

Replay to Response to Oliviero et al.'s Publication: "Impact of COVID-19 lockdown on symptoms in patients with functional gastrointestinal disorders: Relationship with anxiety and perceived stress"

Dear Editor,

We would like to thank Dr. Wang and colleagues for their interest in our study focused on the effects of perceived stress and anxiety due to COVID-19 lockdown on symptoms in functional gastrointestinal disorders (FGID) patients.

Dr. Wang et al. analyzed 38 returned surveys sent to their irritable bowel syndrome (IBS) patients early in the pandemic. The survey focused on the impact of COVID-19 on symptoms' trend, mental health, and healthcare utilization from March to May 2020. They showed how higher anxiety levels, strictly related to COVID-19 outbreak, correlated with worse quality of life and with high pain levels, distension, dissatisfaction, and life interference.

Dr. Wang and our data look deeply similar, reaching analogue conclusions.

In our study, 69 patients, regularly followed up in a devoted outpatient clinic of Southern Italy, were evaluated with FGID-related standardized questionnaires before and during the first COVID-19 lockdown and 44 of them filled in the online questionnaires to assess their anxiety (GAD-7) and stress levels (PSS-10). Our results showed, at logistic regression analyses, how higher anxiety level was a risk factor of worsening gastrointestinal (GI) symptoms such as chest pain (OR: 1.3 CI:1.1–1.7; p : 0.017), water brash (OR:1.3 CI:1.0–1.7; p : 0.024), epigastric burning (OR:1.3 CI:1.0–1.6; p : 0.043), and abdominal pain (OR:1.6 CI:1.0–2.3; p : 0.015), so taking in account a wider spectrum of functional gastrointestinal disorders, such as functional dyspepsia (FD), irritable bowel syndrome (IBS), and functional heartburn (FH).

Previous studies underlined how stress conditions and mood disorders such as anxiety and depression could influence pain levels in IBS patients, and gastric discomfort in FD patients, due to the alteration of visceral pain stimuli brain processing and of colonic and gastric motility patterns.^{1–5}

Furthermore, it has been deeply reported in literature that depression and anxiety occur in most of FGID patients and that are able to condition GI symptoms onset and maintenance, interfering with gastrointestinal motor function and sensitivity, specifically activating autonomic or brain response to stress situations.^{1,6–9}

In this context, Dr. Wang's and our data are perfectly in line with the previous literature demonstrating and confirming how psychological stress and anxiety could modulate FGID symptoms onset, maintenance, and severity, often in a negative way.

However, we must clarify that these findings represent only a partial slice of our study results. Indeed, we found that despite COVID-19 lockdown having forced an adaptation to home restrictions, the intensity-frequency scores of several upper GI symptoms improved. These results appeared quite surprising but in apparent contrast with previous studies, so becoming possible matter of debate.


Nevertheless, we tried to give some explications to this finding: 1—focusing attention on an organic disease such as COVID-19 might have lightened functional symptoms¹⁰; 2—the level of fear of getting COVID-19 was lower in the studied population since it was from Campania, an Italian region that was affected by the first pandemic wave much less than other northern regions; 3—the patients' resilience as a psychological aspect able to influence symptoms improvement¹¹; and 4—eating at home a Mediterranean diet or, at least, having a more regular meals despite having quick and qualitatively unhealthy meals could improve GI symptoms.

In our study, we have not considered, among possible causes of anxiety, the COVID-19-related financial concerns that, as Dr. Wang and colleagues correctly showed, were linked to higher anxiety levels and consequently to higher pain levels, dissatisfaction, and interference to life. The analysis they reported fit perfectly with the concept of national health system adopted in the United States, which differs profoundly from the Italian one, completely open to all patients' health needs, so without financial burden.

Finally, COVID-19 outbreak has severely tested our health system, making us neglect various categories of patients such as those suffering functional GI symptoms. This concept must lead us to reflect deeply on our current FGID patients' management, and we deeply agree with the need to improve and develop new modalities of healthcare assistance such as telehealth or telemedicine.

Giovanni Oliviero 

Luigi Ruggiero 

Elvira D'Antonio
 Mario Gagliardi
 Rubino Nunziata
 Alessandro Di Sarno
 Carmelina Abbatiello
 Elvira Di Feo
 Simona De Vivo
 Antonella Santonicola
 Paola Iovino 

Department of Medicine, Surgery and Dentistry "Scuola Medica Salernitana", University of Salerno, Baronissi, Italy

Correspondence

Paola Iovino, Department of Medicine, Surgery and Dentistry "Scuola Medica Salernitana", University of Salerno, Baronissi, Italy.
 Email: piovino@unisa.it

ORCID

Giovanni Oliviero  <https://orcid.org/0000-0003-4277-2917>

Luigi Ruggiero  <https://orcid.org/0000-0002-9230-0910>

Paola Iovino  <https://orcid.org/0000-0002-9568-0680>

REFERENCES

1. Wouters MM, Boeckstaens GE. Is there a causal link between psychological disorders and functional gastrointestinal disorders? *Expert Rev Gastroenterol Hepatol*. 2016;10(1):5-8. 10.1586/17474124.2016.1109446
2. Elsenbruch S, Rosenberger C, Enck P, Forsting M, Schedlowski M, Gizewski ER. Affective disturbances modulate the neural processing of visceral pain stimuli in irritable bowel syndrome: an fMRI study. *Gut*. 2010;59(4):489-495. 10.1136/gut.2008.175000
3. Van Oudenhove L, Aziz Q. The role of psychosocial factors and psychiatric disorders in functional dyspepsia. *Nat Rev Gastroenterol Hepatol*. 2013;10(3):158-167. 10.1038/nrgastro.2013.10
4. Santonicola A, Zingone F, Guarino MPL, Iovino P. Chronic pain in irritable bowel syndrome and other comorbid pain conditions. *Acta Medica Mediterranea*. 2019;35:1685-1698. 10.19193/0393-6384_2019_3_264
5. Iovino P, Azpiroz F, Domingo E, Malagelada JR. The sympathetic nervous system modulates perception and reflex responses to gut distention in humans. *Gastroenterology*. 1995;108(3):680-686. 10.1016/0016-5085(95)90439-5
6. Konturek PC, Brzozowski T, Konturek SJ. Stress and the gut: pathophysiology, clinical consequences, diagnostic approach and treatment options. *J Physiol Pharmacol*. 2011;62(6):591-599.
7. Bouchoucha M, Hejnar M, Devroede G, Babba T, Bon C, Benamouzig R. Anxiety and depression as markers of multiplicity of sites of functional gastrointestinal disorders: a gender issue? *Clin Res Hepatol Gastroenterol*. 2013;37(4):422-430. 10.1016/j.clinre.2012.10.011
8. Addolorato G, Mirijello A, D'Angelo C, et al. State and trait anxiety and depression in patients affected by gastrointestinal diseases: psychometric evaluation of 1641 patients referred to an internal medicine outpatient setting. *Int J Clin Pract*. 2008;62(7):1063-1069. 10.1111/j.1742-1241.2008.01763.x
9. Iovino P, Tremolaterra F, Boccia G, Miele E, Ruju FM, Staiano A. Irritable bowel syndrome in childhood: visceral hypersensitivity and psychosocial aspects. *Neurogastroenterol Motil*. 2009;21(9):940-e74. 10.1111/j.1365-2982.2009.01303.x
10. Accarino AM, Azpiroz F, Malagelada JR. Attention and distraction: effects on gut perception. *Gastroenterology*. 1997;113(2):415-422.
11. Park SH, Naliboff BD, Shih W, et al. Resilience is decreased in irritable bowel syndrome and associated with symptoms and cortisol response. *Neurogastroenterol Motil*. 2018;30(1):e13155.

How to cite this article: Oliviero G, Ruggiero L, D'Antonio E, et al. Reply to Response to Oliviero et al.'s Publication: "Impact of COVID-19 lockdown on symptoms in patients with functional gastrointestinal disorders: Relationship with anxiety and perceived stress". *Neurogastroenterology & Motility*. 2021;33:e14263. <https://doi.org/10.1111/nmo.14263>