

Personality and Temperament of Indian Antarctic Expedition Members

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ABSTRACT

Psychological effects in polar environment have been examined from several perspectives. Amongst those, personality and temperament traits have been cardinal. This study aims to investigate the personality and the temperament traits of Antarctic personnel, in addition, the correlation of temperament and personality traits. Fifteen volunteers from winter team of 25th Indian Scientific Antarctic Expedition served as participants. NEOFFI Personality test was administered at Auli, India and retested at pre and post winter season in Antarctica. The TDOT test was administered in the last two months of prolonged residence in Antarctica. There was no significant difference in the dimensions of personality from baseline to post winter season. The correlation of personality and temperament traits revealed a significant relationship between neuroticism and placid temperament. Agreeableness was significantly related with sociable and cheerful dimensions of temperament and with extraversion dimension of personality. Conscientious, while related to extraversion, was found to be significantly associated to responsible dimension of temperament.

Keywords: Personality, Temperament, Antarctica, NEOFFI

INTRODUCTION

Considerable time and effort have been spent to identify personality characteristics related to good or poor adaptation, social cooperativeness versus destructiveness and the like in space flight or polar stations. The way in which people react to the environment is conceived of as being to a great extent personality based. Although much effort has been expended on research in selection factors for extreme and unusual environments, the findings have been essentially those predicted by common sense. Individuals, who are self-reliant, have high social skills and high autonomy, who are goal-oriented and competent at their tasks, and so on are repeatedly

identified as the most effective in such environments (Suedfeld, 1987). Personality and situational factors affect the degree to which people are willing to expose themselves to dangerous situations and the ability to take such experiences in stride largely depend on personality characteristics (Klausner, 1968).

The personality of polar expedition members indicate that most people who volunteer for this kind of venture have personality characteristics that make them capable of submerging individual needs to reach group goals (Sandal et al, 1996). In a study on personality traits, Dutta Roy (1992) reported that Indian expeditioners are aloof, objective, intelligent, independent, problem solver, optimistic, cheerful, self sufficient, resourceful, careless of social rules and little inhibition to environmental threat. In similar line, Bhargava and colleagues (2000) examining Indian Antarctic crew members, found that rapport with other members was minimum at the point of maximum isolation in temporal terms (September) and decreased satisfaction with work and life situations with continued isolation.

Butcher and Ryan (1974) found that volunteers are generally better adjusted, more achievement oriented, more self-sufficient and serious minded than a control sample of normal males. Also, these investigators found no changes on personality profiles in retesting at midwinter and at the end of winter. In a work by Steel *et al.* (1997), polar members, compared to a normative population, scored higher on all factors of NEOFFI except Neuroticism.

Psychological reaction to long-lasting stressors is assumed to be effected by personality characteristics (Palinkas, 1990). The role of personality in response to isolated, confined and hostile environments has been demonstrated in several extensive studies of Antarctic personnel (Taylor, 1987). On studying long duration mission in isolated and confined extreme environments, Palinkas *et al.* (2000) have identified the following characteristics, low levels of neuroticism, extraversion, conscientiousness and a low desire for affection from others.

Finally, the available studies on personality clearly makes it known that there is no marked changes on personality due to isolation, deprivation, confinement or extreme environment. This review also reveals that among personality traits, neuroticism was low in many of the studies. It is the interest of this study to find whether the personality and the temperament

traits are consistent with the existing literatures and to assess the interrelation of personality and temperament traits in isolated and confined personnel.

METHOD

Participants: The wintering team at Maitri – the Indian Research Base in Antarctica (70°45'S, 11°44'E) was made up of 24 men and 1 woman (aged 24-55 years), including the first author, who collected the data. Among twenty four men, fifteen members excluding the first author served as participants after the study objectives and data collection procedures had been thoroughly explained to them. Participants were comprised of scientific and logistic personnel who resided for 14 months in Antarctica. Each subject was medically and psychologically qualified before the onset of Antarctic expedition. The screening and selection for expedition were done by National Centre for Antarctic and Ocean Research, India.

TEST MATERIALS

1) *NEOFFI*—This is the most current brief version of the most widely used test of personality, which measures five personality factors now thought to be central in determining behaviour patterns. These scales include: Neuroticism (anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability); Extraversion (warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions); Openness to experience (fantasy, esthetics, feelings, actions, ideas and values); Conscientiousness (degree of organization, persistence, and motivation in goal-directed behaviour); and Agreeableness (soft-hearted, trusting, helpful, forgiving). This test contains 60 statements. Subject was instructed to read each statement carefully. For each statement, the subject was instructed to circle the number that best represents the given five choices of response – strongly disagree, disagree, neutral, agree, and strongly agree. Subject was asked to describe himself as accurately as possible and do not spend too much time on each item. No time limit was given.

2) *TDOT*—Thronthike's Dimensions of Temperament (TDOT) measures 10 dimensions. The TDOT booklet was given to subject and asked to read the directions silently while the administrator read them aloud. For each group a set of ten statements were given, subject was to mark three answers in the L column (LIKE) and three answers in the D column (DISLIKE). The test took usually 45 minutes to complete.

PROCEDURE

The questionnaire on temperament was administered only once in the last two months of the fourteen months of stay in Antarctica. For personality test, the baseline assessment was taken three months ahead of the expedition during the training programme at Auli, India. Later, the same test was administered at pre and post winter season in Antarctica. All tests were individually administered under the room temperature ranging from +18° to +22°C.

RESULTS

For personality test, the data of fifteen participants was analyzed by repeated measures MANOVA. There was no significant difference in the traits of personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness), $F(4,12) = 1.99, p > .05$. Similarly, the phase of assessment (baseline, pre winter, and post winter) did not differ significantly, $F(1, 3) = 0.07, p > .05$. On temperament test, the magnitude of traits mostly fell between 25th and 75th percentiles. The percentage of different percentiles scores is shown in Figure 1. The descriptive statistics indicated

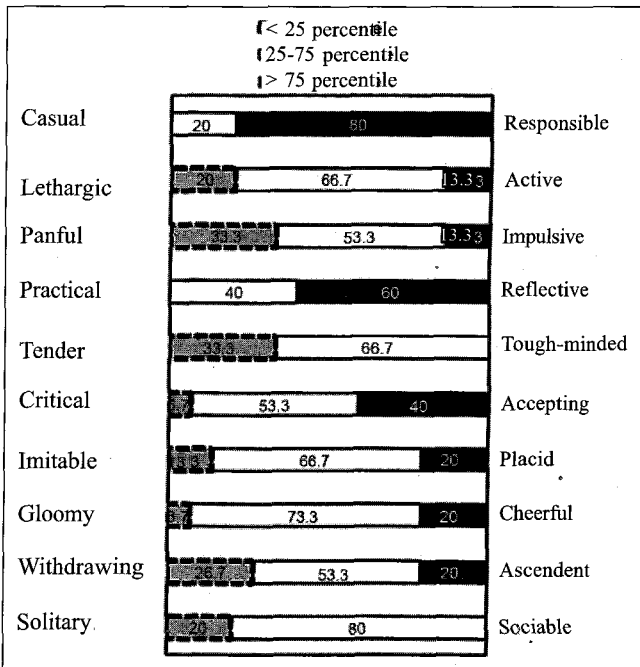


Fig. 1: Percentage of percentiles score on temperament dimensions

that a balanced temperament was maintained by the winter team members. None had scored above 75th percentile on sociable and tough-mind dimensions of temperament. Similarly, on reflective and responsible dimensions of temperament, none scored below 25th percentile. Personality factors and dimensions of temperament were correlated using Pearson correlation (Table 1). A significant relationship was found between neuroticism and placid temperament. Agreeableness was significantly related with sociable and cheerful dimensions of temperament, and with extraversion dimension of personality. Conscientious was found associated with extraversion, and with the responsible dimension of temperament.

In summary, the dominant personality traits among isolated personnel in Antarctica include extraversion, openness, and conscientiousness, while temperament characteristics include reflective, responsible, accepting, planful, and sociable. The personality factors have not shown any changes from baseline to post-winter season. Placid, sociable, cheerful, and responsible temperaments have been found to be significantly related to neuroticism, agreeableness and conscientious dimensions of personality.

DISCUSSION

The results of the study demonstrated non-significant difference in personality profile of personnel residing for long duration in isolated and confined environment. The major personality characteristics include extraversion, openness, and conscientiousness. The findings on temperament indicated that most people who volunteer for this kind of venture into extreme and unusual environment are generally responsible, reflective, accepting, planful, tender-minded and sociable. The present findings are consistent with several studies that recorded similar personality traits and stability on personality over a period in isolated and confined groups (Butcher and Ryan, 1974; Sandal et al., 1996; Steel et al., 1997). The significant relationship between some personality and temperament dimensions suggested that mood and behaviour to long-lasting stressors is effected by personality characteristics. The possible cause for lack of marked changes on personality during isolation and confinement for a long duration in extreme environment may be due to the salutogenic experiences that augment the positive effects in individuals (Suedfeld et al., 2000). Although individual in isolated and restricted environment might experience symptoms, syndromes, and disorders in varying degrees, they will probably also have positive effects due to the inherently enjoyable characteristics of the situation and the positive reactions to challenges of the environment

Table 1—Correlation between personality traits and temperament dimensions

		Correlations														
		Solitary-Sociable	Withdrawing-Ascendant	Gloomy-Cheerful	Irritable-Placid	Critical-Accepting	Tender-Tough minded	Practical-Reflective	Planful-Impulsive	Lethargic-Active	Casual-Responsible	neurot_5	extra_5	openes_5	agreab_5	consot_5
Solitary-Sociable	Pearson Correlation	1	-	--	0	0	-	0	0	-	0	0	0	0	--	0
Withdrawing-Ascendant	Pearson Correlation Sig. (2-tailed)	.503-.020	1	-	0	0	-	0	0	-	0	0	0	0	--	0
Gloomy - Cheerful	Pearson Correlation Sig. (2-tailed)	.722-.002	.557-.031	0	-	0	-	0	--	0	0	0	0	0	--	0
Irritable-Placid	Pearson Correlation Sig. (2-tailed)	.422-.117	.071-.801	.022-.013	0	0	0	0	0	0	0	-	0	0	--	0
Critical- Accepting	Pearson Correlation Sig. (2-tailed)	.432-.108	.130-.028	.215-.442	.234-.401	0	-	0	0	0	0	0	0	0	0	0
Tender-Tough minds	Pearson Correlation Sig. (2-tailed)	.030-.011	.026-.013	.268-.335	.075-.7911	.57-.025	0	0	0	--	0	0	0	0	0	0
Practical-Reflective	Pearson Correlation Sig. (2-tailed)	.328-.232	.033-.008	.009-.075	.234-.401	.075-.789	.337-.220	0	0	0	0	0	0	0		
Planful-Impulsive	Pearson Correlation Sig. (2-tailed)	.152-.589	.211-.450	.542-.037	-.451-.091	.326-.236	-.203-.289	-.202-.291	0	0	0	0	0	0	0	0
Lethargic-Active	Pearson Correlation Sig. (2-tailed)	-.541-.037	-.542-.037	-.285-.304	.331-.227	.407-.059	.651-.009	-.239-.390	-.036-.899	0	0	0	0	0	0	0
Casual-Responsible	Pearson Correlation Sig. (2-tailed)	.298-.280	.108-.540	.461-.083	-.345-.208	.004-.990	.010-.973	.082-.773	.508-.053	.158-.575	0	0	0	0	0	--
neurot_5	Pearson Correlation Sig. (2-tailed)	.252-.305	.171-.543	.464-.082	-.541-.037	.144-.609	.103-.715	.232-.406	.493-.062	.357-.192	.077-.786	0	0	0	0	0
extra_5	Pearson Correlation Sig. (2-tailed)	.326-.235	.324-.238	.226-.419	-.169-.547	.209-.455	.228-.413	.162-.563	.086-.761	.049-.864	.268-.334	.031-.913	0	0	-	-
openes_5	Pearson Correlation Sig. (2-tailed)	.077-.786	.141-.017	.228-.413	.353-.197	.208-.457	.287-.300	.329-.232	.232-.406	.037-.897	-.058-.837	.041-.884	.503-.056	0	0	0
agreab_5	Pearson Correlation Sig. (2-tailed)	.711-.003	.391-.140	.705-.003	-.197-.481	.233-.403	.333-.226	.323-.240	.203-.289	.196-.484	.345-.208	.299-.279	.607-.016	-.052-.854	0	0
consot_5	Pearson Correlation Sig. (2-tailed)	.408-.132	.320-.245	.304-.183	-.007-.981	-.128-.648	.171-.543	-.120-.070	.273-.324	.188-.502	.077-.006	.190-.497	.585-.022	.254-.362	.504-.055	0

-. Correlation is significant at the 0.05 level (2-tailed).

--. Correlation is significant at the 0.01 level (2-tailed).

*. Listwise N=15

and having encountered and successfully surmounted these challenges (Palinkas and Suedfeld, 2008).

Other possible reasons that may support the present findings include the better environmental adaptation, effective coping strategies, group solidarity, and high motivation of volunteers. Perhaps, the in-depth psychiatric interview and psychological testing in the selection of personnel for Antarctic Expedition might have excluded risk cases and thus resulting in a skewed population that had high maturity and stability of character. A number of limitations may have also constrained the results of this study. Amongst them, small sample size, variation in age groups, education and professional backgrounds, sampling technique and study designs are some of the shortcomings that restrict the generalization of the present findings.

CONCLUSION

This study has highlighted that the prolonged residence in isolated and confined extreme environment has unaffected the personality traits of Antarctic personnel. In addition, the results of this study substantiate the knowledge in personality factors associated with the personnel in Antarctica. Nevertheless, it necessitates studies on a larger sample to make generalization of the available information related to dimensions of personality and temperament of personnel residing in isolated and extreme environment.

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