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Effect of Illness Duration and Gender on Coping Skills Deficiency among Chronic Illness Patients

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Keywords

coping skills deficiency, illness duration, gender, ANOVA

Abstract

This quantitative study examines the coping skills deficiency among chronic illness patients based on their illness duration and gender, and the interaction between the two. A clinical sample of 1198 patients were recruited using purposive sampling technique. The data were analyzed using two-way ANOVA. Results showed a significant difference in coping skills deficiency with respect to illness duration. On the dimensions of anxiety and frustration, no significant difference was found between men and women. Further, no interaction effect was observed. Coping skills deficiency was exhibited more by individuals who were recently diagnosed with their chronic condition and had been living with it for less than 4 years compared to individuals who had it for more than 4 years. Recommendations for future research may include a qualitative understanding of individualized perceptions rather than collective perceptions related to chronic illness-related coping mechanisms.

Introduction

Medical technology has been developing rapidly. Despite the advancements in medical technology, human beings are not free from chronic illnesses and associated negative consequences, both physical and psychological. One of the major contributing factors towards an individual's chronic illness is their lifestyle. A chronic illness is understood as any illness sustaining for a period of more than 6 months and with a prolonged dormancy of clinical course; of multi-factorial aetiology; with no certain cure. Non-communicable diseases contribute towards 60% of the total deaths in India (Nethan, Sinha & Mehrotra, 2017). According to WHO (2021), the leading chronic illnesses are cardiovascular diseases, cancers, respiratory diseases and diabetes. Global disability adjusted life years for several non-communicable diseases increased by 40.1% as on 2017 (Kyu et al., 2017).

The risk factors for developing chronic illnesses may include environmental factors, cultural factors, political factors, and socioeconomic factors. Besides these heredity, age, and familial factors may also contribute to the development of certain chronic diseases. Furthermore, the urbanization and globalization have also been contributing to the risk factors for NCDs as these phenomena influence the lifestyle and health behaviour of people immensely.

Larsen and Lubkin(2006)define chronic illness as the lived experience of the individual and family diagnosed with chronic disease. The values of individual and family impact the perceptions and beliefs of the health behaviours. These values are influenced by demographic, technological, cultural, and environmental factors. Thus, it can be argued that the chronic illness affects the individuals in their totality including biological domain such as physiological status and physical symptoms; psychological domain such as perception and beliefs about illness, emotional well-being, self-efficacy, coping mechanisms; and social domain including interpersonal relationships and perceived social support.

Coping with Chronic Illness

Coping is a dynamic process involving the interaction and influence between the individuals and their environment. People differ in the way they handle or cope with any chronic illness and the associated problems they face (Sarafino & Smith, 2014). Coping is the action by which individuals try to handle any perceived discrepancy that they appraise in a stressful situation, between the demands presented and the available resources (Sarafino & Smith, 2014). These individual differences in coping with chronic illness are attributed to typical coping strategies people adopt. These strategies include information seeking, avoidance, selective ignoring, learning about illness-related aspects and seeking comfort from others (Felton & Revenson, 1984).

Crisis theory (Moos, 1982) focuses on the factors influencing the coping process such as illness-related factors (treatment regimen, use of artificial devices), background and personal factors (personality traits, age, gender) and social factors (health facilities, interpersonal relationships, and nature of social support). These factors are mutually interrelated and affect the coping process collectively. The coping process starts with an individual's cognitive appraisal of the health problem or perception of the illness. This cognitive appraisal facilitates the person to devise adaptive tasks and to exercise numerous coping skills in order to manage these tasks. Two main types of adaptive tasks involve 'tasks related to the illness or treatment' (managing illness symptoms and adjusting to the illness-related procedures) and 'tasks related to general psychosocial functioning' such as controlling negative affect, maintaining healthy interpersonal relationships, and retaining a positive sense of self (Sarafino & Smith, 2014).

Chronic illnesses have adverse psychological consequences which are seldom addressed in clinical settings. Individuals often rely on their internal and external resources for coping by

managing the stress related to their chronic illness. Coping strategies differ in their type and style across chronic conditions. Individual differences highly affect the nature and types of coping strategies used. Personality traits are an important predictor of coping as they operate in almost all situations unlike coping styles which come into play only when encountered with a stressful situation (Taylor, 2015).

The individuals diagnosed with chronic conditions often experience a high level of frustration and anxiety due to fear and the inability to deal with symptoms and consequences of the illness. Maladaptive coping is correlated with poorer quality of life, depressive and anxiety symptoms in individuals with diabetes (Burns et al., 2016; Clarke & Goosen, 2009; Smari & Valtysdottir, 1997; Zhang et al., 2009). Rheumatoid arthritis patients engaging in dysfunctional coping were found to be suffering from depression (Ziarko et al., 2014). Another study found that emotion-focused coping results in adverse consequences while problem-focused coping results in beneficial consequences in relation to anxiety and depression in an adult sample with Crohn's disease (Knowles et al., 2011). Maladaptive coping acts as a mediator between illness perception and depression and anxiety in chronic illness patients. (Hagger et al., 2017; Knowles et al., 2017). This maladaptive coping is reflected in individuals with chronic illnesses through their coping skills deficiency.

In the current study, coping skills deficiency is measured on the dimensions of anxiety, frustration, disappointment, rejection and disapproval; which are some of the negative emotions, an individual suffering from a chronic illness experiences. Coping with these dimensions is very important in adapting successfully to a chronic condition. Anxiety as a resultant of fear is often seen in patients diagnosed with a chronic condition, especially in patients awaiting test results. Frustration is caused due to the inability of an individual in being able to deal with the symptoms of the disease and hassles that come along with it. Also, frustration is often experienced as a resultant of reduced mental and physical abilities which can be as incapacitating as the chronic illness itself. Disappointment when occurring due to a minor issue pertaining to our everyday lives is easier to cope with rather than in the context of a more severe situation such as a disabling or threatening chronic condition. Rejection is often experienced by chronically ill individuals during the course of their treatment from their families, friends and spouses which affects their adjustment patterns.

Therefore, it is imperative to investigate the existing level of coping skills in individuals with chronic illness and which individuals experience higher coping skills deficiency.

Coping in individuals with chronic illness is affected by several clinical, demographic and psychosocial factors. Illness duration and gender are two such factors that have been sparingly explored in relation to coping with chronic illnesses.

Illness Duration and Coping in Chronic Illness

The amount of time that passes after the diagnosis of any chronic illness has an impact on the individual's experience of the chronic illness. Illness duration has been positively associated with adherence, sleep problems and quality of life (Bhandari, 2016; Jankowska-Polańska et al., 2017; Uchmanowicz et al., 2019) across various chronic illnesses. Most research on chronic illnesses study participants who have a long illness duration. Thus, there is less knowledge available about those who are in the nascent stages of their illness (Kneck et al., 2011).

Out of the limited studies that have assessed the correlation between illness duration and coping behaviour, one study (Rassart et al, 2014) found a positive correlation between duration of illness and two ways of coping – passive resignation and avoidant coping – in diabetic individuals from Belgium. In another study; Brown, Brown and Jason (2010) found that participants with a longer illness duration had greater use of coping strategies like planning and acceptance, positive

reframing, active coping, and lower use of behavioural disengagement than those in the shorter illness duration group. Such findings demonstrate a need for researchers to explore the effect of illness duration on coping in individuals with chronic illness.

Gender and Coping in Chronic Illness

"Gender" is a multi-faceted variable including biological, social and psychological differences (Moller-Leimkuhler, 2007). Literature related to the role of gender in physical morbidities is limited in comparison to understanding the differences in mortality (Read & Gorman, 2010). Gender differences related to chronic illnesses can be reflected in individuals' illness perception, health-seeking behaviour, perceived stigma, support system, coping mechanisms and psychological adjustment amongst others.

Gender related differences are reflected in the usage of coping skills at the physical and psychological level attributed to sexual dimorphism in the brain, physiological make up of sex hormones, hormonal differences etc. (Sinha & Latha, 2018).

Gender differences were reported among individuals suffering with Type-2 diabetes where men showed increased adjustment, coping, integration, quality of life, and wellbeing in comparison to women (Sridhar et al., 2007). Though elevated symptoms of anxiety were observed in both men and women in a diabetic sample, prevalence of the symptoms were more among the women compared to men (Grigsby et al., 2002) and additionally, the type of coping strategy employed was seen to affect the individual's anxiety and depression levels differently among men and women (Duangdao & Roesch, 2008).

A study by Farcas and Nastasa (2011) also showed gender plays a significant role in selecting a coping mechanism. In their study, women frequently used seeking social and emotional support, denial and positive thinking, venting of emotions and on the other hand men employed, mental and behavioural disengagement, and seeking instrumental social support as coping mechanisms. In older (65-79 years), depressive, anxious or patients with multiple comorbidities venting of emotions was used as a passive type of coping.

Living with chronic illness is often challenging. Every individual experiences a unique combination of life events, processes, and outcomes underlying their adjustment to a chronic illness. Based on the literature discussed above, the following objectives were made:

Objective 1: To find out the effect of illness duration on coping skills deficiency.

Objective 2. To find out the difference between men and women on coping skills deficiency.

Objective 3. To find out the interaction effect of illness duration and gender on chronic illness deficiency.

Based on the objectives, the following hypothesis were formulated:

Hypothesis 1: There would be an effect of illness duration on coping skills deficiency.

Hypothesis 2: There would be a difference between men and women on coping skills deficiency.

Hypothesis 3: There would be an interaction effect of illness duration and gender on coping skills deficiency.

Materials and Methods

The objective of this causal comparative study is to determine chronic illness patients' coping skills deficiency based on illness duration as well as gender. The research design employed in this study is a 3 (Illness Duration) X 2 (Gender) independent groups factorial design with unequal cell sizes. The independent variables are illness duration (Group 1: 1 month-4 years; Group 2: above 4 years-9 years; Group 3: above 9 years to 20 years) and gender (men and women). The dependent variable is coping skills deficiency. A two-way ANOVA will be utilized to compare the independent groups based on the dependent variable.

Participants

The participants considered for this study were persons with chronic illness (es) from different parts of India. Purposive sampling technique was used to employ a total of 1198 chronic illness patients (589 men and 609 women). The age range was 25-75 years (M = 51.07, SD = 11.61). The sample consisted of participants with different chronic illnesses such as cardiovascular diseases, arthritis, asthma, cancer, diabetes, and thyroid disorders with the illness duration ranging from 1 month to 20 years, and were categorized into three groups based on the illness duration (Group 1: 1 month - 4 years; Group 2: above 4 years - 9 years; Group 3: above 9 years - 20 years). Group 1 consisted of 404 (190 male, 214 female; 33.7%), Group 2 consisted of 396 (192 male, 204 female; 33.1%), and Group 3 consisted of 398 (207 male, 191 female; 33.2%) participants respectively. Levene's test of equality of variances indicated the homogeneity of variances across the three groups.

Measure

The coping skills deficiency scale (Sharoff, 2004) was used for this study to measure the level of coping skills deficiency of the participants. The scale consists of 18 items in the form of questions. These items measure 4 dimensions of coping skills deficiency which are anxiety, frustration, disappointment, rejection and disapproval. It is a 6-point Likert scale with options ranging from 0 (none at all) to 5 (an exceptional amount). A high score reflects a high level of coping skills deficiency i.e. a low score shows higher coping ability. Similarly, a low score reflects a low level of coping skills deficiency i.e. a high score shows lower coping ability. The maximum score that could be obtained is 90 and the minimum score that could be obtained is 0. Cronbach's alpha for the scale for this study is .81.

Results

This multivariate study used a two-way ANOVA (Analysis of Variance) to test the hypotheses. The independent variables were illness duration and gender. The dependent variable was coping skills deficiency.

Table 1: *Group Descriptive Statistics Dependent Variable: anxiety, Frustration, Disappointment, Rejection and disapproval*

		Anxiety		Frustration		Disappointment		Rejection and disapproval		
Illness Duration	*Gender*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*N*
1	M	6.64	2.20	7.53	2.22	14.21	4.47	13.92	5.52	190
	F	7.04	2.44	7.75	2.15	15.07	4.77	15.06	5.34	214
	Total	6.85	2.34	7.52	2.19	14.66	4.65	14.52	5.45	404
2	M	6.34	2.18	6.74	2.09	12.29	4.91	11.45	5.28	192
	F	6.57	2.56	7.24	2.34	13.55	5.27	12.91	6.08	204
	Total	6.46	2.38	7.00	2.23	12.93	5.13	12.21	5.74	396
3	M	6.16	2.23	6.99	2.01	12.55	4.90	12.03	5.63	207
	F	6.31	2.36	7.04	2.22	14.17	4.96	13.45	6.07	191
	Total	6.24	2.29	7.01	2.11	13.33	4.99	12.71	5.87	398
Total	M	6.37	2.21	7.08	2.13	13.00	4.83	12.45	5.57	589
	F	6.66	2.47	7.27	2.24	14.28	5.04	13.84	5.89	609
	Total	6.52	2.35	7.18	2.19	13.65	4.98	13.16	5.77	1198

The assumption of homogeneity of variances was determined using Levene's test which is given in Table 2. No violations to Levene's test were found and the assumption of homogeneity of variances was met. See Table 1 for Levene's Test of Equality of Error Variances.

Table 2: *Levene's Test of Equality of Error Variances*

Dependent variable	*F*	*Df1*	*Df2*	*Significance*
Anxiety	1.87	5	1192	.10
Frustration	1.31	5	1192	.25
Disappointment	1.67	5	1192	.14
Rejection and disapproval	1.45	5	1192	.21

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

As Levene's test of equality of error variances tests homogeneity of variances, the non-significant results indicate that there is homogeneity of variances across groups in all four dimensions.

Table 3 *ANOVA performed on Anxiety score of the participants' illness duration and gender*

Anxiety					
Sources	SS	df	MS	F	Effect size
Illness Duration (A)	74.09	2	37.04	6.76**	.01
Gender (B)	20.47	1	20.47	3.74	
A x B	3.41	2	1.71	0.31	
Error	6531.165	1192	5.48		

** p = .001

Anxiety (dimension of coping skills deficiency)

A two-way between groups analysis of variance was conducted to explore the impact of illness duration and gender on anxiety (dimension of coping skills deficiency). Participants were divided into three groups according to the illness duration (Group 1: 1 month-4 years; Group 2: above 4 years-9 years; Group 3: above 9 years). The interaction effect between illness duration and gender was not statistically significant F (2, 1192) = .31, p > .05. There was a statistically significant main effect for illness duration F (2, 1192) = 6.76, p < .01; however, the main effect was small (partial eta squared = .01). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the participants from group 1 (M = 6.85, SD = 2.34) was significantly different from group 2 (M = 6.46, SD = 2.39) and group 3 (M = 6.24, SD = 2.30) in terms of anxiety (*MD*=0.39, p<0.05),(*MD*=0.62, p<0.01) respectively. Group 2 did not statistically differ from Group 3 in terms of anxiety. The main effect for type of gender was not statistically significant F (1, 1192) = 3.74, p > .05.

Table 4. *ANOVA performed on Frustration score of the participants' illness duration and gender*

Frustration					
Sources	SS	Df	MS	F	Effect size
illness duration (A)	71.24	2	35.62	7.51***	.01
Gender (B)	9.14	1	9.14	1.93	
A x B	15.58	2	7.79	1.64	
Error	5654.16	1192	4.74		

*** p = .001

Frustration (dimension of coping skills deficiency)

A two-way between groups analysis of variance was conducted to explore the impact of illness duration and gender on frustration (dimension of coping skills deficiency). Participants were divided into three groups according to the illness duration (group 1: 1 month-4 years; group 2: above 4 years-9 years; group 3: above 9 years). The interaction effect between illness duration and gender was not statistically significant *F* (2, 1192) = 1.64, p > .05. There was a statistically significant main effect for illness duration F (2, 1192) = 7.51, p < .01; however, the main effect was small (partial eta squared = .01). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the participants from group 1 (M = 7.52, SD = 2.19) was significantly different from group 2 (M = 7.0, SD = 2.23) and group 3 (M = 7.02, SD = 2.12) in terms of frustration (*MD*=0.52, p<0.01),(*MD*=0.50, p<0.01) respectively. The group 2 did not statistically differ from group 3. The main effect for type of gender was not statistically significant F (1, 1192) = 1.93, p > .05.

Table 5 *ANOVA performed on Disappointment score of the subjects in illness duration and gender*

Disappointment					
Sources	SS	df	MS	F	Effect size
Illness Duration (A)	634.022	2	317.01	13.25***	.02
Gender (B)	465.709	1	465.71	19.46***	.02
A x B	28.72	2	14.36	.60	
Error	28522.14	1192	23.93		

*** p = .000

Disappointment (dimension of coping skills deficiency)

A two-way between groups analysis of variance was conducted to explore the impact of illness duration and gender on disappointment (dimension of coping skills deficiency). Participants were divided into three groups according the illness duration (group 1: 1 month-4 years; group 2: above 4 years-9 years; group 3: above 9 years). The interaction effect between illness duration and gender was not statistically significant F (2, 1192) = .60, p > .05. There was a statistically significant main effect for illness duration F (2, 1192) = 13.25, p < .001; however, the main effect was small (partial eta squared = .02). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the participants from group 1 (M = 14.66, SD = 4.65) was significantly different from group 2 (M = 12.94, SD = 5.13) and group 3 (M = 13.33, SD = 4.99) in terms of disappointment (*MD*=1.72, *p*<0.001), (*MD*=1.33, *p*<0.001) The group 2 did not statistically differ from group 3. The main effect for type of gender was statistically significant F (1, 1192) = 19.46, p < .001; with a small effect (partial eta squared = .02).

Table 6: *ANOVA performed on Rejection and disapproval score of the participants' illness duration and gender*

Rejection and disapproval					
Sources	SS	df	MS	F	Effect size
Illness Duration (A)	1155.50	2	577.75	18.03***	.03
Gender (B)	535.28	1	535.28	16.71***	.01
A x B	5.68	2	2.84	.09	
Error	38188.98	1192	32.04		

*** p = .000

Rejection and disapproval (dimension of coping skill deficiency)

A two-way between groups analysis of variance was conducted to explore the impact of illness duration and gender on levels of rejection and disapproval (dimension of coping skill deficiency). Participants were divided into three groups according to the illness duration (**Group 1** = 1 month-4 years; **Group 2** = above 4 years-9 years; **Group 3** = above 9 years). The interaction effect between illness duration and gender was not statistically significant F (2, 1192) = .09, p > .05. There was a statistically significant main effect for illness duration F (2, 1192) = 18.03, p < .001; however, the main effect was small (partial eta squared = .03). Post-hoc comparisons using the Tukey HSD test indicated that the mean score

for the participants from group 1 (M = 14.52, SD = 5.45) was significantly different from group 2 (M = 12.21, SD = 5.74) and group 3 (M = 12.71, SD = 5. 88) in terms of rejection and disapproval (*MD*=2.32, *p*<0.001), (*MD*=1.81, *p*<0.001) The group 2 did not statistically differ from group 3. The main effect for type of gender was statistically significant F (1, 1192) = 16.71, p < .001; with small effect size (partial eta squared = .01).

Table 7: *Table showing mean comparisons using Tukey's HSD between the three groups of illness duration for the variables under study*

Variables	*Duration of Disease*		
	Group I- Group II	Group I-Group III	Group II- Group III
Anxiety	.39*	.62**	.22
Frustration	.52**	.50**	.02
Disappointment	1.72***	1.33***	.39
Rejection and disapproval	2.32***	1.81***	.51

Note. Group I – One month –4years, Group II – Above 4-9 years, Group III – Above 9 years – 20 years
**p<0.05, **p<0.01, ***p<0.001*

Discussion

The study aimed to explore the coping skills deficiency in chronic illness patients and examine the effect of illness duration and gender on their coping skills deficiency. The first hypothesis posited that there would be a difference in the level of anxiety, frustration, disappointment, rejection and disapproval among the three groups of chronic illness patients categorized on the basis of their illness duration.

This hypothesis was accepted as the results showed a difference in the level of the above-mentioned variables with respect to illness duration. It was seen that Group I (below 4 years) had higher coping skills deficiency than Group II (above 4 - 9 years) and Group III (Above 9 years). However, no significant differences were found between Group II and Group III in their overall coping skills deficiency. This indicates that duration of disease plays a considerable role in increasing patients' coping level. This finding is in tandem with a previous study that reported higher use of adaptive coping strategies among patients with longer duration of disease (Brown, Brown & Jason, 2010).

The lower coping skills deficiency as duration increased, may be attributed to an increased knowledge of the chronic condition. Cecily (2016) found a significant relationship between illness duration and level of knowledge in Indian adults with diabetes and hypertension. Disease knowledge is further positively associated with coping ability (Moradkhani et al., 2011; Najjar et al., 2020) and adherence (Sweileh et al., 2014; Mandpe et al., 2014) in individuals with different chronic illnesses. Jankowska-Polańska et al. (2017) found a direct positive relationship between illness duration and adherence to pharmacological treatment in hypertensive individuals. One rare study by Dietrich (1996) reported that individuals newly diagnosed with diabetes find it difficult to adhere to a treatment plan and are in need of knowledge about self-management. Therefore, it can be said that as illness duration increases, patients' knowledge and adherence to their health care regimen also increases which in turn increases their coping skills.

Dealing with a chronic illness is quite challenging. Immediately post the diagnosis of a chronic illness, people realise the condition will accompany them for the rest of their lives and they might have to adhere to a prescribed medical regimen. The very thought of restrictions in diet, modifications in lifestyle and adherence to pharmacological treatment creates havoc in them. Acceptance of a disease condition is closely linked to treatment adherence. A higher acceptance of a disease state is linked to greater treatment adherence (Jankowska-Polańska, 2016). Baczewska et al. (2015) found a significant association between illness duration and acceptance of a disease indicating that an increase in illness duration is linked to an increase in illness acceptance. Further, a longer illness duration provides more time for psychological adaptation with the illness (Pinquart & Shen, 2011). Therefore, it can be observed that increased illness duration is associated with increased disease-specific knowledge, adherence to prescribed treatment and acceptance of illness; which in turn share a positive relationship with coping.

The second hypothesis postulated that there would be a difference in the level of anxiety, frustration, disappointment, rejection and disapproval between men and women. According to the results obtained for the difference between two groups, it can be inferred that men and women had a significant difference with respect to different dimensions of coping skills deficiency (disappointment, rejection and disapproval). The possible reasons for significant differences between men and women on coping skills might be attributed to the difference in their approach towards illness reflected in the way they respond to illnesses, acknowledge illnesses, their health behaviour and treatment received from their families and society (Vlasoff, 2007).

The mean scores of men and women in this study indicate that women experienced a higher amount of anxiety, frustration, disappointment and rejection compared to men. These differences in coping skills and the level of coping have been reported in previous literature as well (Frey, 2000; Porter et al., 2000; Matud, 2004). However, no significant differences were found between the two genders on the dimensions of anxiety and frustration in the present study.

The third hypothesis stated that there would be an interaction effect of illness duration and gender on chronic illness deficiency. This hypothesis was rejected, indicating that the combined effect of illness duration and gender was not statistically higher than the sum of both the effects individually.

Implication

The knowledge of coping skills deficiency will be useful in helping individuals to cope well with chronic illnesses. This study would help design appropriate interventions to negate the detrimental effects of coping deficiencies. Illness duration and gender must be taken into account while providing interventions. It emphasizes that the differences among individuals must be focused on. Hence, the present study has the potential to improve the lives of people affected by chronic illnesses. Overall, these results indicate that illness duration and gender are important factors that relate independently to the coping skills in chronic illness patients.

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