Assessing Quality of Life post COVID-19 Infection

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Background

Persistent symptoms post COVID-19 infection are increasingly recognised. Several studies have demonstrated persistent fatigue and a negative impact on health related quality of life (HRQOL) in the months following COVID-19 infection.[1 2] Evaluating the associated factors and longer-term impacts of COVID-19 on HRQOL will benefit patient care and inform optimal planning of appropriate healthcare services.

Aims

To evaluate the impact of COVID-19 on HRQOL as compared with reference Irish HRQOL data

To identify factors associated with lower HRQOL scores in patients previously diagnosed with COVID-19

Methods

A cross-sectional study of HRQOL was conducted amongst patients who tested positive during the first wave of COVID-19 in Galway University Hospital (GUH). Inclusion criteria were; PCR confirmed COVID-19 infection in adults between March 1st - May 31st 2020. Ethical approval was granted. Identified participants were sent a consent form and study information leaflet. Consented participants then submitted an anonymised HRQOL survey.

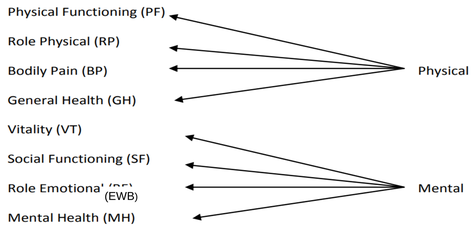

Figure 1. The 8 domains within the SF-36 score of Health-related Quality of Life

The SF-36 survey is a standardised measure of HRQOL across 8 domains (figure 1). Questions are scored from 0-100, with 100 representing the highest level of functioning. The average scores within these 8 domains in the study participants were compared with normative Irish SF-36 data.[3] Unpaired t-test was used to test for statistical significance between continuous variables. Those with low SF-36 scores (less than 75 in 4 domains or less than 50 in 2) were invited to repeat the survey to see if scores had improved.

Results

136 patients met the study's inclusion criteria. 88 patients (65%) were agreed to participate and 59 (67% response rate) returned fully completed surveys. 27/59 (46%) were female, 32/59 (54%) were male, average age was 52 years (range 24-86). The average time post Covid-19 diagnosis at the time of completing the survey was 12 weeks (range 4-20).

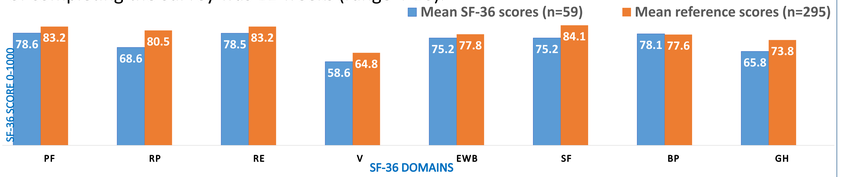

Figure 2. Comparison of Mean SF-36 scores amongst study participants with normative Irish population data

Participants reported worse overall HRQOL scores compared to normative Irish SF-36 data. Statistically significant differences were recorded in the domains of RP (68.6 vs 80.5, p-value 0.019), EF (54.8 vs 64.6, p-value 0.037), SF (75.2 vs 84.1, p-value 0.009) and GH (65.8 vs 73.8, p-value 0.009).

	PF	RP	RE	V	EWB	SF	BP	GH
Females (n=27) (SD)	72.4 (35.2)	65.7 (43.4)	69.1 (40.2)	55.2 (21.05)	72.7 (17.7)	73.6 (27.4)	76.1 (30.3)	63.9 (35.2)
Males (n=32) (SD)	80.7 (29.1)	71.1 (39.2)	86.5 (29.2)	61.4 (24.6)	77.3 (19.8)	76.6 (24.8)	79.8 (24.9)	67.3 (23.2)

Table 1. Mean scores for each of the HRQOL domains amongst female and male study participants

Another study has demonstrated increased rates of fatigue post COVID-19 among females[1].

In the GUH study cohort, there was a non-statistically significant trend towards better HRQOL scores among men (table 1).

	PF	RP	RE	V	EWB	SF	BP	GH
Admitted (n=31) (SD)	65 (36.6)	51.6 (46.1)	69.9 (42.5)	54 (25.3)	74.1 (21.3)	66.1 (27.6)	68 (31.8)	54.5 (25.9)
Non-Admitted (n=28) (SD)	93.6 (18.7)	87.5 (23.1)	88.1 (22.6)	63.6 (19.6)	76.4 (16)	85.3 (19.6)	89.3 (15.2)	78.2 (16.6)
P value	0.0007	0.0004	0.0491	0.1137	0.6340	0.0035	0.0021	0.0001

Table 2. Mean scores for each of the HRQOL domains amongst admitted and non-admitted study participants

Hospitalised participants (28/59, 47.5%)in this study group reported statistically significantly poorer scores than participants who didn't require hospital admission (31/59, 52.5%) in every domain except for EF and EWB (table 2). Those requiring ICU level care (15/59, 25.4%) reported the worst HRQOL score post discharge (Figure 3)

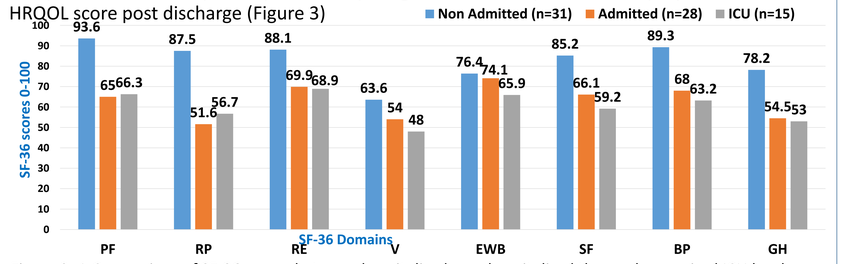

Figure 3. A Comparison of SF-36 scores between hospitalised, non hospitalised those who required ICU level care.

Repeat SF-36 were administered 6-9 months post diagnosis for those with the lowest HRQOL (n=28), completed repeat questionnaires (n=13) demonstrated improved but persistently significant impairments, particularly in physical limitations and energy levels.

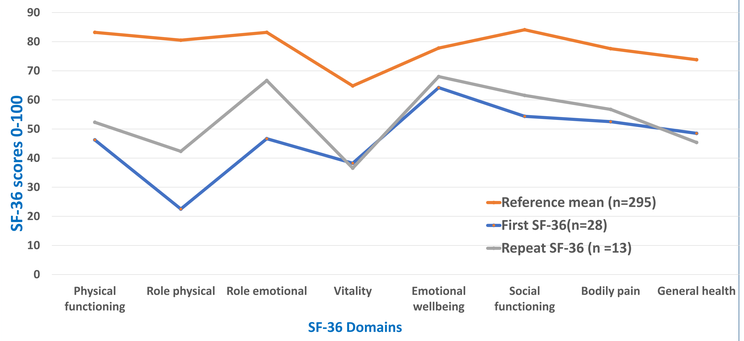

Figure 4. A Comparison of the lowest initial SF-36 scores amongst participants with their repeats scores at 6-9 months and with reference SF-36 data

Discussion & Conclusion

This study illustrates that at an average of three months post PCR-confirmed COVID - 19 infection, HRQOL was impaired in physical and mental health domains amongst participants compared to reference Irish SF-36 data. In contrast to other studies,[1 2] this impairment was most marked in those who were hospitalised.

Those with the lowest initial HRQOL showed some improvement at 6-9 months but persistent deficits compared to a reference Irish HRQOL data, particularly in physical limitations and energy levels.

The impact of COVID-19 restrictions may have contributed to impairment in some HRQOL domains, particularly social functioning scores.

Limitations

This study is limited by its small sample size, making it difficult to identify statistically significant trends in the data gathered. The study is also subject to response bias.

Conclusion

In conclusion, this small study helps to demonstrate the significant and prolonged effect of COVID-19 on health-related quality of life.

References

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3 Blake, C., Codd, M., & Meara, Y. O. (2000). *The Short Form 36 (SF-36) Health Survey : normative data for the Irish population*. *36*(July). https://doi.org/10.1007/BF03167695