

ROLE STRESS PROFILES OF SCIENTISTS AND DEFENCE PERSONNEL IN FIFTEENTH ANTARCTIC EXPEDITION

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Abstract

Role stress mean differences across scientists and defence personnel were investigated. Results showed significant mean differences between groups on role expectation conflict. Some suggestions to reduce the role stress level are cited.

Introduction

In stress research on Antarctic expeditions, much attention was paid to assess the psychiatric disturbances (Bell and Garthwaite, 1987; De Monchaux *et al.*, 1979; Strange and Klein, 1973; Palami, 1963; Mullin, 1960), depression (Biersner and Hogan, 1984), personality traits (Dutta Roy, 1992), and state anxiety levels (Dutta Roy and Deb, 1995; 1996) of the expeditioners. Studies assumed environmental changes as important predictor of stress in Antarctica. Like physical environment, some psycho-social factors like loneliness and role stress might cause the psychiatric disturbances among the expeditioners. Present study attempts to describe role stress pattern among the expeditioners. No attention was paid to study the role stress pattern of expeditioners in earlier studies.

Role stress occurs when one perceives difficulty to integrate the different roles made upon him (Bentell and Greenhaus, 1983). Role stress was found to be correlated with job related tension and alienation (Singh, Agarwala and Mulhan, 1991). Pareek (1993), in the context of organisation, identified ten role stress variables as :

- a) Inter role distance (IRD) : Conflict between the different roles one occupies.

- b) Role stagnation (RS) : When new role demands that an individual outgrow the previous one and take charge of the new role effectively.
- c) Role expectation conflict (REC) : Conflicting expectations from the seniors, juniors and peers.
- d) Role erosion (RE): The functions which one would like to perform, are being performed by some other role.
- e) Role overload (RO) : When role occupant feels that there are too many expectations from the significant others in his role set.
- f) Role isolation (RI): In role set, the role occupant may feel that certain roles are psychologically closer to him, while others are at a much greater distance.
- g) Personal inadequacy (Pin) : When a role occupant feels that he is not prepared to undertake the role effectively.
- h) Self-role distance (SRD) : Conflict between the self concept and the expectations from the role, as perceived by the role occupant.
- i) Role ambiguity (RA) : Conflict arises when the individual is not clear about the various expectations that people have from his role.
- j) Resource inadequacy (RIn) : It arises when the resources required by the role occupant for performing the role effectively are not available.

Role stress differences

In Antarctic expedition, both scientists and defence personnel play some roles which are not in conformity with their occupation. For example, scientists assume scientist's role (collection, analysis and interpretation of data) and non-scientist's role (maintenance of life saving system as generator, boiler plant, vehicle maintenance, sweeping, cooking, firing the toilets). Defence personnel enact sometimes non-defensive roles like assisting scientists for collection of data. This observation suggests that both groups would perceive some difficulty in integrating different roles assigned to them. It was assumed that role stress pattern of both scientists and defence personnel would be different due to different socialising processes. On the basis of above discussion, focus of the present research was to investigate the significant difference in role stress levels between scientists and non-scientists.

Methods

Sample

Data were collected from 10 scientists and 9 defence personnel during their stay in Antarctica. Scientists were elder (Mean age = 40.50, SD = 7.59) than non scientists (Mean age = 35.67, SD = 5.10). In Antarctica, scientists and defence personnel enacted different roles. On Sunday, scientist in pairs, on duty, prepared breakfast, lunch and dinner for all. They swept the common rooms and fired the toilets regularly. Defence people provided transport support to the scientists and sometimes assisted scientists in collection of data.

Instruments

Role stress was assessed through Pareek's role stress scale (Pareek, 1993). The scale includes 50 items measuring above discussed ten variables. Responses are, "rarely feel this way (score = 0), occasionally feel this way (score = 1), sometimes feel this way (score = 2), frequently feel this way (score = 3), always feel this way (score = 4)". For analysis of the data more meaningfully, score 2 was conceived as threshold point. To determine high reliability and high construct validity of the scale, initially, item-total correlation was computed. Ten items were rejected due to low and insignificant correlation coefficients (ranged from 0.00 to 0.38). Final scale included forty items. Their relationships with corresponding total score varied from 0.45 to 0.91.

Analysis of data

Initially total score of each role stress variable was divided by number of items. For example, total score of IRD for each individual was divided by 3 (no. of items) and they were averaged to determine extent of role stress of the expeditioners, t-test was computed to determine significant mean difference on each variable between the two groups. It was noted that except one variable (REC), other variables were not significantly different between two groups. So the data of two groups were pooled to estimate the extent of role stress of the total sample. Pearson product moment correlation was computed to determine inter relationship among the variables. Standardised partial regression analysis was made for path analysis.

Results

Mean differences

Table-1 shows that defence personnel perceived comparatively more (Mean=1.87,SD=1.38) conflict in integrating the expectations of their super-

visors, juniors and their peer groups (*REC*) than the scientists (Mean=0.58 SD=0.37) in a significant manner [$t(18)=2.85, p<0.01$]. Besides *REC* no other role stress variables were significantly different between the two groups. As a result data of both groups were pooled. From **Table-1**, it is observed that personal inadequacy (*PIn*) score (Mean=2.32, SD=2.66) of the pooled data crossed the threshold point (score 2).

Table: Mean differences in role stress profiles of scientists (sc) and defence personnel (dp)

Variables	var.	sc		dp		t	Pooled	
		(n=10)	(n=10)	(n=?)	(n=9)		(n=18)	(n=18)
	n	mean	sd	mean	sd		mean	sd
IRD	3	0.53	0.61	1.30	1.43	1.54	0.89	1.12
RS	4	0.30	0.40	0.92	1.19	1.54	0.59	0.90
<i>REC</i>	5	0.58	0.37	1.87	1.38	2.85**		
RE	5	0.86	0.86	1.53	1.28	1.36	1.18	1.10
RO	3	0.47	0.55	1.33	1.71	1.53	0.88	1.28
RI	4	0.62	0.71	1.33	1.51	1.33	0.96	1.18
PIn	3	1.57	1.40	3.15	3.50	1.32	2.32	2.66
SRD	4	0.87	0.57	1.08	1.34	0.45	0.97	0.99
RA	4	0.85	0.79	1.28	1.03	1.02	1.05	0.91
RIn	5	0.40	0.60	0.82	1.36	0.89	0.60	1.03

** $P<0.01$

Note: Due to significant mean differences between groups, data on variable *REC* were not pooled.

Discussion

From the results, it is evident that both scientists and defence personnel experienced almost similar role stresses except role expectation conflict. In defence personnel, there is a hierarchy to play different roles. But, there is no such hierarchy among the scientists. Possibly, due to this reason, only role expectation conflict significantly varies across two groups. Defence personnel perceived comparatively more conflict in integrating the expectations of their supervisors, juniors and the peers than the scientists. It is true that expeditioners received training after selection. But this training does not appear to be sufficient to them. Possibly, due to this reason, their personal inadequacy level crossed the threshold value. They frequently felt difficulty to undertake their role effectively. They wanted more knowledge and skills to handle the responsibilities in their roles through more pertinent training.

Suggestions

During training, role playing exercises in a simulated environment are needed.

There should be matrix organisational structure in the expedition team.

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