

EMOTIONAL INTELLIGENCE AND MODIFIABLE RISK FACTORS AMONG CORONARY ARTERY DISEASE PATIENTS WITH TYPE D PERSONALITY

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Abstract:

Modifiable risk factors like high blood pressure, diabetes, inactivity, unhealthy diet and smoking increase the risk of developing and maintaining Coronary Artery Disease (CAD). As CAD is incurable, patients who have undergone intervention need to manage risk factors to prevent progression, rehospitalisation and cardiac complications. Personality and Emotional Intelligence influence the way risk factors are addressed by patients. Type D personality is associated with negative expectations from self and others and discomfort in social situations resulting in challenges managing modifiable risk factors. In recent times mixed research methods have gained prominence due to focus on subjective commonalities of experience and objective quantitative measures. The DS 14 scale was used to identify Type D CAD patients. The present study used semi structured interviews to explore the experiences of CAD patients with Type D personality who had undergone cardiac intervention. Quantitative investigation focused on finding the relationship between Type D personality, Emotional Intelligence and modifiable risk factors in these patients. EEA was administered along with information about demographic details and modifiable risk factors. The results indicated presence of distress, restriction adjustment, perceived social support and spirituality. Negative affectivity (NA) was significantly negatively related to self-awareness ($r = -.259, p < .05$), self-control ($r = -.294, p < .05$), empathy ($r = -.280, p < .05$) and overall Emotional Intelligence ($r = -.288, p < .05$). Significant negative correlation was also found between NA and exercise ($r = -.247, p < .05$), Type D personality and self-control ($r = -.234, p < .05$) empathy and hypertension ($r = -.222, p < .05$). A significant positive correlation was obtained between diabetes and smoking ($r = .267, p < .05$). Overall NA (trait in Type D personality) was a stronger predictor of poor Emotional Intelligence. Step wise multiple regression indicated self-control as a predictor variable which explained 9% of the variance in negative affectivity.

Key words: CAD, Type D Personality, Emotional Intelligence, Modifiable Risk Factors

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Introduction:

The world today is moving so fast in search and need of affluent and lavish lifestyle. One slice and category of this world is the youth, who is the future of the country and especially if those academic scholars are not brain drained and severed in their own country would certainly contribute into development of their nation. But paradoxically, a critical problem that today's youth especially with the academic expenditure has dilemma at individualistic concept that includes stress of employment, future, facing the outer world etc. The study analysis from the sociological substantial

point of view is particularly problematic of those students from vernacular medium who find difficulties in comprehensively competitive and fast growing segment of the world, with whom they are not well-versed. Thus it also affects their focus and slows down their academic performance as they are in the journey of final stages of their education. The study encountered many difficulties and challenges of such vernacular final year students graduating with especially Arts stream of Marathi Medium from one of the noted Mumbai College.

Mumbai has many renowned and well known educational institutes constituting to almost more than 1500 Colleges in and around Mumbai but having only a very small percentage of Marathi medium colleges. The students studying in this colleges as expected find more difficulties and complexities as they have to struggle more inertly than compared to those from English medium. Although the workload, syllabus, hard work or the tasks/ assignments are gradually increasing but this strata of students from vernacular medium face dual-career crisis leading into unfortunate stress and vulnerability.

Objectives of the Study:

- a) To identify main cause of stress at final year of their career.
- b) To focus on stress management as need for young graduates

Methodology:

To understand the problem and challenges of final year students of Arts of Marathi medium from Mumbai. The study was carried on qualitative data. The life history method helped in understanding their problem in-depth.

Collection of data:

Emphasize of the study was on open-ended interview schedules, in-depth interviews. Communication of respondents was in Marathi language which was the mother tongue of respondents.

Sample size:

The researcher selected 04 students on random basis as a sample size. This study sample included girls (04).

Qualitative data:

The qualitative research intended to understand the hidden issues. The experiences may be through life histories or routines. Thus qualitative data was taken for the study. In this paper qualitative research is based on case studies. The qualitative exploratory approach helped to understand humanistic reality. Depth study was carried by interview schedule, and observation. The micro level study was chosen from the Mumbai.

Results and Discussion: It was observed that these young girls had stress at the final year compared to the higher secondary schooling, junior colleging and First year and Second year. The major factor which was seen profoundly among them which led to stress was fear of failure and inferiority complex. Fear of failure in academic success, in vision, in strategy and planning and overall stress leading to failure and fear of life. The aspect of failure which the respondents considered was both career wise as well as in relationship. Many youth admitted that in the way leading to final year expectations were not only from their parents but also from themselves which lead to more mental disturbance. Moreover findings attributed that youth were more likely to experience stress due to competition of outer world, lack of fluency in English speaking, writing and communicating and realisation that the syllabus is not actually providing the values, systematically conceptualization which was leading to the emotional distress. Interestingly examination issues or fear were not upfront or major issue for final year students but the stress about future once they completed their graduation or overall education, i.e the tension of employment, earnings, packages, etc. was more rooted in their mind. Furthermore, it is apparent and evident that the average students face huge cultural barrier and personal complexities coping with outer world leading to stress.

Cases:

Due to limitation of words, below cases have tried to emphasize only on highlight points. Please note that ethic of research - hiding identity of respondents is strictly followed, also there narrative in Marathi language during interview is translated into English for this paper.

Case 1:

'I am 20 yrs. of age and studying in Mumbai. I am not facing any academic problem as I love to study and my academics, however I am sacred about my future and that leads to stress and distress. I want to do a proper job but I don't know if I will get it, if I get one will I be able to take up the same? Am I potential enough to do justice to it? All this puts me under tremendous stress'.

Case II

'I am 21 years old residing in suburb of Mumbai. I am continuing my education with lot of financial hardship and adversities, but my family has high value for education. Economic condition of my family is very average. I am studying to get a decent job but these leads to mental stress of whether I will really get a good job? Academically I don't have any issues or problems about education but my real fear is whether I will really be able to adjust with this world.'

Case III:

'One of the response admitted that the day she entered the final year class, the very feeling about passing out and future challenges had brought her under stress. She tried to console herself and boosting her inner confidence regarding there won't be any such crisis but on the other hand she was worried and in dilemma whether everything will be sorted? Will she really get job she deserved?

Case IV:

'I am 20 years old, and interested to get into Government services and working hard. To support my dream I even took a job. But balancing both put me under stress and was unable to concentrate on final year studies. So I left job. But the final year examinations have put me in tension. I hope I will get marks but not sure whether I will really get through after that and fulfil my dream of government services.'

All the four above respondents fall under same age range. All face relatively identical crisis of stress related about future. The academic performance when highlighted was not their worries. The outcome of the four respondents were happy at academic level for themselves. Intelligence was not bad but all wasn't smooth considering future. The illogical stress they are undergoing have put themselves in dilemma, how to cope with the future? Three of the respondents admitted that lack of English speaking fluency have injected a sense of inferiority complex and fear for the same.

Stress Management:

In the today's stressful situations youth get exposed to sophisticated, unpleasant environment. Education system is modernizing but at the same time youth are worried about the future management over time, emotion, frustration etc. and play very essential role at this particular age. All this can be relived through 'Stress Management'. Whether Arts, Commerce, BMS or any field may be sports, performing arts etc. all need proper guidance at threshold of graduation. 'Stress Management' should be included in the final year syllabus as the students need not have to learn or even have time later. Stress management will boost and enhance students self-confidence, self-belief in setting goals, clarity in objectives, sharpness in thinking before action, overcoming of depression, grow on self-esteem, discipline and most importantly optimistic approach towards life.

Limitations: The sample size is relatively small in size as well as the study focuses only on one college of Mumbai

and same gender. Hence generalization of the study might have affected.

Findings: The present study is an attempt to underline that youth needs to understand dynamics of competition and self-belief as soon as they go in the outer world. Thus, they require careful designed syllabus. With theoretical practical session on stress management and how to keep a positive attitude, how to handle their problems and learn things and help manage stress before it gets over them, accept that all the things around cannot be controlled and some things are to be ignored. They should be given proper stress management training, which should not be only in Business management, IT fields, MDA etc. but to students getting into any field or entering self-employment structure.

Conclusion: There are various approaches to the study of stress. In the process of Stress Management. One works for the essential aspects in assessment of work distribution, division of labour, manage time effectively, etc. but most importantly manage unwanted stress. This technic needs to be included in all streams of life so that students don't lack confidence.

Different people have different ways of managing and exhibiting stress like crying, panicking, etc. But the Stress Management treatment will make multiple changes in the individual's, beliefs, feelings and behaviour (Chubforushzadeh, 2009). Theories of forgiveness, ignorance, yoga, meditation, time and sleep management will definitely help in managing one's life. The study done in researchers at Indian University in the US showed that the stress combined with less control over their work and lower cognitive ability at workplace can lead to serious deterioration of mental health, increasing the likelihood of depression and even death (Time of India, 2020). The Boost of stress-management strategies will help this vernacular students to cope the situation around with confidence and self-belief. In these pandemic period it was very difficult to avoid not only health issues but most importantly anxiety, depression tension, stress. As we are going through more and more stressful hardships time and resulting into pressures, Stress relief will play a vital role.

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Everyone desires to enjoy good health .Practicing simple mental and physical health hygiene strategies like balanced diet, exercise, managing negative emotions effectively and abstaining from harmful addictive behaviour are known to prevent chronic diseases and complicated treatment plans. Yet this is a very challenging process because of reluctance to give up easy, comfortable and tempting options available.

Although personality ,emotional factors and modifiable risk factors(hypertension, diabetes, inactivity ,unhealthy diet and smoking) are accepted as contributing factors of CAD, very few studies have used the mixed method to gain deeper understanding into this relationship .The present study explores the experiences of CAD patients post procedure and aims to find the relationship between these variables.

The causes of CAD are multifactorial and consequently lead to major personal and global losses. Personality has long been associated with development of various physical and mental diseases owing to fixed ways of reacting and



construing life situations. Despite supportive findings, there have been contradictions regarding contribution of personality to heart disease (Steptoe & Molloy, 2007)

According to the WHO, 17.9 million people die every year due to CAD which is one of the four non-communicable diseases of global concern the others being cancer, respiratory diseases and diabetes. The reason for this trend is globalization, maladaptive lifestyle practices, industrialization and an increase in the aging population (World Health Organization, 2018). Modifiable risk factors like inactivity, unhealthy diet and using tobacco increase the risk of developing CAD. Annually tobacco use and lack of physical activity accounts for 7.2 and 1.6 million deaths respectively. Globally 19% of deaths are due to hypertension. Since modifiable risk factors (MRF) can be avoided by bringing about lifestyle modifications, it becomes necessary to understand if a relation exists between them, personality and Emotional Intelligence (EI).

Type D Personality and CAD:

Johan Denollet (2005) through his research highlighted the role of Type D personality with traits of negative affectivity and social inhibition and its presence in both clinical and normal population. Its prevalence in patients with heart disease was found to be between 18% to 53% (Pedersen & Denollet, 2006). Personality studies suggest that some individuals have better coping skills to resist illness owing to self-healing traits like optimism, hardiness and coherence (Freidman, 1992). Certain behavioural and physiological factors are also responsible for prevention and recovery from disease. These traits help adjust better to long-term life-threatening chronic ailments (Schroder et al., 2007). On the contrary negative traits like anxiety, worry, and depressed mood are associated with development and maintenance of chronic diseases (Clarke & Currie, 2009).

Social factors like social support are known to enhance recovery. People who shy away from social contact are more likely to be lonely, and depressed. Constant presence of emotional distress along with impaired social functioning could contribute to blockages in arteries (Bucholz et al. 2014).

Type D Personality, EI and Modifiable Risk Factors (MRF):

Like personality, understanding, regulating, using and managing emotions plays an important role in development and recovery from disease. Varied research has shown that people with high EI enjoy better physical and mental health, less psychological distress, depression and anxiety (Kravvariti et al. 2010). People experience negative affect (anger, aggression anxiety, and sorrow) on encountering health challenges. However, possessing EI skills allows better adaptation, adjustment and recovery. High EI is also associated with more effective communication and empathy. Emotion and health are closely connected (Gross, 2013). Some studies have shown difficulties in emotional regulation especially anger, temper and inhibition to have adverse effect on health in CAD patients (Harburg, 2003). Personality influences self-regulation at physical (adherence and monitoring), behavioural (diet and exercise), Teixeira, et al., 2015 and social (social skills and support) levels and is important in prevention and recovery from disease (Steverink et al, 2005). Emotional regulation was associated with decreased risk of CAD and increased sense of wellbeing (Côté 2010). Inability to use emotions disrupts social functionality and induces stress (Kubzansky & Thurston 2007) causing damage to the cardiovascular system. Negative emotions impair higher mental functions, disrupt self-control and increase the tendency to act impulsively (Cyders and Smith 2008).

Learning to respond adaptively to negative emotions leads to personal growth, wellbeing, better understanding and preparedness to deal with stress (Kashdan & Biswas-Diener, 2014). Preoccupation with negative emotions on the other hand, increases stress leading to maladaptive coping, overeating, smoking, alcohol consumption and physical consequences like insomnia, increased BP, heart disease, anxiety and depression (Gerin et al 2012). Studies also showed

reduced emotional awareness and difficulty in handling negative emotions like fear and anger resulted in poor handling of situation (Adler et al.,1998). Improving social skills and seeking social support were associated with better health care practices and motivation.

The findings of the Framingham heart study in 1957 revolutionized the understanding of multiple interrelated MDF in the development of CAD. Strong negative emotions, physiologically cause rise in blood pressure, heart rate and cortisol levels. This can increase the chances of developing heart disease and change the way blood clots indicating a strong mind and body connection. Lack of emotional self-control leads to impulsive behaviour Tangney et al. (2004). Type D individuals exhibited increased inclination to engage in disease promoting behaviour, such as smoking, poor diet and exercise. William et al. (2008) also found similar trends in normal samples with type D personality. High impulsivity was associated with increased alcohol consumption and aggression (Hair & Hampson, 2006). Awareness about long term effects of smoking resulted in resistance of temptation to smoke in people with self-control. Self-control was also associated with high emotional stability and control over negative feelings (Paschke et al., 2016). Other than genetic and environmental factors, a tendency to experience frequent negative affect may promote development of disease and indulgence in risky behaviour Kones (2011).Further, Type D persons are known to invest less in social resources and perceive less social support.

A study by Svansdottir et al. (2012) found increased BP, diabetes, waist circumference, smoking, distress and decreased physical activity among cardiac patients in Iceland. There was a greater prevalence of Type D personality among diabetes patients who reported loneliness, depressed mood anxiety and overall poorer mental health along with failure to utilize available social support (Shao et al.,2017) and difficulties in nurturing long-term relations (Spek et al.,2018) as compared to non-type D counterparts. Difficulties were also encountered in adherence to medication, healthy diet and exercise. Leu et al. (2019) showed Type D patients had increased risk of developing diabetes and hypertension.

Method:

The present research used the exploratory sequential mixed research Design. Purposive Sampling technique was used by contacting seven cardiologists in Pune to access married male patients who had undergone CABG/PTCA in the past 3 to 6 months and were visiting the OPD for follow up. The age ranged from 35 to 65 years, patients resided with their spouse and had minimum matriculate education. They were administered the standardised DS-14, A 14 items scale developed by Johan Denollet (2005) with two subscales: Negative affectivity (NA), assessing worries and irritability and Social Inhibition (SI) , assessing discomfort in social interactions .Those scoring > 10 both subscales were classified as Type D and were included in the study. Demographics were also obtained for all the patients.

The study was conducted in two parts thereafter:

Study 1: Qualitative research (n=6) explored the experiences of the patients. The mean age was 58.4 years. N=3 had diabetes and n=2 blood pressure, all of them (n=6) reported indulging in moderate exercise and none of the smoked or consumed alcohol. All the patients had undergone CABG .Semi structured interview was used to explore the following questions:

Q1.Tell me about the experience of undergoing CAD intervention?

Q2.What were your concerns after the procedure?

Q3. What helped in dealing with the concerns?

Q4.What changes did you make in order to get better?

The interviews were recorded then transcribed to identify common themes.

Study 2: Quantitative research (n=60), patients were administered the Exploring Emotional Abilities Test (EEA) developed at Jnana Prabodini's Institute of Psychology (2010), an ability / performance measure based on Goleman's model of EI for individuals over 17 years. It measured: Self Awareness (SA), Self-Control (SC), Motivation, Empathy, Social Skills (SS) and total EI .The 62 items took 40-60 minutes to complete. Concurrent Validity with MSCEIT ranged from 0.12 to 0.40.The test had satisfactory content validity, inter-rater reliability (0.63) and internal consistency reliability (0.45)

This was followed by analysis of the relationship between Type D personality, EI and MRF using Pearson's Correlation (SPSS version 23). The mean age of the Type D CAD patients in quantitative study was M=49.03 years and SD=9.13

Table 1:

Demographic Characteristics of CAD patients having Type D (N=60).

Characteristics	Type D	
	N (f)	%
Education		
SSC	28	46
HSC	6	10
Diploma	19	32
Bachelors		
Post-graduation and higher	7	12
Blood Pressure		
Yes	24	40
No	36	60
Diabetes		
Yes	21	35
No	39	65
Smoking		
Yes	20	33
No	40	67
Activity Level		
Inactive	7	12
Low	21	35
Moderate	28	47
High	4	7

Intervention

PTCA	44	73
CABG	16	27

Results:

The present study aimed at understanding the experiences of Type D CAD patients who had undergone intervention and finding out if a relationship existed between EI, MRF and personality. In order to do this exploratory sequential mixed research Design was used where Qualitative data was collected first followed by quantitative in order to validate the findings.

The qualitative semi-structured interview elicited the following themes-:

S. No.	Themes	Description
1	Distress	Scared, unsure, fearful, worry, why me? tensed lack of control, isolation, powerlessness
2	Restriction adjustment	Difficulty, pain ,new normal, delegating, inability to lift, climb stairs, handle tension, do work, need help, functional restraint, overexertion, pushing hard to prove
3	Social support	Encouragement ,support-wife, friends ,relative ,care, positive, health care, information and empathy
4	Spirituality	Purpose in life ,forgiveness, gratitude, belief in God ,prayer and meditation

1. Distress –All patients (n=6) reported feelings of anxiety, fear, uncertainty and disconnection when diagnosed with heart disease .This distress was evident even before their diagnosis and intervention (n=3) one patient reported “I feel stressed easily ,small things get me worried and then I can’t work properly”. Post procedure all patients (n=6) reported anxiety and fear regarding their functionality ,the future of their family ,getting back to work and fear of death and disability due to their condition .Preoccupation with various cardiac and non-cardiac issues increased their distress making them feel lack of control (n=4) reported feeling frustrated as despite exercise and dietary regulation they developed heart ailments (n=3) felt their disease was inherited and so they felt powerless in controlling the progression of disease . “I have been going for walks and control my diet still all this is happening to me may be it runs in my family”.
2. Restriction adjustment– the procedure put restrictions on the patients level activity and there were two trends observed, a tendency to overexert (n=3) expressed as a desire to prove to self and others that they were alright and in charge , and unrealistic expectations in terms of getting back to normal. “I don’t feel anything different I can do everything like before” Another trend was an excessive fear of exertion and activity (n=3) triggering another attack and giving up prematurely both these trends resulted in delays in recovery. “When I do activities like climbing stairs I am not sure how much is too much .I am scared exertion will bring another attack.”
3. Perceived Social support- All patients (n=6) reported satisfaction, trust and gratitude towards their spouses for the Care and support given .Despite admitting to the support the received, (n=3) seemed to lack empathy and showed reluctance to follow advice given by health care workers and family members. Feeling lonely was reported (n=2) “the pain and discomfort only I have to face no one can feel or understand so I like to be alone and not talk about it and do what I think is right ”support was also received from doctors who guided on lifestyle changes and offered both emotional and medical care.

4. Spirituality - Strong belief in God and thankfulness for the second chance they had received with their life was expressed (n=5). A desire to spend more time in spiritual activities like prayer, meditation and focusing on forgiveness, harmony and finding purpose in life was reported. “God has given me a second chance .We should be more spiritual and forgive others.”

Quantitative findings (n=60) showed

Table 2

Mean and SD for CAD patients with Type Personality

Variable	Type D	
	M	SD
Age	49.03	9.13
NA	17.20	5.53
SI	14.67	3.85
Type D Total	31.87	7.83
Self-Awareness	24.37	6.99
Self-Control	13.75	4.88
Motivation	22.52	6.81
Empathy	27.78	5.08
Social Skill	25.90	5.20
Emotional Intelligence	114.32	19.14

Pearson’s correlation (one tailed test) analysis showed Negative affectivity(NA) was significantly negatively related to self-awareness ($r = -.259$, $p < .05$), self-control ($r = -.294$, $p < .05$), empathy ($r = -.280$, $p < .05$) and overall EI ($r = -.288$, $p < .05$). Significant negative correlation was also found between NA and exercise ($r = -.247$, $p < .05$), Type D personality and self-control ($r = -.234$, $p < .05$) empathy and hypertension ($r = -.222$, $p < .05$). A significant positive correlation was obtained between diabetes and smoking ($r = .267$, $p < .05$). Overall NA (trait in Type D personality) was a stronger predictor of EI. The results of the step wise multiple regression indicated SC (dimension of EI) explained 9% of the variance ($R^2 = .09$, $F(1, 58) = 5.87$, $p < .05$). It was found that SC significantly predicted NA ($\beta = -.339$, $p < .05$) which suggests a decrease in SC is associated with an increase in NA which is significant at $p = .09$.

Discussion:

The Qualitative study resulted in 4 major themes of distress, adjustment to restrictions, perceived social support and spirituality. All type D CAD patients (n=6) showed preoccupation with negative emotion which was expressed as fear and anxiety centred around multiple cardiac and non-cardiac symptoms, functionality, future of the families and fear of death .Despite these fears there was a tendency to deny the seriousness of their condition and an urgency to prove their autonomy and get back to work and be independent to the extent of not listening to family and doctors and prematurely overexerting. Another set of patients catastrophized their condition and were reluctant to resume daily activities .These trends show a lack of awareness into the cardiac event which hampered treatment plan leading to non-adherence in following restriction placed by the doctors. Preoccupation with their physical symptoms also made them

hyper vigilant to warning signs and further increased the fear of another impending episode .This is in line with the quantitative findings where the Type D CAD patients exhibited high Negative affectivity and low self-awareness, self-control, empathy and overall emotional intelligence.

Some patients reported stress as a contributing factor in heart disease but lacked insight into its control and management .There was a tendency to be overwhelmed with all the changes they were expected to make post-surgery. These findings are supported by the quantitative finding where a significant negative correlation was found between Type D Personality and self-control .Also one of the traits of Type D personality, NA was associated with poorer self-awareness, self-control empathy and overall EI.CAD patients with Type D personality reported lack of control over the situation and attributed their condition to bad luck. Most of them felt they had maintained caution with diet and exercise and speculated the reason for procedure. One possible reason could be their difficulties with self-control (emotional regulation) and negative affectivity .They also reported that friends and family told them not to constantly worry .This is an important finding as it throws light on the fact that despite adequate caution in diet and exercise, their underlying personality traits of negatively perceiving themselves and their world could have contributed to cardiac issues .The tendency to disobey instructions to slow down and gradually increase activity, showed lack of empathy and communication skills .Many patients were unsure of how much exercise was good enough ,scared when breathless or other discomforts were experienced while exerting .Previous research by Ogrondniczuk et al.(2012) supports this finding where an association between Alexthemia and Type D personality in psychiatric out patients was found where Type D patients were aware of their negative affectivity but not the reason and nature of their distress.. Cuartero et al. (2019) also found empathy improved self-care practices, wellbeing and self-awareness which play an important role in recovery. Type D personality was negatively correlated to SC (dimension of EI) this is supported by findings that show that type D persons have difficulty in handling and managing negative emotions like anger and temper .They are also more likely to be impulsive and use maladaptive coping styles .The inability to regulate emotions was also seen in their ignorance of their health situation and reluctance to comply to advice regarding restrictions. Spiritually they attributed their health condition to will of God and bad luck. Most patients showed tendencies to turn to God, trusted the doctor and their spouse but did not perceive social support from others. This support was reported to be important aspect in their recovery and although it encouraged them in modifying behaviour, one patient reported over concern as constraining. These findings are supported by the quantitative study where no relation was found between social inhibition and emotional intelligence but difficulties were seen in self-control. Patients sort reassurance from their spouse and doctors and also reported spiritual aspects helping them adjust to their life situation. Negative affectivity negatively correlated with exercise which was supported by the quantitative study wherein on some days when they were reluctant to exercise ,encouragement from friends and spouse resulted in physical activity and mood upliftment .This finding was supported by the findings of Mata et al. (2013) found that an opportunity to exercise prior to sad mood induction led to affective response in depressed individuals similar to non-depressed and increased negative affect in depressed individuals who were inactive. In the present study type D patients who exercised reported better affect. This has applicability as NA in Type D can be improved by encouraging them to indulge in physical activity along with regulation of emotion.

A relevant finding of this study was that SI was not significantly related to EI or MRF this could be because in collectivistic cultures the family participates actively in the treatment and recovery of the patient irrespective of the patients social orientation , male patients have a tendency to depend on their spouse for care and support .This is

reinstated in the qualitative findings .Study by Pharr et al.(2014) also emphasises the importance of cultural embeddedness of care for patient in collectivistic cultures due to deep and strong family ties.

Other quantitative findings showed a relationship between empathy and blood pressure. Support for this was found in research by McCubbin et al. (2011) who found people with high blood pressure had reduced ability to recognize emotions and were more likely to misinterpret and miscommunicate emotions resulting in distrust and increased experience of distress. In the present study few Type D patients expressed distrust and suspiciousness of the intent of others coupled with negative affectivity.

A positive relationship was found between smoking and diabetes .Previous research shows smoking as a risk factor for CAD and diabetes Meta analytical study of men from Asia Pacific region showed diabetes patients who smoked had a hazard ratio of 1.42 for CAD as compared to non-smokers .Cigarette cessation strategies also improved health in CAD patients with diabetes (Kengne et al., 2009)

Step wise multiple regression indicated, self-control as a predictor variable explaining 9% of the variance in NA.Poor SC resulted in patients experiencing NA .Despite support, less comorbidities, symptomatic relief, patient reported difficulties in exercising SC resulting NA. Supportive evidence is found in qualitative study where they found it difficult to follow restrictions imposed (poor SC) and later experience negative emotion and fear of poor cardiac outcomes.

Conclusion:

Undergoing a cardiac intervention is a stressful experience .Post procedure there are many factors that need to be attended to in order to prevent complications ,rehospitalisation and mortality. In the present study Type D CAD patients reported distress, restriction adjustment, social support and spirituality as part of their experience .The study also found a small significant negative association between Negative affectivity and some of the dimensions of EI (SA, SC, empathy and overall EI).A small significant negative relation was also found between NA and exercise, Type D and SC as well as empathy and hypertension. A small significant positive association was found between diabetes and smoking. Although the correlations were small the present study gives insight into the importance of developing EI skills (SA, SC, and Empathy) and being physically active in order to deal with negative affectivity. Patients with Type D personality are likely to benefit by developing control over their emotions and those with hypertension should enhance empathy. Since smoking increase the risk of developing CAD and diabetes, patients who have undergone Cad and have diabetes consider refraining from smoking .Despite these valuable insights, this study is not devoid of limitations. The small sample size might impact generalizability. The two tests DS14 and EEA are self-report inventories and may elicit socially desirable responses. True type D persons might refuse to participate owing to NA and SI and thus prevent actual assessment. Suggestions for future research include use of comparative group which would serve as a baseline.

The findings of the present study may be of great use to health care workers and caretakers in understanding the role of personality in CAD, encourage the development of EI skills and management of MRF. Interventions and training could be developed using these inputs.

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