

Stress on the Frontlines: A Comprehensive Study of Occupational Stress Among Healthcare Workers in a Tertiary Care Hospital

Dr Vishala Rao¹, Dr Sindhu RSS², Dr Ishwarya S³, Dr Minthami Sharon P⁴

¹Department of Obstetrics and Gynecology, Sree Balaji Medical College and Hospital, Chennai, India

Email: drvishalarao@gmail.com

²Department of Obstetrics and Gynecology, Sree Balaji Medical College and Hospital, Chennai, India

Email: drsindhurss@gmail.com

³Department of Obstetrics and Gynecology, Sree Balaji Medical College and Hospital, Chennai, India

Email: ishwarayasiva@gmail.com

⁴Department of Obstetrics and Gynecology, Sree Balaji Medical College and Hospital, Chennai, India

Email: drminthamisharon@gmail.com

Corresponding Author: Dr Vishala Rao

Department of Obstetrics and Gynecology, Sree Balaji Medical College and Hospital, Chromepet, Chennai - 600044, India

Email: drvishalarao@gmail.com

Abstract

Background

Stress arising from the workplace is a worry and influences the psychological wellbeing and effectiveness of HCWs. Given that HC professionals work under pressure and constrained supply of resources, knowing more about occupational stress is relevant to enhancing workplace quality and productivity. This study sought to establish the degree of occupational stress experienced by HCWs and determine the relationship between degree of stress and socio-demographic characteristics of HCWs in selected tertiary healthcare facility.

Methodology

A cross sectional survey for three months, involved 235 HCWs among which there were doctors and nurses. Volunteer participation was the inclusion criteria and those with histories of mental illness were excluded from the study. The Occupational Stress Inventory, OSI was employed measure stress levels and socio demographic information was gathered using a data collection form. Descriptive and inferential tests were processed by computer analysis using SPSS version 21. Correlations between occupational stress and the Domain factors were done with the use of Coefficient of correlation and Chi-square test at $\alpha = 0.05$.

Results

This study received 235 participants of HWC in which 71.5% were female, 28.5% male, employees where 54.9% nurses and 45.1% were doctors. Whereas 78.7% participants were under rotational shifts, 65.5% of the participants reported working more than 48 hours in a week. Specific stress factors identified were time management (67.2 %), workload (68.9 %) and lack of communication with immediate bosses (74 %). Analyses of variance revealed that there were highly significant associations between stress and domain variables $p < 0.05$.

Conclusion

This study supports prior research by providing an evidence of occupational stress amongst HCWs and concluding that this stress is significantly linked to some socio-demographic variables. Stakeholder education and time East management programs/organizational support is crucial to improving healthcare workers' health and efficiency.

Keywords

Occupational stress, healthcare workers, cross-sectional study, socio-demographic factors, stress management.

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Introduction:

Stress at the workplace has become worrisome in the healthcare practice, especially among the tertiary care organizations where the pressure on the HCW's is very much pressurizing. (1) It is therefore suggested that professional stress within healthcare should not be

perceived as affecting only frontline staff exposed directly to patient treatment; due to complexity of tasks in managing critically ill patients, various administrative pressures, and obvious emotional and physical fatigue, healthcare workers should be all regarded as a highly stressed population. (2) (3) Long-

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term occupation stress has been related to burnout and declined job satisfaction, recurrent inadequate patient care and thus it is a significant question affecting employee and the healthcare sector. (4) The COVID-19 pandemic extended these challenges posing the need for evidence-based interventions for HCWs. (5) Several precursors have been identified to contribute to occupational stress among HCWs and they include Extended working hours, densely populated work load, less HCWs and conflicts on workplace. (6) It is noteworthy that these stressors usually seem to interact with personal stressors like financial issues, family obligations, meaning that stress has a diverse mechanism in which it influences an individual's mental and physical wellbeing. (7) (8) Although the above factors have been widely publicized, there is still inadequate information on the level, causes and effects of occupational stress more so in low income settings such as in the tertiary care hospitals in the developing world. (9)

Previous research has generally considered aspects of occupational stress individually or has examined certain categories or selected populations of HCWs such as nurses or medical doctors. (10) Despite such research having such merits, there are inherent shortcomings in this kind of research, especially that it covers only part of HCWs without including the support staff who are also under enhanced stress factors. Further, most are completed in high-income contexts, in what may not be transferable to the contextual realities of low-income settings. (11) (12) Thus, there is need to adopt a multi-system approach to studies on occupational stress among HCWs in tertiary care facilities. (13)

Addressing this problem is very important for several reasons. First, occupational stress is not only a hazard to the HCWs' health but also impacts on patient safety and healthcare quality. Stress has been clearly associated with medical complications, spoken and written communication and productivity which can have a negative impact on patient care. (14) Second, increasingly, the turnover of skilled HCWs is an issue because stress-related burnout result to attrition in an already constrained field. Last but not least, determination of the sources and the effect of occupational stress is helpful in designing effective stress management programs aimed at increasing levels of employees' well-being and productivity in the workplace. (15)

This study was carried out to fill these gaps by systematically evaluating the level of occupational stress and its related factors among HCWs in this

tertiary care hospital. It is by outlining these stressors and their outcomes that this research shall seek to offer identifiable procedures that can be put to practice in both policy and practice realms thereby helping to generate healthier workforce and better patient outcomes.

Methodology:

This cross sectional study was carried out to evaluate occupational stress among health care workers (HCWs) at a tertiary care hospital in Chennai. This study was done over a three-month duration after they received permission from the Institutional Ethics Committee. The study design complied with standards of STROBE guidelines to maintain the methodological and reporting standards.

The participants selected were healthcare workers at the institution, which included physicians and nurses. Based on these considerations, study participants were recruited via an advertising website, and the inclusion criteria were persons willing to participate in the research project. From this purposive sampling method 235 participants were included in the study. The data was collected through use of self-administered questionnaires which were voluntary and had no identifiable information from participants.

The level of occupational stress was assessed using the Occupational Stress Inventory (OSI). This tool gave the assessment of the stress levels which persons had in general as well as at workplace and what factors of job was effective on their stress levels. Moreover, arbitrary structured questionnaires consisting of questions about age, gender, marital status, years of professional experience, working week, etc., were used. This data allowed us to make conclusions about the relationships between socio-demographic characteristics and occupational stress.

Details recorded were input into Microsoft Excel and analyzed using statistical package for social sciences version 21. Socio-demographic characteristics and stress levels were described by frequencies and percentages. Pearson correlation and chi-square test were conducted to comparing various domains contributing stress and occupational stress. In all analyses, $p < 0.05$ was considered significant.

The following were strictly observed so that the study adheres to all the ethical consideration; The results of the study were explained to the participants, and they were requested to sign consent before data collection. Details provided by participants were kept secret and the data gathered in the study were not used for other purposes.

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Thus, the aim of the study was to determine the proportion of HCWs who experience occupational stress by determining the correlation between the variables of concern and the socio-demographic data. Consequently, the results obtained in the present study are expected to be useful to design subsequent stress-lowering intervention programs for health care employees. The method developed was highly reliable and valid, and applying ethical principles during research protected participants' rights and the study.

Result:

The study aimed to determine the origins of and identify factors likely to induce occupational stress in healthcare professionals. Table 1 delineates the demographic characteristics of the 235 healthcare professionals who participated in the research. The predominant gender was female, with 71.5%, while males constituted 28.5%. The marital status had a fairly similar distribution, with 52.3% of individuals single and 47.7% married. Regarding educational qualifications, the majority of participants had Diploma or Bachelor's degrees (77.4%), whilst 22.6% held Master's degrees. Nurses comprised 54.9% of the sample, whilst physicians accounted for 45.1%. Concerning socioeconomic position, 45.5% of participants belonged to the low-income category, 39.6% to the middle-income category, and 14.9% to the high-income category. These results are crucial as they underscore the workforce makeup and indicate that a significant amount of stress may be affected by socioeconomic and educational inequalities within the healthcare industry.

Table 2 elucidates employment characteristics. The duration of employment indicated that 43.4% of workers had been working for over one year, 37.0% for more than one year in a distinct category, and 19.6% for less than one year. A majority of participants (78.7%) engaged in rotating shifts, whilst 21.3% operated under non-rotational shifts. Approximately 83% of employees indicated shift frequencies above four per week, while 65.5% worked more than 48 hours weekly, leaving just 34.5% working less hours. help from staff was acknowledged by 79.1% of participants, whilst 20.9% perceived a lack of help. The data suggest that rotating shifts, elevated shift frequency, and prolonged working hours are prevalent in the healthcare environment and may substantially contribute to occupational stress.

Table 3 analyzes individual behaviours. A majority of workers abstained from smoking (81.7%), whilst 18.3% engaged in the habit. Alcohol intake was recorded by 40.4%, whilst 59.6% refrained. Regarding

sleep duration, 60.4% said they slept more than six hours daily, while 39.6% reported sleeping fewer than six hours. The findings are important, since inadequate sleep, smoking, and alcohol intake may exacerbate work stress, indicating the need for lifestyle measures to enhance health and well-being.

Table 4 examines the correlation between different domains and stress. Disagreement and indecision impacted just 6.0% of employees, exhibiting no significant correlation with stress ($p = 0.15$). Job-related pressure was substantial, with 75.7% of individuals reporting stress in this area ($p = 0.00$). The contradiction in job descriptions was universally relevant, as all research participants demonstrated a clear correlation between the presence or absence of stress and this domain ($p = .a$). Inadequate communication with supervisors resulted in stress for 74.0% of participants and exhibited a significant correlation ($p = 0.00$). Health-related issues were negligible, impacting just 3.8% of employees, and exhibited no significant correlation ($p = 0.96$). Work overload stress impacted 68.9% of individuals, demonstrating a significant correlation ($p = 0.02$). Twenty-six percent of workers reported experiencing work underload stress, which exhibited a significant correlation with stress ($p = 0.00$). Stress produced by boredom impacted 14.0% of employees but was not substantially correlated ($p = 0.12$). Job security worries impacted 2.1% of employees, with no notable correlation ($p = 0.40$). Time pressure stress impacted 67.2% of employees and had a significant correlation with stress ($p = 0.00$). Job barrier stress was substantial, impacting 24.3% of employees ($p = 0.00$). The results underscore significant factors, including workplace pressure, workload, time management, and supervisor communication, as primary drivers to occupational stress.

Table 5 The following table shows the Pearson correlation coefficient values of the occupational stress domains and overall stress of the healthcare workers of a tertiary care hospital. These findings show that total occupational stress is positively correlated with time pressure (0.520; $p < 0.01$), communication with supervisors (0.542; $p < 0.01$), and pressure on the job (0.485; $p < 0.01$). On the other hand, work underload stress has a negative though less significant relationship with turnover intention ($r = -0.126$, $p > 0.05$). High levels of relationship between occupation type variant and stress domain reveal some stress in occupations that are specific to certain position. These results highlight the complexity of occupational stress pointing to the criticality of stress management

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approaches that consider both overall and field-specific challenges to healthcare workers.

Graph A examines the predictive efficacy of several domains using ROC analysis. Domains with the greatest predictive capacity for stress include contact with supervisors (Domain 4) and time pressure (Domain 10), as shown by low AUC values of 0.272 and 0.265, respectively. These domains arise as substantial factors in occupational stress. In contrast, health issues (Domain 5) had little predictive capability, shown by an AUC value of 0.446 and a lack of meaningful correlation.

Discussion:

The discussion of this study highlights the complex dimensions of occupational stress among HCWs and juxtaposes the findings of this study with prior studies to infer on the nature of occupational stress in this important workforce. Stress sources related to shift work, long working hours, and organizational demands were identified in our study. These findings are similar to those of Ning et al. (2023) which revealed that job stress was positively associated with turnover intention, with job satisfaction and presenteeism as moderators. Similar to Ning's conclusion, our research stipulates that systemic intervention approaches in fighting turnover and minimizing stress amelioration in the workplace are warranted. (16)

The results of the study suggested that provision of feedback to supervisors was a major source of stress, which affected 74% of the respondents. This corresponds with Werke et al. (2022) that occupational stress impacted the lives of almost half of the patients or nurses and rotating shifts played a significant role. The two papers emphasize the signification of the communication and the support from the managerial level to reduce stress. Moreover, in the present study, long working hours and stress are positively related, agreeing with the statement of Werke and colleagues, to stress reduction and workload, requiring intervention of policymakers and stakeholders. (17)

Similarly, the present study identified high stress scores on time pressure and workload mean scores two being above the midpoint, where 67.2% and 68.9% of participants reported high stress loads in those areas, respectively. In related work, Rink et al. (2023) offer similar findings, Healthcare workers reported nearly 50% of stressors identified were work-related with pressure for time and workload cited as significant obstacles. That is why their collaboration brings out the continuity and cross-sectional nature of such stressors, implying the blockbuster potential of such stressors as

workload redistribution or improvement of time-management practices. (18)

We also identified that sleep deprivation, smoking and alcohol intake increased stress levels among health care workers as indicated in the other preceding studies. Pangarkar et al. (2023) Finding of the longitudinal study is in this assertion pointing out that occupational stress is related to long term mental health impacts but especially where the work pressure is high such as in the healthcare profession. The two recommend worksite wellness initiatives and organizational mental health management for these problems since personal and professional challenges are often closely connected. (19)

It is crucial to notice the pandemic's contribution to the increase of stress levels. Gerding et al., (2022) noted that pandemic related stressors distorted work-life interfaces and erode the employer-employee bonds. Likewise, the present study provides evidence of how high-frequency shift working and work demands before and during the pandemic have made a lasting impact on HCWs, calling for post-pandemic burnout and the building of resilience policies and strategies. (20)

In terms of potential stress factor predictors, the current study also emphasized the importance of contact with supervisors and time pressure by obtaining the lowest AUC ratios. This is similar to the study of Rink, Howard, and Dorman (2023) who call for knowledge and handling of complex sources of stress within a health area. Also, our study revealed that 20.9% of participants did not receive correspondingly adequate staff support, which accords with Werke et al. (2022) that addresses the lack of team coherence and cooperation to express the general compression of stress. (17)

Furthermore, demographic findings of our study including stress being dominant among female healthcare workers are also in line with Ning et al. (2023) and Rink et al. (2023) investigation on gendered-stress. These two works depict that women are in different ways vulnerable in workplaces, thus challenging the need for countries to come up with gender sensitive policies to support women in their workplaces. (16) (18)

Recommendations

This research underscores the need for unique healthcare professional occupational stress therapies. Herein, institutions should direct stress management organised for high-risk individuals including rotating shift workers and substantial workloads. The healthcare workers could be stronger with mental health

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intervention, which include therapy or support through fellow health care professional. There are also certain recommendations of improvement for policymakers Choreography of staffing structures and shift schedule must ensure adequate rest breaks. Possible measures, which might decrease stress caused by poor supervising could be efficiency of the training programs aimed at increasing the level of the effective communication between supervisors and staff. Nutrition services and classes might also enhance health and quality of life: Exercise classes and stress-relieving seminars. Finally, future research should be longitudinal in order to assess these therapies over time.

Limitations

The pressure of work also shows no causality with outcomes as cross-sectional studies fail in making causal relationships. Using self-reported data participants might do it intentionally exaggerating or minimizing their stress. Lean input forms may not capture elaborate stress experiences, owing to minimal qualitative assessments. Such gaps should be filled in the future through Longitudinal designs, larger sample sizes, and mixed-method techniques.

Conclusion:

In the light of the study, it is important to note that occupational stress among the health care workers is complex, which is a function of the type of jobs, individual behaviors and prevailing organizational conditions. : Rotational shifts, overtime working, lack of contact with supervisors, and job pressure bore a direct relationship to stress and employees' inadequate sleep also contributed to stress. These findings also support development of intervention strategies including but not limited to improvement in working schedules, increased support and stress reduction for health care personnel.

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Conflict of Interest:

The authors declare that there are no conflicts of interest.

TABLE 1: Demographic Characteristics Of The Healthcare Professionals

Category	Subcategory	Frequency	Percent	Valid Percent	Cumulative Percent
GENDE R	F	168	71.5	71.5	71.5
	M	67	28.5	28.5	100
	Total	235	100	100	100
MARIT ALSTATUS	MARRIED	112	47.7	47.7	47.7
	UNMARRIED	123	52.3	52.3	100
	Total	235	100	100	100
EDUCA TION	DIPLOMA /BACHELORS	182	77.4	77.4	77.4
	MASTERS	53	22.6	22.6	100
	Total	235	100	100	100
OCCUP ATION	DOCTOR	106	45.1	45.1	45.1
	NURSE	129	54.9	54.9	100
	Total	235	100	100	100
WEALT H	HIGH	35	14.9	14.9	14.9
	LOW	107	45.5	45.5	60.4
	MIDDLE	93	39.6	39.6	100
Total	235	100	100	100	

TABLE 2: Employment Characteristics

Category	Subcategory	Frequency	Percent	Valid Percent	Cumulative Percent
LENGT H OF EMPLOYMENT	<1YR	46	19.6	19.6	19.6

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	>1 YR	189	80.4	80.4	80.4
	Total	235	100	100	100
SHIFT	Non-Rotational shift	50	21.3	21.3	21.3
	Rotational Shift	185	78.7	78.7	100
	Total	235	100	100	100
SHIFT FREQUENCY	>4	195	83	83	83
	1 TO 3	40	17	17	100
	Total	235	100	100	100
WORKING HRS	<48	81	34.5	34.5	34.5
	>48	154	65.5	65.5	100
	Total	235	100	100	100
SUPPORT FROM STAFF	NO	49	20.9	20.9	20.9
	YES	186	79.1	79.1	100
	Total	235	100	100	100

TABLE 3: Individual Behaviors

Category	Subcategory	Frequency	Percent	Valid Percent	Cumulative Percent
SMOKING	NO	192	81.7	81.7	81.7
	YES	43	18.3	18.3	100
	Total	235	100	100	100
ALCOHOL	NO	140	59.6	59.6	59.6
	YES	95	40.4	40.4	100
	Total	235	100	100	100
SLEEP	<6 HRS	93	39.6	39.6	39.6
	>6 HRS	142	60.4	60.4	100
	Total	235	100	100	100

TABLE 4: Chi Square test to examines the Association between different domains and stress

Domain	Score Category	Score < 135 (Work-Related Stress ABSENT)	Score > 135 (Work-Related Stress PRESENT)	Total	P VALUE
Domain1: Disagreement/Indecision	Score < 14 - No Problem Area	119 (92.2%)	102 (96.2%)	221 (94.0%)	0.15
	Score > 14 - Suggest Problem Area	10 (7.8%)	4 (3.8%)	14 (6.0%)	
Domain2: Pressure on the Job	Score < 14 - No Problem Area	43 (33.3%)	14 (13.2%)	57 (24.3%)	0.00
	Score > 14 - Suggest Problem Area	86 (66.7%)	92 (86.8%)	178 (75.7%)	
Domain3: Job Description Conflict	Score < 14 - No Problem Area	129 (100.0%)	106 (100.0%)	235 (100.0%)	.a

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Domain4: Communication Comfort	Score < 14 - No Problem Area	48 (37.2%)	13 (12.3%)	61 (26.0%)	0.00
	Score > 14 - Suggest Problem Area	81 (62.8%)	93 (87.7%)	174 (74.0%)	
Domain5: Health Concerns	Score < 14 - No Problem Area	124 (96.1%)	102 (96.2%)	226 (96.2%)	0.96
	Score > 14 - Suggest Problem Area	5 (3.9%)	4 (3.8%)	9 (3.8%)	
Domain6: Work Overload Stress	Score < 14 - No Problem Area	48 (37.2%)	25 (23.6%)	73 (31.1%)	0.02
	Score > 14 - Suggest Problem Area	81 (62.8%)	81 (76.4%)	162 (68.9%)	
Domain7: Work Underload Stress	Score < 14 - No Problem Area	105 (81.4%)	69 (65.1%)	174 (74.0%)	0.00

	Score > 14 - Suggest Problem Area	24 (18.6%)	37 (34.9%)	61 (26.0%)	
Domain8: Boredom-Induced Stress	Score < 14 - No Problem Area	115 (89.1%)	87 (82.1%)	202 (86.0%)	0.12
	Score > 14 - Suggest Problem Area	14 (10.9%)	19 (17.9%)	33 (14.0%)	
Domain9: Job Security	Score < 14 - No Problem Area	124 (96.1%)	106 (100.0%)	230 (97.9%)	0.4
	Score > 14 - Suggest Problem Area	5 (3.9%)	0 (0.0%)	5 (2.1%)	
Domain10: Time Pressure	Score < 14 - No Problem Area	58 (45.0%)	19 (17.9%)	77 (32.8%)	0.00
	Score > 14 - Suggest Problem Area	71 (55.0%)	87 (82.1%)	158 (67.2%)	

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	lem Area				
Domain11: Job Barrier Stress	Score < 14 - No Problem Area	112 (86.8%)	66 (62.3%)	178 (75.7%)	0.00

Score > 14 - Suggest Problem Area	17 (13.2%)	40 (37.7%)	57 (24.3%)	
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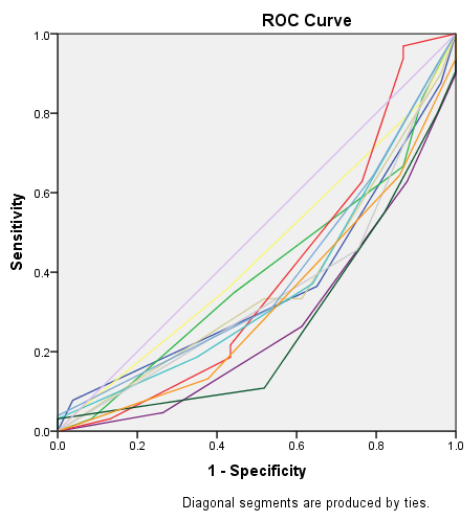
Table 5: Pearson correlation coefficient values of the occupational stress domains and overall stress of the healthcare workers

Variable	occupation	Total	Domain1 Disagreement Indecision	Domain2 Pressure on the Job	Domain3 Job Description on Conflict	Domain4 Communications Comfort with Supervisor	Domain5 Job Related Health Concerns	Domain6 Work Overload Stress	Domain7 Work Underload Stress	Domain8 Workload Induced Stress	Domain9 Problem of Job Security	Domain10 Time Pressure	Domain11 Job Barrier Stress
occupation (Pearson Correlation)	1	.421*	0.065	0.048	.244*	0.074	.244**	-0.068	-0.126	.410**	.376**	.338**	0.029
Sig. (2-tailed)		0	0.318	0.462	0	0.255	0	0.297	0.054	0	0	0	0.664
N	235	235	235	235	235	235	235	235	235	235	235	235	235
Total (Pearson Correlation)	.421**	1	.289*	.485**	.220*	.542**	.246**	.343**	0.092	.236**	.187**	.520**	.357**
Sig. (2-tailed)	0		0	0	0.001	0	0	0	0.158	0	0.004	0	0
N	235	235	235	235	235	235	235	235	235	235	235	235	235
Domain1 Disagreement	0.065	.289*	1	-0.125	0.045	-0.019	0.1	.202**	-0.306**	0.031	.132*	.189**	0.005

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Indecision													
Sig. (2-tailed)	0.318	0		0.055	0.488	0.772	0.128	0.002	0	0.639	0.043	0.004	0.944
N	235	235	235	235	235	235	235	235	235	235	235	235	235
Domain 2 Pressure on the Job	0.048	.485*	-0.125	1	0.103	.510**	0.004	0.05	-0.064	-0.133*	-0.311**	.227**	.187**
Sig. (2-tailed)	0.462	0	0.055		0.115	0	0.954	0.449	0.327	0.042	0	0	0.004
N	235	235	235	235	235	235	235	235	235	235	235	235	235
Domain 3 Job Description Conflict	.244**	.220*	0.045	0.103	1	0.121	-0.017	-0.245**	0.068	.236**	0.029	-0.089	-0.074
Sig. (2-tailed)	0	0.01	0.488	0.115		0.065	0.8	0	0.301	0	0.657	0.175	0.262
N	235	235	235	235	235	235	235	235	235	235	235	235	235

Graph A : ROC Analysis For Predictive Efficacy Of Several Domains



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