

COGNITIVE REPRESENTATION OF ILLNESS, COPING AND WELLBEING IN CANCER PATIENTS

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ABSTRACT

Cancer can have substantial psychological consequences, but there has been a fewer researches in India looking at patients' beliefs about their condition and how they relate to psychological well being and quality of life (QoL). Hence, the present endeavour has investigated the relationships between cognitive representation of illness, coping, psychological well being and QoL in patients getting treatment for either mouth/neck cancer (M & N) or breast cancer. In total, 120 individuals with [60 mouth or neck cancer patients (all male) and 60 breast cancer patients (all female)] had participated (Mean age=47.70 years). Participants completed questionnaire comprising the Revised Illness Perception Questionnaire, WHO Quality of life (QoL) scale, Ryff Psychological well being questionnaire and the brief COPE. The findings indicated significantly different illness perception and use of coping strategies by two types of cancer patient groups. Furthermore, these groups had been differently evaluating their well being. The results of stepwise multiple regression analysis showed that four components of illness perception scale i.e. timeline, consequences, emotional response and overall illness perception had emerged as significant predictors of psychological well being and emotional response, whereas illness perception had emerged as significant predictors of QoL. The cognitive representation of illness had negative impact on well being. The strong relationships found between patients' beliefs about their condition and well being suggests that health professionals should recognize the psychological impact of cancer and address negative beliefs and emotions surrounding the condition in treatment programmes.

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INTRODUCTION

Cancer is one of the critical health problems intimidating health concerns in the whole world. India, United States and China all together comprise approximately one third of the global breast cancer burden (Statistics of Breast Cancer in India, 2015). The prevalence of mouth/neck cancer in males and breast cancer in females is rising in India. World Health Organization prediction for 2015 is that there will be an estimated 1,55,000 new cases of breast cancer and about 76000 women are expected to die of the disease ((Statistics of Breast Cancer in India, 2015). The unpredictability of cancer of any type and accompanied by its decidedly evident nature can result in extensive distress for individuals with both breast and neck cancer. As breast is an important component of identity, womanhood and self-image, loss can lead to a variety of psychological difficulties and negative impact on quality of life (QoL) (Dubey & Tripathi, 2015).

A crucial facet of theory and research in health psychology has to do with the fundamental question of how individuals' presume and interpret health threats. This in itself is the study of health and illness representations. Moreover, the self-regulatory model proposes that health-related behaviours are clearly shaped by ideas around definite themes, such as illness representations. The self-regulation model, a widely held approach to get the picture of chronic illnesses intended that when dealing with illness condition individuals' actively construct a representation of their state which is used to regulate coping and health-related behaviour (Leventhal, Brissette & Leventhal, 2003; Horne & Weinman, 2002). Leventhal and colleagues (1980) had recognized five components of illness perceptions which lead to coping and appraisal, namely, identity, timeline, cause, cure/control and consequences. The *identity* is beliefs about symptoms and the disease label. It can be contended that people like to have a label for their symptoms (for legitimization); *cause*, thoughts about how the disease has developed; *timeline*, anticipations about the characteristic illness course. These beliefs will be re-evaluated as time progresses, and it has been suggested that 'Inside every chronic patient is an acute patient wondering what happened' (Brown, 2002); *consequences*, beliefs about illness outcome; and *cure/control*, beliefs about recovery or control of the disease. In addition, the self-regulation model suggests that emotional representations proceed concurrently with cognitive representations to guide people's responses to illness. In a nutshell, the self-regulatory model see the health-related behaviour and adaptation as the result of an ongoing process in which, patients' assimilate the internal and external illness information with existing cognitive structures to construct an illness representation. Illness representations are in effect cumulative, with information being adopted, discarded or adapted as necessary.

Based around distinct components, these representations direct coping. Therefore, they are expected to be linked to the selection of coping procedures, action, plans and outcomes. Researchers have been keen to determine how illness representations might influence both coping and outcomes in a diverse range of chronic diseases, including chronic fatigue syndrome (CFS) (Moss-Morris, Petrie & Weinman, 1996), Addison's disease (Heijmans, 1999), psoriasis (Fortune, Richards, Main, & Griffiths, 2000), multiple sclerosis (Vaughan, Morrison & Miller, 2003) and rheumatoid arthritis (RA) (Treharne, Lyons, Booth & Kitas, 2005). The premise is that illness representations are related to coping efforts, and via these efforts to outcomes, i.e. coping acts as a mediator. However, research currently seems to indicate that illness representations may be associated with outcomes 'relatively' independent of the coping strategies used (Hagger & Orbell, 2003). Yet, this conclusion must be cautious that the direction of relationships might not be clear-cut as coping responses could influence illness representations which may then feedback to influence choice of coping strategy (Moss-Morris, Petrie & Weinman, 1996).

Moss-Morris, Petrie and Weinman (1996) had reported a range of significant relationships between illness representations, as measured by their Illness Perception Questionnaire (IPQ) and coping, as measured by the COPE scale (Carver, Scheier & Weintraub, 1989). Similar findings were reported for patients with a recent myocardial infarction (Petrie, Buckley & Weinman, 1995). Both illness representations and coping were found to be directly related to disability and psychological well-being. However, illness representations were stronger predictors of outcome than coping variables, accounting for 37 per cent and 19 per cent of outcome variance respectively.

The physical and psychological functioning of patients with a chronic illness varies strongly, even between patients with the same medical condition. The measurement of individual patients' health-related quality of life (HRQL) can be used in clinical practice to facilitate detection of physical or psychological problems, to monitor disease and treatment over time, and thus improve the delivery of medical care. As, Scharloo and associates (1998) stated that cognitive representations of illness were significantly related to physical, psychological and social functioning in all chronic illness groups; thus, the quality of life could better explain the illness representations. Also, Brook (2013) did a meta-analysis of the researches exploring illness perceptions measured by the Illness Perception Questionnaire (IPQ) or the Revised IPQ (IPQ-R); health outcomes included mental health and quality of life. Illness perceptions were significantly associated with health outcomes (Correlation 0.247, 95% CI, 0.176-0.314, $p=0.001$). Higher reporting of identity, chronic timeline, consequences and emotional representations were associated with higher reporting of anxiety, depression and stress. Higher reporting of personal and treatment control were associated with lower reporting of anxiety, depression and stress. Patterns of illness perceptions and coping,

coping and health outcomes did not remain significant in the meta-analysis; therefore coping did not meet the criteria of mediation.

Cancer can have significant psychological consequences, but there has been a fewer researches in India looking at patients' beliefs about their condition and how they relate to psychological well being and quality of life (QoL). Hence, the present endeavour had tried to investigate the relationships between cognitive representation of illness, coping, psychological well being and QoL in patients getting treatment for either mouth/neck cancer or breast cancer.

The present research addresses the following research questions-

- 1 How do two types of cancer patients perceive their illness, in terms of causes, timeline, control, consequences, coherence, and emotional representations?
- 2 To what extent do illness perceptions relate to the way two types of cancer patients are coping with their illness?
- 3 To what extent do illness perceptions relate to the evaluation of psychological well being and quality of life in two types of cancer patients?

Hypotheses

Although this study is mainly explorative in nature, we have formulated the following hypotheses with respect to the second research question: perceptions of one's cancer as being more controllable (by medical treatment and/or self-management) and more coherent (better understanding of the illness) shall relate to the use of more active coping strategies (i.e., moving toward the stressor), whereas perceptions of the illness as having more negative consequences and being more emotionally loaded shall relate to the use of more passive coping strategies (i.e., withdrawing from the stressor).

METHOD

Sample

For the purpose of this study, a random sample was drawn from the Hanuman Prasad Cancer Hospital and BRD Medical College, Gorakhpur. Inclusion criteria were: a diagnosis of mouth/neck/breast cancer (all tumour types with an expected 5-year survival rate of e"20%) and being aged e"18 years at diagnosis and the exclusion criteria were: a post-diagnosis time span of more than 15 years and the presence of distant metastases at time of diagnosis. A total of 120 cancer patients [60 mouth and neck cancer patients (all male) and 60 breast cancer patients (all female) were presented to the medical specialists involved in the care for these patients to check on additional exclusion criteria, such as patients' inability to participate because of severe mental disorder, intellectual disability, illiteracy, or terminal illness. The mean age of the patients was 47.70 years and all of them were married. The patients had given an informed consent to participate in the study.

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Measures

Illness Perception Questionnaire (IPQ-R): To assess cognitive and emotional representations of cancer, the Hindi version of the revised Illness Perception Questionnaire (IPQ-R) adapted by Srivastava and Kumar (2014) was used. The original IPQ-R was developed by Moss-Morris, Weinman, Petrie, Horne, Cameron, & Buick, (2002). The IPQ-R consists of seven scales: (1) Timeline: acute-chronic, (2) Causal attribution (3) Consequences, (4) Personal control, (5) Treatment control, (6) Illness coherence, (7) Emotional representations. The Causal attributions scale had Psychological attributions, Risk factors, and Immunity and two single Causal attribution items. We did not use an Identity scale ('label' and presence of symptoms attributed to the illness) because it was not possible to compose one that is applicable to our total sample (i.e., people with different types of cancer). Items are scored on 5- point Likert scales, ranging from 'strongly disagree' (1) to 'strongly agree' (5). All scales demonstrated good internal reliability with Cronbach's alphas ranging from 0.57 to 0.85 (Srivastava & Kumar, 2014).

WHO QoL BREF: This is a 26-item measure developed by WHO team would consist of four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items); and two overall QOL and general health items. The physical health domain includes items on mobility, daily activities, functional capacity and energy, pain, and sleep. The psychological domain measures self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory and concentration, religion, and the mental status. The social relationships domain contains questions on personal relationships, social support, and sex life. The environmental health domain covers issues related to financial resources, safety, health and social services, living physical environment, opportunities to acquire new skills and knowledge, recreation, general environment (noise, air pollution, etc.), and transportation. All scores are transformed to reflect 4 to 20 for each domain with higher scores corresponding to a better QOL. There is no overall score for the WHOQOL-BREF. The retest reliability of the Hindi version of the scale was sought and found ($r=0.79$) by Dubey (2003).

Coping Operation Preference Inquiry (COPE- Short Version): It measures the dispositional coping style. The short version of the scale was developed by Carver, Scheier and Weintraub (1998). Cope consists of 28 items that were divided into fourteen subscales having two items in each scale. Each scale emphasized a particular aspect of coping. This inventory measures a wide range of potential responses to stressors and also distinguishes each coping strategy. Different stressful events bring out somewhat different patterns of responses. Respondents were asked to indicate how they would react to stressors they encountered. They were asked to give, their responses on a 4 point scale as

–(1) I usually don't do this at all (2) I usually do this a little bit (3) I usually do this a medium amount (4) I usually do this a lot. The Cronbach alpha was .54 to .90 for the fourteen subscales was found. Name of subscales are active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons, seeking social support for emotional reasons, focus on venting of emotions, behavioural disengagement, mental disengagement, positive reinterpretation and growth, denial, acceptance, religion, alcohol or drug use and humour.

Psychological Well being: Developed by Ryff (1989), this scale has six subscales i.e. Self-Acceptance, Environmental Mastery, Positive Relations With Others, Personal Growth, Purpose in Life, and Autonomy. Each scale consisted of three items, with a mix of positive and negative items. Participants responded using a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), giving a potential range of 18–108. Six items are reverse scored. Cronbach's alphas for the overall sample were .73 for autonomy, .75 for environmental mastery,.78 for personal growth, .79 for positive relations with others,.69 for purpose in life, and .81 for self-acceptance, all of which are highly impressive given that these are three-item subscales.

Procedure

All participants provided informed consent; informed of their right to withdraw from the study, and were debriefed upon completion. A set of questionnaires had been given to the participants. The data was collected individually and it took around 40-45 minutes with each of the participants. After taking their responses thanks were given to them for their cooperation. The data was subjected to statistical analysis using computer software.

RESULTS

To examine whether the illness perceptions, coping strategies and related well being of cancer patients depend on their type of cancer, the analysis of variance was computed. To determine the effects of illness perceptions on coping and well being we conducted a series of multiple regression analyses. In one set of regression analysis different illness perception scales were entered as predictors and psychological well being as criterion variable and for another set of regression analysis the predictors were same but the criterion were different coping strategies. All analyses were performed using SPSS 20.00 version. Due to the number of relationships examined, the $p < .01$ significance level was adopted for these and later calculations to avoid Type 1 error.

Significant differences emerged in cognitive representation of illness in two types of cancer patients. Table 1 contains the means and F ratio of IPQ-R scale scores. It shows a relatively high mean on the scale 'Timeline: acute-chronic' for M & N group in comparison to breast cancer group. This indicated that many

of the M & N group participants perceive their illness to continue for a long time but that there were also participants with another opinion in this respect. The high mean scores on the scales 'Treatment control' and 'Illness coherence' indicated that M & N group participants have a strong belief in the effectiveness of the cancer treatment and believe that they understand their illness rather well than breast cancer patients. It should be noticed that, in general, M & N group patients perceive their 'Personal control' over the illness to be much lower than its controllability breast cancer group. Regarding 'causal attributions', relatively low scores on the 'Psychological' scale indicated that M & N group participants did not perceive psychological factors to be a major cause of their illness. In contrast, they attribute their illness more to chance or bad luck, although there was some variety among the scores in this respect. The M & N group patients were more emotional to their condition scoring high on 'Emotional response' and perceiving more negative 'consequences' than breast cancer patients (Table 1).

Table 1: Mean, S.D. and F ratio of Cognitive representation of Illness

Cognitive representation of Illness	Mouth & Neck Cancer Group (M&N)		Breast Cancer Group		F ratio	Sig.
	Mean	S.D.	Mean	S.D.		
Consequences	23.56	3.18	15.90	5.50	86.13	.000
Personal control	13.91	4.24	22.63	3.08	165.77	.000
Treatment control	22.90	2.51	17.18	4.41	75.89	.000
Illness coherence	16.73	3.82	13.83	4.19	17.86	.000
Timeline	19.66	4.34	10.13	5.28	116.55	.000
Emotional response	24.56	2.61	15.83	4.57	164.92	.000
Causal attribution	16.61	4.90	33.06	8.03	183.23	.000

Table 2: Mean, S.D. and F ratio of Coping Strategies

Coping Strategies	Mouth & Neck Cancer Group		Breast Cancer Group		F ratio	Sig.
	Mean	S.D.	Mean	S.D.		
Self distraction	5.13	1.44	5.66	1.52	3.86	.05
Active coping	5.55	1.53	5.73	1.47	5.52	.02
Denial	5.60	1.44	5.76	1.53	4.88	.02
Substance use	5.51	1.39	5.64	1.36	.21	.64
Emotional social support	5.10	1.32	4.98	1.54	.19	.65
Instrumental social support	5.43	1.68	6.21	1.45	7.46	.007
Behavioural disengagement	5.23	1.57	5.48	1.50	.79	.37

Venting	5.13	1.67	5.26	1.53	.20	.65
Positive reframing	5.30	1.67	5.33	1.55	.01	.91
Planning	5.26	1.50	4.50	1.42	7.80	.006
Humour	4.88	1.50	4.96	1.53	.09	.76
Acceptance	4.25	2.04	4.46	1.80	.37	.54
Religion	4.91	1.79	5.26	1.52	1.36	.25
Self blame	5.46	1.44	4.03	1.54	12.97	.000

The cancer patients afflicted with two different types of cancer were using some coping strategies significantly more than other group. Table 2 hold the mean and F ratio of different coping strategies used by the participants, which suggested that active coping, instrumental social support, planning, self distraction and denial was used significantly more by breast cancer patients, however, self blame was more used by M & N group. Rest of the coping strategies assessed by the COPE scale was almost equally used by both groups (Table 2).

Table 3: Mean, S.D. and F ratio of Well-being

Well being	Mouth & Neck Cancer Group		Breast Cancer Group		F ratio	Sig.
	Mean	S.D.	Mean	S.D.		
Psychological well being	70.26	9.88	76.48	9.44	12.40	.001
Qol	63.73	5.89	67.13	4.83	.11.92	.001

Table 3 presents the mean and F ratio of psychological well being and quality of life. The M & N group of cancer patients were evaluating their psychological well being as well as quality of life significantly less than breast cancer patients.

Table 4 presented the how were the dimensions of illness perception were predicted the use of different coping strategies by patients afflicted with two different cancers. Firstly, the coping strategies predicted by illness perception in both M & N and breast cancer group had been reported, followed by only M & N group and then only breast cancer group.

It was found that causal attribution and consequences had positively and significantly predicted self distraction coping strategies in M & N group and breast cancer group respectively. The causal attribution had explained 10.8% variance in criterion variable self distraction in M & N group. The perception of consequences had explicated 5.9% variance in criterion variable self distraction in breast cancer group.

Table 4: Cognitive representation of illness as predictors of Coping Strategies

<i>Criterion: Coping Strategies</i>	<i>Groups</i>	<i>Predictors</i>	<i>R</i>	<i>R²</i>	<i>R² change</i>	<i>β</i>	<i>t</i>	<i>F</i>
Self Distraction	M & N	Causal Attribution	.32	.108	.108	.32	2.62**	7.00**
	Breast	Consequences	.40	.059	.059	.24	2.00**	5.70**
Seeking Emotional	M & N	Emotional response	.28	.083	.083	.31	2.59**	5.22**
	Breast	Consequences	.39	.071	.071	.27	2.18**	5.16**
Social Support	M & N	TimelineCyclical	.29	.085	.085	.29	2.32**	5.38**
	Breast	Consequences	.28	.083	.083	.29	2.32**	5.38**
Positive reframing	M & N	Illness Coherence	.31	.097	.097	.33	2.76**	6.21**
	Breast	Treatment control	.40	.070	.070	-.26	-2.19*	5.69**
Planning	M & N	Treatment control	.30	.095	.095	-.30	-2.46**	6.09**
	Breast	Treatment control	.27	.075	.075	.27	2.17**	4.71**
Substance use	M & N	Treatment control	.30	.095	.095	-.30	-2.46**	6.09**
	Breast	Treatment control	.29	.087	.087	-.31	-2.57**	5.52**
Active Coping	M & N	Personal control	.38	.151	.084	.25	2.06**	5.05**
	Breast	Treatment control	.29	.086	.086	-.29	-2.33**	5.44**
Venting offEmotions	M & N	Treatment control	.30	.094	.094	-.30	-2.45**	6.03**
	Breast	Personal Control	.31	.097	.097	-.31	-2.50	6.25
Religion	M & N	Personal control	.25	.067	.067	-.25	-2.04**	4.17**
	Breast	Consequences	.38	.146	.146	-.38	-3.14**	9.91**
Acceptance	M & N	Causal attribution	.30	.091	.091	.30	2.41**	5.83**
	Breast	Timeline cyclical	.31	.102	.102	.31	2.56**	6.58**

Note - P<.01**

Furthermore, emotional response and consequences had positively and significantly predicted seeking emotional social support coping strategy in M & N group and breast cancer group respectively. The emotional response had explained 8.3% variance in criterion variable seeking emotional social support coping in M & N group. The perception of consequences had explicated 7.1% variance in criterion variable seeking emotional social support coping in breast cancer group.

Additionally, timeline and consequences had positively and significantly predicted seeking instrumental social support coping strategy in M & N group and breast cancer group respectively. The timeline had accounted for 8.5% variance in criterion variable seeking instrumental social support coping in M & N group. The perception of consequences had contributed 8.3% variance in criterion variable seeking instrumental social support coping in breast cancer group.

Moreover, illness coherence and treatment control had significantly predicted positive reframing coping strategy in M & N group and breast cancer group respectively. The illness coherence had positively explained 9.7% variance in criterion variable positive reframing coping in M & N group. The treatment control had negatively explicated 7.0% variance in criterion variable positive reframing coping in breast cancer group.

In addition, treatment control had significantly predicted planning coping strategy in both M & N group and breast cancer group. However, the treatment control had negatively explained 9.5% variance in criterion variable planning coping strategy in M & N group but positively explicated 7.5% variance in criterion variable in breast cancer group. Besides this, treatment control had also significantly predicted substance use coping strategy in both M & N group and breast cancer group. In cancer patient group personal control also predicted substance use along with treatment control and these two variables together explained 17.1% variance. However, the treatment control had negatively explained 9.5% and 8.7% variance in criterion variable substance use coping strategy in M & N group and breast cancer group respectively. The personal control had positively accounted for 8.4% variance in the application of substance use coping strategy.

Active coping, venting off emotions, self blame and religion were the coping strategies which were significantly predicted by two illness perception dimensions i.e. treatment control and personal control in M & N group only. Table 4 showed that the perception of treatment control had negatively predicted 8.6% variance in the use of active coping strategy and 9.4% variance in the use of venting off emotions. Similarly, personal control had negatively explained 9.7% variance in the use of religion coping strategy and 6.7% variance in the use of self blame coping strategy.

Acceptance, behavioural disengagement and denial were the coping strategies which were significantly predicted by different illness perception dimensions in

breast cancer patient group only (Table 4). The perception of consequences had significantly and negatively explained 14.6% variance in the use of acceptance coping strategy. The causal attribution of illness perception dimension had significantly and positively explained 9.1% variance in the use of behavioural disengagement coping strategy. The perception of timeline cyclical had significantly and positively explained 10.2% variance in the use of denial coping strategy.

Table 5: Cognitive representation of illness as predictors of Wellbeing

<i>Criterion</i>	<i>Groups</i>	<i>Predictors</i>	<i>R</i>	<i>R²</i>	<i>R²change</i>	<i>β</i>	<i>t</i>	<i>F</i>
Psychological well being	M & N	TimeLine	.27	.07	.077	-.27	-2.19**	4.02**
	Breast	Consequences	.62	.38	.389	-.62	-6.08**	36.96**
Quality of Life	M & N	Emotional response	.35	.12	.125	.36	2.87**	8.27**
	Breast	Illness Perception	.49	.12	.122	-.35	-3.04**	9.35**

Note - P<.01**

P<.05*

Psychological well being had been predicted by timeline and consequences in M & N group and breast cancer group respectively. The timeline had negatively explained 7.7% variance in criterion variable psychological well being in M & N group. The consequences had negatively explicated 38.9% variance in criterion variable psychological well being in breast cancer group. Similarly, QoL had been predicted by emotional response and illness perception in M & N group and breast cancer group respectively. The emotional response had positively explained 12.5% variance in criterion variable QoL in M & N group. The illness perception had negatively explicated 12.2% variance in criterion variable QoL in breast cancer group (Table 5).

DISCUSSION

The onset of illness gives rise to a range of problems, which can vary greatly from patient to patient, even in those with the same condition. In recent years health psychologists have shown that, in order to make sense of and respond to these problems, patients create their own models or representations of their illness. Examination of the relationships between cognitive representations of illness, coping and well-being in the two groups of cancer patients (M & N, and Breast Cancer) revealed certain significant findings.

Patients with higher Time-line scores are less likely to see their illness as potentially controllable or curable and to have more severe personal consequences. Patients with mouth and neck cancer who perceived their illness as chronic were using instrumental social support as a coping strategy. Since the prognosis as well as living with mouth and neck cancer is not very satisfactory, hence the

patients try to seek external support. While, when perceiving their disease as cyclic, breast cancer patients adopted denial coping strategy. They question that it cannot happen again.

The consequences component of illness perception was related to patients' ideas about the illness severity and probable impact on their physical, social, psychological functioning, including both the long-term and short-term effects of cancer. The findings revealed that M&N cancer patients tend to perceive more negative consequences of their illness as compared to breast cancer patients, the possible cause being better prognosis rate of breast cancer treatment, cure and survival when diagnosed in early stages. The breast cancer patients heard a number of successful treatment and survival stories from their doctors and other people and formed their perception accordingly. This was stated by them during interview. They also recognize their illness to have better long-term outcomes; hence they espouse seeking emotional and instrumental support coping for adapting to the situation. As stated earlier about the prognosis and difficulty in living with mouth and neck cancer, these patients perceive their illness to be dreadful; hence, they employ self-distraction coping strategy. Thus, this finding is supported by results of Petrie, and associates (1996) that patients who believe that their illness was not curable were likely to attend rehabilitation programs. At the same time, the breast cancer patients also seek for acceptance coping strategy but only when they foresee negative consequences of illness.

Cure/ controllability part designates the degree to which patients believe their condition is acquiescent to cure or control. It encompasses both personal and treatment control, as Buick (1997) puts that patient's illness perceptions were found to guide treatment behaviours. The M&N cancer patients observe now that they have low personal control over their illness and subsequently they utilize religion and self-blaming strategies. On the other hand, the breast cancer patients take on substance use, considering personal control on illness. The M&N cancer patients adhere and believe in treatment and thus they adopt inactive coping and find expression for their emotions. Breast cancer patients adopt planning and positive reframing with low substance use, as they do not believe much in treatment, rather they perceive their own personal control on illness. The findings are consistent with the results of Heijmans and Ridder (1999) that states that the personal control dimension tends to be positively related to adaptive outcomes and negatively related to maladaptive outcomes.

Patient's cognitive representation of illness also comprises the perception of patient about the causes of illness. Jirojwong and associates (1994) found in their study that patients perceive previous actions to be the cause of their illness. The M&N cancer patients attribute the causes of their illness not to psychological factors, but to luck and chance. Thereby, they make use of self-distraction coping

strategies. Whereas, the breast cancer patients attribute to external causes and show acceptance towards illness.

Leventhal's (1984) self-regulation model states that cognitive components and emotional components are separate, parallel processes, and lead to coping. However, findings reveal high emotional responses in M&N patients, who also seek for emotional social support. This finding could be explained in context of research by Wellisch and associates (1999), who established that in Asian cultures, cancer is viewed as disease brought on by character weaknesses, genetic predispositions, and perhaps by personal lifestyle choices. Also, the Asian perspective of personal, intrinsic moral causation of cancer could discourage seeking medical advice and social support outside one's immediate circle because of the attached stigma. Illness coherence, also a dimension of illness representation, indicates the overall meaning of the illness to the patient. Illness coherence in M&N cancer patients is found to be high whereby they adopt positive reframing coping strategy.

Thus, we can infer that the only hypothesis of the study is accepted which states that perceptions of one's cancer as being more controllable (by medical treatment and/or self-management) and more coherent (better understanding of the illness) relate to the use of more active coping strategies (i.e., moving toward the stressor), whereas perceptions of the illness as having more negative consequences and being more emotionally loaded relate to the use of more passive coping strategies (i.e., withdrawing from the stressor). Rutter and Rutter (2002) and Heijmans (1999) also found in their study that the cognitive representation dimensions identity, consequences and timeline have positive relationships with passive and emotion-focused coping strategies such as avoidance, denial, cognitive reappraisal and venting emotions. Furthermore, the results revealed that the more controllable an illness is perceived, the more problem-focused coping strategies are used as active coping.

The findings of study by Orbell and Hagger (2003) reveal that strong positive relationships exist between the cognitive representation dimensions identity, serious consequences and timeline, and maladaptive outcomes such as anxiety and depression, and stress also tend to be negatively related to adaptive outcomes such as functioning and psychological well-being. Thus, the study also attempted to know as to what extent does illness perceptions relate to the evaluation of psychological well being and quality of life by two types of cancer patients. The findings revealed that psychological well being is negatively affected in M&N cancer group as they perceive their illness to be chronic. While, well-being is found to be better in breast cancer patients as predicted by perceiving positive consequences of their illness. Similarly, Quality of life in breast cancer group is slightly better than M&N group patient and is predicted by illness perception. While, if M&N group bear negative emotional responses towards their illness, then their quality of life is affected.

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