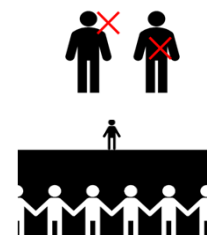# Development and Validation of the COVID–19-Related Stigma Scale for Healthcare Workers (CSS-HCWs)

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Introduction

- Stigma among healthcare workers during the coronavirus disease 2019 (COVID-19) pandemic is an issue that requires immediate attention as it may otherwise lead to the collapse of healthcare systems(WHO,2020).
- Stigma not only creates discriminatory behavior and estrangement from family and friends, but also contributes to personal problems, such as negative self-image perceptions(Baldassarre,2020).
- Stigma against healthcare workers has been reported to occur, especially in areas where COVID-19 is considered to be under control(Bagcchi,2020).
- Harassment and stigma related to COVID-19 have been reported in 21.3% of medical facilities in Japan(Kamada,2021).
- A qualitative study of COVID-19-related stigma for nurses conducted in Japan reported that one of the components of stigma was "discrimination toward family members," which is a characteristic of COVID-19-related stigma(Tsukuda,2022).

we developed the COVID-19-Related Stigma Scale for Healthcare Workers (CSS-HCWs) and assessed its reliability and validity.

Scale creation process

Item Creation ⟹ Drafting a scale ⟹ WEB Survey ⟹ Verification of reliability and validity

- HIV Stigma scale (Berger,2001), SIRS Stigma scale (Verma,2004),Content of stigma as perceived by healthcare workers in Japan (Tsukuda, 2022)
- Data were collected over the Web from 500 HCW (nurses & physicians) involved with COVID-19 care.
- The scale consists of 24 items rated on a six-point Likert scale.
- Descriptive statistics was calculated and the distribution of the data was analyzed.
- For reliability and validity, construct validity were tested through exploratory and confirmatory factor analysis.
- Criterion-related validity was examined through correlation analysis with E16-COVID19-S, which measures stigma among Egyptian physicians.
- Test-retest was conducted to examine the scale's reproducibility.

Result

Participants' characteristics (n=500)

Participants included 250 physicians and 250 nurses. Regarding gender, 267 were male and 233 female. The mean scores of the CSS-HCWs (Max:108, Min:18) were 49.65 and 51.51, respectively, with no significant differences. The mean clinical experience was 18.4 ± 10.8 years (range: 0–43 years). There were 372 participants (74.4%) who lived with family members and 128 (25.6%) who did not live with family members. The CCS-HCWs scores were 50.15 and 51.84, respectively. There were no significant differences

The exploratory factor analysis and Cronbach's α coefficients (n=500)

			Factor Loading		
Factor 1	Personal Stigma	My family would treat me as dirty if I have close contact with COVID-19 patients.	0.938		
		Other healthcare workers would treat me as dirty if I have close contact with COVID-19 patients.	0.803		
		My family would avoid me if I have close contact with COVID-19 patients.	0.777		
		I feel guilty if I have had close contact with COVID-19 patients.	0.761		
		Other healthcare workers would avoid me if I have close contact with COVID-19 patients.	0.649		
		If healthcare workers get infected with COVID-19, it is no surprise that they are criticized by the others.	0.623		
		I find myself feeling dirty if I have had close contact with COVID-19 patients.	0.547		
		People treat me as a bad person if I have close contact with COVID-19 patients.	0.537		
		People would treat me as dirty if I have close contact with COVID-19 patients.	0.536		
Factor 2	Concerns of Disclosure and Attitude	I should hide the fact that I am a healthcare worker.		0.921	
		It is best to hide the fact that I have had close contact with COVID-19 patients.		0.819	
		I ask my family to hide the fact that I am a healthcare worker.		0.808	
		It is dangerous to tell people that you have had contact with COVID-19 patients.		0.754	
		It is better not to meet with people around you so that they do not ask whether you have had close contact		0.572	
Factor 3	Family Stigma	The families of healthcare workers who have close contact with COVID-19 patients will be treated unfairly at work and school.			0.900
		The families of healthcare workers who have close contact with COVID-19 patients will be avoided by people.			0.895
		The families of healthcare workers who have close contact with COVID-19 patients will be treated as an infected person.			0.815
		The families of healthcare workers who have close contact with COVID-19 patients will interfere with work and schoolwork.			0.682
Factor Loading(%)			64.52	5.334	3.538
Cumulative loading (%)				69.862	73.400

CFA for this 18-item model yielded the following indices: χ^2 (126) = 492.714, χ^2/df = 3.910, GFI=0.902, CFI =0.962, RMSEA = 0.076

Conclusion

- The CSS-HCWs is a reliable and validated instrument for quantitatively assessing stigma in healthcare workers caring for COVID-19 patients.
- Healthcare workers have a special sense of mission and responsibility that is different from that of the average person.
- If common support measures for stigma and specific support measures for health care workers can be systematically implemented, it will be possible to effectively intervene and evaluate stigma against emerging infectious diseases that may occur in the future.

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