

# Chronic diseases and comorbidity: 1-year follow-up after a self- management program

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2022 Annual Meeting & Autumn Conference of  
Korean Academy of Neuromuscular Physical Therapy  
26 November, 2022

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# Introduction (1)

## Background:

For people with chronic diseases, self-management can improve health status and coping with symptoms, and it can reduce utilization of health-care services.

(Lorig, *et al.* 1999, Scholz, *et al.* 2006, Damuch, *et al.* 2003, etc.)

Some people have only one chronic disease, and others have more than one (“comorbidity” or “multimorbidity”).

## Introduction (2)

People with comorbidities might have **greater needs.**

But,

they could also be more experienced as patients, which might result in having **better self-management skills.**

# Introduction (3)

Questions:

1. Do people with comorbidities have greater self-management needs?
2. Do people with comorbidities have better self-management skills?
3. After a self-management program, do the outcomes depend on the number of diagnoses?

# Participants

313 patients with various chronic medical conditions who participated in self-management workshops.

Only one diagnosis:  $n = 186$

More than one diagnosis:  $n = 127$

# Chronic Disease Self-Management Program (CDSMP)

6 sessions

each session was 2.5 hours

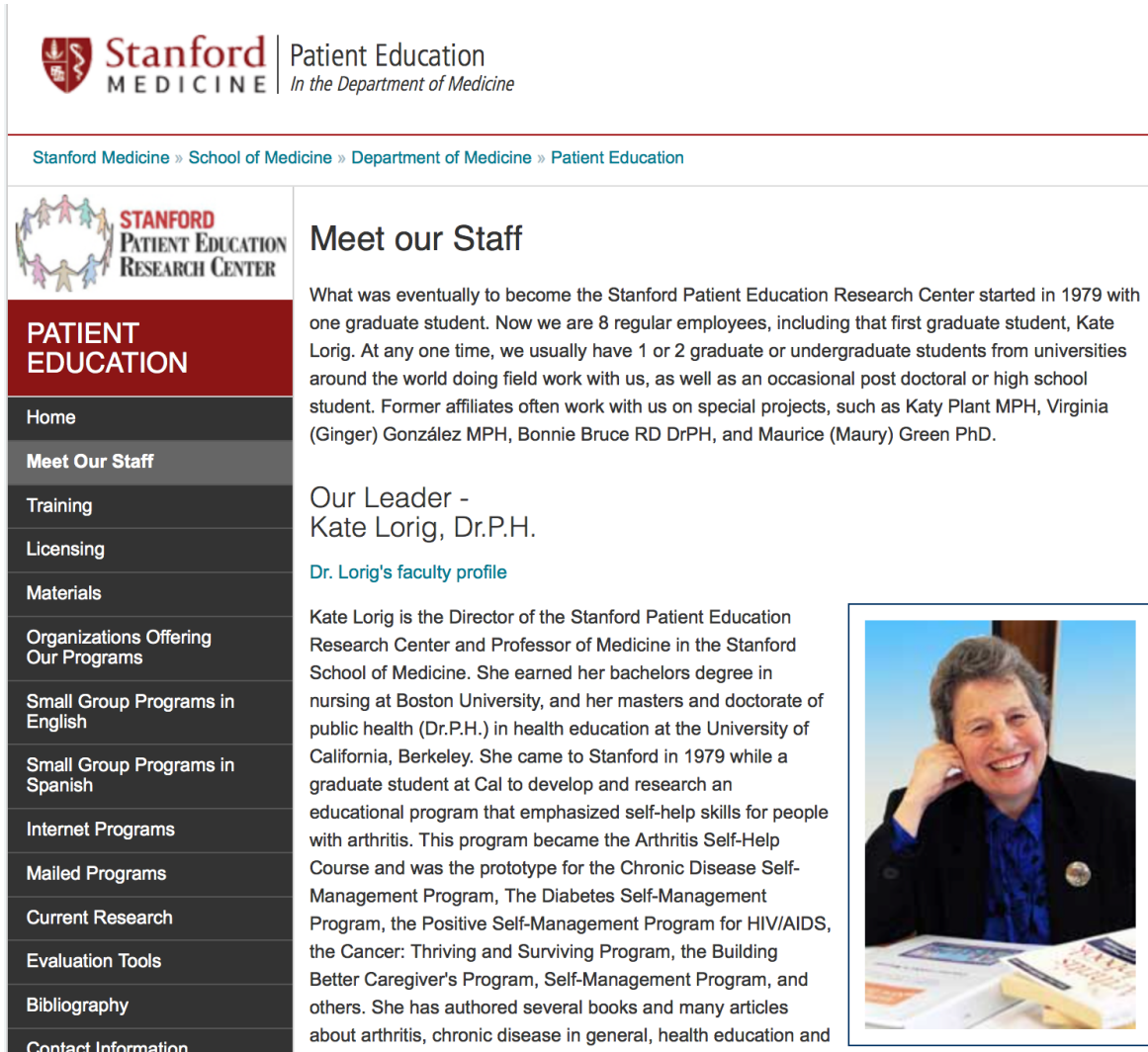
1 session per week, for 6 weeks

10 to 12 participants with various chronic diseases

2 lay leaders (experience with chronic disease, 35 hours training)

# Chronic Disease Self-Management Program (CDSMP)

- Clinical & community engagement
- Leaders are nurses
- Active self-learning
- Active decision-making
- Action planning



The screenshot shows the website for the Stanford Patient Education Research Center. At the top, it features the Stanford Medicine logo and the text "Stanford Patient Education In the Department of Medicine". Below this is a breadcrumb trail: "Stanford Medicine » School of Medicine » Department of Medicine » Patient Education". The main content area is divided into two columns. The left column contains a navigation menu with the following items: "Home", "Meet Our Staff", "Training", "Licensing", "Materials", "Organizations Offering Our Programs", "Small Group Programs in English", "Small Group Programs in Spanish", "Internet Programs", "Mailed Programs", "Current Research", "Evaluation Tools", "Bibliography", and "Contact Information". The right column is titled "Meet our Staff" and contains a paragraph about the center's history, starting in 1979 with one graduate student, Kate Lorig. It lists other former affiliates: Katy Plant MPH, Virginia (Ginger) González MPH, Bonnie Bruce RD DrPH, and Maurice (Maury) Green PhD. Below the paragraph is a section titled "Our Leader - Kate Lorig, Dr.P.H." with a link to "Dr. Lorig's faculty profile". At the bottom right of the screenshot is a photograph of Dr. Kate Lorig, a woman with short grey hair, wearing a dark blazer over a blue patterned shirt, smiling and resting her head on her hand.

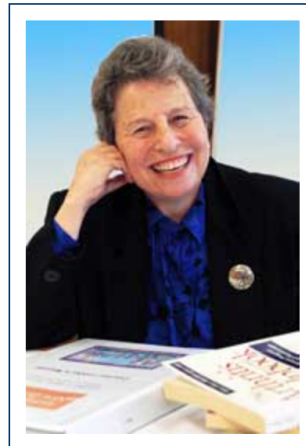
## Meet our Staff

What was eventually to become the Stanford Patient Education Research Center started in 1979 with one graduate student. Now we are 8 regular employees, including that first graduate student, Kate Lorig. At any one time, we usually have 1 or 2 graduate or undergraduate students from universities around the world doing field work with us, as well as an occasional post doctoral or high school student. Former affiliates often work with us on special projects, such as Katy Plant MPH, Virginia (Ginger) González MPH, Bonnie Bruce RD DrPH, and Maurice (Maury) Green PhD.

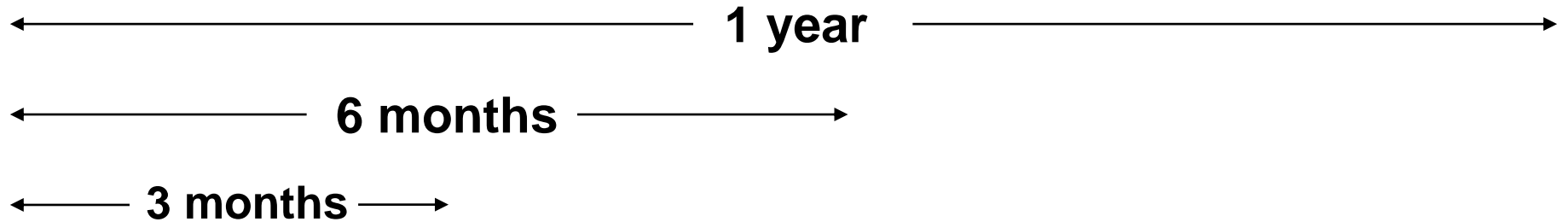
Our Leader -  
Kate Lorig, Dr.P.H.

[Dr. Lorig's faculty profile](#)

Kate Lorig is the Director of the Stanford Patient Education Research Center and Professor of Medicine in the Stanford School of Medicine. She earned her bachelors degree in nursing at Boston University, and her masters and doctorate of public health (Dr.P.H.) in health education at the University of California, Berkeley. She came to Stanford in 1979 while a graduate student at Cal to develop and research an educational program that emphasized self-help skills for people with arthritis. This program became the Arthritis Self-Help Course and was the prototype for the Chronic Disease Self-Management Program, The Diabetes Self-Management Program, the Positive Self-Management Program for HIV/AIDS, the Cancer: Thriving and Surviving Program, the Building Better Caregiver's Program, Self-Management Program, and others. She has authored several books and many articles about arthritis, chronic disease in general, health education and



# Data collection



CDSMP  
workshop  
6 weeks



Methods of collection:



**Design: Longitudinal cohort study**



# Outcome Measures (1)

## A. Health status

### 1) Self-evaluated health status:

5-point scale (1 = excellent and 5 = poor)

### 2) Fatigue: 11-point scale (0 = none and 10 = severe)

### 3) Pain: 11-point scale (0 = none and 10 = severe)

### 4) Health-related distress: 4 items, 6-point scale

### 5) Depression: *Hospital Anxiety and Depression Scale*: total of 7 items, 4-point scale

### 6) Anxiety: *Hospital Anxiety and Depression Scale*: total of 7 items, 4-point scale

# Outcome Measures (2)

## B. Self-management behavior

### 1) Physical exercise:

6 different kinds of physical exercise

5-point scale (0 = not at all and 4 = more than 3 hours per week)

### 2) Coping with symptoms:

6 items, 6-point scale (0 = never and 5 = always)

### 3) Communication with medical doctor:

2 items, 6-point scale (0 = never and 5 = always)

## Outcome measures (3)

### **C. Self-efficacy to manage symptoms:**

6 items, 11-point scale

### **D. Sense of coherence (SOC):**

University of Tokyo Health Sociology 3-item version  
of Antonovsky's SOC scale: 3 items, 11-point scale

### **E. Satisfaction with daily life:**

1 item, 11-point scale

# Analyses

1. To compare the group with 1 diagnosis to the group with  $> 1$  diagnosis: unpaired t-tests.
  
2. To analyze changes over 1 year:
  - a. Linear mixed models  
(pairwise comparisons: Bonferroni)
  - b. Effect sizes: mean changes and  
Standardized Response Means

PWSA version 18.0

# Ethics

Written informed consent

Study plan approved by the Institutional Review Board of the Graduate School of Medicine of The University of Tokyo **(IRB #: 1472-2)**.

# Demographic characteristics

	1 diseases (n = 186)	> 1 disease (n = 127)	<i>P</i> <sup>a</sup>
<b>Age</b>			
Mean	47.37	50.39	<b>0.05</b>
(S.D.)	(13.1)	(13.4)	
Range	19-83	18-76	
<b>Gender, number (%)</b>			
Male	34 (18.3)	36 (28.3)	0.07
Female	152 (81.7)	91 (71.7)	
<b>Duration of disease</b>			
Mean	13.35	13.83	0.73
(S.D.)	(11.7)	(12.3)	
Median (min, max)	10.0 (0.4, 58)	10.0 (0.5, 63)	

<sup>a</sup> Mann-Whitney test and Chi-square test



# Demographic characteristics

	1 diagnosis (n = 186)	> 1 diagnosis (n = 127)	<i>p</i> <sup>a</sup>
<b>Education, number (%)</b>			
Elementary school	0 (0)	1 (0.8)	0.71
Middle school	7 (3.8)	8 (6.3)	
High school	42 (22.6)	41 (32.3)	
Less than 4 yrs college	72 (38.7)	40 (31.5)	
4 yrs college	57 (30.6)	32 (25.2)	
Graduate school	8 (4.3)	5 (3.9)	
<b>Marital status, number (%)</b>			
Single	57 (30.6)	38 (29.9)	0.50
Married	105 (56.5)	72 (56.7)	
Separated	5 (2.7)	4 (3.1)	
Divorced	11 (5.9)	9 (7.1)	
Widowed	8 (4.3)	4 (3.1)	

<sup>a</sup> Chi-square test



# Baseline (#1)

Variable	1 diagnosis	> 1 diagnosis	<i>P</i> <sup>a</sup>
	(n = 186)	(n = 127)	
	Mean	Mean	
<b>Health status</b>			
Self-evaluated health status (↓= better)	3.32	3.52	0.07
Fatigue (↓= better)	5.06	5.54	0.09
Pain (↓= better)	2.88	4.21	<b>&lt; .001</b>
Health-related distress (↓= better)	8.11	8.68	0.34
Depression (↓= better)	6.89	6.86	0.96
Anxiety (↓= better)	6.52	6.73	0.66

<sup>a</sup> Unpaired t-tests.





# Baseline (#2)

Variable	1 diagnosis (n = 186)	> 1 diagnosis (n = 127)	<i>P</i> <sup>c</sup>
	Mean	Mean	
<b>Self-management behavior</b>			
Physical exercise (↑= better)	3.34	3.21	0.72
Coping with symptoms (↑= better)	7.34	7.41	0.89
Communication with MD (↑= better)	4.02	4.94	<b>0.002</b>
<b>Self-efficacy to manage symptoms</b> (↑ = better)			
	32.90	33.33	0.76
<b>Sense of coherence</b> (↑ = better)			
	18.78	19.63	0.23
<b>Satisfaction with daily life</b> (↑= better)			
	6.14	5.90	0.42

<sup>a</sup> Unpaired t-test.

<sup>b</sup> University of Tokyo Health Sociology version of the SOC 3 scale.



# Changes over 1 year (#1)

Variable	1 diagnosis (n = 186)			> 1 diagnosis (n = 127)		
	Mean $\Delta^a$	$p^b$	Effect size <sup>c,d</sup>	Mean $\Delta$	$p$	Effect size
<b>Health status</b>						
Self-evaluated health status (↓= improvement)	<b>-0.33</b>	<b>0.001</b>	<b>-0.30</b>	-0.16	> .999	-0.14
Fatigue (↓= improvement)	-0.21	> .999	-0.10	0.11	> .999	0.04
Pain (↓= improvement)	0.38	0.51	0.15	-0.09	> .999	-0.03
Health distress (↓= improvement)	<b>-2.22</b>	<b>&lt; .001</b>	<b>-0.41</b>	<b>-1.53</b>	<b>0.006</b>	<b>-0.34</b>
Depression <sup>e</sup> (↓= improvement)	-0.10	> .999	-0.02	-0.09	> .999	-0.02
Anxiety <sup>e</sup> (↓= improvement)	-0.40	> .999	-0.10	0.10	> .999	0.02

<sup>a</sup> Mean change: Mean of (T4-T1)

<sup>c</sup> Effect size (standardized response mean):

<sup>b</sup> Linear mixed model, multiple comparisons (Bonferroni).

$$\frac{\text{Mean of (T4 - T1)}}{\text{Standard deviation of (T4 - T1)}}$$

<sup>d</sup> The interpretation of effect sizes : 0.5 or > 0.5 : moderate or greater change, 0.2-0.5 : little change, < 0.2 : no change.

<sup>e</sup> Hospital Anxiety and Depression Scale.



# Changes over 1 year (#2)

Variable	1 diagnosis (n = 186)			> 1 diagnosis (n = 127)		
	Mean $\Delta^a$	$p^b$	Effect size <sup>c,d</sup>	Mean $\Delta$	$p$	Effect size
<b>Self-management behavior</b>						
Physical exercise (↑= improvement)	0.39	0.59	0.13	0.53	0.13	<b>0.20</b>
Coping with symptoms (↑= improvement)	<b>1.30</b>	<b>0.045</b>	<b>0.23</b>	<b>1.90</b>	<b>0.003</b>	<b>0.35</b>
Communication with MD (↑= improvement)	<b>0.47</b>	<b>0.043</b>	<b>0.20</b>	0.18	> .999	0.07

<sup>a</sup> Mean change: Mean of (T4-T1)

<sup>b</sup> Linear mixed model, multiple comparisons (Bonferroni).

<sup>c</sup> Effect size (standardized response mean):

$$\frac{\text{Mean of (T4 - T1)}}{\text{Standard deviation of (T4 - T1)}}$$

<sup>d</sup> The interpretation of effect sizes : 0.5 or > 0.5 : moderate or greater change, 0.2-0.5 : little change, < 0.2 : no change.



# Changes over 1 year (#3)

Variable	1 diagnosis (n = 186)			> 1 diagnosis (n = 127)		
	Mean $\Delta^a$	$p^b$	Effect size <sup>c,d</sup>	Mean $\Delta$	$p$	Effect size
<b>Self-efficacy to manage symptoms</b> (↑ = improvement)	2.74	0.06	<b>0.20</b>	<b>3.32</b>	<b>0.018</b>	<b>0.27</b>
<b>Sense of coherence<sup>e</sup></b> (↑ = improvement)	1.03	0.21	0.02	0.81	> .999	0.13
<b>Satisfaction with daily life</b> (↑ = improvement)	0.31	0.50	0.13	0.41	0.26	<b>0.20</b>

<sup>a</sup> Mean change: Mean of (T4-T1)

<sup>b</sup> Linear mixed model, multiple comparisons (Bonferroni).

<sup>c</sup> Effect size (standardized response mean):

Mean of (T4 - T1)

Standard deviation of (T4 - T1)

<sup>d</sup> The interpretation of effect sizes : 0.5 or > 0.5 : moderate or greater change, 0.2-0.5 : little change, < 0.2 : no change.

<sup>e</sup> University of Tokyo Health Sociology version of the SOC 3 scale.



# 1-year follow-up results (#1)

Variable	1 diagnosis	> 1 diagnosis	<i>P</i> <sup>a</sup>
	(n = 186)	(n = 127)	
	Mean or Median	Mean or Median	
<b>Health status</b>			
Self-evaluated health status (↓= better)	2.96	3.28	<b>0.036</b>
Fatigue (↓= better)	4.80	5.62	<b>0.029</b>
Pain (↓= better)	3.15	3.73	0.15
Health-related distress (↓= better)	5.79	6.58	0.26
Depression (↓= better)	6.65	6.09	0.32
Anxiety (↓= better)	5.89	6.72	0.21

<sup>a</sup> Unpaired t-tests and Mann-Whitney test.



# 1-year follow-up results (#2)

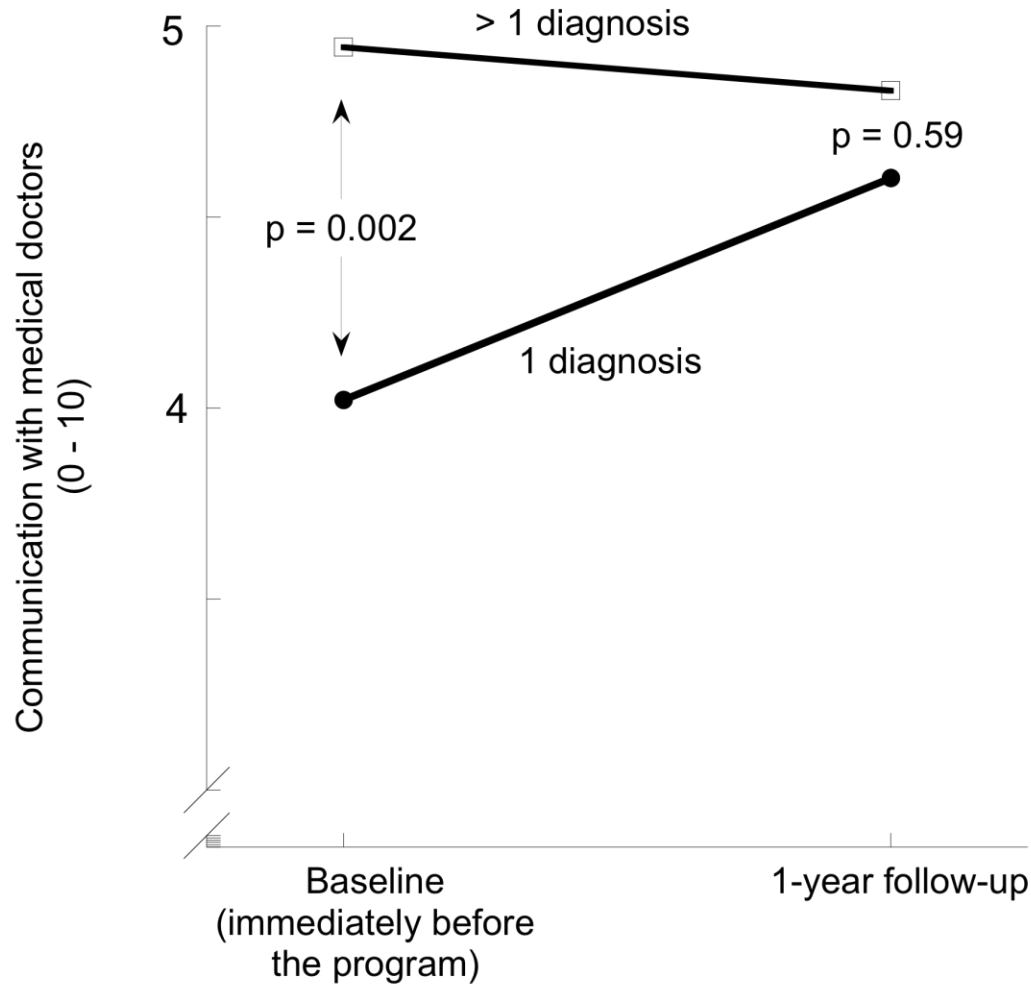
Variable	1 diagnosis (n = 186) Mean	> 1 diagnosis (n = 127) Mean	<i>P</i> <sup>a</sup>
<b>Self-management behavior</b>			
Physical exercise (↑= better)	3.64	3.80	0.73
Coping with symptoms (↑= better)	8.50	9.56	0.21
Communication with MD (↑= better)	4.60	4.83	0.59
<b>Self-efficacy to manage symptoms</b> (↑ = better)			
Self-efficacy	35.60	38.71	0.10
<b>Sense of coherence<sup>b</sup></b> (↑ = better)			
Sense of coherence	19.72	20.39	0.48
<b>Satisfaction with daily life</b> (↑= better)			
Satisfaction with daily life	6.49	6.67	0.63

<sup>a</sup> Unpaired t-test.

<sup>b</sup> University of Tokyo Health Sociology version of the SOC 3 scale.



# Change in communication with MDs, by number of diagnoses



# Do people with comorbidities have .....

Greater needs?

Yes. They might need more attention to pain management.

Better self-management skills?

Yes.

People with comorbidities are better at communicating with doctors.

(Because they have more experience as patients?)

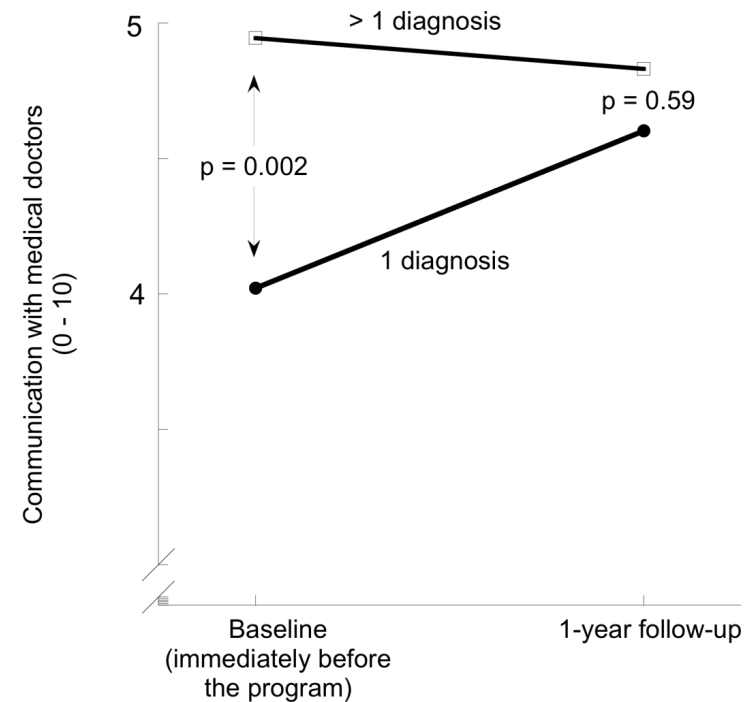


# After a self-management program, do the outcomes depend on the number of diagnoses?

Yes.

In particular, the people with comorbidities already had relatively good communication skills, and they did not improve further.

But communication with MDs **improved** in the people who had only 1 diagnosis.



# Questions for further study

How do people with only 1 diagnosis learn skills for better doctor-patient communication?

Through discussions with people who.....

...have comorbidities?

...have a diagnosis different from their own?

...are more experienced as patients?

Other possibilities?