0.494. This means that those who don't want to change specialty are less likely to have depression. The odds ratios for for the variables "marital status" and "on call duties" are 2.029 and 1.403 respectively. This explains that those married are more likely to have depression than other categories and those who are not doing the on call duties are more likely to have depression than those who do.

Table 5. Results of binomial logistic regression analysis of factors affecting Depression among residents in Dubai residency program.

Socio-demographic Data	Depression	
	P Value	Odds Ratio
Age	0.74	0.865
Gender	0.18	0.526
Marital Status	0.22	2.029
Children	0.99	0.999
Specialties	0.26	0.912
Year of Residency	0.35	0.853
Sponsorship	0.67	0.747
Income	0.02	0.620
On Call Duties	0.45	1.403
Change specialty	0.14	0.494
Distance	0.56	0.866

Table (6) shows the results of binomial logistic regression analysis of factors affecting Anxiety among residents in Dubai Health Authority. One only was significant (change specialty). The odds ratio of change specialty variable is 0.400 this explains that those who don't want to change specialty are less likely to have Anxiety. The odds ratios of residence who are having children is 0.58 respectively this explains that residents who are not having children are more likely to have Anxiety than other categories.

Table 6. Results of binomial logistic regression analysis of factors affecting Anxiety among residents in Dubai residency program.

Socio-demographic Data	Anxiety	
	P Value	Odds Ratio
Age	0.13	0.530
Gender	0.55	0.756
Marital Status	0.47	0.690
Children	0.09	0.581
Specialties	0.67	0.967
Year of Residency	0.53	1.107
Sponsorship	0.73	0.787
Income	0.99	0.999
On Call Duties	0.84	0.921
Change specialty	0.04	0.400
Distance	0.341	0.795

5. Discussion

It was found that stress symptoms studied by DASS were positive (mild, moderate and severe) among resident doctors in Dubai in 42%. This is significantly higher than percentages found in researches conducted by Sandeep Agrawal et al in India (2010)[3] which showed that the overall prevalence of stress among residents doctors was 32.8%. Cohen *et al.* reported a stress prevalence of 34% among resident doctors in Canada (2005)[14], and Sargent *et al.* also reported 33% stress among resident doctors, USA (2004)[15]. We believe that the causes behind these differences are the working environment, cultural difference, geographical difference and the differences in health system as well.

On the another hand, the prevalence of depression symptoms studied by DASS was positive (mild, moderate and severe) among resident doctors in Dubai in 63.3% which is higher than the previous study which was done by Lynda Earle, Len Kelly in Canada (2005)[16] which showed that the prevalence was 20%. This could be due to many reasons. As it was found in our research, depression was more prevalent among residents with low income, and it is well known that Dubai is one of the most expensive cities in the world. Those with low income are also facing problems with housing,

transportation, providing basic life requirements and family responsibilities. All these barriers put the employee under economic pressure and could lead to depression.

In addition, it was found that anxiety symptoms studied by DASS were positive (mild, moderate and severe) among resident doctors working in Dubai in 57.4% which is higher than what was found in the study conducted by Lynda Earle, Len Kelly Canada (2005)[16] which showed the prevalence of generalized anxiety syndrome to be 12% and this could be explained again by differences in geographical settings, working atmosphere, ethnicity and type of patients.

In relation to gender, stress was more prevalent in females than males (43.3% Vs 33.7%) but the difference was statistically insignificant (P value 0.38) similar to study which was done by B.A. Issa, A.D. Yussuf, *et al* in Nigeria (2009)[17] which found that stress has the same proportions in males and females. However it was different from other studies which was conducted by Gautam in Canada (2001)[18] and Jordan S Cohen and Scott Patten in Canada (2005)[19] where female doctors were more stressed than male doctors and the reason behind our finding is that the similarity of working duties, job requirements, numbers of duties which put them in the same working environment. Similarly, it was found depression more prevalent in females than males (65.5% Vs 50%) and the difference was statistically insignificant (P value 0.17).

Prevalence of depression among males and female was similar to study conducted by Lynda Earle, Len Kelly in Canada (2005)[16] where it was found that depression is equal among female and male residents and this was different from what was reported by Majid Sadghi, Mohammed Navidi, Amir Ebrahim in Iran (2007)[2]. Depression was higher in female resident which could be explained that depression is more prevalent among women in general as documented by many previous studies Frank E, Dingle AD. U. S. A(1999)[20], Hsu K, Marshall V. Canada(1987)[21], Peterlini M *et al.* Brazil 2002[22], a difference that did not attain statistical significance, possibly because of the small sample size or reporting bias by female gender.

Resident doctors who report anxiety were almost similar among female and male (58.6% Vs 50.6%) and difference was statistically insignificant (P value 0.5) a finding that has been reported by earlier study of Lynda Earle, Len Kelly (2005)[16] where they found no significant difference between female and male in anxiety and this is due to the similarity of workload, tasks and duties between both genders.

In relation to the year of residency which the resident belongs to, stress was more prevalent among second year residents (56.4%) and difference from other years of residency was statistically insignificant (P value 0.858), findings were

different in study which was reported by So-Myung Choi, Young Soon Park, Jun-Hyun, Go-Young (2013)[23] stress to be more in first year which was statistically significant, another study was conducted by Nasser Aminazadeh, Forough Farrokhyar, Amir Naeeni, Marjan Naeeni,Susan Reid,Arash Kashfi,Kamyar Kahnamoui (2011)[24] stress was more among first and second year residents. a difference that did not attain statistical significance, possibly because of the small sample size.

Depression was more prevalent among second year residents (69.2%) and difference from other group was statistically insignificant (P value 0.426), and Anxiety was more prevalent among second year residents (66.7%) and difference from other group was statistically insignificant (P value 0.85). To our knowledge we couldn't allocate any study about anxiety and depression related to year of residency in residency training program.   And the reasons behind our findings are that residents in first and second years are more likely to have stress, anxiety and depression because there is lack in orientation during the start of program, lack of experience, pressure of academic day activities, hospital activities, fear from the atmosphere and dealing with other senior doctors, medical stuff and patient with more professionalism. Work load with less time to fill gap in knowledge and following the guidelines and how to implement it in real practice.

In relation to total income per month the prevalence of stress was more in resident with the lowest income in the questionnaire (less than 10000 AED) which shows 45.7% but it was statically insignificant in comparison to other groups (p value: 0.227), these results could be explained by: less income compared to others career, financial responsibility which put them in stress. The prevalence of Depression was high in resident with the income less than 10000 AED (69.1%) and the difference from other groups was statistically significant (p value 0.046); which could be due to many reasons such as: financial responsibility, ability to offer all basic requirement for them self and families, trying to offer a good housing, schooling, food in the expensive city which put the residents doctor in pressure. In other hand lack of promotions and increase in salary all this lead to commercial pressure and might lead to depression. Which was surprising that it was found that Anxiety is more prevalent in residents with highest income 20000 AED and above (75%) and the difference from other groups was statistically insignificant (P value 0.802), the reason behind our finding is that may be more income leads people to think more about luxury life and how to live in high socioeconomic class of life.

Stress was more prevalent among residents who wants to change their specialty (69.7%) and difference from those who

doesn't want to change their specialty was statistically significant (p value 0.000) and the odd ratio was (0.262), on the other hand B.A. Issa, A.D. Yussuf, G.T. Olanrewaju, A.O. Oyewole (2009)[25] reported that most residents in there study did not believe a change of specialty or career is worth the effort, Comparable findings were also reported by Madaan *et al*.(2008)[26] and Cohen *et al*., (2005)[14] and NK Saini, *et al*, India (2010)[3] respectively, this can be interpreted by several factors such as; work load, lack of support, finical unsatisfaction and low income in comparison to other careers, a long period of study and specialization with frequent examination leading to isolation from social events, family responsibilities and balance between career and personal life, fewer promotions. The same results was found with Depression and Anxiety with percent of (75.8%) and (72.7%) respectively, but it was statistically insignificant with (p value 0.111) and (p value 0.052) respectively.

6. Conclusions

The perceived prevalence rates of depression, anxiety and stress symptoms as studied by DASS were positive (mild, moderate and severe) among resident doctors in Dubai in 63.3%, 57.4% and 42% respectively. These high rates are alarming. The depression was more prevalent among residents with less income, while stress was more prevalent among residents who want to change their specialty.

Recommendations

- Further research should be conducted using other tools like DSM-IV or PHQ-9.

- Establishing residency counseling office is suggested to deal with residents problems in way that supports their needs and leads to a best working environment.

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