

# Statistical Analysis on Relationship Between Stress And Depression Among IT Professionals Women In Patna, India

**Dr. Sajjad Zahir**

Associate Professor

D.N.College, Masaurhi, Patna

**Abstract-** *The present study reveals with (1) to find out the level of stress and depression experienced by women IT professionals, (2) to understand the impact of age and experience on stress and depression, and (3) to study the relationship between stress and depression. The study was conducted in Patna, India with a sample of 500 women IT professionals. The sample selection was done by a convenience sampling method. The data collected were analyzed using descriptive one-way analysis of variance and Pearson's correlation test. Results showed that the women IT professionals experience moderate level of overall stress and stress dimensions. This study also reveals that 84% of the respondents experience medium level of depression and also suggest that age and experience significantly influence the overall stress and depression experienced by the employees. Our study shows that there might be a strong relationship between overall stress and depression.*

**Keywords-** CSTR-PID-ZN-Fuzzy-MRAM-MATLAB.

## I. INTRODUCTION

This study aims to analyze the stress and depression among women information technology (IT) professionals in Patna, India. The conceptualization of stress reported by Selye<sup>1</sup> is basically a physiological one, in which the stress response is seen as a necessary adjunct to the organism's fight for survival. By causing various body changes, the stress response prepares the individual for any exigency, giving him/her extra resources to fight that emergency or to take flight from it. At the same time, the term 'stress' implies strain, which can be caused by prolonged exposure to the stressor. Coronary heart disease, psychosomatic symptoms, and premature aging may be some of the repercussions. Huang and colleagues<sup>2</sup> have found that stress leads to long-term depression.

Pareek<sup>3</sup> has defined role as a set of functions that an individual performs in response to the expectations of others and his/her own expectations about the role. There are two

role systems: role space and role set. Both have built-in potential for conflict. Such conflict is called role stress.

Role space

Role space has three main variables: self, the role under question, and the other roles one occupies. Any conflict among these is referred to as role space conflict. These conflicts may take several forms as inter-role distance, self/role conflict, role-expectation conflict, personal inadequacy, and role stagnation

## II.ROLE SET

Role set is the role system within the organization of which roles are part and by which individual roles are defined. Role set conflicts take the forms of role ambiguity, role overload, role erosion, resource inadequacy, and role isolation. The above dimensions of conflict are worth considering in relation to organizational role stress.

Inter-role distance refers to the conflict between one's organizational role and other roles. Role stagnation is a feeling of stagnation and lack of growth in the job because of few opportunities for learning and growth. Role-expectation conflict denotes the conflicting demands placed on one from others in the organization. Role erosion is a decrease in one's level of responsibility or a feeling of not being fully utilized. Role overload refers to the feeling of having too much to do and too many responsibilities to do everything well. Personal Inadequacy denotes the lack of knowledge, skill, or preparation to be effective in a particular role. Self/role conflict is a conflict between one's personal values or interests and one's job requirements. Role ambiguity is unclear feedback from others about one's responsibilities and performance. Resource inadequacy denotes the lack of resources or information necessary to perform well in a role. Role isolation refers to the feeling of being isolated from channels of information and not being part of what is happening.

Depression is a type of mental disorder that affects a person's mood. It can affect thoughts, feelings, behavior, and overall health. Normal feelings fall along a continuum from mild to intense, and the same is true of depression. It is normal to respond to losses in one's life with sadness and gloom. But when these feelings block a person from performing their everyday activities or are out of line with the reality of a person's life, they are considered symptoms of a 'depressive disorder'.

Emotions refer to the feeling aspect of behavior such as mild irritation, rage, despair, sadness, love, and liking. However the physiological effects of stress can be clearly pinpointed, observed, and measured. Emotional changes are highly subjective. One can experience them, but one cannot express them in words. Often a person may see things with anger within, but maintain a cool exterior, clearly indicating that emotions are not always observable. In general, emotions are internal states, which are often short-lived and can be experienced in combination (one can feel anger, fear, and pleasure at the same time). Three identifiable emotional constellations that are fairly regular outcomes of stress are anxiety, anger, and depression.

Parsons<sup>4</sup> investigated the impact of group counseling and stress management on reported depression, anxiety, attitude toward divorce, school functioning, and behavior in children aged 8 to 11 years. Females in the divorce support group (DSG) and males in the stress management group (SMG) reported significant positive changes in school functioning compared to others. Latha and colleagues<sup>5</sup> carried out a study in which a group of 78 individuals aged 11–65 years who had attempted suicide, 58 depressive individuals aged 16 to 51 years, and 60 normal individuals (control) aged 18 to 53 years were asked to fill in a measure of stressful life events. Findings suggested that, compared to the depressive and control individuals, suicidal individuals reported more stressful life events, which included marital discord conflict with in-laws or family, problems in love, illness, death in the family, and unemployment. Mohr<sup>6</sup> reported on stress and its effects on mental health at workplace. The conclusion of Mohr's study indicated positive health effects could be achieved as a result of reducing stress level. Aziz<sup>7</sup> investigated the prevalence of organizational role stress (ORS) among IT professionals. Resource inadequacy emerged as the most potent stressor. The study reported more stress among men compared to women. Aziz<sup>8</sup> investigated the intensity of ORS among women IT professionals in the Indian private sector and found differences in the level of stress between married and unmarried employees on several role stressors.

The earlier studies studied either stress or depression. There was no study combining stress and depression. Stress level was measured and our focus was to differentiate male versus female and married versus unmarried individuals. This focus on demographic factors such as age and experience also combines with the variable of depression. Our study is highly relevant in the IT industry where there is maximum stress for women. No such studies have been found especially among software industry employees.

The significance of our study is in the association between stress and depression among women IT professionals. A career in IT is increasingly marked by struggles against deadlines, rapid mobility in projects, and frequently differing reporting relationships, collapsing inter-personal relationships at work, and the shock style of conflict management, temporal dissociation, the 'night here, morning there' syndrome (since most Indian software companies are clients of US-based concerns, they have to work at night in India whereas it is day in the US), misuse of free time, and growing infectious cynicism that can lead to despair, distress, pressure, and stress. Stress is the latest killer. It is the cause, rather than the effect, of several physical, mental, and emotional problems. When such a situation prevails in the IT sector, a woman software professional has to face all these situations and in addition she often has to take care of her kith and kin, elders, and other responsibilities in the family. Maintaining the balance between work and life becomes a tough task. Based on these factors, the current study was designed (1) to find out the level of stress and depression experienced by women IT professionals in Patna, India, (2) to understand the influence of age and experience on stress and depression, and (3) to study the relationship between stress and depression.

### III. METHODS

#### Research design

The study explores the organizational role of stress and depression among women employees in the IT industry based on their age and experience. The study uses a descriptive research design. A survey was conducted among the women IT professionals with the help of a questionnaire.

#### Sampling framework

#### Sampling technique

In this study, the authors adopted a convenience sampling technique for selecting the sample. Researchers generally use convenience samples to obtain a large number of completed questionnaires quickly. There will be no bias in the responses in using the convenience sampling since the

respondents voluntarily participate in the survey. As the respondents show interest in completing the questionnaires, the error rate will be minimal. Many Internet surveys are conducted with volunteer respondents, who have either intentionally or by happenstance visited the website. In this scenario, respondents are not forced to complete the questionnaire. The purpose of the questionnaire was explained to them and their involvement in the study is their choice. Convenience sampling was the best sampling method available to this study.

**Sample size determination**

The following formula was applied to determine the sample size:

$$N=(Z_{1-\alpha/2})^2(1-p)/\epsilon^2 \times p$$

where *p* is the high stress level,  $(z_{1-\alpha/2})^2$  is the table value, and  $\epsilon^2$  is the precision level.

As per our pilot study, the high stress level was 26%. The stress level was at 5% and the table value refers to 1.96. To get a sample of 15% precision, ie, the stress level at between 22%–30%, the above formula was applied. The result obtained was 485. Expecting a nonresponse rate of 20%, around 600 questionnaires were distributed. 150 responses were received from the Internet and another 340 were received in hard copy. Only 540 responses were received in time. Elimination of cases with missing data resulted in 502 completed questionnaires. Out of 502 responses, the first 500 were taken for our research.

**Data collection**

The primary data (the respondent’s opinion about their role stress and depression) were collected by two methods: (1) survey through Internet and (2) survey through hard copy circulation. The tools used were the Organizational Role Stress scale developed by Pareek<sup>10</sup> and the Depression Scale standardized by Gmelch and Chan.<sup>9</sup>

**IV. RESULTS AND DISCUSSION**

**Role stress**

Table 1 explains the level of overall stress and role stress dimensions experienced by respondents (employees). There is no difference in the overall stress and role stress dimensions experienced by respondents (hypothesis 1). In order to verify the hypothesis, frequency analysis was carried out: 55.22% of employees experienced moderate levels of overall stress, 28% of employees experienced high overall stress, and only 1.6%

of employees experienced very high overall stress. It is also observed that on an average 2.0% to 4.4% of employees experienced very high level of stress in various role stress dimensions, 22.8 to 31% of employees experienced a high level of all ten role stress dimensions; 42% to 55% of employees experienced moderate level, and 15% to 29.8% of employees experienced a low level of stress in all ten role stress dimensions. Hence the hypothesis is rejected.

Role stress dimensions	Low	Moderate	High	Very high
Overall stress	76 (15.2%)	276 (55.2%)	140 (28.0%)	8 (1.6%)
RD	104 (20.8%)	227 (45.4%)	147 (29.4%)	22 (4.4%)
RS	99 (19.8%)	230 (46.0%)	150 (30.0%)	21 (4.2%)
REC	130 (26.0%)	23 (46.4%)	118 (23.6%)	20 (4.0%)
RE	91 (18.2%)	234 (46.8%)	155 (31.0%)	20 (4.0%)
RO	108 (21.6%)	243 (48.6%)	129 (25.8%)	20 (4.0%)
RI	125 (25.0%)	250 (50.0%)	114 (22.8%)	11 (2.2%)

Table 1

Level of role stress dimensions experienced by employees

Pareek and Metha<sup>10</sup> defined stress as a conflict between the organizational roles and nonorganizational roles performed by an individual. The overall stress and the role stress dimensions are at moderate levels among the majority of the respondents. Only 25% of employees experienced a high level of role stress. Comparing the stress levels experienced at all ten role stress dimensions, a higher level of stress is observed in relation to factors such as role stagnation, role erosion, and role overload. At the outset it is seen that majority of employees experience only moderate level of overall stress and also various role stress dimensions. It is interesting to note that only a minimum percentage of employees experience high and very high level of stress. It is a good sign and it indicates that the IT industry has a better working environment for women.

**Overall stress based on age**

Table 2 shows the overall stress and role stress dimensions experienced by employees based on age. Observation of the mean values shows that the overall stress is high among employees in the group aged more than 45 years with a mean value of 110.81 and least among employees in the group aged less than 25 years with a mean value of 81.5 and also with the least standard deviation. This also indicates the consistency of stress levels among this group. There is no significant variation in the overall stress experienced by employees based on age (hypothesis 2.1).

Role stress dimensions	Age in years							
	1		2		3		4	
	<25		25–35		36–45		>45	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Overall stress	81.56	30.44	87.85	35.24	81.62	33.89	110.81	33.94
RD	8.62	3.84	8.95	4.13	8.25	4.80	11.75	4.04
RS	8.89	3.80	9.09	4.16	8.31	3.75	9.25	4.86
REC	8.01	4.15	8.51	4.10	6.87	4.03	10.06	5.30

Table 2

### Role stress dimensions based on age

In order to verify hypothesis 2.1, the analysis of variance (ANOVA) test was applied. The F-value was 4.919 and the P-value was 0.002. Therefore hypothesis 2.1 is rejected at the 5% stress level. This result reveals that there is significant variation in the stress level experienced by the employees based on age. To identify which age group differs, the Scheffe test was performed. The Scheffe test shows variation in the overall stress level between employees aged less than 25 and more than 45 years. The high stress among older employees may be due to more responsibility and accountability compared with new employees. Due to enthusiasm and less responsibility, new employees do not experience role stress. Above all, new employees are not allowed to take up individual projects immediately. They assist the team and do maintenance of existing projects so they experience only low stress.

Bhatia and Kumar<sup>11</sup> studied the effect of chronological age and experience on occupational stress pattern. Their results indicated that industrial employees belonging to a higher age group experienced more stress.

### Inter-role distance

Among the ten dimensions of job stress, inter-role distance is high among employees aged more than 45 years with a mean value of 11.75 and low among employees aged 36–45 with a mean value of 8.25. There is no significant variation in inter-role distance experienced by employees based on age (hypothesis 2.2). The ANOVA test was applied to verify the formulated hypothesis. The F-value was 3.276 and P-value was 0.021. The result reveals that there is a significant variation in the inter-role distance experienced by employees based on age since the P-value is significant at 5% stress levels. Hypothesis 2.2 is rejected. The Scheffe test shows that there is variation in the stress level for inter-role distance between employees in the group aged less than 25 and employees in group aged more than 45 years.

Inter-role distance occurs when a person occupies more roles along with organizational roles. The employees in the group aged above 45 occupy many roles such as mother-in-law and other family roles. Older people tend to have more responsibilities to be fulfilled, and inter-role distance may be high among them.

### Role isolation

Role isolation is high among employees in aged more than 45 years with a mean value of 10.322 and low among the employees aged 36–45 years with a mean value of 7.50 with the least standard deviation. There is no significant variation in the role isolation experienced by employees based on age (hypothesis 2.3). The ANOVA test was applied to verify the formulated hypothesis. The F-value was 3.808 and P-value was 0.010. Hence hypothesis 2.3 is rejected at 1% stress levels. It is inferred from this result that there is significant variation in the role isolation experienced by employees based on age.

To find out the variation in role stress due to role isolation between groups, the Scheffe test was applied. The Scheffe test shows that there is variation between employees aged more than 45 years and employees aged 25–45 years.

### Personal inadequacy

Personal inadequacy is high among employees in the group aged more than 45 years with a mean value of 11.68 and low among the employees aged less than 25 years with a mean value of 8.04. There is no significant variation in the personal inadequacy experienced by employees based on age (hypothesis 2.4). The ANOVA test was applied to verify hypothesis 2.4. The F-value was 4.773 and P-value was 0.003. It is implied that there is significant variation in the personal inadequacy experienced by employees based on age. Since the P-value was significant at 1% stress level, hypothesis 2.4 is rejected.

To obtain the variation between groups due to personal inadequacy, the Scheffe test was applied. The Scheffe test shows that there is variation between employees in the group aged less than 25 years and employees in the group aged more than 45 years. Personal inadequacy occurs when a person is unable to meet the demands of his role. Obviously, elders may lack professional secrecy and they may not equip themselves with recent trends in technology and other related skills due to more family commitments.

### Self-role distance

Self-role distance is high among employees in the group aged more than 45 years with a mean value of 12.50 and low among employees in the group aged less than 25 years with a mean value of 8.01. The standard deviation is high among employees aged more than 45 years. This shows inconsistency in self-role distance experienced by employees within the group. There is no significant variation in the self-role distance experienced by employees based on age (hypothesis 2.5). The ANOVA test was applied to verify hypothesis 2.5. The F-value was 6.898 and the P-value was 0.000. Since the P-value is significant at 1% stress level, hypothesis 2.5 is rejected.

From this result, significant variation is shown in the self-role distance experienced by employees based on age. To understand which group differs, the Scheffe test was applied. The Scheffe test shows that there is more variation between employees in the group aged more than 45 years than in all the other age groups.

Self-role distance occurs when there is nonsynchronization between the person's self and the role he/she is expected to play. The reason for high self-role distance among the elder respondents may be due to this nonsynchronization, which is very common in the software profession.

### **Role ambiguity**

Role ambiguity is high among employees in the group aged more than 45 years with a mean value of 12.00 and low among employees in the group aged less than 25 years with a mean value of 7.62. The standard deviation is also least for them. This shows consistency within the group. Role ambiguity occurs when the employee does not understand how to perform their role better. There is no significant variation in the role ambiguity experienced by employees based on age (hypothesis 2.6). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 5.953 and P-value was 0.001. The result denotes that there is significant variation in the role ambiguity experienced by employees based on age, since the P-value is significant at 1% stress level. Hence hypothesis 2.6 is rejected.

To study which group differs, the Scheffe test was executed. The Scheffe test shows that there is variation between employees in the group aged more than 45 years and employees in the group aged less than 35 years. The higher level of role ambiguity is found among employees in the group aged more than 45 years.

### **Resource inadequacy**

Resource inadequacy is high in employees aged more than 45 years with a mean value of 11.56 and also with the least standard deviation and low among employees aged 25–35 with a mean value of 6.86. The least deviation among employees in the group aged more than 45 years indicates consistency in the resource inadequacy experienced within the group. There is no significant variation in the resource inadequacy experienced by employees based on age (hypothesis 2.7). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 5.184 and P-value was 0.002. The result shows that there is significant variation in the resource inadequacy experienced by employees based on age. Since the P-value is significant at 1% stress level, hypothesis 2.7 is rejected.

To understand which group differs, the Scheffe test was applied. The Scheffe test show there is variation between the group aged more than 45 years and the group aged less than 25 years. Resource inadequacy stress develops due to the perceived or real feeling of nonavailability of resources required for effective performance of the role. Searching for the resources involves time, which is a constraint for older employees.

Role stagnation, role erosion, role expectation conflict, and role overload

From mean values it was found that the role stagnation, role expectation conflict, role erosion, and role overload was high among the employees aged more than 45 years. Role stagnation and role expectation conflict was low among employees aged 36–45 years. Role overload and role erosion was low among employees aged less than 25 years. There was no significant variation in the role stagnation, role expectation conflict, role erosion, and role overload experienced by employees based on age (hypothesis 2.8). The ANOVA test was applied to examine the proposed hypothesis. There was no significant variation in the role stagnation, role expectation conflict, role erosion, and role overload experienced by employees based on age since the P-value was nonsignificant. Hypothesis 2.8 is accepted.

Based on the age of employees, overall stress, inter-role distance, role isolation, personal inadequacy, self-role distance, role ambiguity, and resource inadequacy vary significantly among the employees. No significant difference was noted on the other role stress dimensions such as role stagnation, role expectation conflict, role erosion, or role overload.

### **Overall stress based on experience**

Table 3 tests the overall stress level and stress dimensions experienced by employees based on their experience. Analysis of the overall stress level finds that overall stress is high among employees with more than six years of experience with a mean value of 89.60 and low among employees with less than three years of experience with a mean value of 81.34. The standard deviation is the least among the employees with 4–6 years of experience, indicating consistency in the overall stress experienced.

Role stress dimensions	Experience in years						ANOVA result	
	1		2		3		F. value	P. value
	Mean	SD	Mean	SD	Mean	SD		
Overall stress	81.34	33.25	89.24	29.12	89.60	37.17	3.705	0.025 <sup>*</sup>
RD	8.52	4.13	9.02	3.52	9.61	4.41	2.458	0.087 (NS)
RS	8.76	4.04	9.35	3.59	8.96	4.34	1.028	0.358 (NS)
SD <sup>*</sup>	7.66	4.77	8.93	7.76	8.68	4.77	1.963	0.166

Table 3

**Role stress dimensions based on experience**

There was no significant variation in the overall stress among employees based on their experience (hypothesis 3.1). The ANOVA test was applied to examine the proposed hypothesis. Since the F-value was 3.705 and P-value was 0.025, hypothesis 3.1 was rejected at 5% stress level. From this result, it is inferred that there is significant variation in the stress level experienced by employees based on their experience.

To understand which group differs, the Scheffe test was applied. The Scheffe test reveals that there is variation between employees with three years of experience versus employees with more than three years of experience. It is interesting to note that stress level increases with increase in years of experience. High stress among employees with more years of experience may be due to more responsibility of the experienced employees. Due to work pressure, even new employees might have been overloaded. Now, new employees are given proper training and are introduced to the profession in a phased manner. Hence the stress level for the new employees might be lower nowadays.

This finding does not go hand-in-hand with the early results of a survey on organizational commitment and stress among IT professionals conducted by Vanitha and colleagues.<sup>12</sup> Some demographic variables such as gender and experience are studied. Among the 76 IT professionals studied, 69 (91%) had a high level of stress. Neither gender nor experience affected the stress level of employees. This difference may be because the quoted study might have

studied stress in general, but the survey was related to organizational role stress exclusively.

**Role isolation**

From the mean values obtained, it is observed that role isolation was high among employees with 4–6 years of experience with the mean value of 9.00 and low among employees with less than three years of experience with the mean value of 7.86 and also with the least standard deviation. The least deviation indicates the consistency in the RI experience among the employees within the group.

There is no significant variation in the role isolation experienced by employees based on their experience (hypothesis 3.2). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 2.947 and P-value was 0.050. This result shows that there is significant variation in the role isolation experienced by the employees based on experience. Since the P-value is significant at 5% stress level, hypothesis 3.2 is rejected.

To study the variation in the role isolation experienced between the groups, the Scheffe test was performed. The Scheffe test showed variation between employees with less than three years of experience and employees with 4–6 years of experience. Employees with 4–6 years of experience have higher role isolation than employees with less than three years of experience.

**Personal inadequacy**

Personal inadequacy is high among employees with 4–6 years of experience with a mean value of 9.11 and low among employees with less than three years of experience with a mean value of 8.08. Standard deviation does not vary much among employees with different years of experiences. This indicates consistency in the personal inadequacy experienced by employees.

There is no significant variation in the personal inadequacy experienced by employees based on their experience (hypothesis 3.3). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 3.424 and P-value was 0.033. This result shows significant variation in personal inadequacy experienced by employees based on experience since the P-value is significant at 5% stress levels. Hence hypothesis 3.3 is rejected.

To find out which group differs, the Scheffe test was applied. The Scheffe test confirms variation between employees with less than three years of experience and

employees with 4–6 years of experience. Personal inadequacy is higher among the employees with 4–6 years of experience.

### Self-role distance

Self-role distance is high among employees with more than six years of experience with a mean value of 9.14 and low among employees with less than three years of experience with a mean value of 7.97. There is no significant variation in the self-role distance experienced by employees based on their experience (hypothesis 3.4). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 3.363 and P-value was 0.035. Hypothesis 3.4 is rejected at the 5% stress level. This result indicates that the self-role distance experienced by employees varies significantly based on their experience.

To find variation between groups, the Scheffe test was applied. The Scheffe test shows variation between employees with less than three years of experience and employees with 4–6 years of experience. Women with more years of experience face a higher level of self-role distance.

### Role ambiguity

Role ambiguity is high among employees with 4–6 years of experience with a mean value of 8.76 and low among employees with less than three years of experience with a mean value of 7.57 and with the least standard deviation. There is no difference in the role ambiguity experienced by employees within the group. There is no significant variation in the role ambiguity experienced by employees based on their experience (hypothesis 3.5). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 4.327 and P-value was 0.014. This result shows significant variation in the role ambiguity experienced by employees based on experience. Since the P-value is significant at 5% stress levels, hypothesis 3.5 is rejected.

To find out which group differs, the Scheffe test was carried out. The Scheffe test shows variation between employees with less than three years of experience and employees with 4–6 years of experience. A higher level of role ambiguity is seen among the respondents with 4–6 years of experience.

### Resource inadequacy

Resource inadequacy is found to increase with years of experience. High resource inadequacy is noted among employees with more than six years of experience with the mean value of 8.98 and resource inadequacy is low among

employees with less than three years of experience with the mean value of 7.31. Standard deviation is not found to vary much among the groups and hence there is consistency in the resource inadequacy experienced by employees. There is no significant variation in the resource inadequacy experienced by employees based on their experience (hypothesis 3.6). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 6.955 and P-value was 0.001. The result shows significant variation in resource inadequacy experienced by employees based on experience, since the P-value is significant at 1% stress levels. Hypothesis 3.6 is rejected.

The Scheffe test shows variation and every group differs individually. Resource inadequacy increases with years of experience. This may be due to the feeling of employees that they do not have sufficient time and resources to meet the demands of their organizational roles. When there is a lack of resources and role ambiguity, naturally stress levels tends to be high.

Inter-role distance, role expectation conflict, role overload, role stagnation, and role erosion

The mean values obtained show that inter-role distance, role expectation conflict, and role overload are high among employees with more than six years of experience. Role stagnation and role erosion are high among employees with 4–6 years of experience. Inter-role distance, role erosion, role expectation conflict, role stagnation, and role overload are low among employees with less than three years of experience. There is no significant variation in the inter-role distance, role stagnation, role erosion, role expectation conflict, and role overload experienced by employees based on their experience (hypothesis 3.7). The ANOVA test was applied to examine the proposed hypothesis. The result reveals no significant variation in the inter-role distance, role erosion, role expectation conflict, and role overload experienced by employees based on experience.

There is significant difference among the employees in the overall stress, role isolation, personal inadequacy, self-role distance, role ambiguity, and role inadequacy based on their experience. The other role stress dimensions such as inter-role distance, role stagnation, role expectation conflict, role erosion, and role overload do not vary significantly based on the experience of the employees.

### Distribution of depression based on age

Table 4 shows the frequency of depression among employees. There is no difference in the depression experienced by

employees (hypothesis 4). A medium level of depression is found in 84% of employees. It is interesting to note that no employees have reported a high level of depression. Hence, the hypothesis is rejected.

Variable	Low	Medium
Depression	80 (16%)	420 (84.0%)

Percentage: Row percentage

Table 4

**Depression level among the respondents**

Table 5 depicts the frequency of depression among employees based on age. Depression is high among employees aged 36–45 years with a mean value of 26.56 and low among employees aged 25–35 years with a mean value of 22.10. There is no significant variation in depression among employees based on age (hypothesis 5). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 2.276 and the P-value was 0.044. Since the P-value is significant at 5% stress levels, hypothesis 5 is rejected.

Age in years	Depression		ANOVA result		Scheffe value
	Mean	SD	F-value	P-value	
1. Less than 25	22.63	5.92			
2. 25–35	22.10	7.58	2.726	0.044	3 vs 1, 2
3. 36–45	26.56	6.91			
4. Above 45	24.50	4.08			

Note: Significant at 5% stress level  
Abbreviations: ANOVA, analysis of variance; SD, standard deviation

Table 5

**Depression based on age**

This result shows variation in the level of depression experienced by employees based on age. The Scheffe test shows variation in the level of depression between employees aged 36–45 years and employees aged less than 35 years. Depression is higher among the employees aged 36–45 years. Depression is found to be higher among middle-aged employees. Depression may be due to more responsibility personally as well in the organization due to positional change. Higher position in the organization is generally more challenging and more demanding of employees. This changing status may lead to depression.

**Distribution of depression based on experience**

Table 6 discusses depression experienced by employees based on their experience. Depression is high among employees with more than six years of experience, with a mean value of 23.30

and low among employees with less than three years of experience with a mean value of 21.57. There is no significant variation in the depression among the employees based on their experience (hypothesis 6). The ANOVA test was applied to examine the proposed hypothesis. The F-value was 2.585 and the P-value was 0.050. Since the P-value is significant at 5% stress levels, hypothesis 6 is rejected.

Experience in years	Depression		ANOVA result		
	Mean	SD	F-value	P-value	Scheffe value
1. Below 3	22.96	6.34	2.585	0.050	2 vs 3
2. 4–6	21.57	7.10			
3. More than 6	23.30	6.92			

Note: Significant at 5% stress level  
Abbreviations: ANOVA, analysis of variance; SD, standard deviation

Table 6

**Depression based on experience**

Depression is not the same among employees with different years of experience. The Scheffe test shows that depression varied between employees with 4–6 years of experience and employees with more than six years of experience. Therefore depression is high among employees with more years of experience. This might be due to pressures at work and increased responsibilities at home.

**Overall stress and depression**

Table 7 shows the correlation between the overall stress and stress dimensions with depression among employees. There is no significant correlation between the overall stress and stress dimensions with depression among the employees (hypothesis 7). To test the hypothesis, a simple correlation test is applied. The result showed that depression is positively correlated with overall stress and all the role stress dimensions except role erosion. This result shows that overall stress and stress dimension is found to have significant correlation with depression among employees. The level of correlation is also significant, and the r-values are greater than 0.1. The correlation is limited and positive. Depression is high when stress levels are high. But the correlation is low because it is less than 0.2. Furthermore, it is also inferred from the r-values that there exists a comparatively high correlation between depression and role overload and role isolation. Another level of correlation exists between interrole distance, personal inadequacy, self-role distance, and role ambiguity.



Stress dimensions	Depression
IRD	0.164 <sup>c</sup>
RS	0.158 <sup>c</sup>
REC	0.137 <sup>c</sup>
RE	0.060 (NS)
RO	0.174 <sup>c</sup>
RI	0.184 <sup>c</sup>
PI	0.163 <sup>c</sup>
SRD	0.162 <sup>c</sup>
RA	0.161 <sup>c</sup>
RIN	0.145 <sup>c</sup>
Overall stress	0.192 <sup>c</sup>

Table 7

Correlation between stress and depression

### Discussion

Observing the employee's level of stress indicates that only 1.6% of employees experience very high level of overall organizational role stress and 28% of employees experience high level of organizational role stress. Role stagnation, role erosion, and inter-role distance are related to higher level of stress. Managers, with the participation of employees, can take steps such as managing work allocation, adequate staffing, etc. to reduce the level of stress of these dimensions.

The overall stress, inter-role distance, role isolation, personal inadequacy, self-reported distance, role ambiguity, and resource inadequacy vary significantly among employees based on age and are found to be high among the employees aged more than 45 years. No statistically significant difference has been noted on the other role stress dimensions such as role stagnation, role expectation conflict, role erosion, and role overload based on age. There is significant level of stress related to job stress dimensions such as inter-role distance, role isolation, personal inadequacy, self-reported distance, role ambiguity, and resource inadequacy. The stress levels are high for the older group. When age increases, employees have to be mentally prepared for increased stress. Even if employees are well compensated, the stress will not be reduced. Managers need to realize the impact of stress in the long run and take active measures by balancing work and enable employees to work at ease. Employees can be exposed to stress relaxation techniques at the work place.

As far as the experience of the employees is concerned there is significant difference among employees in

overall stress and stress dimensions such as role isolation, personal inadequacy, self-reported distance, role ambiguity, and resource inadequacy. The other role stress dimensions such as inter-role distance, role expectation conflict, role erosion, role overload, and role stagnation do not vary significantly based on the experience of the employees. Overall stress level is high among employees with more than six years of experience. Inter-role distance, personal inadequacy, self-role distance, and resource inadequacy are found to increase with increase in the years of experience. Of respondents, 84.4% have reported medium level of depression, which is not a favorable situation. Their family and organization must jointly take steps to reduce the incidence of depression. Family members must understand the nature of the job and organizations must realize their employee has personal responsibilities. This is possible when there is occasion for family interaction with the organization. Age and experience have impact on depression levels. Employees aged 35–45 years have higher levels of depression than others and employees with more than six years of experience have higher levels depression than others.

### V. CONCLUSION

We conclude that women IT professionals experience considerable level of stress and depression in Patna, India. Managers must take essential measures to help them to overcome these health-related problems. This would help not only the employees but also the managers to improve the productivity ratio. Safeguarding the mental health of employees is the basis for a peaceful nation. A woman's peace paves peacefulness in the family, then the whole community, and ultimately the whole nation.

### REFERENCES

- [1] Selye H. *The Stress Of Life*. New York, NY: McGraw-Hill; 1956. Revised edition.
- [2] Huang CC, Yang PC, Lin HJ, Hsu KS. Repeated cocaine administration impairs group II metabotropic glutamate receptor-mediated long-term depression in rat medial prefrontal cortex. *J Neurosci*. 2007;27:2958–2968.
- [3] Pestonjee DM, Pareek U, editors. *Studies in Organizational Role Stress and Coping*. Jaipur/New Delhi, India: Rawat Publications; 1997.
- [4] Parsons LM. The impact of group counseling and stress management on reported depression, anxiety. Attitude toward divorce, school functioning and behavior of children of divorce. *DAI-A* 52/06. 1991:2028.
- [5] Latha KS, Bhat SM, D'Souza P. Attempted suicide and recent stressful life events: a report from India. *Crisis*. 1994;15(3):136.

- [6] Mohr GB. The changing significance of different stressors after the announcement of bankrupting a longitudinal investigation with special emphasis on job insecurity. *Journal of Organizational Behavior*. 2000;21:337–359.
- [7] Aziz M. Organizational role stress among Indian information technology professionals. *Asian Pacific Newsletter on Occupational Health and Safety*. 2003;10(2):31–33.
- [8] Aziz M. Role stress among women in the Indian information technology sector. *Women in Management Review*. 2004;19(7):356–363.
- [9] Gmelch WH, Chan W. *Thriving on Stress for Success*. Thousand Oaks, CA: Sage Publications; 1994.
- [10] Pareek A, Mehta M. Role stress among working women. In: Pestonjee DM, Pareek U, editors. *Studies in Organizational Role Stress and Coping*. Jaipur/New Delhi, India: Rawat Publications; 1997.
- [11] Bhatia P, Kumar P. Part II – Clinical applications and guidelines. 2005;11(4):711–717.
- [12] Vanitha V, Vasanthi M, Kamalanabhan TJ, Sivasubramanian TA. A study on organizational commitment and stress among information technology professionals. *The ICFAI Journal of Organizational Behavior*. 2006;2(4)