



KALC 2022

Korean Association for Lung Cancer International Conference
November 10-11, 2022 | Lotte Hotel World, Seoul, Korea

Impact of COVID-19 pandemic in motivation and perception towards smoking cessation among lung cancer screening participants in Korea

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Background

- Korean National Lung Cancer Screening Program (KNLCS) is a nationwide population-based lung cancer screening program using low-dose computed tomography (LDCT), targeting high-risk smokers aged 54 to 74 with at least 30 pack-years of smoking history.
- KNLCS provides a mandatory in-person smoking cessation counselling after LDCT screening results counselling following lung cancer screening.

Aim

- We aimed to assess how much participants' motivation and perception towards smoking cessation changed through lung cancer screening program during COVID-19 pandemic.

Methods

- In 2019-2021, we conducted an annual telephone survey for 1,000 KNLCS participant through random sampling.
- Survey questionnaire included whether participants attended LDCT screening results counselling after screening and changes in smoking status after screening.

Results

- During COVID-19 pandemic, visits for LDCT screening results counselling after lung cancer screening decreased from 61.3% in 2019, 47.8% in 2020 to 42.9% in 2021.
- Those who smoked less after screening was 41.5%, 25.3%, and 22.9% from 2019 to 2021, respectively.
- Those who quit smoking after screening was 9.8%, 11.9%, and 7.6% from 2019 to 2021, respectively.

Table 1. Characteristics of Korean national lung cancer screening survey participants, 2019-2021

		Survey year, (%)		
		2019	2020	2021
Total number of respondents, n		1000	1000	924
Gender				
	Men	976 (97.6)	972 (97.2)	897 (97.1)
	Women	24 (2.4)	28 (2.8)	27 (2.9)
Age				
	54-59	246 (24.6)	221 (22.1)	159 (17.2)
	60-64	294 (29.4)	339 (33.9)	376 (40.7)
	65-69	345 (34.5)	224 (22.4)	219 (23.7)
	>70	115 (11.5)	216 (21.6)	170 (18.4)
Education				
	University/College	147 (15.2)	175 (18.2)	156 (17.8)
	High school	349 (36.2)	376 (39.0)	343 (39.2)
	Middle school or less	468 (37.3)	413 (32.9)	375 (29.9)
Monthly household income(KRW)				
	≤1,990,000	633 (66.9)	604 (66.5)	471 (59.2)
	2,000,000-3,990,000	267 (28.2)	248 (27.3)	241 (30.3)
	≥4,000,000	46 (4.9)	56 (6.2)	83 (10.4)
Marriage				
	Married	754 (78.6)	710 (74.2)	818 (88.5)
	Single	41 (4.3)	35 (3.7)	31 (3.4)
	Separated/Divorced/Widowed	130 (13.6)	155 (16.2)	51 (5.5)
Smoking status at screening		1,000	478	924
	Smoking	838 (83.8)	341 (71.3)	793 (85.8)
	Non-smoking	162 (16.2)	137 (28.6)	131 (14.2)

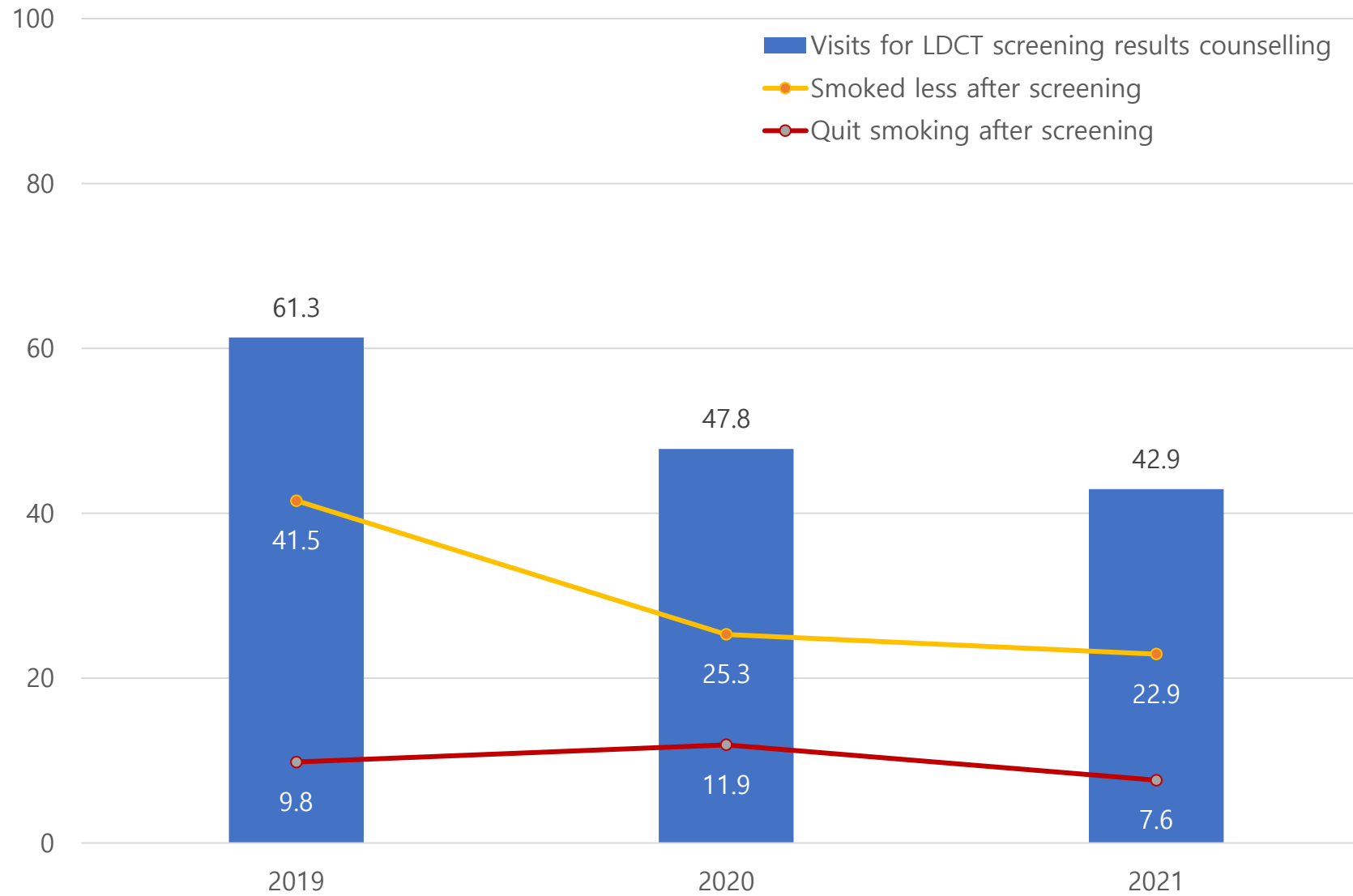
Table 2. Changes in smoking status after participating in lung cancer screening, 2021

	Changes in smoking status, (%)				Total	p-value ¹	p-value ²
	More smoking or no changes	Less smoking	Quit smoking	Alternative tobacco			
Number of respondents, n	595	212	70	6	883		
Gender						1.000	0.245
Men	575 (67.0)	209 (24.4)	68 (7.9)	6 (0.7)	858		
Women	20 (80.0)	3 (12.0)	2 (8.0)	0 (0.0)	25		
Age						0.400	0.256
54-59	104 (67.5)	39 (25.3)	10 (6.5)	1 (0.6)	154		
60-64	252 (70.2)	81 (22.6)	24 (6.7)	2 (0.6)	359		
65-69	139 (67.8)	47 (22.9)	19 (9.3)	0 (0.0)	205		
>70	100 (60.6)	45 (27.3)	17 (10.3)	3 (1.8)	165		
Education						0.889	0.237
University/College	99 (66.0)	39 (26.0)	10 (6.7)	2 (1.3)	155		
High school	207 (63.5)	89 (27.3)	26 (8.0)	4 (1.2)	326		
Middle school or Less	257 (71.2)	76 (21.1)	28 (7.8)	0 (0.0)	361		
Monthly household income (KRW)						0.384	0.808
≤1,990,000	302 (67.1)	103 (22.9)	41 (9.1)	4 (0.9)	450		
2,000,000-3,990,000	155 (66.8)	62 (26.7)	14 (6.0)	1 (0.4)	232		
≥4,000,000	54 (69.2)	17 (21.8)	6 (7.7)	1 (1.3)	78		
Marriage						0.248	0.214
Married	521 (66.5)	192 (24.5)	65 (8.3)	5 (0.6)	783		
Single	24 (80.0)	6 (20.0)	0 (0.0)	0 (0.0)	30		
Separated/Divorced/Widowed	50 (71.4)	14 (20.0)	5 (7.1)	1 (1.4)	70		
Smoking status at screening						<0.001	0.606
Smoking	539 (68.8)	205 (26.1)	34 (4.3)	6 (0.8)	784		
Non-smoking	56 (56.6)	7 (7.1)	36 (36.4)	0 (0.0)	99		

1 The chi-square test is used to compare the difference between quit smoking group and non-quit smoking group

2 The chi-square test is used to compare the difference between less or quit smoking group and the other group

Figure 1. Changes in smoking status and LDCT screening results counselling (%), 2019-2021



Conclusion

- Impact of COVID-19 diminished visits to LDCT screening results counselling, and thus reduced screening participants' motivation to quit smoking.
- Efforts are needed to increase visits to LDCT screening results counselling to promote smoking cessation after lung cancer screening.