

INTERPERSONAL FEELINGS OF PERSONNEL IN POLAR ENVIRONMENT

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Abstract

The purpose of this study was to examine interpersonal orientation at the level of feeling among personnel over a long duration of expedition in polar environment. Twenty three men and one woman from the winter team of Indian Scientific Antarctic Expedition volunteered to participate in the study. Following a repeated measures design, FIRO-F questionnaire was individually administered at baseline, beginning, middle, and final phase of expedition. Results of factorial ANOVA indicated that expressed level of feeling was significantly higher as compared to wanted level. Feelings oriented to lovability were significantly greater as compared to significance and competence. The dimension of competence and lovability compared to significance lowered scores significantly for wanted feeling as compared to expressed feeling. Also, competence compared to significance was lower, while significance compared to lovability was higher when baseline was compared to beginning, middle, and final phase of expedition.

Keywords: interpersonal, feeling, FIRO-F, expedition, polar, Antarctica

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Feelings are the prime factor that drives human to perceive even usual difficulties in a magnified way when placed under isolated and extreme conditions. In reviewing the literature pertaining to various extreme environments, Bishop (2004) reported that small issues can take on atypical importance when individual is in isolated and extreme environment. Personnel in polar environment are usually physically isolated from the outside world, with darkness and weather conditions exerting severe restrictions on travel. Also, polar personnel are separated from their family and friends, which results in various levels of emotional deprivation.

Lantis (1968) stated that the social environment rather than the physical environment is the most potent source of stress in polar region. The social environment which is characterized by prolonged isolation generates stressors like inability to contact family and friends, real or imagined unpleasant events at home (Strange & Klein 1974), feelings of rejection resulting from delays in arrival of relief parties, shortages in supplies, or actions of authority that interfere with established routines (Natani & Shurley, 1974), lack of privacy in cramped quarters, boredom due to the lack of environmental stimulation and interaction with the same limited number of individuals, sexual deprivation, reductions in the gratification of basic human needs of affection, security, and feelings of personal significance, and the absence of status and role which define one's social position in the outside world (Natani & Shurley, 1974; Rohrer, 1961).

Palinkas and Suedfeld (2008) emphasized that interpersonal conflict and tension is the greatest source of stress in polar expeditions. Sandal, Vaernes, and Ursin (1995) observed that interpersonal problems affect group cohesiveness. Bhargava, Mukerji, and Sachdeva (2000), and Sharma, Vaskaran, and Malhotra (1976) reported significant reductions in interpersonal communication with fellow crew members. A low need for social interaction was observed in small groups in isolated and confined conditions (Leon, McNally, & Ben-Porath, 1989; Moes, Lall, & Johnson, 1996; John Paul et al., 2010). The desire for affection from others was found inversely associated with task ability, emotional stability, social compatibility, and overall performance (Palinkas et al., 2000).

It was observed during fieldwork conducted at McMurdo and South Pole stations in 1988 and 1989 that the lack of privacy and constant gossip that pervaded the community had a negative influence on social relations, especially relations between men and women. Consequently, as much as 60% of one's leisure time was spent alone in a dormitory room and 47.6% of residents reported feelings more irritable than usual (Carrere et al., 1991). There is a

close proximity between living and working spaces which brings little separation between work and leisure. This constant interaction is a potential reason for increased interpersonal conflict among personnel in polar region. In fact, winter-over crewmembers reported that isolation and confinement are more difficult to live with than the extreme environmental conditions and this was attributed to the separation from usual sources of support and the relative difficulty in obtaining emotional support from other station members (Palinkas, 2003).

Interpersonal conflicts have a negative influence on feelings of personnel who reside for prolonged duration in isolated and extreme environment. Depression is one of the common symptoms seen during polar expeditions, closely followed by anxiety and irritability (Palinkas & Suedfeld, 2008). Studies associating affective symptoms and time of year showed deterioration in emotional states (for example, Kasper, Wehr, Bartko, Gaist, & Rosenthal, 1989; Palinkas, Houseal, & Rosenthal, 1996). Negative affect is usually noted during winter in Antarctica (Palinkas & Browner, 1995) and is generally attributed to psychosocial stress (Palmai, 1963). Nevertheless, some investigators observed more positive than negative effect in affective experiences (e.g. Kahn & Leon, 1994). Also, a few studies state that polar experience may be beneficial rather than detrimental on people's health and well-being (Palinkas, 2003; Suedfeld et al., 2000).

The importance of interpersonal relations in isolated groups such as those in polar expeditions, submarines, and space capsules have been noted by several investigators (e.g. Palinkas & Suedfeld, 2008; Sandal et al., 1995). Nevertheless, the existing literature has primarily focused on emotions, which are intense events and are more readily observable. It is noteworthy to mention that the underlying feeling state of overt emotional response in isolated and extreme environments has been documented sporadically. With few exceptions there has been a general absence of studies on feelings related to interpersonal dimensions among personnel in polar environment.

The purpose of this study was to understand the interpersonal dimensions at the level of feeling among personnel over a long duration of expedition in polar environment. Investigation on interpersonal relations at feeling level in such a restricted environment may have useful implications for understanding the dynamics of human relationships in isolated, confined, and extreme environments.

Method

Participants

Twenty-three men and one woman who were the members of winter team in Indian Scientific Antarctic Expedition volunteered to participate in this study. The winter team participants stayed for fourteen months at 'Maitri' – the Indian Research Base in Antarctica. The mean age of participants was 39.13 yrs (SD = 9.35 yrs). Among twenty-four participants, six men had already served in Antarctica for about fourteen months in different expedition team. For the remaining members it was the first winter-over experience in Antarctica. Twelve volunteers had professional background and the remaining volunteers were technical support personnel. Each subject was medically and psychologically screened for participation in the expedition. The screening and selection were done by the National Centre for Antarctic and Ocean Research, Government of India. Informed consent was obtained from each participant after the study objectives and data collection procedures had been thoroughly explained. Excluding participants, the first author of this study participated as psychologist in the winter team of Antarctic expedition.

Materials

The feeling component of interpersonal orientation was assessed using Fundamental Interpersonal Relations Orientation-Feelings (FIRO-F) which is an interpersonal self-reflective questionnaire. It is identical to the FIRO-B except its language is changed to reflect orientation at the level of feelings rather than behavior. FIRO-F comprises six ordinal-level Guttman scales of nine items each with scores ranging from 0 (low) to 9 (high). The six scales are expressed inclusion, wanted inclusion, expressed control, wanted control, expressed affection, and wanted affection. These scales do not measure quantity of a specific feeling but rather the kinds of feeling that the respondent sees as more or less characteristic of the way he or she feels. The dimensions of inclusion, control and affection become significance (i.e. feelings of importance directed from self to others and one's importance being experienced from others), competence (i.e. respondent's trust in others' abilities and his desire that others will perceive him as capable and competent) and lovability (i.e. feeling of affection directed towards others and respondent's belief that he/she is warm, likable and lovable) respectively at the level of feeling (Schutz, 1978). The respondent was instructed to answer questions in terms of how he or she actually feels rather than what he or she thinks a person should feel. FIRO-F has been found applicable to

interpreting the dynamics of interpersonal feelings, and it is independent of age, sex, marital status, education, income, ethnic group, intelligence, attitude toward childhood relationships, and preferred defense mechanism (Schutz, 1978).

Procedure

Following repeated measures design, FIRO-F test was individually administered to all volunteers from baseline to final phase of expedition to Antarctica. Volunteers of winter team completed the baseline assessment during the acclimatization-training programme held in cold Himalayan region about two-months before the expedition to Antarctica. The other three phases of assessment were beginning phase (second month), middle phase (seventh month), and final phase (thirteenth month) that covered the duration of fourteen months of expedition in Antarctica. The beginning and the final phases marked the summer season characterized by prolonged light and outdoor activities. The average temperature in summer was -5° C approximately. All personnel spent maximum time on work and station activities in summer season. The middle phase marked the winter season that is characterized by prolonged darkness and reduced mobility. The average temperature in winter was -24° C.

During the expedition in Antarctica, participants lived under one roof but with a separate cabin for each person. Sports, music, and various other competitions and activities were organized as well as Indian mythological stories like Ramayana and Mahabharata were run in video during the peak winter season. Birthdays, Anniversaries and national festivals were celebrated at the Indian polar station. The expedition members had no direct communication with the outside world via Internet or any other medium. Individuals were permitted to write mail but had no direct access to the Internet, except the person who handled all communication of the station. Each participant was given 20 minutes per month to interact with family and friends by telephone. Because the individual had to bear the cost of any extra minute for the telephone, which was quite expensive, personnel restricted their telephone use to this duration. These restrictions were normal for the station and were not imposed as part of the research protocol.

Results

The statistical analyses were conducted by SPSS (Version 16.0). Data collected through repeated measures design was analyzed by 2(level of feelings: expressed and wanted) X 3(interpersonal dimensions: significance, competence, and lovability) X 4(phase of expedition: baseline, beginning, middle, and final phases) factorial ANOVA with contrast and post-hoc tests.

There was a significant main effect of level of feelings, $F(1,23) = 4.56$, $MSE = 50.21$, $p < .05$, $r = .16$, and interpersonal dimensions, $F(2,46) = 35.20$, $MSE = 98.19$, $p < .001$, $r = .60$. The main effect of phase of expedition, $F(3,69) = 0.54$, $p > .05$ was not significant.

Contrast revealed that there was a significant difference between expressed and wanted feeling, $F(1,23) = 4.56$, $MSE = 8.36$, $p < .05$, $r = .16$ (small effect). Feelings at expressed level (Mean score = 3.85) was significantly higher as compared to wanted level (Mean score = 3.25). The Bonferroni post-hoc test also indicated that expressed level of feeling was greater than wanted level ($p = .04$). For interpersonal dimensions, there was a significant difference between significance and lovability, $F(1,23) = 38.80$, $MSE = 37.75$, $p < .001$, $r = .62$ (large effect), and between competence and lovability, $F(1,23) = 50.16$, $MSE = 35.87$, $p < .001$, $r = .68$ (large effect). No significant difference was found between significance and competence dimensions of feelings.

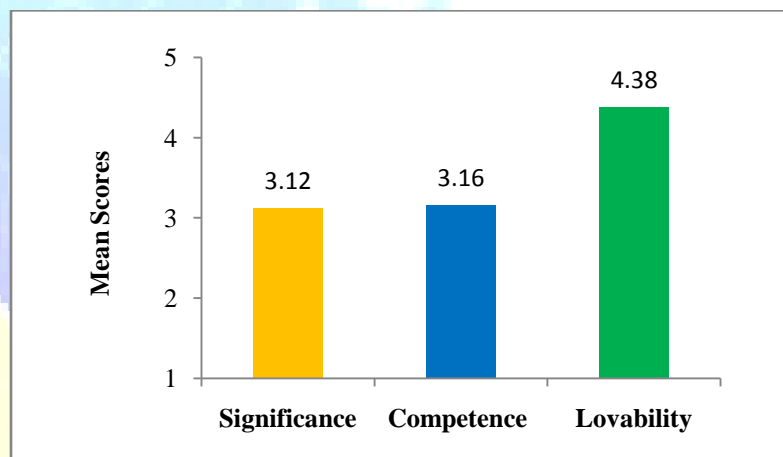


Figure 1. Mean score for dimensions of interpersonal feelings.

Figure 1 displays the mean score for each dimensions of interpersonal feelings. It is clear from the graph that lovability is greater than significance and competence. The Bonferroni post-hoc test also indicated that lovability was significantly higher than significance and competence dimensions ($p < .01$). The result indicates that interpersonal relation at feeling level is predominantly affection oriented with a halfway control and inclusion orientation.

There was a significant interaction effect between level of feelings and interpersonal dimensions, $F(2,46) = 13.40$, $MSE = 23.13$, $p < .001$, $r = .37$ (medium effect). To break down this interaction, a simple contrast test was performed. These revealed significant interactions when comparing dimension of significance to lovability, $F(1,23) = 14.01$, $MSE = 27.52$, $p < .005$, $r = .37$, and significance to competence, $F(1,23) = 21.64$, $MSE = 40.60$, $p < .001$, $r = .48$

for expressed feeling compared to wanted feeling. Looking at the interaction graph (Figure 2), these effects reflect that lovability and competence (compared to significance) lowered scores significantly for wanted feeling as compared to expressed feeling. This indicates that desire to be perceived by others as competent and lovable was significantly low when compared to feeling of one's importance being experienced from others.

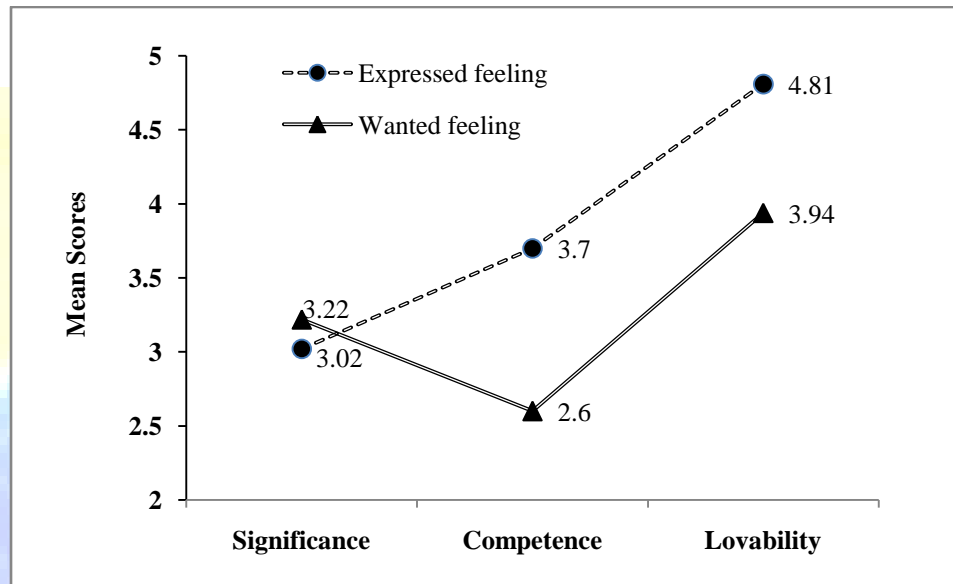


Figure 2. Interaction graph of interpersonal dimensions and level of feelings.

There was also a significant interaction effect between interpersonal dimensions and phase of expedition, $F(6,138) = 5.56$, $MSE = 6.54$, $p < .001$, $r = .19$ (small effect). This indicates that phase of expedition had different effects on interpersonal dimensions. To breakdown this interaction, contrasts were performed comparing significance to competence and lovability dimensions, and baseline to beginning, middle, and final phases of expedition. These revealed significant interaction when comparing significance to competence for baseline compared to beginning ($F(1,23) = 26.71$, $p < .001$, $r = .53$), middle ($F(1,23) = 11.96$, $p < .005$, $r = .34$), and final ($F(1,23) = 22.81$, $p < .001$, $r = .49$) phases of expedition. Similarly, significant interaction was found when significance was compared to lovability for baseline compared to beginning ($F(1,23) = 7.45$, $p < .05$, $r = .24$), middle ($F(1,23) = 7.48$, $p < .05$, $r = .26$), and final ($F(1,23) = 5.38$, $p < .05$, $r = .19$) phases of expedition.

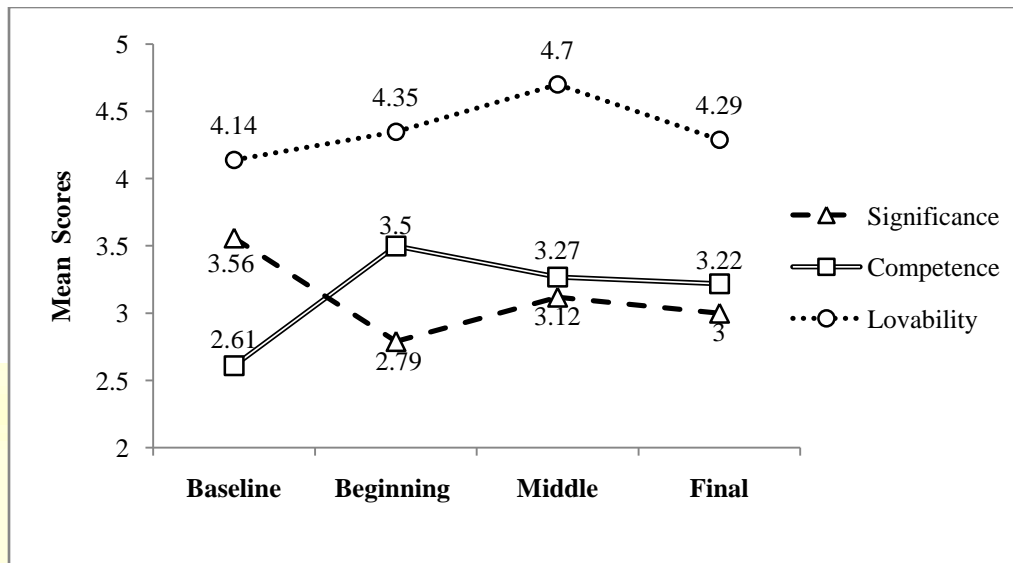


Figure 3. Interaction graph of interpersonal dimensions and phase of expedition.

Figure 3 shows the interaction graph of interpersonal dimensions and phase of expedition. It is clear from the graph that lovability was higher at all phases as compared to significance and competence dimensions. This indicates that interpersonal orientation at the level of feeling was dominated by feeling of affection as compared to feelings related to significance and competence from baseline to final phase of polar expedition. The score for competence was significantly lower as compared to significance when baseline was compared to beginning, middle, and final phases of expedition. In addition, significance as compared to lovability was significantly higher at baseline as compared to other phases of expedition. The other interaction effects like level of feelings X phase of expedition, $F(3,69) = 1.78$, $p > 0.05$; and level of feelings X interpersonal dimensions X phase of expedition, $F(6,138) = 1.60$, $p > 0.05$ were not significant.

Discussion

The goal of this study was to understand the interpersonal dimensions at the level of feeling among personnel over a long duration of expedition in polar environment. Findings indicated significant difference in level of feelings and interpersonal dimensions. The study revealed that expressed feeling was greater as compared to wanted feeling. This emphasizes that personnel gave greater importance to feelings directed towards others rather than how they want others to feel about them in the areas of significance, competence, and lovability. Therefore, it

may be stated that personnel over a long duration of expedition in polar environment are inclined to feel that others are important, competent, and likable, and the desires for affirmation of one's importance and capability, and feelings related to being warm and lovable are low.

The study also revealed that the dimension of lovability was significantly higher as compared to dimension of significance and competence. It indicates that the desire to love and to be loveable person was greater as compared to the desire for importance and respect for competence directed towards others and to self. The display of high need for affection may be due to the social environment of polar region which is characterized by prolonged isolation (Strange & Klein 1974) and it may also be a reflection of reductions in the gratification of basic human needs of affection, security, and feelings of personal worth (Natani & Shurley, 1974; Rohrer, 1961).

The interaction effects of interpersonal dimensions and level of feelings revealed that lovability and competence as compared to significance lowered scores significantly for wanted feeling compared to expressed feeling. It indicates that the desires to be seen by others as lovable and competent have significantly reduced as compared to feeling of importance being experienced from others. This suggests that personnel are inclined to feel that others are important, competent, and lovable, nonetheless, their desire of respect for one's capability, and affection desired from others gets declined over prolonged duration of polar expedition. The decrease in wanted level of feeling in the areas of competence and lovability seems to endorse the reports of Palinkas et al. (2000) that individuals in polar expeditions are socially adept introverts with little need for affection from others. Further, this characteristic is viewed as more socially compatible than socially inept extraverts with high needs for affection.

This study also observed that competence compared to significance was lower, while significance compared to lovability was higher when baseline was compared to beginning, middle, and final phase of expedition. The baseline period marks the stage when all participants of polar expedition meet each other for the first time and form a relation to function as a team. It is quite natural that personnel show interest in others and also want one's importance being experienced from others. At this stage, personnel are not dependent on others' capabilities or there is no opportunity to reveal one's competence. Therefore, the feeling of significance was higher and the desire of respect for capabilities was lower at baseline as compared to beginning, middle, and final phase of expedition. This finding emphasizes that feeling of significance or

importance is high at baseline stage which marked the formation of relationship among expedition members.

When evaluating the results of this study, the obvious limitations in this study must be kept in mind. The present study has relatively small sample size as large number of participants was not feasible for logistical reasons. It is also possible that the sample does not accurately reflect social-cultural characteristics of personnel in polar environment (i.e. the study covers only sample with the background of Indian culture). However, as a preliminary study of interpersonal orientation at feeling level, these findings provide an important base from which future studies can be conducted. In short, further studies are required to confirm and extend the findings of this study. These limitations notwithstanding, the present study has important implication for long-term mission in extreme environment. In planning a long duration voyages to polar and analogous environments, it is of importance that personnel are of the nature that they give greater significance to feelings about other people rather than how they want other people to feel about them.

In summary, this study indicated the sizable differences in the preference of interpersonal orientation related to feelings. The personnel in polar environment demonstrated greater level of expressed feeling as compared to wanted feeling. The interpersonal relation at feeling level was predominantly affection oriented with a halfway control and inclusion orientation. The desires for affirmation of one's capabilities and likeness from others were significantly low as compared to one's importance being experienced from others. Also, feeling oriented to significance was high while feeling related to competence was low at baseline stage of polar expedition. While, the results of this study need further support, as empirical studies on interpersonal orientation at the level of feeling are thinly available to substantiate, the findings may prove useful and fruitful for guiding future research in understanding the elements of feelings in interpersonal relations.

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