Table S3. Odds ratio (OR) and 95% CI for all meta-analyses carried out. Values in bold are statistically significant.

Outcome	Subgroup analysis	RCT	Analytical
		OR [95% CI]; (N. Studies)	**OR [95% CI]; (N. Studies)**
Mortality	**All**	0.80 [0.61-1.04] (19)	**0.45 [0.24-0.86] (7)**
	Enrollment period		
	Feb 2020 - May 2020	**0.32 [0.11-0.91] (2)**	0.52 [0.19-1.43] (4)
	Other	0.85 [0.64-1.13] (17)	**0.41 [0.17-0.99] (3)**
	Covid-19 Severity		
	Severe Covid-19	**0.50 [0.31-0.82] (7)**	0.65 [0.10-4.19] (2)
	Not Severe Covid-19	0.99 [0.71-1.38] (12)	**0.41 [0.21-0.77] (5)**
	Age		
	≤ 65 years	1.05 [0.73-1.53] (9)	NA (1)
	> 65 years	**0.58 [0.39-0.86] (10)**	**0.48 [0.24-0.95] (6)**
	Baseline Vitamin D status		
	< 20 ng/ml	0.56 [0.12-2.67] (3)	0.63 [0.36-1.09] (3)
	Not reported	**0.39 [0.17-0.90] (5)**	NA (1)
	Other	0.95 [0.69-1.31] (11)	0.48 [0.13-1.72] (3)
	Supplementation		
	High dosage vs Low	0.72 [0.42-1.23] (5)	NA
	Vitamin D vs No Treat/Placebo	0.82 [0.60-1.13] (14)	**0.45 [0.24-0.86] (7)**
	Country		
	Europe	0.65 [0.39-1.09] (10)	0.39 [0.15-1.05] (4)
	Africa	NA (1)	NA (1)
	Asia	0.63 [0.32-1.22] (3)	0.59 [0.32-1.07] (2)
	America	1.24 [0.67-2.32] (5)	NA
ICU admission	**All**	**0.55 [0.37-0.79] (14)**	**0.35 [0.18-0.66] (5)**
	Enrollment period		
	Feb 2020 - May 2020	NA	**0.26 [0.11-0.60] (3)**
	Other	**0.55 [0.37-0.79] (14)**	0.56 [0.29-1.10] (2)
	Covid-19 Severity		
	Severe Covid-19	0.22 [0.02-2.07] (3)	**0.26 [0.11-0.60] (3)**
	Not Severe Covid-19	**0.67 [0.51-0.88] (11)**	0.56 [0.29-1.10] (2)
	Age		
	≤ 65 years	**0.56 [0.32-0.98] (8)**	NA (1)
	> 65 years	**0.43 [0.26-0.71] (6)**	**0.29 [0.14-0.58] (4)**
	Baseline Vitamin D status		
	< 20 ng/ml	0.59 [0.23-1.51] (3)	NA (1)
	Not reported	0.20 [0.03-1.15] (3)	NA (1)
	Other	0.76 [0.56-1.04] (8)	**0.31 [0.14-0.69] (3)**
	Supplementation		
	High dosage vs Low	**0.37 [0.20-0.68] (4)**	NA
	Vitamin D vs No Treat/Placebo	**0.62 [0.40-0.94] (10)**	**0.35 [0.18-0.66] (5)**
	Country		
	Europe	0.37 [0.12-1.08] (6)	**0.31 [0.14-0.69] (3)**
	Africa	NA (1)	NA
	Asia	0.46 [0.19-1.11] (3)	0.42 [0.12-1.49] (2)
	America	0.66 [0.41-1.06] (4)	NA

Intubation	**All**	**0.50 [0.27-0.92] (9)**	0.65 [0.39-1.08] (3)
	Enrollment period		
	Feb 2020 - May 2020	NA	0.67 [0.29-1.57] (2)
	Other	**0.50 [0.27-0.92] (9)**	NA (1)
	Covid-19 Severity		
	Severe Covid-19	1.33 [0.29-6.12] (2)	NA
	Not Severe Covid-19	**0.36 [0.19-0.68] (7)**	0.65 [0.39-1.08] (3)
	Age		
	≤ 65 years	0.60 [0.37-0.99] (5)	NA
	> 65 years	0.53 [0.10-2.74] (4)	0.65 [0.39-1.08] (3)
	Baseline Vitamin D status		
	< 20 ng/ml	1.55 [0.12-19.17] (2)	0.65 [0.37-1.13] (2)
	Not reported	**0.17 [0.08-0.37] (2)**	NA (1)
	Other	0.62 [0.38-1.02] (5)	NA
	Supplementation		
	High dosage vs Low	0.24 [0.06-1.00] (2)	NA
	Vitamin D vs No Treat/Placebo	0.66 [0.41-1.04] (7)	0.65 [0.39-1.08] (3)
	Country		
	Europe	2.59 [0.49-13.62] (2)	NA
	Africa	NA (1)	NA
	Asia	0.69 [0.33-1.41] (2)	NA
	America	**0.51 [0.26-0.98] (4)**	NA

Table S4. Mean Difference (MD) and 95% CI for all meta-analyses carried out. Values in bold are statistically significant.

Outcome	Subgroup analysis	RCT Mean Diff. [95% CI]; (N. Studies)
Hospital Length of Stay	**All**	-0.62 [-1.41, 0.18] (16)
	Enrollment period	
	Feb 2020 - May 2020	NA
	Other	-0.62 [-1.41, 0.18] (16)
	Covid-19 Severity	
	Severe Covid-19	2.59 [-0.90, 6.08] (3)
	Not Severe Covid-19	**-0.95 [-1.69, -0.21] (13)**
	Age	
	≤ 65 years	-0.29 [-0.90, 0.32] (10)
	> 65 years	-1.54 [-1.42, 0.18] (6)
	Baseline Vitamin D status	
	< 20 ng/ml	0.47 [-2.13, 3.06] (2)
	Not reported	**-2.93 [-4.39, -1.46] (2)**
	Other	-0.41 [-1.19, 0.36] (12)
	Supplementation	
	High dosage vs Low	-0.95 [-2.98, 1.08] (3)
	Vitamin D vs No Treat/Placebo	-0.53 [-1.44, 0.38] (13)
	Country	
	Europe	-0.55 [-2.36, 2.26] (5)
	Africa	NA (1)
	Asia	0.57 [-0.98, 2.12] (5)
	America	**-1.10 [-1.72, -0.47] (5)**