Description of Heart Failure Patients with Multimorbidity

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Background

- Multimorbidity (co-occurrence of 2 or more chronic conditions) is associated with greater disability and higher treatment burden.

- As the number of conditions increases, so do the risks of
    - declining functional status,
    - adverse drug effects,
    - prescription nonadherence/polypharmacy,
    - duplicative tests,
    - conflicting medical advice,
    - unnecessary hospitalizations,
    - Mortality.[1]

- Multimorbidity in Heart Failure (HF) is particularly concerning because comorbid conditions may precipitate
    - acute decompensation,
    - lead to greater health care utilization,
    - increase the risk of nonfatal complications and death.

Self-management in HF

Self-management is vital for achieving optimal outcomes in HF.[2] Less is known about self-management of HF patients with multimorbidity.

Literature identifies variables important to self-managing HF and chronic disease.

- Cognition[3]
- Health literacy[4]
- Patient activation[5]
- Self-efficacy[6]
- HR QOL[7]

Purpose

To describe selected variables that should be considered when planning self-management strategies or interventions for multimorbid HF patients.

Specific Aims:

1. Describe the sociodemographic, clinical, individual and outcome characteristics of multimorbid HF patients.

2. Examine the relationship of the number of multimorbidities with selected variables that influence self-management such as baseline clinical (Cognition, Health Literacy), individual (Patient Activation, Self-efficacy), and outcome (Health Related Quality of Life, Health status) variables in multimorbid HF patients.

Sample

Data from 2 pilot RCT studies combined (N = 110).

Patients enrolled prior to hospital discharge from Nebraska Medicine

- HF patients who were enrolled in a mHealth self-management intervention study (n = 80)

- HF patients who were enrolled in a **multimorbid** mHealth self-management intervention study (n = 30)

Goal of pilot studies: Promote Self-management

Overall goal of both studies was to promote self-management of their HF condition using a mHealth app with education and reminders to weigh and take medicine and virtual visits with providers.

Goal of this presentation is to describe the sample population and the relationships of selected variables that may influence self-management in relation to multimorbidities.

Self-Management Skills

Selected baseline variables that potentially influence self-management

- Clinical variables
  - Cognition:

    Montreal Cognition Assessment (MoCA)
  - Health Literacy:

    4 questions related to HL
- Individual variables
  - Patient Activation:

    Patient Activation Measure
  - Self-efficacy:

    Self-efficacy for managing chronic disease
- Outcome variable
  - Health Related Quality of Life:

    Euro-QOL
  - Health Status
    - Promis (Anxiety, Depression, Fatigue, Physical functioning, Sleep disturbance, Pain interference, Satisfaction with social role)

Describe the **sociodemographic** characteristics of the population

Baseline Sociodemographic Variables N = 110	
Age in years	**Mean** 56.1, **SD** (13.5), **range** 25-91
	f(%)
Gender (female)	62 (56)
Race	
Caucasian	65 (59)
Black	35 (31)
Other	10 (9)
Caregiver available	29 (26)
Educational Level	
Less than high school	14 (13)
High school	43 (38)
Some college or Bachelors' Degree	47 (42.4)
Post College	6 (5.4)
Income Annually	
Less than $20,000	43 (47.3)
$20,000-79,999	36 (34.4)
$80,000 or more	13 (12)

Describe the **clinical** characteristics of the population

Clinical Characteristics N = 110	
	M (SD), range
Number of Other Chronic Diseases	2.7 (1.5), 1-7
Hospital Length of Stay	5.3 (4.6), 1-41
	f (%)
Top 4 Chronic Diseases concurrent with HF	
Hypertension	93 (84)
Diabetes	57 (52)
Chronic Pulmonary disease	35 (32)
Renal disease	25 (23)
Ejection Fraction	
Less than 50 (HFrEF)	79 (72)
50 or greater (HFpEF)	29 (26)
Not reported	2 (2)

Describe the **clinical** characteristics of the population

Clinical Characteristics N = 110	
Cognition (MoCA)	**f (%)**
Mild Cognitive Impairment	69 (63)
Normal cognition	41 (37)
Health Literacy	
Inadequate (4-12)	11 (10)
Marginal (13-16)	21 (19)
Adequate (17-20)	78 (71)

Describe the **individual characteristics** of the population

Individual Variables N = 110	
Patient Activation	Mean 68.27, SD (18.17), Level 3
Self Efficacy	Mean 6.8, SD (2.19); Range 1-10

Describe the outcome variables the population

Outcome Variables N = 110	Mean (SD)
Health Related Quality of Life	.74(.172)
Promis T-scores	
Anxiety	53.76 (9.86)
Depression	51.28(10.27)
Fatigue	58.68(10.00)
Pain interference	58.11(10.97)
Physical functioning	37.38(8.73)
Sleep disturbance	52.70(4.58)
Satisfaction with Social Role	45.27(9.94)

Aim 2. Examine the relationship of the number of morbidities with selected variables that influence self-management

	Clinical and individual variables	r	p
Number of Comorbid Conditions	Cognition	-.09	.309
	Health Literacy	-.11	.271
	Patient Activation	-.22	**.019***
	Self-efficacy	-.31	**.001***

Aim 2. Examine the relationship of the number of morbidities with selected variables that influence self-management

N = 108	Outcome variable	r	p
Number of Comorbid conditions	**HRQOL** (EuroQOL)	-.22	**.021***
	Promis		
	Anxiety	.117	.227
	Depression	.128	.183
	Fatigue	.079	.413
	Pain interference	.197	**.039***
	Physical functioning	.084	.386
	Sleep disturbance	-.137	.154
	Satisfaction with Social Role	-.079	.415

Things to be considered when planning interventions for Multimorbid HF patients

Number of multimorbidities does have a relationship with variables that influence self-management (patient activation, self-efficacy and outcomes such as HRQOL).

Researchers are still designing studies with focus primarily on one index chronic disease.

Advocate for planning interventions tailored on **all** of the diseases the patient presents with.

Tailoring interventions to patients' most bothersome conditions and associated challenges may help ensure that decisions are aligned with patient preferences and priorities.

Things to be considered when planning interventions for Multimorbid HF patients

Cognition, Health literacy, Patient activation and self-efficacy should **all** be considered when planning self-management interventions for the multimorbid HF patient.

Cognition
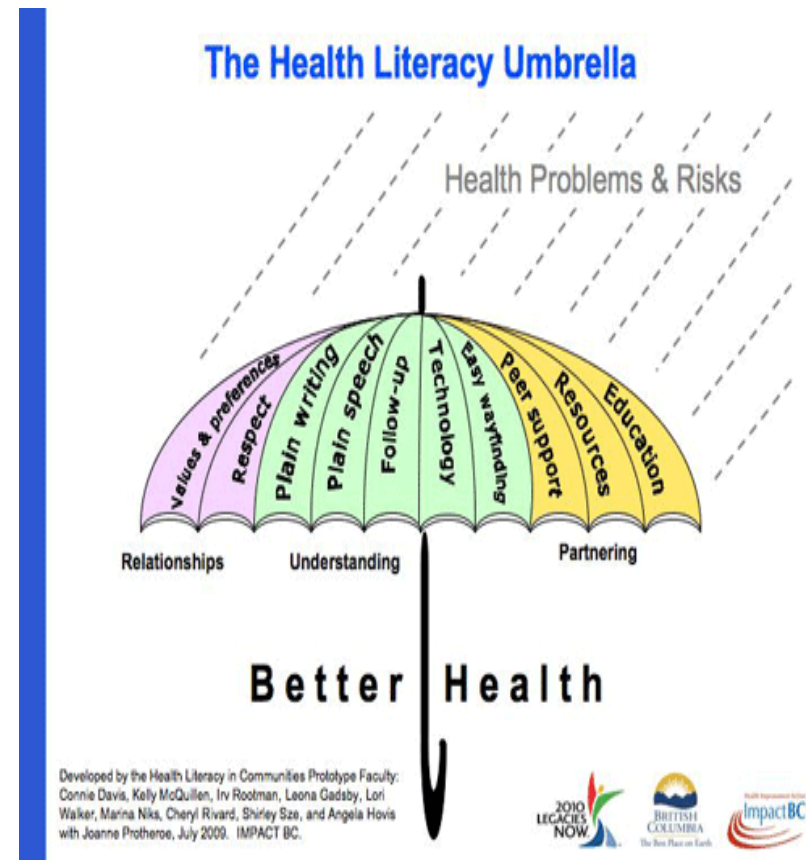
Suggested Strategies:

- Evaluate cognition in HF with multimorbid population [8]
  - 63% of our sample in the Mild Cognitively Impaired category
- Validate knowledge with teach back
- Interventions such as mobile health or an app easily incorporate reminders to complete tasks (weighing, taking medications)
- Mild cognitively impaired patients may need more provider time

Health Literacy

Suggested Strategies:

- Evaluate health literacy in this population
    19% of our sample in marginal level
    10% in inadequate level
- Most education is "cookbook".
- Use simple words, short sentences, pictorial aids.[9]
- Validate that teaching materials/apps have a 6th grade reading level and use teach back to ensure understanding.

The Health Literacy Umbrella

Health Problems & Risks

Values & preferences · Respect · Plain writing · Plain speech · Follow-up · Technology · Easy wayfinding · Peer support · Resources · Education

Relationships   Understanding   Partnering

Better Health

Developed by the Health Literacy in Communities Prototype Faculty: Connie Davis, Kelly McQuillen, Irv Rootman, Leona Gadsby, Lori Walker, Marina Niks, Cheryl Rivard, Shirley Sze, and Angela Hovis with Joanne Protheroe, July 2009. IMPACT BC.

Patient Activation

Suggested Strategies:

- In our pilot studies, lower Patient Activation correlated with increased number of co-occurring morbidities

- Tailor education and self-management strategies to most bothersome symptoms from each morbidity to improve patient activation.

- Set attainable goals with the patients.[10]

Self-efficacy

Suggested strategies:

- Utilize education, step by step guides, confidence building.[11]

- Encourage patients to set attainable goals

- Ensure understanding by using 6th grade reading level for all education.

Conclusions

Our study showed 100% prevalence of multimorbidity in the HF sample.

When planning self-management interventions for HF patients with multimorbidity include an evaluation of cognition and health literacy and use appropriate strategies.

Strive to increase patient activation and self-efficacy to improve HRQOL and other outcomes.

Future Recommendations

Future study with a larger sample size to cluster or profile multimorbidities to evaluate outcomes in the HF population

Larger RCT self-management intervention to improve HF patient outcomes.

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