A STUDY ON QUALITY OF LIFE IN PATIENTS FOLLOWING MYOCARDIAL INFARCTION

SUPRIYA GUPTA[1]*, SHOBHA DAS[1], RINI SAHEWALLA,
DHRUV GUPTA, IPSHITA GUPTA, RATNA PRAKASH,
SANDEEP BANSAL[2] AND RAJEEV RASTOGI

*Departments of [1]Physiology and [2]Cardiology,
Vardhman Mahavir Medical College,
Safdarjang Hospital, New Delhi*

Abstract : Subjective well being has been widely researched in the past few decades and in practical terms it is a term that encompasses the various ways people evaluate their lives including concepts such as life satisfaction, work and health etc. Since, it is well known, that psychological factors including stress, anxiety, poor sleeping habits etc are known to be important causes of life style disorders like myocardial infraction, we started with the hypothesis that subjective well being of post acute MI patients must be poorer compared to normal subjects in the same age group. A comparative study between normal subjects and post acute myocardial infarction patients was undertaken to compare their subjective well being and current mental health status, at Safdarjung Hospital, New Delhi using standardized questionnaires. The results showed significantly higher negative affect like inadequate mental mastery over immediate environment, perceived ill health including disturbed sleep, deficiency in social contacts, and a general ill being about life in the MI group (P<0.05). Regarding the positive emotions, the normal subjects showed a higher general well being positive affect, higher transcedence and higher perception of social support. (P<0.05).

The GHQ also yielded significantly better sleeping habits, less anxiety, better perception of health and more satisfaction with life in the normal subjects compared to post acute MI patients. (P<0.05).

Key words : subjective well being   negative affect
                      positive affect   transcendence
                      happiness index   general health questionnaire

INTRODUCTION

In 1967 subjective well being (SWB) was defined by Wilson as a happy person who is young, healthy, well educated, well paid, extroverted, optimistic, worry-free, religious and married with high self esteem, job morale, modest aspirations of either sex and of a wide range of intelligence (1). The relation of intelligence to SWB is measured

*Corresponding Author : Dr. Supriya Gupta, Email : guptasupriya59@hotmail.com

by the degree to which intelligent people excel in society (2). According to Diener et al (3, 4), quality of life is the most important variable in the domain of health and inventories for quality of life usually include subjective well being questions (4, 5). Regarding coronary heart disease, i.e. (CHD) which is known to be a lifestyle disorder, there are many studies that have found an association between negative emotions (6) as well as a lack of positive affect and CHD (7, 8, 9).

The GHQ (General Health Questionnaire) is a well established screening instrument for psychiatric disorders that measure psychological distress and has been found to predict coronary heart diseases prospectively (10, 11). By administering both the subjective well being questionnaire and the GHQ questionnaire we wanted to observe whether CHD is independently correlated with the happiness state and psychological distress of the individual. In the light of the above observations, the study discussed here was conducted on post acute first episode of myocardial infarction patients (n=50) compared with normal subjects. The hypothesis which was being tested was that subjective well being both positive & negative affects were different in young adults who have suffered a heart attack compared to their normal counterparts.

METHODS

Case control study was done in which 50 patients (posts acute myocardial infarction) and 50 normal patients in the same age group (30-55 yrs) were selected. All the subjects - post MI and normal were matched for sex (42 males & 8 females in each group). Before

starting the study we took a clearance from the institutional ethical committee. The myocardial infarction patients were scored using the Framingham score (12) and low risk patients were selected for the study.

The subjective well being inventory developed by Nagpal and Sell for WHO (13) was used to measure the subjective well being of the subjects. The questionnaire contains 40 items which cover 11 factors describing various aspects of well being and ill being as perceived by the subjects. Factors 1-6 describe items addressing positive emotions and factors 7-11 address negative emotions. The total positive and negative scores as well as individual factors were compared between the normal and post MI group, $P<0.05$ being a significant difference.

The general health questionnaire (GHQ –28) is a measure of current mental health and since its development by Goldberg in the 1970s (10) it has been extensively used in different settings and different cultures. Each item is rated on a four point scale (less than usual, no more than usual, rather more than usual or much more than usual). The GHQ–28 is a well known instrument for measuring minor psychological distress and gives an indication of mental health and quality of life, $P<0.05$ being a significant difference.

The ICMR index of emotional well being questions were used to compare the percentage time of happiness between normal and post MI patients (Statistical significance at $P<0.05$) (14). Happiness is one of the components of subjective well being and is considered more of a personality trait (15). All analysis was done using SPSS – 17 and

P values calculated at 95% confidence levels.

RESULTS

SUBI can be scored by attributing values 3, 2, 1 to response categories of the positive items and 1, 2 & 3 to the negative items. Fig 1 is showing mean scores for positive factors. The mean score for normal subjects is 28.78±4.979 and the mean score for post MI patients is 32.28±7.068. The maximum and minimum score in this category are 57 and 19 respectively. High scores (41-50) indicating low positivity is significantly higher in the post MI group (P<0.05 using Fischer exact test).
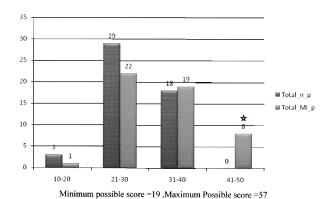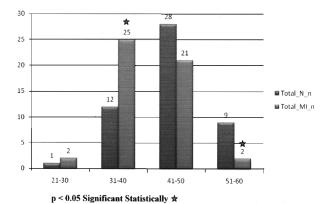

Minimum possible score =19 ,Maximum Possible score =57

Fig. 1 : Distribution of positive SUBI scores in Normal patients Mean = 28.78, N = 50 and MI patients Mean = 32.28, N = 50

Fig. 2 is showing mean scores for negative factors. The mean score for normal subjects in this group = 43.98±6.257 and the mean score for post MI patients in this group = 40.60±5.632. The maximum, and minimum scores in this category are 63 and 21 respectively. In the subgroup (31-40) which is a low score indicating high negativity is significantly higher in the post MI group (P<0.05) and vice versa for high scorers (51-60) (P<0.05). The GHQ-28 questionnaire was

p < 0.05 Significant Statistically ★

Minmum possible score = 21, Maximum Possible score = 63

Fig. 2 : Distribution of negative SUBI scores in Normal Subjects Mean = 43.98, N = 50 and MI patients Mean = 40.60, N = 50.

used to evaluate distress state of the patient and distress may be correlated with distress due to major illness. There are four main components of the GHQ with each component having 7 items. These 4 components are A) health general well being (positive affect) B) anxiety and sleep C) satisfaction with life D) negative self worth. All the components were compared between the control and post MI subjects.

Table I shows the general characteristics of the subjects. All the post MI subjects were interviewed 6 weeks post MI and Framingham scores were < 10%. Framingham scores were

TABLE I : General characteristics of subjects.

Variables	Normal Subject (n=50)	MI Patients (n=50)	P value
	Mean±SD		
Age, yr	40.71±7.61	47.42±7.21	0.01*
Height (cm)	161.760±5.42	162.51±6.667	0.53
Weight (kg)	61.50±9.22	65.34±11.247	0.06
Monthly income (in Rs)	17,891±9290.92	11,625±7097.71	0.02*

calculated based on age, total cholesterol, HDL cholesterol, systolic BP, diastolic BP, diabetes and smoking (12). The mean age of post MI patients was significantly higher than in normal patients (P<0.05) and monthly income was significantly higher in the normal group (P<0.05). The mean weight and height of subjects in both the groups were comparable.

Table II shows the comparison of positive and negative factors between normal and MI patients (there is a negative correlation between the scores vis-a vis these factors). Amongst the positive factors, Factor 1, factor 4 and factor 6 are showing significant difference between the 2 groups. While studying the negative factors, almost all the factors namely factor 8, 9, 10 and 11 are showing a significant difference between the two groups.

Results of General Health Questionnaire (GHQ)

TABLE II : Comparison of positive and negative factors between normal and MI patients.

	Normal (N=50)	MI (N=50)	P value
General Well Being (positive effect)	5.08±1.32	6.40±1.44	0.0001*
Expectation-Achievement congruence	5.78±1.30	6.02±1.52	0.360
Confidence in copying with difficult situations	4.78±1.33	5.18±1.39	0.170
Transcendence	4.48±1.46	5.10±1.76	0.053*
Family group support	4.08±1.07	4.10±1.47	0.933
Social support	4.58±1.37	5.48±2.06	0.014*
Family life	2.84±0.99	2.82±0.87	0.925
Inadequate mental mastery	11.78±2.38	10.66±2.78	0.028*
Perceived ill health	14.92±3.03	12.38±2.78	0.0003*
Deficiency in social contacts	6.66±2.01	7.98±1.29	0.0002*
General Well Being-Negative affect	7.78±1.34	6.76±1.78	0.001*

TABLE III : Current mental state given by Goldberg General Health Questionnaire GHQ-28).

	Normal (N=50)	MI (N=50)	P value
Health	9.96±2.32	12.43±4.05	0.001*
Anxiety & Sleep	9.12±3.35	11.10±5.25	0.011*
Satisfaction with life	12.08±3.25	15.14±3.99	0.0001*
Negative self worth	8.00±2.16	8.96±3.85	0.127

TABLE IV : Comparison of percent time (ICMR index of happiness).

	Normal (N=50)	MI (N=50)	P value
Happy	64.60±11.82	57.90±17.84	0.032*
Neutral	14.00±11.07	188.50±19.75	0.118
Unhappy	21.40±14.57	30.80±21.63	0.009*

*P<0.05 – Statistically significant.

A 28 item GHQ was administered to the 2 groups and the results compared by using unpaired student t test. P<0.05, being considered a significant difference at 95% confidence interval. The 28 items have been further subdivided into 4 major sections as follows :

(A) Health (B) Anxiety & Sleep (C) Satisfaction with life (D) Negative self worth (transcendence)

49 subjects were interviewed in each group - normal and post acute MI. They were essentially the same group which was interviewed for SUBI. Lower scores indicate the following (A) Better perception of health, (B) Less anxious & less worried about lack of sleep (C) Better satisfaction with life and (D) Less negative self worth.

The sections A, B & C are showing a significantly lower score i.e. a significant

difference in the normal subjects compared to the MI group (P<0.05). In the section D there is no significant difference between the two groups. The GHQ results show a better mental state in normal patients compared to the MI group.

Results of ICMR Emotional Well Being Questionnaire

50 subjects in each group - normal and post MI were interviewed about the percentage of time that they felt happy, neutral or unhappy. The subjects selected were the same as were interviewed for SUBI scores. Results showed that the mean percentage time that persons were happy was significantly higher in the normal subjects (P<0.05). As a natural corollary the mean percentage of time that people were unhappy was significantly higher in the post MI patients (P<0.05).

DISCUSSION

Subjective well being has been reported as a composite measure of independent feelings about a variety of life concerns, in addition to general well being and ill being. Lot of research findings have suggested a moderate and robust relationship between self rated health and subjective well being. Physician assessed health has a less robust relationship (16). Further, the relation between health & subjective well being is conditioned by age and is stronger for measures of negative than positive affect.

Two sets of mechanisms could theoretically mediate the relationship between affective states and physical health. Firstly positive well being might be associated with favorable health habits and prudent lifestyles. The second possibility is that associations are mediated through psychological processes, defined as the pathways by which psychosocial factors stimulate biological systems, through CNS activation of autonomic, neuro endocrine, inflammatory and immune responses (9, 11, 17, 18).

Researchers have indicated that positive affective states are related to favorable profiles of functioning in several biological systems and may thereby be relevant to risk of development of physical illness, especially in men (9, 11). Starting in 1982, a brain storming exercise was begun with the aim of establishing hypothetical areas which may reflect or be conducive to well being and/or ill being. The exercise led to a consensus on eight areas of common possibly related to or parts of well and ill being. These were subjective will being positive affect, subjective well being negative affect, mental mastery over self and environment, rootedness and belongingness, structural and cohesive aspects of family life, density of social network, security in crises (socio economic and related to health) and expectation-achievement harmony. The finding that well being and ill being are distinct but uncorrelated confirm earlier research findings (Headey et at, 1983). Our findings on the negative factors (SWB) have shown that significantly higher negative affective states are associated with patients after MI compared to normal subjects. These findings are corroborated by many studies (19). Which have shown that negative affective states such as depression are associated with increased risk of coronary heart disease. The first scientific quote about the brain

affecting the heart and emotion triggered cardiovascular changes leading to heart disease dates back 4 centuries to William Harvey in 1628. Stress factors may contribute to hard CHD end points because of alteration of autonomic nervous system functions (20). The findings of our study regarding the positive affects like general positive affect, transcendence (spirituality) and social support showed a significant difference in the normal subjects (P<0.05). Researchers like Davidson et al (15) have found that positive affect protected against the development of coronary heart disease while depressive symptoms increased the likelihood of disease onset. They also point out that positive affect can easily be assessed by measures such as whether or not the patient smiles during the clinical interview and whether they appear to take pleasure or excitement in aspects of their daily life. These are certain aspects which have been assessed by us both in the SUBI inventory as well as in the ICMR emotional well being inventory. Happiness levels have been shown to be significantly higher in the normal subjects (P<0.05). Many researchers feel that positive affect may have an indirect effect on CVD, perhaps by modifying the effects of stress and this stress reduction may decrease CVD risk (15, 21). Section B of GHQ which consisted of sleep related questions indicated better sleep patterns in normal subjects (P<0.05) (22).

To further validate the findings of the above questionnaire, we administered two more questionnaires to the same study and control group. ICMR index of emotional well being and mental health (modified) and General Health Questionnaire (28 items form). The ICMR index of emotional well being and mental health is a validated questionnaire tested on Indian populations. The percentage of time when the person feels happy, neutral and sad has been calculated by questioning all the individuals. Further our findings on factor 6 (social support) which shows a significantly higher (P<0.05) perception of social support in the normal subjects is supported by researchers who have reported that a strong and supportive social network is associated with increased happiness and a sense of well being (23). Lastly, our findings show a significantly lower current medical complaints, lower sleep and anxiety related problems and higher satisfaction with life in the normal group as derived by the GHQ. This finding is corroborated by Mark Hammer et al who have also showed an association between psychological distress and CVD (24). There have been studies using GHQ which has shown that post MI patients show significantly more somatic problems, anxiety and depression in some cases (25). Confounding factors like simultaneous occurrence of mental disorders like depression, history of recent tragedy in the family etc have not been taken into account which may contribute to happiness levels. A higher monthly income in the normal group and higher weight in the post MI group may have also contributed to better quality of life in the normal group. Keeping all this in proper perspective we have planned to undertake lifestyle and health behaviour interventions in MI patients in the young age group and assess the changes in subjective well being scores if any.

Quality of life is determined by various factors like life satisfaction, subjective well being, positive psychology and positive

mental health. All these factors and personality traits are measured by the subjective well being inventory. Our findings have shown significantly higher levels of general well being (positive affect), transcendence and social support (P<0.05) in the normal group compared with the post MI group. Regarding negative emotions there was significantly higher levels of inadequate mental mastery, perceived ill health, deficiency in social contacts and general well being (negative affect) (P<0.05) in the post MI group. The GHQ questionnaire covers the current mental status of the individual and psychological distress if any. This is also one of the components of quality of life. Our findings have shown significantly higher levels of concern about health, sleep and satisfaction with life in the post MI group. The ICMR index of happiness has also shown significantly higher percent time spent feeling happy in the normal group compared to the post MI group (P<0.05). 3 sets of questionnaires were used to get a complete picture of quality of life parameters.

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