

# Self-efficacy among patients with chronic diseases and its associated factors

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## Abstract

**Background:** Chronic diseases are in an increasing trend worldwide. Although, this rise may be due to a number of factors, one reason for the worldwide increase is due to better treatment protocols and higher awareness among patients. The management of chronic disease depends on the patient's ability to alter the modifiable risk factors. The burden of disease can be decreased with better self-efficacy.

**Objectives:** To assess the self-efficacy among patients with chronic diseases

**Methodology:** In this descriptive, cross sectional study, data was collected purposively from 329 patients with chronic diseases presenting in the Medical outpatient department of Kathmandu Medical College. Face to face interview method was used to collect data using Chronic Disease Self-efficacy Scale and Patient Assessment Chronic Illness Care Questionnaire. Association with selected socio demographic variables were computed with Mann Whitney U and Kruskal Wallis H tests.

**Results:** The mean age of the patients was  $62 \pm 13$  years. Males, those earning, those never admitted in the hospital for their disease and those who exercised were found to have better self-efficacy. There was significant difference in self-efficacy in terms of age, education, marital status, caregivers and body mass index. Self-efficacy showed significant positive correlation with monthly family income and health care provider score whereas significant negative correlation with age and monthly cost of treatment.

**Conclusion:** Self-efficacy of patients with chronic disease can be improved with certain modifiable factors like daily exercise and appropriate body mass index. Younger patients, males, educated, employed and married patients were found to have better self-efficacy. Proper counselling by health care providers also improves self-efficacy.

**Key words:** Chronic disease; Non communicable disease; Self-efficacy; Self-management

## INTRODUCTION

The number of people living with chronic disease continues to increase worldwide. Adults in low- and middle-income countries face the highest risks<sup>1</sup>. Most of the chronic diseases are non-communicable diseases (NCDs).

Most NCDs have a deep relationship with common modifiable lifestyle risk factors such as physical inactivity, tobacco use, unhealthy diets, and harmful use of alcohol<sup>2</sup>. They are long term conditions and people affected have to modify their lifestyles to control their disease<sup>3</sup>. Moreover, advances in medical science have

changed the outcome of many chronic diseases from rapidly progressive terminal conditions into chronic health problems that many will live with for years<sup>4</sup>. Hence, self-efficacy is generally considered a key treatment modality for patients with chronic diseases<sup>5</sup>.

Self-efficacy refers to an individual's belief in their capacity to successfully learn and perform a specific behaviour<sup>6</sup>. Clinical evidence has demonstrated that raised self-efficacy increases self-management behaviors<sup>7</sup>.

People with chronic conditions or their caregivers and family perform 80% to 90% of the overall care needed. Caregivers require collaborative support from health service providers to handle this responsibility efficiently. Nurses play a pivotal role in helping the patients and their family members to contribute in self-management.

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The role of the primary caregiver, whether doctors or General Practitioner Nurses (GPNs), is critical to support the patients to self manage their disease and increase compliance in modifying their lifestyle as needed. Supporting in self-management involves educating patients to maintain greater control of their disease through understanding their condition, knowing how to monitor their disease and taking action when necessary. This should be complemented by support in goal setting, decision making, adopting a healthy lifestyle, and knowing when to seek help<sup>5,6,8</sup>.

In Nepal, the hospital based prevalence of NCDs was found to be 31%<sup>9</sup>. The growing numbers of patients with chronic conditions, such as chronic obstructive pulmonary disease (COPD), diabetes and hypertension, puts an immense burden on health systems because of increased needs for health care providers and steadily rising costs of health care services. In low- and middle-income countries, the scarcity of resources is a huge problem. The lack of quality and continuity of health care results in high expenditure and very poor health outcomes for people living with chronic conditions<sup>3</sup>.

An additional problem is the co-morbidity of chronic life-long conditions. Several studies show a 30 to 60% prevalence of hypertension among diabetes type 2 patients and many diabetes patients die of cardiovascular complications. If disease self-efficacy for individual disease can be achieved, the prevalence of co-morbidities could also be reduced. Also, patients with many co-morbid conditions specifically need more self-efficacy skills to deal with multiple health issues.

Besides hospital treatment and medications, most of the responsibilities of control of chronic diseases lie on the patients and their caregivers. Lifestyle modification with daily exercise, quitting smoking and alcohol intake, dietary management, compliance with medications and regular follow ups are crucial aspects of disease self management<sup>2</sup>. Moreover, there may be many factors that influence self-efficacy in patients like counselling from the healthcare provider, adequate knowledge regarding the disease condition, financial constraints, family support etc.

Different studies have attempted to find out the factors influencing self-management. Most studies identified advancing age, low educational level, financial distress, single status, caregiver burnout, co-morbidities, increasing body mass index (BMI), illness perception, and disease severity to be factors that negatively influence the ability to self manage disease<sup>10-13</sup>. However, physical

and emotional support from caregivers, peer support and feedback, positive outlook and acceptance of disease and control over care were identified as facilitators for self management<sup>14</sup>. Identifying the factors influencing self-management can facilitate care providers to focus on the facilitators and avoid the barriers resulting in better efficiency in patients to manage their own disease.

This study, therefore, aims to assess the self-efficacy of patients with chronic diseases and find out the factors that affect this ability.

## METHODOLOGY

Descriptive cross sectional study design was adopted to carry out the study. The data was collected in the Medical outpatient department (OPD) of Kathmandu Medical College for four months from May to August, 2017. Patients attending the OPD with chronic non communicable condition like COPD, asthma, hypertension, diabetes and heart disease were taken as study units. Only those patients above age 18 and who had these chronic conditions for at least three months were included in the study. Patients who were too ill, who were mentally unable or who had other co-morbid conditions that can drastically affect the self-efficacy were excluded from the study.

Purposive sampling technique was used to collect the data from the respondents. With the hospital based prevalence of chronic diseases taken as 31%<sup>9</sup> and the confidence interval of 95%, the sample size calculated was 329. The same number of respondents was taken as the final sample size.

The research instrument consisted of four parts:

**Part I:** Socio-demographic variables

**Part II:** Disease related variables

**Part III:** Structured questionnaire related to self-efficacy measured by standard tool called Chronic Disease Self-efficacy Scale

**Part IV:** Structured questionnaire related to care given by health care provider measured by standard tool called Patient Assessment Chronic Illness Care (PACIC) Questionnaire

Part I and II of the tool were developed by the research herself through extensive literature review<sup>10-11,13</sup> and consultation with peers.

Part III consisted of a freely available tool called Chronic Disease Self-efficacy Scale to measure self-efficacy of patients with chronic diseases<sup>15</sup>. It contained 6 questions in a 10-point rating scale where each patient would get

a single mean score ranging from 1 to 10. The result was interpreted as higher the score better the self-efficacy. This tool has a tested internal consistency of 0.91<sup>15</sup>.

Part IV consisted of a 20 item questionnaire called (PACIC) Questionnaire to measure the care provided by health care personnel<sup>16</sup>. Each patient would get a single mean score ranging from 1 to 20. The result was interpreted as higher the score better the care provided. This tool has a tested reliability with Cronbach's alpha score of 0.94<sup>16</sup>.

Pretesting of the tool was done in 10% of the estimated sample size and the data was excluded from the main study.

The tool was translated into Nepali during interview for consistency during data collection. Data was collected by face to face interview with each respondent by researcher herself and one enumerator. Height and weight of each respondent was also taken using a well calibrated height scale and weighing machine present in the Medical OPD. The instruments were calibrated each time they were used. It took about 15-20 minutes to interview each respondent and take their measurements.

Ethical clearance to conduct this study was taken from the Institutional Review Committee of Kathmandu Medical College. Prior to data collection, written informed consent was taken from the respondents with information about the nature of the study and their role in research. Confidentiality was maintained. Obtained data was used for research purpose only.

The collected data was checked for completeness, accuracy and out of range scores immediately after collection and before entry. It was entered, edited, organized and coded using Statistical Package for Social Sciences, SPSS version 16. The collected data was analysed by using descriptive statistics such as frequency, percentage, mean, standard deviation and Spearman rank correlation. Non parametric test, viz. Mann Whitney U test and Kruskal Wallis H test were used for inferential statistics. The level of significance was considered at 5% with  $p \leq 0.05$  and 95% confidence interval.

## RESULTS

Among the 329 patients, the mean age was found to be  $62 \pm 13$  years. More than half of the patients were females (56.5%) and more than half were illiterate (53.8%). More than a fifth (22.5%) of the patients had left their jobs due to their chronic illness. Majority of the respondents were married (81.2%) and more than half (58.4%) had more

BMI than normal. The socio-demographic distribution of patients is given in Table 1.

**Table 1: Socio-demographic variables**

Variables	Frequency	Percentage (%)
<b>Age</b>		
Young adult (20-40 years)	23	7
Middle adult (40-60 years)	115	35
Old adult (>60 years)	191	58
<b>Gender</b>		
Male	143	43.5
Female	186	56.5
<b>Education</b>		
Illiterate	177	53.8
Primary level	48	14.6
Lower secondary level	22	6.7
Secondary level	31	9.4
Higher secondary level	16	4.9
Bachelor level	26	7.9
Master level	9	2.7
<b>Occupation</b>		
Agriculture	41	12.5
Business	29	8.8
Service	41	12.5
Housewife	94	28.6
Left job due to illness	74	22.5
Retired	23	7
Abroad	3	0.9
None	24	7.3
<b>Marital status</b>		
Married	267	81.2
Single	4	1.2
Widow/widower	58	17.6
<b>Monthly family income</b>		
<Rs 30,000	149	45.3
Rs 30,000-50,000	94	28.6
Rs 50,000-1,00,000	70	21.3
>Rs 1,00,000	16	4.9

Regarding the disease related variables (Table 2), majority (73.4%) had their disease condition for more than two years. The median monthly family income was Rs 40,000 whereas the median monthly cost of treatment was Rs 2,500.

More than half of the caregivers of the chronic patients were children. Among the 329 patients, 22.2% had COPD, 14.3% had asthma, 37.7% had diabetes, 57.4% had hypertension and 6.4% had heart disease. Among these, 9.1% were smoking whereas only 3.3% were taking alcohol. However, 40.1% of patients did some form of exercise. More than half (52.6%) had one or other

comorbidities like hypothyroidism, back pain, arthritis etc. More than 40% patients have had at least one admission due to their chronic illness in their lifetime.

**Table 2: Disease related variables**

Variables	Frequency	Percentage
Duration of illness		
≤5 years	159	48.3
5-10 years	87	26.4
>10 years	83	25.2
Admission		
No admission	192	58.4
Admitted at least once	137	41.6
Caregiver		
Spouse	131	39.8
Children	173	52.6
Mother	4	1.2
Self	10	3
Others	11	3.3
Monthly cost of treatment		
≤Rs 2500	170	51.7
Rs 2,500-5,000	100	30.4
>Rs 5,000	59	17.9
Body mass index		
Underweight (<18.5)	22	6.7
Normal weight (18.5-25)	137	41.6
Overweight (25-30)	114	34.7
Obese (>30)	56	17

Regarding association of self-efficacy with selected independent variables, males were found to have better self-efficacy than females. Also, those earning their own living had better self-efficacy than those dependent on others for their living. Patients who had never been admitted in the hospital for their disease were found to have better self-efficacy than their counterparts. Moreover, self-efficacy was found to be significantly better in those who exercised. There was also significant difference in self-efficacy in terms of age, education, marital status, caregivers, body mass index (BMI) and smoking. However, no significant difference was found in self-efficacy in terms of duration of illness, co-morbidities and use of alcohol. Association of self-efficacy with different independent variables is given in Table 3.

When correlation was computed, self-efficacy showed significant positive correlation with monthly family income and PACIC score (score of care given by health care provider) whereas significant negative correlation with age and monthly cost of treatment (Table 4).

**Table 3: Association of independent variables with self-efficacy**

Independent variables	Self-efficacy Median (IQR)	p value
#Sex		
Male	6.8 (9.8-1.0)	0.001*
Female	6 (10-1)	
^Education		
Illiterate	5.6(10-1)	<0.01*
Below SLC	7.1 (10-2)	
Above SLC	7.8 (9.8-3.2)	
#Occupation		
Earning	7(9.8-1.0)	<0.01*
Not earning	5.9 (10-1)	
^Marital status		
Married	6.6 (10-1)	<0.01*
Single	8 (9.8-3.3)	
Widow/widower	5.1 (9.3-1.3)	
^Caregiver		
Husband	6.5 (9.2-2)	0.01*
Wife	7.6 (9.8-1.0)	
Children	5.8 (10-1)	
Mother	8.1 (9.8-7.8)	
Self	6.5 (9.3-1.3)	
Others	4.6 (7.7-1.0)	
^Body mass index		
Underweight	5.6 (9.3-1.8)	0.021*
Normal weight	6.5 (9.8-1)	
Overweight	6.7 (10-1)	
Obese	5.8 (10-1)	
^Duration		
≤5 years	6.3 (10-1)	0.11
5-10 years	6.3 (10-1)	
>10 years	5.8 (9.8-1.3)	
#Comorbidities		
Present	6 (10-1)	0.068
Absent	6.5 (10-1.3)	
#Number of admissions		
No admission	6.7 (10-1)	<0.01*
Admission at least once	5.8 (10-1.2)	
#Smoking		
Yes	7.1 (9.8-1.0)	0.044*
No	6.3 (10-1)	
#Alcohol		
Yes	6.7 (9.8-3.8)	0.154
No	6.2 (10-1)	
#Exercise		
Yes	7 (10-1)	<0.01*
No	5.8 (10-1)	

# Mann Whitney U test

^ Kruskal Wallis H test

\* p significant at ≤0.05 level of significance

**Table 4: Correlation of self-efficacy with selected independent variables**

Correlation of self-efficacy with	Spearman rank correlation r <sup>^</sup>	p value
Age	-0.477	<0.01
PACIC <sup>#</sup> score	0.25	<0.01
Monthly family income	0.143	0.01
Monthly cost of treatment	-0.286	<0.01

<sup>#</sup>Patient assessment chronic illness care

<sup>^</sup>Spearman rank correlation

## DISCUSSION

The mean age of patients with chronic disease was found to be 62 years as chronic diseases occur mostly in older adults. This is in line with most of the studies found in the literature<sup>10,17</sup>. Also self-efficacy was found to decrease with increasing age<sup>10,11</sup>. This is due to the fact that with increasing age, the patients will have less energy and will power to take care of oneself and the disease will also progress. However, this finding was in contrast with the study done in Korea<sup>17</sup>. Higher self-efficacy in this Korean study may be because of higher experience and greater exposure to resources in handling one's disease condition after a period of time.

Males were found to have better self-efficacy and this may be because as bread winners of the families in the context of developing countries, males are more exposed to resources and knowledge regarding how to control their diseases. However, gender was not found to show significant association with self-efficacy in other studies<sup>10,11,17</sup>. This study also showed that there is significant difference in self-efficacy in relation to education. Educated patients can better understand the treatment protocols they have to follow and the reason for specific lifestyle modifications than uneducated patients. High quality care delivery is also known to be more difficult in less educated patients, thus making it difficult for care providers to explain patient's role in self care<sup>18</sup>. Employed and earning patients seems to show more independence in terms of physical ability and managing their treatment and hence were found to have better self-efficacy than unemployed candidates. This finding is supported by a study done by Yoo et al in Korea<sup>17</sup>. Low education level and low economic status are well-known barriers towards chronic disease selfmanagement<sup>19</sup>. Special care should be taken in implementing self-efficacy-enhancing programs in disadvantaged populations to encourage participation and to recruit those difficult to reach.

Married patients and those cared by their spouses were found to have better self-efficacy. This may be because

they receive physical and mental support from their spouses in maintaining their health. The motivation and care they receive from their spouses may have played a vital role in improving their self-efficacy. This is supported by a study done by Cramm and Nieboer in 2015<sup>10</sup>.

Duration of disease was not found to be associated with self-efficacy. However, there are studies which contrast this finding. A study done in the Netherlands shows that self-efficacy is higher in patients with longer disease duration as the patients will have learnt to take care of themselves better with the passage of time<sup>13</sup>. Contrasting result in this study may be because of a diverse group of population participating in this study.

Self-efficacy was found to be high in patients who had never been admitted to the hospital for their disease condition. This may have two aspects to it. These patients may never have been admitted because they had good self-efficacy in controlling their disease or may on the other hand their disease condition may have not been severe enough to be admitted in the hospital and hence they could adequately care for one self. This variable was not taken into consideration in the literature.

With the increasing cost of treatment, the self-efficacy was found to decrease. This can be explained by the fact that the cost of treatment increases with increasing severity of disease and increasing co-morbidities. Both these factors can in turn hamper self-efficacy with more debilitation of the clients. Cost of treatment was not found to be considered in other studies.

BMI was found to be significantly associated with self-efficacy. The patients with normal BMI were found to have higher median scores than those underweight or obese. Abnormal BMI on one hand contributes to disease condition and on the other hand also makes it difficult to manage existing disease. Studies supporting these findings also show that patients with higher BMI were associated with lesser self-efficacy<sup>11,13</sup>.

The care given by health care providers was measured by PACIC score and this score was found to be significantly correlated with self-efficacy. This means that more the care and support provided by health care provider, more the self-efficacy of the patients in maintaining their health. Hence, proper counselling by health providers like doctors and nurses, appropriate referral to interdisciplinary professionals, involving clients in goal setting to manage their disease, adequate follow up and concern by the health care provider can significantly improve the ability to self-care in patients. Literature supports the fact that productive interactions with health care professionals and high chronic care quality is associated with better self-management abilities in patients<sup>10,17</sup>.

Presence of co-morbidities showed no significant association with self-efficacy in the current study. This means a single disease may be debilitating to a patient compromising his/her self-efficacy whereas another patient may be able to manage two or more diseases in a better way. However, literature shows that higher co-morbidity results in poor activation of self-management skills<sup>11,13</sup>.

Smoking was found to have significant association with self-efficacy, however smokers were found to have higher median score of self-efficacy than non-smokers. This may be because those who still smoked had a less severe disease condition and more ability to self-care than those who already left smoking due to the severity

of their disease condition. Among those who smoked, they smoked around 4-6 sticks per day on an average.

Exercise was found to have significant association with self-efficacy. Those who exercised were found to have better self-efficacy than those who did not. The dual explanation to this could be the fact that exercise helped to control their disease progression and thus improved self-efficacy or that those who exercised were not debilitated enough with their disease that they still could take care of themselves quite well.

Self-efficacy was found to have significant positive correlation with monthly family income and significant negative correlation with monthly cost of treatment. This signifies that as the financial burden increases, self-efficacy decreases. With the progress of disease severity and co-morbidities the cost of treatment increases and the ability to handle disease properly decreases.

## CONCLUSION

In light of the results of the study, it can be concluded that self-efficacy of patients with chronic disease can be improved with certain modifiable factors. Maintaining a healthy lifestyle with exercise and appropriate BMI seems to improve self-efficacy. Also, proper support, guidance and counselling by health care providers like doctors and nurses helps to drastically improve the self-efficacy of these patients. Besides, younger patients, males, educated, employed and married patients were found to have better self-efficacy than their respective counterparts.

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