An analysis and Observation of Anxiousness and Risk-Taking Traits Among Firefighters: Implications for Training and Support Programs

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Abstract

This research explores the personality traits of anxiousness and risk-taking among firefighters using the Personality Inventory for DSM-5 (PID-5) and also understands these traits in context with the experiences of the fire fighters shared by them in the workshop. A workshop on Role of Mob Psychology in emergency situation was conducted with 30 firefighters from Ahmedabad, Gujarat. The PID-5 was administered, focusing on the domains of Anxiousness and Risk-Taking. The study aims to understand the relation between risk taking behavior and anxiousness trait of the fire fighters. It also explores the implications experience sharing on job performance, team dynamics, and safety outcomes on the basis of interaction with them and providing insights for tailored training and support programs. It is concluded that the sharing of the experiences of senior officers and field staff may help them in confronting the emergency situation.

1. Introduction

Anxiousness and Risk-taking are specific domains or traits within the PID-5. These domains are used to measure and evaluate aspects of an individual's personality related to these particular traits. Anxiousness in this context refers to a personality trait related to the tendency to experience anxiety, worry, and fear. High scores in this domain may indicate a higher level of anxiousness in an individual's personality. Risk-taking is a personality trait that reflects an individual's willingness to take risks, especially in situations where the outcome is uncertain. High scores on this domain may indicate a greater propensity for risk-taking behavior.

A workshop was conducted on Mob Psychology for the Fire and Safety Officers. The Study focuses on the levels of Anxiousness and Risk-Taking domains. Domain Anxiousness and Risk-taking test was taken individually focusing on the purpose of the study. Respective items were taken for the test. The score that was obtained was calculated following the norms, the Raw Score and Average Raw score were obtained for the study.

This group comprises 30 dedicated firefighters from Ahmedabad, Gujarat, with ages ranging from 30 to 52 years and an average of 8-9 years of firefighting experience. They possess diverse skills and educational backgrounds, specializing in firefighting, hazardous materials handling, emergency medical response, and fire prevention. Actively engaged in community outreach and safety education, they collaborate with local organizations and schools to enhance fire safety awareness.

Psychologists and mental health professionals use tools like the PID-5 to better understand an individual's personality and to assist in the assessment and diagnosis of mental health conditions or

personality disorders in line with the criteria outlined in the DSM-5. These assessments can help in treatment planning and understanding an individual's unique psychological profile. The Personality Inventory for DSM-5 (PID-5) and its relevance in assessing personality traits Background information on the Anxiousness and Risk-Taking domains The significance of studying these traits among firefighters The Personality Inventory for DSM-5 (PID-5) is a psychological assessment tool used to evaluate personality traits in adults. It is designed to assess specific personality traits as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).

The Personality Inventory for DSM-5 (PID-5) constitutes a valuable instrument for evaluating personality traits within the framework of the DSM-5 dimensional model. Developed as a self-report questionnaire, the PID-5 aims to comprehensively assess personality along five primary domains: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism. This dimensional model emphasizes the nuanced evaluation of maladaptive personality traits, thereby facilitating enhanced understanding in clinical and research contexts.

Of particular relevance within the PID-5 are the domains of Negative Affectivity and Disinhibition, with specific facets pertaining to anxiousness and risk-taking, respectively. Negative Affectivity encapsulates the propensity to experience negative emotions, including anxiety, depression, and irritability. The Anxiousness facet within this domain delineates chronic worry, nervousness, and heightened sensitivity to stressors, providing insight into traits and behaviors indicative of anxiety-related predispositions.

Conversely, the Disinhibition domain encompasses impulsivity, risk-taking, and a lack of restraint in behavior. The Risk-Taking facet within Disinhibition elucidates tendencies towards impulsive decision-making and a willingness to engage in behaviors without due consideration of potential consequences.

The relevance of studying these traits is particularly pronounced in the context of firefighters, given the unique challenges inherent in their profession. Understanding personality traits, including those associated with anxiousness and risk-taking, among firefighters holds multifaceted significance.

Firstly, these traits can significantly influence job performance and effectiveness, shaping how individuals approach and navigate high-pressure situations. Secondly, in a profession marked by frequent exposure to stressful and traumatic events, traits related to anxiousness become paramount in understanding coping mechanisms and informing targeted interventions to address mental health concerns.

Moreover, team dynamics within firefighting teams are inherently crucial, and an understanding of personality traits contributes to effective collaboration, communication, and overall group cohesion. Tailoring training programs to account for individual differences in personality traits enhances skill development and preparedness for emergency situations.

Furthermore, traits related to risk-taking have direct implications for safety outcomes, influencing how firefighters assess and respond to hazardous situations. This insight aids in the development of safety protocols and strategies to minimize occupational hazards.

Understanding personality traits, especially those associated with anxiousness, sheds light on resilience and coping mechanisms, facilitating the design of mental health support programs. This knowledge is integral to the prevention of burnout, a prevalent concern in the demanding field of firefighting.

Lastly, the insight gained from studying personality traits can inform selection and recruitment processes for firefighting personnel, ensuring a more informed alignment of certain traits with the exigencies of the job.

In summary, the PID-5 emerges as an invaluable tool for assessing personality traits, particularly in the domains of Negative Affectivity and Disinhibition, and its application in the context of firefighters holds critical implications for optimizing performance, ensuring mental well-being, and enhancing overall safety and effectiveness in fulfilling their essential role within communities.

2. Literature Review:

Severe Health Anxiety and Personality Pathology: Torres-Soto, J.-F., Moya-Faz, F.-J., Giner-Alegría, C.-A., & Oliveras-Valenzuela, M.-A. (2020) investigated the relationship between severe health anxiety and personality pathology. Their study, published in The Journal of Nervous and Mental Disease (Vol. 208, No. 2, pp. 108-117), revealed that 71.4% of psychiatric outpatients referred for severe health anxiety treatment met criteria for various personality disorders. Notably, PID-5 trait domains like negative affectivity, detachment, low antagonism, and low disinhibition, along with facets such as anxiousness, separation insecurity, and low attention seeking, were identified as distinct predictors of severe health anxiety. The study underscores the importance of understanding the association between health anxiety and personality pathology for enhanced short- and long-term outcomes (Torres-Soto et al., 2020).

Personality Traits in Day Hospital for Personality Disorders: In another study by Torres-Soto et al. (2018), published in the Annals of Psychology (Vol. 35, No. 1, pp. 47-57), the authors explored the application of the PID-5 inventory in patients referred to a Day Hospital for Personality Disorders. The research focused on individuals within Clusters B and C, revealing that 51% exhibited traits consistent with Limit Personality Disorder (TLP), and 47% showed traits indicative of Non-Specified/Mixed Personality Disorder (TPNE/TPM). PID-5 profiles highlighted negative affectivity, particularly the anxiety facet, emphasizing the value of the tool in confirming specific diagnoses and informing targeted therapeutic interventions (Torres-Soto et al., 2018).

Correlation Between Depressive Symptoms and PID-5 Domains: Goncalves et al. (2022) explored the correlation between depressive symptoms and PID-5 domains. Their study, published in the Anales de Psicologia (Vol. 38, pp. 409-418), focused on a community sample and identified that depressivity and anhedonia displayed a significant impact on predicting depressive symptom scores. The findings support the dimensional nature of depressivity, linking it to both depressive traits and symptomatology (Goncalves et al., 2022).

PID-5 in Adolescent Depression and Anxiety: Besenek (2020) addressed the exploration of dimensional properties using the PID-5 in adolescents experiencing depression and anxiety. Published in the Anatolian Journal of Psychiatry/Anadolu PsikiyatriDergisi (Vol. 21, No. 6), the study found no difference between depression and anxiety groups concerning negative affectivity, suggesting individually elevated negative affectivity in both groups (Besenek, 2020).

Measurement Invariance of PID-5 Constructs: Bach, B., Sellbom, M., & Simonsen, E. (2018) examined the measurement invariance, five-factor structure, and factor correlations of PID-5 constructs across clinical and nonclinical groups. Published in Assessment (Vol. 25, No. 7, pp. 815-825), the study affirmed satisfactory psychometric properties and strong measurement invariance at the domain level across clinical and nonclinical samples (Bach et al., 2018).

Relationship Between Childhood Maltreatment and PID-5 Traits: King (2022) investigated the connection between adverse childhood experiences and specific PID-5 traits related to emotional well-being. The study, published in Psychological Reports (Vol. 125, No. 1, pp. 310-327), revealed that

childhood maltreatment, assessed through the ACE questionnaire, was linked to trait scores, supporting the notion of developmental pathways leading to personality maladjustment among youth who have experienced maltreatment (King, 2022).

Firefighters and Firesetting: Perks, D. L. C., Watt, B. D., & Fritzon, K. M. (2023) explored the antisocial spectrum by investigating the relationship between firesetting during development and subsequent criminal behavior among seriously delinquent youth. Published in Psychiatry, Psychology and Law, the study found that cognitive impulsivity, rather than cognitive insensitivity, mediated the association between firesetting and the diversity of criminal offenses. The findings provide support for the idea that firesetting functions as a developmental precursor to delinquency and criminal behavior (Perks et al., 2023).

3. Methodology:

The Fire and Safety Officers Workshop convened with the introduction of a diverse group of 30 participants, each holding distinct positions within the Fire and Safety Department. The primary aim of this workshop was to comprehensively understand the challenges and issues faced by these officers in the line of duty, with a focus on identifying necessary amendments for improving regulations and policies. This forum provided a platform for real-life experiences to be shared, particularly incidents encountered during life-saving missions, as well as the kind of assistance received after sustaining injuries.

The workshop commenced with the outlining its objectives. The workshop delved into essential topics, starting with a discussion on the concept and significance of Mob Psychology in emergency situations, then explored the crucial aspect of Team Building, emphasizing its relevance in the context of the challenges faced by fire and safety officers, some important topics are covered like:

Collaboration in Emergency Situations: Team building is vital for fostering seamless collaboration among fire and safety officers during emergency situations. Discussing how effective teamwork improves response times and overall efficiency in high-pressure scenarios is crucial.

Clear Communication: In firefighting, communication is paramount. Team building discussions can emphasize the importance of clear and concise communication within the team, ensuring that critical information is relayed accurately and swiftly.

Trust among Team Members: Trust is the foundation of effective teamwork. Emphasizing the significance of trust among team members in a firefighting context can enhance overall team cohesion and reliabilityThe insights were provided on the impact of noise and smoke, shedding light on the environmental challenges these officers encounter.

Furthermore, an expert officer from the Fire and Safety Department addressed different types of emergency situations, offering valuable perspectives to enhance preparedness and response strategies. To better understand the psychological dimensions of their roles, a psychological test was distributed after obtaining consent from all participants. The Personality Inventory for DSM-5 (PID-5) is a psychological assessment tool used to evaluate the self-rated personality traits assessmentscale for adults age 18 and older. It assesses 25 personality trait facets including Anhedonia, Anxiousness, and Attention Seeking, Callousness, Deceitfulness, Depressively, Eccentricity, Emotion Lability, Grandiosity, Hostility, Impulsivity, Intimacy, Avoidance, Irresponsibility, Manipulativeness, Perceptual Dysregulation, preservation, Restricted Affectivity, Rigid Perfectionism, Risk Taking, Separation Insecurity, Submissiveness, Suspiciousness, Unusual Beliefs and Experiences, and Withdrawal, with

each trait facet consisting of 4 to 14 items. Specific triplets of facets (groups of three) can be combined to yield indices of the five broader trait domains of Negative Affect, Detachment, Antagonism, Disinhibition, and Psychoticism. The measure is completed by the individual prior to a visit with the clinician. Each item asks the individual to rate how well the item describes him or her generally.It is designed to assess specific personality traits as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). "Anxiousness: and & "Risk-taking" are specific domains or traits within the PID-5. These domains areused for this study to measure and evaluate aspects of an individual's personality related to these particular traits.

Anxiousness in this context refers to a personality trait related to the tendency to experienceanxiety, worry, and fear. High scores in this domain may indicate a higher level of anxiousness in anindividual's personality.

Risk-taking is a personality trait that reflects an individual's willingness to take risks, especially insituations where the outcome is uncertain. High scores in this domain may indicate a greaterpropensity for risk-taking behaviour. This test aimed to explore the anxiety and risk-taking domains faced by fire and safety officers, providing valuable insights for the improvement of training and support mechanisms.

The workshop served as a comprehensive platform to address critical issues, share experiences, and foster a collaborative environment for the continuous improvement of the firefighting and safety profession.

This group comprises 30 dedicated firefighters from Ahmedabad, Gujarat, with ages ranging from 30to 52 years and an average of 8-9 years of firefighting experience. They possess diverse skills and educational backgrounds, specializing in firefighting, hazardous materials handling, emergency medical response, and fire prevention. Actively engaged in community outreach and safety education, they collaborate with local organizations and schools to enhance fire safety awareness.

Scoring and Interpretation

Each item on the measure is rated on a 4-point scale. The response categories for the items are 0=very false or often false; 1=sometimes or somewhat false; 2=sometimes or somewhat true; 3=very true or often true. For items 7, 30, 35, 58, 87, 90, 96, 97, 98, 131, 142, 155, 164, 177, 210, and 215, the items are reverse-coded prior to entering into scale score computations (see instructions above).

Ex: **Anxiousness**: 79, 93, 95, 96R, 109, 110, 130, 141, 174

1	I worry a lot about terrible things that might happen.	0	1	2	3
2	I often worry that something bad will happen due to mistakes I made in the past.	0	1	2	3
3	I get very nervous when I think about the future.	0	1	2	3
4	I rarely worry about things.	0	1	2	3
5	I'm always worrying about something.	0	1	2	3

Risk Taking: 3, 7R, 35R, 39, 48, 67, 69, 87R, 98R, 112, 159, 164R, 195, 215R

1	People would describe me as reckless.	0	1	2	3
2	I avoid risky situations.	0	1	2	3
3	I avoid risky sports and activities.	0	1	2	3
4	I have no limits when it comes to doing dangerous things.	0	1	2	3
5	I do a lot of things that others consider risky.	0	1	2	3

4. Result

In the process of analyzing psychological assessment data, the calculation of raw scores and average raw scores plays a crucial role. The raw score is determined by adding up the scores achieved for each item, taking into account their respective facets. Furthermore, the average raw score is computed by summing the scores of the answered items and dividing the total by the number of items within a specific facet. To facilitate descriptive statistics, the Microsoft Excel data analysis tool proves to be instrumental. Specifically, the Average Raw Score column was chosen, and the Descriptive Statistics function was applied separately for Risk-Taking and Anxiety. This allowed for a comprehensive understanding of the central tendency and variability within these psychological dimensions. Additionally, to explore the relationship between Anxiety and Risk-Taking, the Average Raw Scores for both facets were selected, and the Correlation function was employed to ascertain the correlation coefficient ('R' value), shedding light on the degree and direction of their association.

anxiety Raw Score			*Anxiety Avg. Score*			*Risk Raw Score*			*Risk Avg. Score*	
Mean	11.25		Mean	1.231428571		Mean	23.96429		Mean	1.741071
Standard Error	0.631251801		Standard Error	0.071006957		Standard Error	1.231726		Standard Error	0.08171
Median	11		Median	1.2		Median	25		Median	1.79
Mode	8		Mode	1		Mode	26		Mode	1.57
Standard Deviation	3.340270559		Standard Deviation	0.375733498		Standard Deviation	6.51768		Standard Deviation	0.432369
Sample Variance	11.15740741		Sample Variance	0.141175661		Sample Variance	42.48016		Sample Variance	0.186943
Kurtosis	-0.670301364		Kurtosis	-0.579359239		Kurtosis	-0.96431		Kurtosis	-0.85812
Skewness	0.407355226		Skewness	0.384051481		Skewness	-0.14926		Skewness	-0.09042
Range	12		Range	1.33		Range	22		Range	1.58
Minimum	6		Minimum	0.67		Minimum	13		Minimum	0.92
Maximum	18		Maximum	2		Maximum	35		Maximum	2.5
Sum	315		Sum	34.48		Sum	671		Sum	48.7

							5
Count	28	Count	28	Count	28	Count	28
Largest(1)	18	Largest(1)	2	Largest(1)	35	Largest(1)	2.5
Smallest(1)	6	Smallest(1)	0.67	Smallest(1)	13	Smallest(1)	0.92
Confidence Level(95.0%)	1.2952 21708	Confidence Level(95.0%)	0.1456 94241	Confidence Level(95.0%)	2.52 7293	Confidence Level(95.0%)	0.16 7655

	N	Mean	'r'	Level of Sig.
Anxiety	28	11.25	-0.1442	NS
Risk	28	23.9643		

Significant at 0.05 level = 0.3610   Significant at 0.01 level = 0.4629

Non-Significant = NS
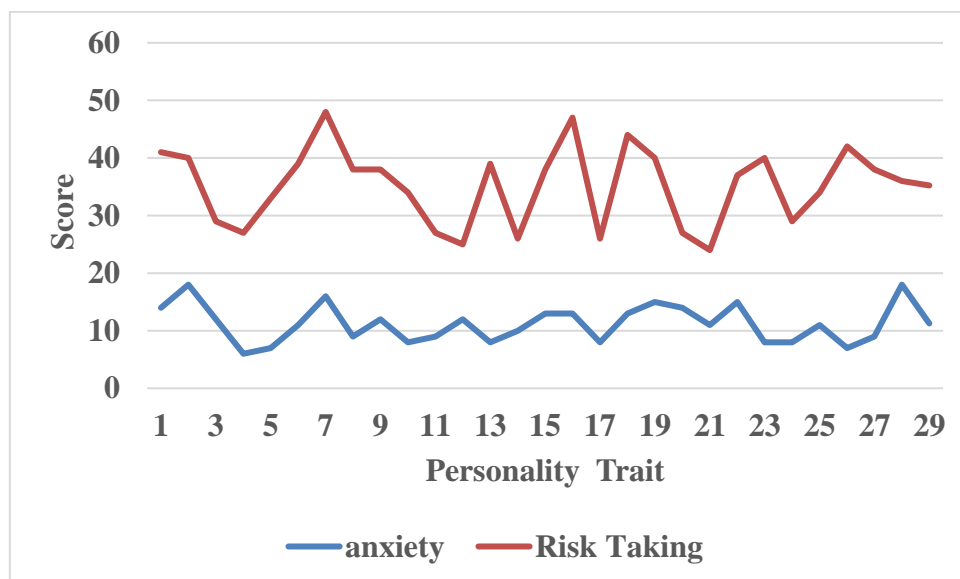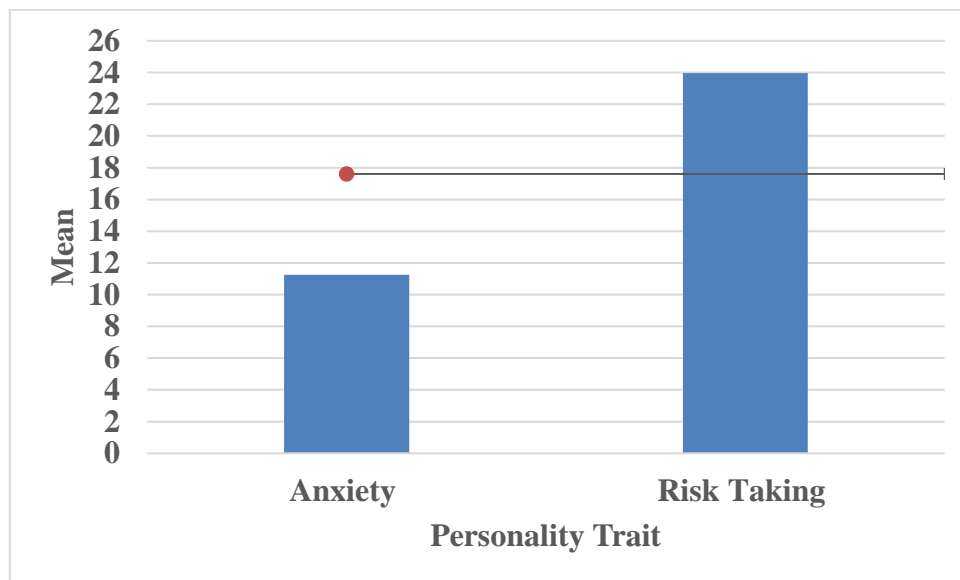
The analysis of the given group of firefighters revealed a negative correlation between their levels of anxiousness and risk-taking, with a correlation coefficient of -0.15.

This suggests that, on average, as anxiousness among these firefighter's increases, their propensity for risk-taking tends to decrease slightly. While this correlation is relatively weak, it underscores the complex interplay of personality traits within this group and provides valuable insights into their behavior and decision-making processes. It was observed that fire fighters who have more experience are found less anxious. The experiences in the field help them in dealing with the emergency.

It is essential to consider these findings when designing training and support programs to ensure the well-being and effectiveness of the firefighting team.

In this workshop, a platform was provided to the fire fighters for sharing their experiences of confronting emergency situation. These sharing remain very productive and constructive as various strategies of communication and dealing with mob come out. The dreaded expernces of facing death threatening situation and dealing with the public pressure, managing the situation requires lots of communication, in field management and coordination skills.

5. Conclusion:

In conclusion, the analysis of the given group of firefighters revealed a negative correlation between their levels of anxiousness and risk-taking, with a correlation coefficient of -0.15. This suggests that, on average, as anxiousness among these firefighter's increases, their propensity for risk-taking tends to decrease slightly. While this correlation is relatively weak, it underscores the complex interplay of personality traits within this group and provides valuable insights into their behavior and decision-making processes. It is essential to consider these findings when designing training and support programs to ensure the well-being and effectiveness of the firefighting team. It is recommended that

Design of effective training programs should include interaction and assessment of the personality traits according to the job profile. It is also important to provide a platform where the stressed employees /workers may be distressed by sharing their experiences and challenges in psychological safe environment.

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