Impact of co-morbidity on self care and self efficacy among chronic heart failure patients at selected urban community, Burdwan, West Bengal

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Abstract

The article presents the impact of co-morbidity on self- care and self-efficacy among chronic heart failure patients. A non-experimental descriptive cross sectional research study was conducted at Sukantapally urban area, Burdwan, WB. Non-probability Convenience sampling technique used to select a sample of 56 chronic heart failure patients. Most (93%) reported two or more co-morbidities. The Association between Self Care Maintenance and CCI, Self efficacy and CCI have a statistical significant of p = 0.004 & p = 0.033 respectively. There was a significant correlation between the number of co-morbid conditions and self-care maintenance & the number of co-morbid conditions and self-efficacy. The higher number of co-morbid conditions among chronic heart failure patient, negatively impacts the patient's self-care behaviour and self-efficacy. Chronic heart failure with multiple co-morbidity diminishes the utilitarian capacities of people and influences self-care and self confidence. On the other hand, with increasing age, the number of co-morbid conditions among chronic heart failure patients increases significantly.

Keywords

Chronic heart failure, Co-morbidity, Self-care, Self-efficacy

Imprint

Introduction

Heart failure constitutes a major health issue and is rapidly getting to be a around the world plague. It is a leading cause of morbidity and mortality in industrialized countries and, increasingly, in developing countries [1]. Heart failure (HF) is an critical health issue that's habitually watched all through the world. It is additionally a worldwide widespread influencing at slightest 26 million individuals around the world and is expanding in predominance [2]. Once in a while does HF happen alone in a person's disease profile. The predominance of heart failure in India due to coronary heart disease, hypertension, obesity, diabetes and rheumatic heart disease to run from 1.3 to 4.6 million [3]. In a huge national sample of Medicare recipients, 86% of HF patients had two or more non-cardiac co-morbidities and more than 25% had six or more [4].

1.1 Need of the study:

Heart failure is quickly getting to be the foremost vital inveterate cardiac condition in developed & developing nations. In spite of the advancement and presentation of more effective pharmacological specialists within the treatment of this complex disorder, heart failure proceeds to be related with frequent hospitalization, destitute quality of life and untimely mortality [1].

Heart failure (HF) could be a major well-being issue in India with post-admission mortality of 20%–30%. Medicine adherence ranges from 25% to 50%, and the resilience of guideline-based medicine is moo for Indian patients [5, 6].

Most of the heart failure (HF) patients having multiple co-morbid conditions. The consider of co-morbidity within the setting of HF has picked up noteworthy recent interest since co-morbidity is related with expanded mortality and health care costs within the HF populace. Self-care is complicated when other incessant conditions have extra self-care prerequisites [7].

A quantitative study would offer assistance to reduce the mortality rate by recognizing, how self-efficacy influences HF self-care in HF patient with numerous comorbid conditions [8].

Methodology

This study was performed through a Quantitative approach by using Non experimental descriptive cross sectional research design. The present study was carried out at selected Urban community, Sukantapally, Burdwan, West Bengal with a sample of 56 chronic heart failure patients, by using non-probability convenience sampling technique. We included the sample of all gender, having age between 20-65 years, who could communicate in English, oriented and willing to participate in study. We excluded individuals from the study, who were critically ill (history of kidney failure and under dialysis treatment, cancer and chemotherapy), respiratory problems requiring ventilation support, severe cardiovascular disorder (Ventricular disorder, Patient with pacemaker) and hearing difficulties.

A prior formal permission was obtained from regional authority and also from the University Ethical Committee (dated 09.10.2020 & KIIT/KIMS/IEC/256/2020). The aim of the study was explained to patients, and those who agreed to participate were included in our study. The written consent were obtained. Structured interview schedule has been used to collect the data, approximately 45 minutes for each participants and everyday 3-4 participants. Structured questions was asked to the participants to record Self care of Heart Failure Index. Structured questions was asked about pre-existing diseases to the patients to record the Charlson Co-morbidity Index [9,10]. Figure 1. shows the schematic presentation of the research methodology.

Results & Discussion

The data was processed and analyzed on the basis of the objectives for the presents study the results were computed by using descriptive statistics including mean and standard deviation was used for quantitative variable and qualitative variables were described using number and percentages. Pearson correlation coefficient was used to calculate correlation coefficient among indexes. The association was assessed using Fisher Exact test. All the test were significant at 5% level of significance. Stata 15.1 was used for analysis.

The data obtained was analyzed and presented in three different section.

Section-I : Characteristics of socio-demographic variables and indices frequency and percentage.

Section-II: Association among various socio-demographic variables and indices.

Section III: Correlation with Co-morbidity, Self Care Maintenance, Self Care Management, Self Efficacy.
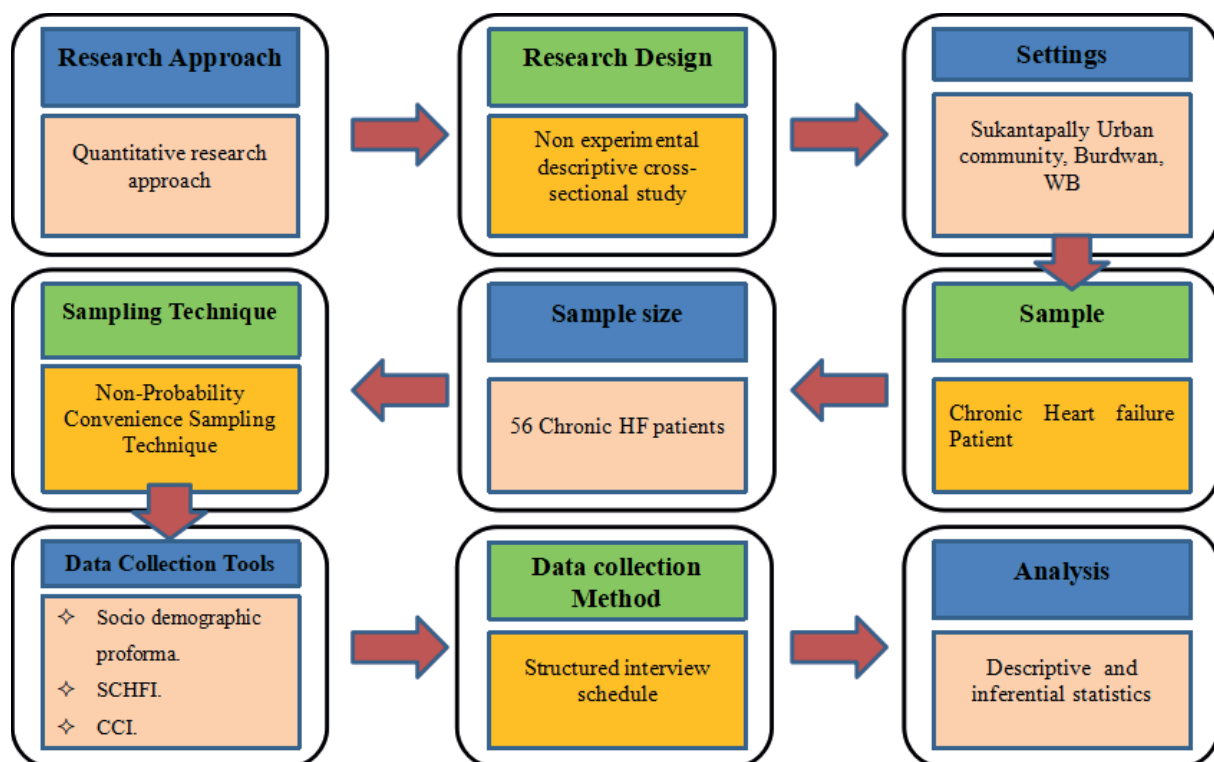

Figure 1. Schematic presentation of Research Methodology

Section I: Characteristics of Socio-demographic variables and indices frequency and percentage

Table 1 shows the quantitative data of the individuals included in the sample group (n=56). Majority (64.29 %) of the participants is in the age group between 50 to 65 years. 30.36 % of the participants is in the age group of 35- 49 years and 3.56 % of sample is in the age group of 20-34 years and had a mean age of 53.1 years (SD = 9.7) (Figure 2). The sample was 67.86 % male and 32.14 % female and 0 % of the participant is under transgender. All the samples have completed their primary education and almost 95% of the sample belongs to lower middle class and above category. Martial status (Married : Unmarried) and Food habits (Non-vegetarian : Vegetarian) is of ratio 3:1 in the sample size.

Table 2 shows the quantitative data of Self-care and Self-efficacy features of the individuals included in the sample group (n=56). About 16 % of the sample shows adequate Self-care maintenance. Less than 6 % of the sample shows adequate Self-care management & less than 29 % of the sample shows adequate Self-care efficacy. Almost 93% of the sample reported at least 2 chronic conditions. Only 7.14 % of the sample reported low co-morbidity (Figure 3).

The foremost common co-morbid condition was a history of myocardial infarction (66%), taken after by diabetics, detailed by 57% of the sample and high blood pressure , detailed by 45% of the sample (Figure 4).

Section II: Association of various Socio-demographic variables and Indices

The association among various socio-demographic variables and indices was assessed using Fisher's Exact test (Table 3).

The association among age group, gender, educational status & occupational status have a significant association (p < 0.05) with Self Care Maintenance & Self Efficacy. Where as Marital Status & Food habits have no significant association (p > 0.05) with any of the indices. The association between age group & educational status and number of co-morbid conditions have a significant association with p < 0.05. Where as other demographic features have no significant association (p > 0.05) with number of co-morbid conditions.

The Association between Self Care Maintenance and CCI have a statistical significant of p = 0.004. 47 samples having inadequate Self Care Maintenance, 66% of those individuals reported High co-morbid condition (Table 4).

Table 1
Quantitative data of the individuals included in the sample group (n=56)

| Sample Size (n) =	56		
Features	Frequency	%	Cumulative %
Age group			
a.25-34	3	3.56	3.56%
b.35-49	17	30.36	33.92%
c.50-65	36	64.29	100.00%
Gender			
a.Male	38	67.86	67.86%
b.Female	18	32.14	100.00%
c.Transgender	0	0.00	100.00%
Education status			
a.Primary school	6	10.71	10.71%
b.High school	5	8.93	19.64%
c.Higher secondary	15	26.79	46.43%
d.Graduate and Post-graduate	22	39.29	85.71%
e.Professional degree	8	14.29	100.00%
Occupational status			
a.Government employee	15	26.79	26.79%
b. Private employee	8	14.29	41.07%
c. Business	9	16.07	57.14%
d. Retired person	10	17.86	75.00%
e. Daily wages	2	3.57	78.57%
f. Home maker	12	21.43	100.00%
Socioeconomic status			
a. Upper class (I)	3	5.36	5.36%
b. Upper middle (II)	35	62.50	67.86%
c. Lower middle class (III)	15	26.79	94.64%
d. Upper lower class (IV)	0	0.00	94.64%
e. Lower class (V)	3	5.36	100.00%
Martial Status			
a. Married	42	75.00	75.00%
b. Unmarried	14	25.00	100.00%
Food habits			
a. Vegetarian	14	25.00	25.00%
b. Non- vegetarian	42	75.00	100.00%
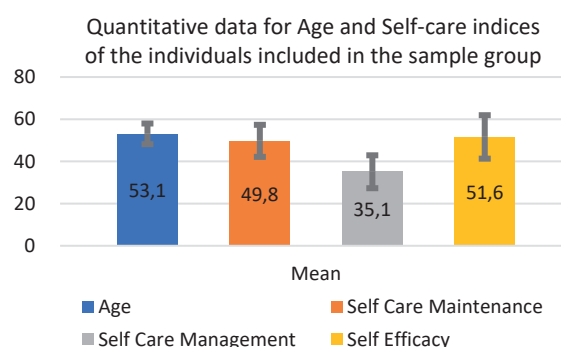
Figure 2. Graphical representation of bar diagram showing percentage distribution of Age and Self-care indices

Table 2
Quantitative data of Self-care and Self efficacy features of the individuals included in the sample group (n=56)

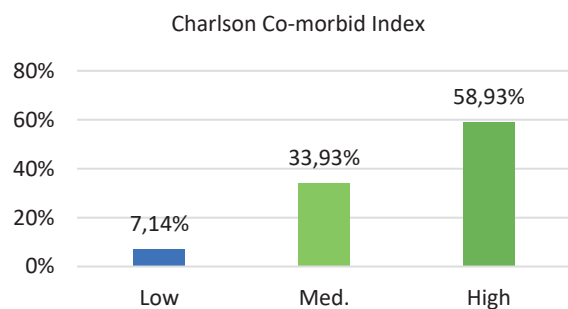| Features	Frequency	%	Cumulative%
SC- Main			
Absent	47	83.93%	83.93%
Present	9	16.07%	100%
SC- Mngt			
Absent	53	94.64%	94.64%
Present	3	5.36%	100%
SC-Effy			
Absent	40	71.43%	71.43%
Present	16	28.57%	100%

Charlson Co-morbid Index

Figure 3. Graphical representation of bar diagram showing percentage distribution of Co-morbidity features.
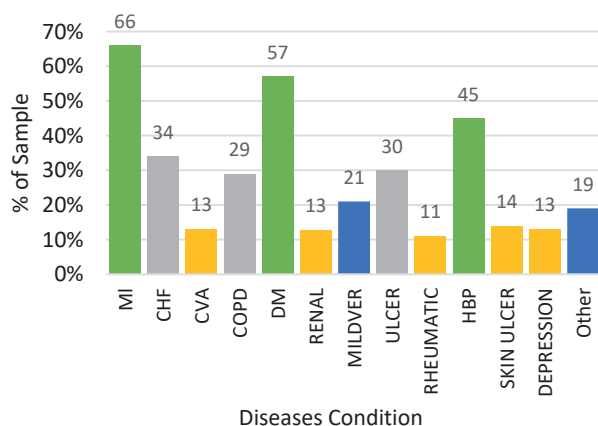

Figure 4. Clinical Characteristics of Sample group (n=56)

Table 3
Association with various Socio-demographic variables and Indices (n=56)

Fisher's Exact ('p' value)				
Socio-demographic Features	SC-Main	SC- Mngt	SC-Effy	CCI
Age Group	0.031	0.254	0.012	0.002
Gender	0.022	0.304	0.043	1
Education status	0.011	1	0.00	0.0036
Occupational status	0.004	0.098	0.003	0.072
Socioeconomic status	0.499	0.678	0.023	0.632
Marital Status	0.601	0.15	0.153	1
Food habits	0.601	0.59	0.153	1

Table 4
Self Care Maintenance and CCI Cross tabulation (n=56).

Self Care Maintenance		CCI			
		Low	Medium	High	Total
Absent	Absent	1	15	31	47
	% within SC-Main	2%	32%	66%	100%
	% within CCI	25%	79%	94%	84%
Present	Present	3	4	2	9
	% within SC-Main	33%	44%	22%	100%
	% within CCI	75%	21%	6%	16%
Total	Total	4	19	33	56
	% within SC-Main	7%	34%	59%	100%
	% within CCI	100	100	100	100
	Fisher's exact =		0.004		

The Association between Self Care Management and CCI have no statistically significant association (p = 0.238) with CCI. (Table 5).

Table 5
Self Care Management and CCI Cross tabulation (n=56).

Self Care Management		CCI			
		Low	Medium	High	Total
Absent	Frequency	3	18	32	53
	% within SC-Mngt	6%	34%	60%	100%
	% within CCI	75%	95%	97%	95%
Present	Frequency	1	1	1	3
	% within SC-Mngt	33%	33%	33%	100%
	% within CCI	25%	5%	3%	5%
Total	Frequency	4	19	33	56
	% within SC-Mngt	7%	34%	59%	100%
	% within CCI	100	100	100	100
	Fisher's exact =		0.238		

The Association between Self efficacy and CCI have a statistical significant of p = 0.033. 40 samples having inadequate Self efficacy, 68% (n= 27) of those individuals reported High co-morbid condition (Table 6).

Table 6
Self Efficacy and CCI Cross tabulation (n=56).

Self Efficacy		CCI			
		Low	Medium	High	Total
Absent	Frequency	1	12	27	40
	% within SC-Effy	3%	30%	68%	100%
	% within CCI	25%	63%	82%	71%
Present	Frequency	3	7	6	16
	% within SC-Effy	19%	44%	38%	100%
	% within CCI	75%	37%	18%	29%
Total	Frequency	4	19	33	56
	% within SC-Effy	7%	34%	59%	100%
	% within CCI	100	100	100	100
	Fisher's exact =		0.033		

Section III: Correlation with Co-morbidity, Self Care Maintenance, Self Care Management & Self Efficacy.

Table 7 shows the correlation among Co-morbidity, Self Care Maintenance, Self Care Management, Self Efficacy & Age. Pearson correlation coefficient was used to calculate correlation coefficient among indices. 'p' values of the the highlighted boxes are having p value less than 0.05, which indicates that relationships are statistically significant. There was a significant correlation between self-care maintenance and the number of co-morbid conditions ($r = -0.315$, $p = .0181$), with the association of self-care efficacy and number of co-morbid conditions trending toward significance ($r = -0.355$, $p = .0074$). But there is no statistically significant relationships is found between self-care management and the number of co-morbid conditions. Age have a considerable significance ($r = 0.603$, $p < 0.01$) on the number of co-morbid present in the sample. Positive value of r signifies that with higher age the number of co-morbid conditions are more. Also higher age was associated significantly with lower self-care efficacy ($r = -0.602$, $p < 0.01$) and poorer self-care maintenance ($r = -0.437$, $p < 0.01$).

Table 7
Correlation among Co-morbidity, Self Care Maintenance, Self Care Management, Self Efficacy & Age

	1. CCI	2. SC-Main	3. SC-Mngt	4. SC-Effy	5. Age
1. CCI	1	-	-	-	-
2. SC-Main	-0.315	1	-	-	-
3. SC- Mngt	-0.225	0.5	1	-	-
4. SC-Effy	-0.355	0.727	0.347	1	-
5. Age	0.603	-0.437	0.232	-0.602	1
Note:	**CCI** : Charlson's Comorbidity Index			p < 0.05	

Conclusion

The main conclusion drawn from this study is that the higher number of co-morbid conditions among chronic heart failure patient negatively impact the patient's self-care behaviour and self-efficacy. Chronic heart failure with multiple co-morbidity diminishes the functional capacities of people and influences self-care and self-confidence. On the other hand, increasing age, the number of co-morbid conditions among chronic heart failure patients increases significantly.

List of Abbreviation Used

CHF : Chronic heart failure
CCI : Charlson co-morbidity index
SCHFI : Self-Care of Heart Failure Index
SC-Main : Self Care Maintenance
SC- Mngt : Self Care Management
SC-Effy : Self efficacy

Authors' Contributions:

Sancahri Roy & Asokan R defined the aim of research. Prof . (Mrs.) Amarita Lenka guided the project. Sancahri Roy carried out the data collection and performed the statistical analysis. Asokan R coordinate and helped to draft the manuscript. All authors read and approved the final manuscript.

Conflict of Interest:

The authors have no conflicts of interest to disclose.

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