



Universität St.Gallen

School of Medicine

What kind of self-management works and what patients need to better self-manage in the case of COPD - Evidence from Swiss survey data

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Motivation



3.2 million deaths in 2019 worldwide

3rd leading cause of death globally



4th leading cause of death
in Switzerland (2023)

COPD is irreversible



Self-management can maintain current health status and slow down disease progression:

- better health-related quality of life ^{1,2}
- reduction in hospital admissions ^{3,4}



Self-management remains underutilized by patients⁵ – why?

¹Schrijver, J. et al., ²Newmann J.J. et al., ³Jordan R.E et al., ⁴Wang T. et al., ⁵Khan A. et al.

Research questions

1. What self-management interventions and capabilities are associated with a better health status of individuals with COPD?

Focus of the study

2. How do support needs differ among COPD patients who adhere to the self-management interventions and who possess varying self-management capabilities?

Data: Web-based survey

Target group:

- COPD disease of any stage
- >18 years old
- German, Italian or French-speaking
- Living in Switzerland

Time to complete:

15-20 minutes

Channels:

- Flyers to GPs and specialists
- Social media advertising
- Professional network

Facebook advertisement (online channel)



The image shows a Facebook advertisement from the 'Lehrstuhl für Management im Gesundheitswesen, Universität St. Gallen'. The ad text asks if anyone in the user's family or themselves has COPD and if they need more support in managing the condition. It invites them to participate in a survey (DE, IT, FR) to help improve daily support for COPD patients. Below the text is a photograph of a person's hands holding a glowing, 3D model of human lungs. At the bottom, there is a link 'ww2.unipark.de' and a button 'Hier geht es zur Umfrage' (Here goes to the survey), along with a 'Mehr ansehen' (See more) button. The ad also shows engagement options like 'Gefällt mir', 'Kommentar', and 'Teilen'.

Flyer (offline channel)



The flyer is titled 'Studienteilnehmende gesucht' (Study participants sought) and 'Identifikation des Unterstützungsbedarfs von Patient:innen mit COPD' (Identification of support needs of patients with COPD). It specifies '(Chronisch-obstruktive Lungenerkrankung)'. The flyer includes logos for 'Universität St. Gallen School of Medicine', 'LUNGENEA ST.GALLEN APPENZEL AUßER RHODEN (Juste Luft für Leben)', and 'Kantonsspital St. Gallen'. It details the 'Teilnehmendenprofil' (Participant profile) as COPD-affected individuals aged 18+ with German, Italian, or French spoken at home. It describes the 'Ziel der Studie' (Study goal) as testing support programs and the 'Ablauf und Dauer der Studie' (Study process and duration) as a 20-minute survey. A QR code is provided for more information, and contact details for 'Anja Buehler' are listed. The flyer also features a photo of a doctor and a patient and the text 'From insight to impact.' and 'Foto: Lungendg, Schweiz'.

Data: Web-based survey

The structure of the online survey:

1. Personal information (e.g., gender, education, smoking habits)
2. Disease specifics and progression (e.g., COPD stage, past hospitalizations, comorbidities)
3. EQ-5D-5L, EQ-VAS
4. Support needs (e.g., difficulties in everyday life, use of digital support tools)
5. Health literacy (Health Literacy Questionnaire)

65 questions
(33 of them
are used for
our study)

Personal information (sample)

General information

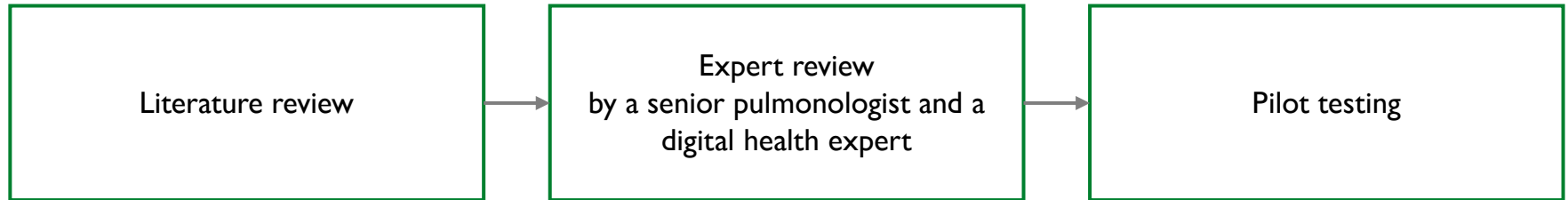
In this first section we ask you for some personal details:

1. Please enter your gender.
... Male
... Female
... Diverse
2. Please enter your year of birth:
3. Please indicate your height in cm: cm
4. Please indicate your weight in kg: kg
5. Please indicate your highest degree.
... No school
... Compulsory school
... Professional training/Apprenticeship
... Matura
... Higher education
... University degree (Bachelor/Master/Doctorate)
6. Do you smoke?
... Yes, daily
... Yes, occasionally
... No, not anymore
... No, never

COPD assessment test (CAT)

		SCORE
I never cough	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	I cough all the time <input type="checkbox"/>
I have no phlegm (mucus) on my chest at all	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	My chest is full of phlegm (mucus) <input type="checkbox"/>
My chest does not feel tight at all	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	My chest feels very tight <input type="checkbox"/>
When I walk up a hill or a flight of stairs I am not out of breath	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	When I walk up a hill or a flight of stairs I am completely out of breath <input type="checkbox"/>
I am not limited to doing any activities at home	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	I am completely limited to doing all activities at home <input type="checkbox"/>
I am confident leaving my home despite my lung condition	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	I am not confident leaving my home at all because of my lung condition <input type="checkbox"/>
I sleep soundly	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	I do not sleep soundly because of my lung condition <input type="checkbox"/>
I have lots of energy	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	I have no energy at all <input type="checkbox"/>
TOTAL SCORE		<input type="checkbox"/> <input type="checkbox"/>

Survey development



Methodology

Step 1

$$CAT \text{ reversed score} = \beta_0 + \beta_{SM} SM_{intervention} + \underbrace{\beta_A A + \beta_G G + \beta_E E + \beta_{BMI} BMI + \beta_H H + \beta_C C}_{\text{Controls}} + \epsilon$$

or

$$\beta_{SM} SM_{capability}$$

Age Gender Education BMI Hospitalised exacerbation Number of comorbidities

where self-management interventions included:

- 1) annual flu vaccination,
- 2) exchange with other COPD patients,
- 3) participation in the “Living better with COPD program”,
- 4) usage of digital health interventions

self-management capabilities included:

- 1) smoking cessation,
- 2) feeling secure in medication intake

Step 2

Subgroup analysis using chi-squared test of independence for variables with a p-value smaller than 0.05

Descriptives

195 observations in total

Variables	Mean [min, max]	SD
Age	64.82 [33,88]	9.82
BMI	26.56[14.86, 51.9]	6.55
Reversed CAT score	21.14[2, 39]	7.69
EQ-vas	61.41 [0, 100]	22.09
EQ-index	0.73 [-0.37, 1]	0.24
Number of comorbidities	0.92 [1,8]	1.5

69 patients
reported their
comorbidities

Variables	Variable characteristics	Number (%)
Total number of observations		195 (100)
Gender	Male	69 (35.4)
	Female	124 (63.6)
	Diverse	2 (1.0)
Smoking status	Yes, daily	57 (29.2)
	Yes, occasionally	17 (8.7)
	No longer	101 (51.8)
	I have never smoked	20 (10.3)
I have tried to quit smoking	Yes	116 (59.5)
	No	59 (30.3)
	Not applicable	20 (10.3)
I have been hospitalised due to COPD	Yes	70 (35.9)
Taking COPD specific medication	Yes	166 (85.1)
Feeling secure with medication intake	Very insecure	17 (8.7)
	Insecure	17 (8.7)
	Neutral	31 (16.0)
	Secure	35 (18.0)
	Very secure	66 (34.0)
	I do not take medication	29 (14.9)
Exchange with other patients	Yes	20 (10.3)
Living better with COPD	Yes	24 (12.3)
Yearly flu vaccination	Yes	112 (57.4)
Digital tools for COPD	Yes	25 (12.3)

Results | OLS Regression

Dependent variable: **Reversed CAT score**

Explanatory variables	Sample size	Variable characteristics	1 2 3 4 5 6 7							CCI - 95%	p-value
			Estimates								
Feeling secure in medication intake	166	Secure	-3.61							-6.85 - -0.38	0.029
		Neutral	-5.69							-9.00 - -2.38	0.001
		Insecure	-4.94							-9.19 - -0.69	0.023
		Very insecure	0.48							-3.62 - 4.58	0.817
Did you quit smoking?	175	Yes			3.63				1.13 - 6.12	0.005	
Exchange with other patients	195	Yes			-0.85				-4.38 - 2.68	0.636	
Living better with COPD	195	Yes				0.19			-3.11 - 3.48	0.911	
Yearly flu vaccination	195	Yes					0.63		-1.64 - 2.90	0.586	
Digital tools for COPD	195	Yes						1.36	-1.75 - 4.46	0.390	

Self-management capabilities

Self-management interventions

Only patients who take medication

Included in a subgroup analysis

Only current and former smokers

Results | Subgroup analysis – Medication intake

	I feel secure, neutral, insecure, or very insecure in medication intake	%	I feel very secure in medication intake	%	p-value
Total number of observations	100		66		
Regular tips and information on dealing with COPD	59	59	23	34.8	0.004
Regular exercise to relieve symptoms of COPD	41	41	22	33.3	0.405
Comparison of own health status with average COPD patients	26	26	16	24.2	0.942
Support to stop smoking	25	25	7	10.6	0.036
Opportunities to share with others affected by COPD	25	25	8	12.1	0.066
Reminder of other supportive measures	16	16	5	7.6	0.174
Support in communicating with health insurance companies	14	14	4	6.1	0.175
Support in paying bills	14	14	5	7.6	0.306
Cooking and ensuring a healthy diet	9	9	6	9.1	1.000
Other support needs	9	9	8	12.1	0.698
Support for family members	7	7	2	3.0	0.450
Reminder to take medication	5	5	1	1.5	0.452
Support in arranging medical appointments	3	3	2	3.0	1.000
Reminder of doctor's appointments	2	2	2	3.0	1.000

Results | Subgroup analysis – Smoking cessation

	I smoke	%	I quit smoking	%	p-value
Total number of observations	74		101		
Regular tips and information on dealing with COPD	35	47.3	47	46.50	1.000
Support to stop smoking	35	47.3	2	2.00	<0.001
Regular exercise to relieve symptoms of COPD	24	32.4	40	39.60	0.416
Comparison of own health status with average COPD patients	14	18.9	29	28.70	0.191
Opportunities to share with others affected by COPD	13	17.6	19	18.80	0.990
Support in paying bills	10	13.5	9	8.90	0.471
Reminder of other supportive measures	6	8.1	17	16.80	0.144
Support in communicating with health insurance companies	6	8.1	11	10.90	0.772
Other support needs	6	8.1	9	8.90	1.000
Cooking and ensuring a healthy diet	5	6.8	12	11.90	0.383
Support in arranging medical appointments	4	5.4	3	3.00	0.673
Support for family members	3	4.1	5	5.00	1.000
Reminder to take medication	2	2.7	4	4.00	0.975
Reminder of doctor's appointments	2	2.7	2	2.00	1.000

Conclusion

- Different self-management interventions and varying self-management capabilities **have different effects on the health status of COPD patients**
- **Support needs of subgroups differ** → personalization of the care is important
- Individuals with COPD are **willing to understand the disease and its progression better**

Limitation

- **Out sample is small** to generalize the results ← 195 survey participants vs 400k COPD patients in Switzerland
- **Self-reported data** ← time, emotions and motivation of COPD patients
- **Selection bias** ← Internet access / minimal digital skills are required to participate in the survey

Thank you for your attention!

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