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Understanding and Responding to the Impact of COVID-19 on Paediatric Gastroenterology Training & Practice of Young ESPGHAN Members

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ABSTRACT

Objectives: Limited data exist about the impact of the coronavirus disease 2019 (COVID-19) pandemic on the training and clinical practice of young doctors. The aim of this study was to evaluate the impact on paediatric gastroenterologists in training posts during the first wave of the European COVID pandemic.

Methods: All Young members of European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) (YE) members received a multiple-choice questionnaire concerning the impact (if any) on their clinical practice, mental health, quality of care provided and fellowship/training experience. The survey was conducted between May 22, 2020 and June 10, 2020.

Results: Of the 144 responders (40% of YE members), 85% (n = 123) reported an impact of COVID-19. Ninety-six percent reported an impact on their clinical practice, including more virtual patient consultation (n = 91), underutilization of ambulatory care (n = 113) and reduced or lack of planned admissions (n = 75). Endoscopy restrictions to semi-urgent or emergency cases were reported in 82 and lack of medical equipment/drugs (n = 47) were also reported.

Reported adverse mental health issues included poor concentration, increased stress levels, an impact on family life in 62% and a reduced quality of care in 45%; this was more often reported in doctors from Southern Europe (54%) than in those from other geographical areas.

Seventy-seven percent reported an impact on the content of their fellowship, including lack of participation in national/international meetings, withdrawn research time and limited mentoring.

Conclusions: The impact of the COVID-19 pandemic has been shown to affect the clinical practice, training and mental health of YE members. Adaptations of training programmes and targeted strategies to improve the clinical practice of young practitioners are needed and proposed in this manuscript.

Key Words: Coronavirus disease 2019, hepatology, mental health, nutrition, paediatric gastroenterology, trainee

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What Is Known

- The coronavirus disease 2019 (COVID-19) pandemic has remodelled the healthcare system worldwide while focusing on containing the spread/treating Coronavirus.

What Is New

- This paper gives an overview of the COVID-19 pandemic as experienced by Young European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) members in their daily practice.
- The COVID-19 pandemic has impacted the training and practice of young ESPGHAN members by redeployment, reduction of inpatient/ambulatory care and restriction of endoscopy services.
- The COVID-19 pandemic has affected the mental health of young ESPGHAN members.

The coronavirus disease 2019 (COVID-19) pandemic has been a challenge for healthcare professionals as it has required an extraordinary adaptation of the healthcare system. The rapid transmission of the virus and the large number of patients requiring hospitalization has led to the redeployment of medical staff to COVID-19 related duties or other departments away from paediatric gastroenterology (1).

Supplemental digital content is available for this article. Direct URL citations appear in the printed text, and links to the digital files are provided in the HTML text of this article on the journal's Web site (www.jpgn.org).

Drs Andreia F. Niță and Despina Tsita have contributed equally to this study. The authors report no conflicts of interest.

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In response to the pandemic, the clinical practice and training programs of trainees have been modified (2). Reports from across Europe show that residents and fellows have been expected to achieve the necessary clinical skills for independent practice while their departments have restricted non-urgent visits, procedures and interventions (3,4). Furthermore, learning opportunities were affected as local and national educational events were postponed or cancelled. It is unclear how long this strenuous period will last due to the inherent unpredictability of the virus. Therefore, a thorough evaluation of any impact of the pandemic on training programs is essential to make necessary adjustments and meet the educational needs of the trainees.

This prospective survey was devised by the Young European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) Committee to assess the impact of the COVID-19 pandemic on Paediatric Gastroenterology trainee members.

METHODS

Design of the Survey

A prospective web-based survey was designed to understand the current status among Young ESPGHAN members of training and clinical practice during the COVID-19 pandemic.

Survey Distribution

The survey was disseminated utilizing SurveyMonkey. An electronic mail message (e-mail) was sent with a weblink to complete the questionnaire to all 365 Young ESPGHAN members on May 22, 2020. Reminder e-mails were sent on June 1 and June 8, 2020 and the survey closed on June 10, 2020. No financial incentive was offered and the survey completion was voluntary.

Structure of the Survey

The survey included 19 multiple-choice questions and was distributed electronically to Young ESPGHAN members (professionals with less than 10 years' experience in the field of Paediatric Gastroenterology, Hepatology and Nutrition who are under 40 years old at the time of the application). Demographic data including gender, age, country of clinical practice and current working position (eg, Paediatric Gastrointestinal (Ped-GI) fellow, Ped resident, Ped-GI young consultant or other) were collected. Participants were asked if the COVID-19 pandemic impacted on their Ped-GI training or clinical practice. Responders reporting an impact were asked to continue with the questionnaire to assess the impact on four domains: modifications of their current employment and clinical practice (non-urgent visits and ambulatory care, treatment protocols, virtual consultations), quality of care in their department as compared to pre-COVID19, any modification in the content of their fellowship/training program and daily practice (redeployment to other departments, mentoring attending endoscopy), and impact on mental health and support at work. The questionnaire is available in Supplemental Digital Content (<http://links.lww.com/MPG/C428>).

Statistical Analysis

Reported percentages of outcomes were extracted from participants' responses with valid values. Comparison between groups was performed using the chi-square test or Fisher exact test, as appropriate. A two-sided *P*-value of <0.05 was considered statistically significant. Responders' countries of origin were clustered into different geographic areas (Northern, Central, Western, Eastern or Southern Europe and "other continent"). We compared

outcomes between Southern Europe versus other geographic areas. The rationale was that the prevalence of COVID infection was higher in southern Europe compared to other mentioned countries at the moment of the study. In March 2020 European Centre for Disease Prevention and Control reported that among EU/EEA countries, Italy accounted for 58% of the cases of COVID-19 and 88% of fatalities at that point (5). Statistical analysis was performed using SPSS version 25.0 IBM Corp., Armonk, NY, USA.

RESULTS

Three hundred and sixty-five Young ESPGHAN members received the study information by email. One hundred and forty-four responses were received (40% = 144/365). Forty-four percent (*n* = 64) were Ped-GI young consultants, 29% (*n* = 41) were Ped-GI fellows, 12% (*n* = 17) Ped residents, 7% (*n* = 10) Ped-GI researchers and 8% (*n* = 12) other professionals. Sixty percent (*n* = 90) were female. A total of 80% (*n* = 107) of responders were practicing in Europe. Baseline characteristics of the cohort and country of origins are presented in Figure 1A and SDC2, and SDC3 <http://links.lww.com/MPG/C429>; number of missing responses per question is detailed in SDC4, <http://links.lww.com/MPG/C431>.

Overall Impact on Paediatric Gastrointestinal Training or Clinical Practice

The participants were asked whether the COVID-19 pandemic impacted on their Ped-GI training or clinical practice. If they did not report any impact, then they did not continue with the questionnaire. Eighty-five percent (*n* = 123) of responders reported an impact of COVID-19 on their Ped-GI training or clinical practice so they continued with the questionnaire.

Ped-GI consultants, Ped-GI fellows and Ped residents more often reported an impact on their training or clinical practice than researchers or other professionals (Fig. 1B). An impact was commonly reported from participants in Southern Europe compared to participants from other countries (74 vs 51%, *P* = 0.04; Fig. 1C).

Impact on Clinical Practice

Among those who reported an impact on training/ clinical practice, 68% (*n* = 83) reported that working hours were affected and 44% (*n* = 54) had to stay at home for a variety of reasons (eg, unpaid leave, self-quarantine, working from home). Forty-two percent (*n* = 52) were redeployed to other departments.

Ninety-six percent (*n* = 118) reported an impact on their clinical practice with 78% (*n* = 91) using more virtual consultation, 64% (*n* = 75) less or no planned patients' admissions, 50% (*n* = 58) emergency cases only, 10% (*n* = 12) changes in the administration of immunomodulation or immunosuppression treatments, and 20% (*n* = 23) changes of other day-care practices (intravenous treatments, botox injections, stoma care etc.) (Fig. 2A). In 70% (*n* = 82), endoscopy was restricted to emergency or semi-urgent cases, 19% (*n* = 23) restricted to emergency cases and in 9% (*n* = 11) temporary cancellation of services. Less than 2% (*n* = 2, 2/118) reported no changes in local endoscopy lists (Fig. 2B).

Ninety-three percent (*n* = 113) reported an under-utilization of ambulatory care with a declining number of patients' visits to the outpatient clinic, lasting for at least 1 month in 11%, for at least 2 months in 55% and at least 3 months in 27% of cases (Fig. 2C). Thirty-four percent (*n* = 41) reported that patients refused their treatment or asked for treatment discontinuation due to the current pandemic and 39% (*n* = 47) reported lack of medical equipment including drugs, protective clothing.

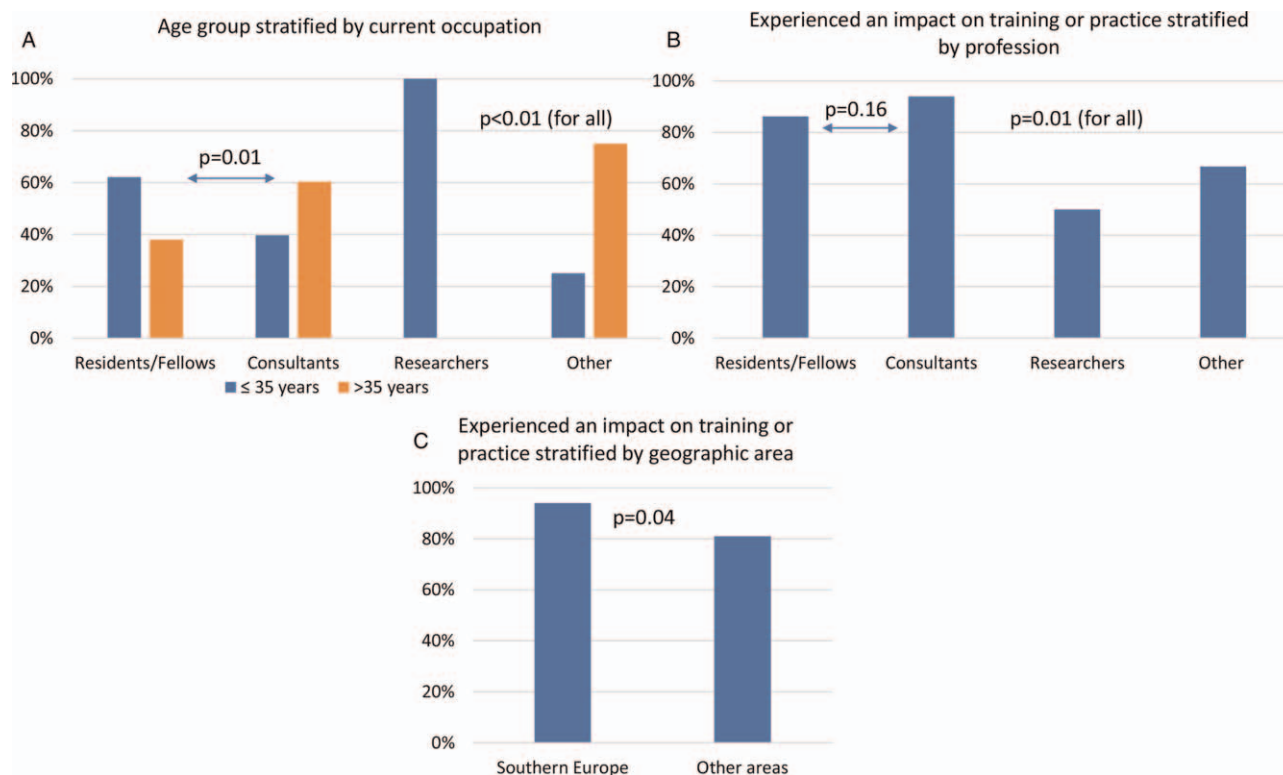


FIGURE 1. Proportion of different age groups stratified by profession (A). Proportion of responders with an impact on training or clinical practice stratified by profession (B). Proportion of responders with a reported impact on training or clinical practice stratified by geographic area of clinical practice (C). Southern Europe included the following countries (numbers of responders): Albania (1), Bulgaria (2), Greece (2), Italy (23), Malta (1), Portugal (5), Romania (5), Spain (10). Figures represent proportions. *P*-values for comparisons between the groups were derived from chi-square test or Fisher exact test, as appropriate.

Impact on Mental Health

Sixty-two percent (75/113) stated the pandemic had an effect on their mental health including higher stress-burden 42% (*n* = 52), effect on family life 26% (*n* = 32), lack of concentration 24% (*n* = 29), or need for longer recovery time 12% (*n* = 15). Mental health issues were higher among Ped GI consultants (66%) and fellows/residents (60%) and compared to researchers or other professionals (50%); however, this difference did not reach statistical significance (*P* = 0.74). Responders from Southern Europe reported significantly more mental health issues than those from other geographic areas (74% vs 51%, *P* = 0.01); however, 85% felt supported by their GI-team members. These results are presented in Figure 3.

Assessment of Current Quality of Care

Forty-five percent (*n* = 55) reported that the quality of provided care to Ped GI-patients had worsened during the pandemic, 37% (*n* = 45) that remained unchanged, 1% (*n* = 1) that was improved whereas 16% (*n* = 20) could not make any assessment. A poorer quality of care trend towards more was reported from Southern Europe (54%) but this difference did not reach statistical significance (*P* = 0.32).

Impact on Fellowship Content

Eighty-six participants had an ongoing fellowship. Seventy-seven percent (66/86) reported an impact of the pandemic on the

content including no participation in the national and international meeting (68%), withdrawn research or leisure time (24%), limited mentoring (17%), redeployment to other departments (14%) or the need for prolongation of their fellowship (6%). Furthermore, 6% (*n* = 6) of responders considered to switch to another Ped subspecialty.

DISCUSSION

The COVID-19 pandemic is a challenge for the entire world with hospitals the 'battlefield' against COVID-19 (6). To face the pandemic, the medical workforce was remodelled according to urgent needs and all departments, including paediatric gastroenterology, had to restructure and prioritize healthcare delivery which has had a significant effect on the training/practice of young doctors and other healthcare providers (7).

This study reports on the effect of the COVID-19 reorganization of healthcare within paediatric gastroenterology. Forty-two percent of young ESPGHAN members were redeployed to other departments, inpatient care was reduced to 61.9%, with reduced endoscopy provision limiting the exposure of trainees.

This study was performed during the first wave of the pandemic. At this time, the southern region of Europe was highly affected by the pandemic with number of patients infected and higher mortality. This is probably reflected in our study by the higher reporting of poorer care in this area. Of the 49 participants from Southern Europe, 23 came from Italy. Italy was one of the first countries affected in Europe, and was the first to implement emergency medical management of the pandemic. In March

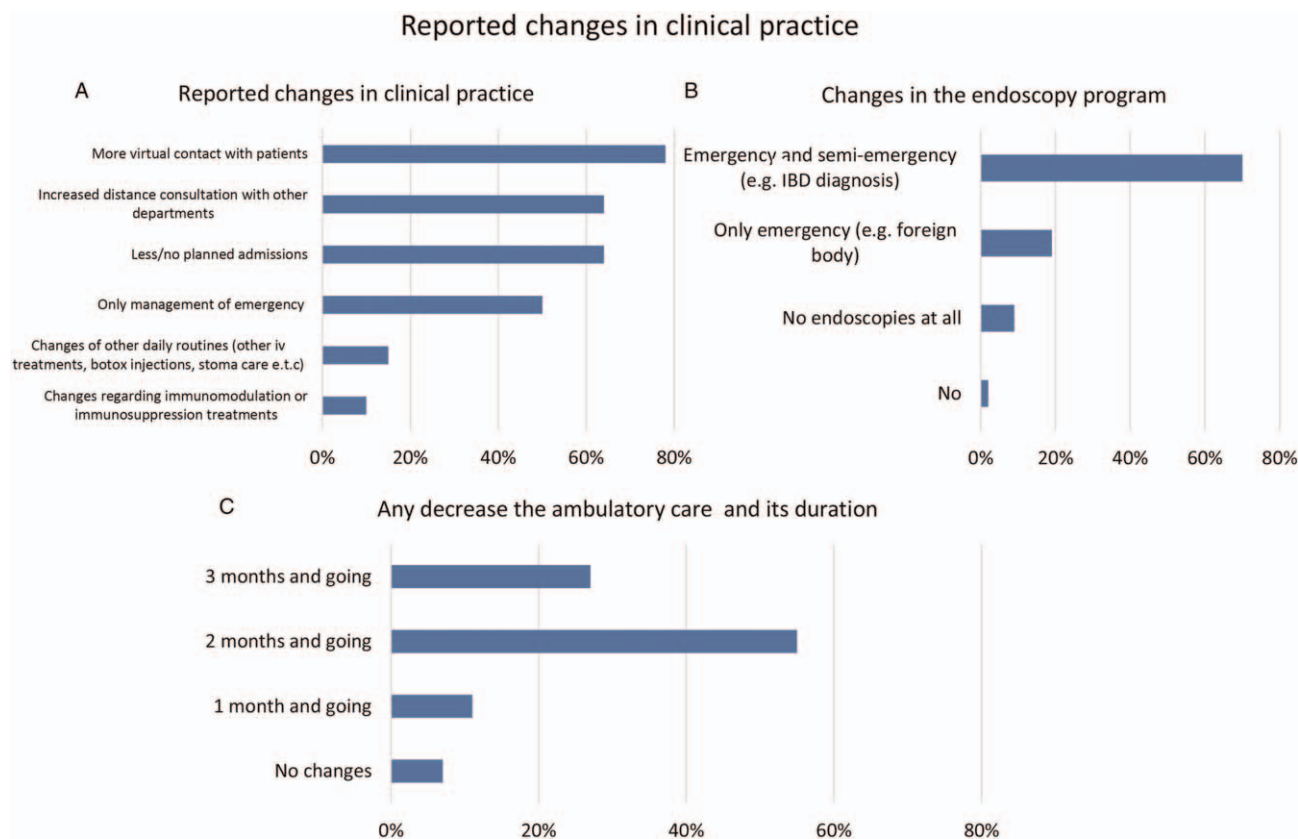


FIGURE 2. Changes in clinical practice among responders ($n = 118$) with a reported overall impact of COVID-19 pandemic on their clinical practice (A). Changes in endoscopy program (B). Changes in ambulatory care (C). Figures represent proportions. COVID-19 = coronavirus disease 2019.

2020, Italy accounted for 58% of the cases of COVID-19 and 88% of fatalities (5). Therefore, the results we obtained reflect the impact of COVID-19 at the peak of the pandemic in Italy, while other countries reached a peak of incidence later.

Endoscopy

The focus is appropriately on safety (patients' safety, healthcare workers' safety and the prevention of further spread of COVID-19), a return to pre-pandemic settings will take time and disruptions in training must be addressed.

This study shows that different forms of healthcare delivery involving Young ESPGHAN members in training were affected, however, endoscopy training suffered the most in all countries.

At the beginning of the COVID-19 pandemic, the ESPGHAN Endoscopy special interest working group issued advice on paediatric GI endoscopy practice stating that elective procedures should be put on hold as they are aerosol-generating procedures (8). Many endoscopy units restricted staff attending, often excluding trainees from endoscopic procedures, to minimize exposure.

The North American Society for Paediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) Endoscopy and Procedures Committee published a position paper in June 2020. It recommended that fellows limit participation in procedures as this may further reduce the availability of personal protective equipment, prolong procedure time and expose them to undue risk (9). Almost half of the North American endoscopy units for adults

completely eliminated trainee involvement in endoscopic procedures during the pandemic (10).

In compliance with these recommendations, the results from this study show that there was a restriction in the endoscopy programs in most centres that participated, limiting the exposure of trainees to endoscopic procedures and hands-on practice.

Preceding the COVID-19 pandemic, endoscopy training for paediatric gastroenterology trainees was challenging. A study on endoscopy training published in 2018 by the British Society of Paediatric Gastroenterology, Hepatology and Nutrition showed that 12.5% of trainees had no dedicated training list, 53% of final year trainees had yet to achieve full certification in colonoscopy and 9% did not feel confident in the endoscopic management of upper GI bleeds (11).

An ESPGHAN position paper on endoscopy training reports that endoscopy competency is achieved following a learning curve of about 200 upper endoscopies and around 400 ileocolonoscopy, hence the significance of consistency and continuity in endoscopy training of future paediatric gastroenterologist (12).

Overview of Training Worldwide

The COVID-19 pandemic has impacted on the training and education of young doctors in many other specialties worldwide (2,13–15).

At the beginning of April 2020, NASPGHAN carried out a survey amongst the paediatric gastroenterology fellowship program

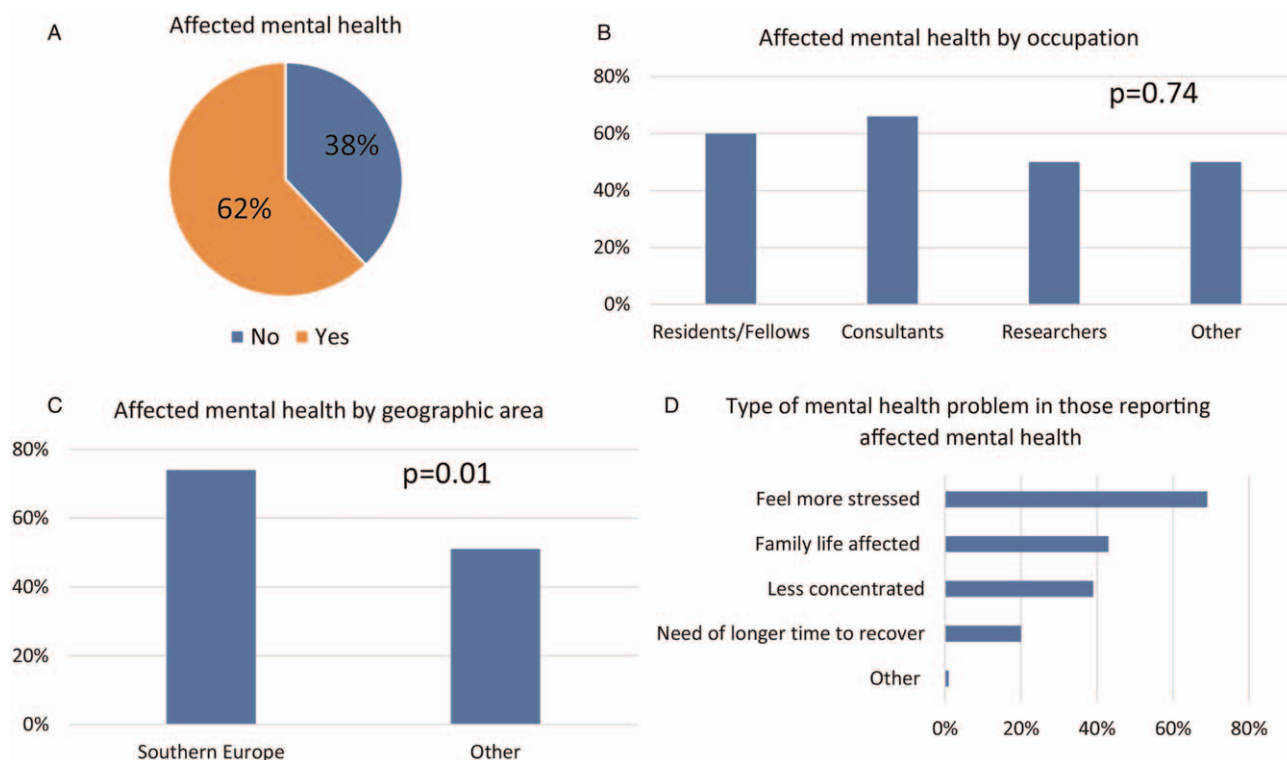


FIGURE 3. Affected mental health among responders who reported an impact of COVID-19 on their clinical practice ($n = 123$). Proportions with or not reported affected mental health (A). Affected mental health stratified by occupation (B) or geographic area of practice (C). Types of reported mental health issues among those reported an impaired mental health (D). Southern Europe included the following countries (numbers of responders): Albania (1), Bulgaria (2), Greece (2), Italy (23), Malta (1), Portugal (5), Romania (5), Spain (10). P -values for comparisons between the groups were derived from chi-square test or Fisher exact test, as appropriate. COVID-19 = coronavirus disease 2019.

directors to understand how COVID-19 was affecting training in the United States, Canada and Mexico (2). The study found that 52% of the fellows were not involved in endoscopy and in 43% the fellows stopped participating in outpatient clinics. Half of the programs (51%) had reduced the number of on-site fellows seeing inpatients. Our findings are in line with these changes with 61% of young ESPGHAN members experiencing a reduction in admissions and endoscopy lists being either reduced to emergency and semi-urgent in the majority of cases (69.8%), reduced to emergency cases only (19.8%), either cancelled (9.4%). Moreover, the redeployment of fellows to adult medicine occurred in three programs in New York, whereas another two programs were awaiting redeployment (2). In a similar scenario, 28.9% of participants in this study have been redeployed to other departments—either COVID-19 or non-COVID-19.

Medical professionals in other specialties have also been affected, in Italy; urology training had a severe reduction or complete lack of training. Amparore et al (13) considered the training was compromised if 40% of residents completely reduced their activities and found that second, third, fourth- and fifth-year trainees had their training compromised in both outpatients and diagnostic procedures. Moreover, in the United States, neurosurgery (14) and urology (15) training programs have experienced similar challenges and the program providers are looking into adapting the training offered.

Case reductions overall have diminished the caseloads and hence the hands-on exposure. This is particularly impacting surgical specialties. A recent study from Canada reports that arthroplasty

fellows who previously operated 4 days a week, did not operate for a 6-week period (16).

Mental Health

More than half of the participants in our study feel that COVID-19 had affected their mental health, with 43.7% feeling more stressed and experiencing more pressure.

Potentially reflecting the overall impact of COVID-19, participants from Southern Europe reported a significantly higher level of mental health problems and a worse quality of life compared to the rest of the geographical areas, this may relate to the severity of the pandemic at the time of the study.

The response to stress is resilience or burnout and is unique to each individual. Burnout is a way of response to job stress characterized by loss of physical, cognitive and emotional energy, reduction of ability to use effective coping strategies and associated with negative attitudes/disengagement from work (17,18). Twenty-five percent of participants reported a decrease in their concentration and 14% felt not well supported at work. Previous studies performed after the 2003 SARS outbreak found worse psychological outcomes in younger medical staff, women and those in poorer physical health (19). Reports from China evaluating the mental health of medical staff who were involved in the prevention and control of pandemic found distress in 71.6%, depression in 50.4%, anxiety in 44.6%, and insomnia in 34% (20). A Chinese study looking into the mental health of young doctors during COVID-19 pandemic found that depression and

TABLE 1. Strategies for addressing the impact of COVID-19 pandemic on young paediatric gastroenterologists

Risk	Targeted strategy
Impact on clinical practice	Engage young trainees in virtual clinics on regular basis Ensure trainees are involved in emergency or planned procedure (endoscopy) with protocolized safety practice Ensure enough protective equipment is provided Prioritize trainees in the management of hospitalized/ambulatory patient
Impact on education	Encourage participation to virtual meetings/webinars/workshops Grant study leave for virtual meetings Propose an education program onsite or web-based with a regular schedule including teaching session, journal club Build a clinical simulation scenario teaching plan Protect research time
Impact on training program	Implement shift between doctors redeployed in other departments Extend the fellowship program as needed Contact authorities to validate time in the COVID unit as training Assist trainees in developing a catch-up plan in training
Impact on mental health	Implement guidelines for safe practice Encourage off site time, days off—eg, work from home Regular team meetings for check-up on each other Offer psychological guidance/support Have regular face to face meeting with mentor for guidance Acknowledge the impact on pandemic on their training and mental health

COVID-19 = coronavirus disease 2019.

anxiety were increased significantly compared to pre-pandemic status (21).

Strengths and Limitations

The response rate to this study was satisfactory at 40% allowing us to have a good representation of the paediatric gastroenterology trainees around Europe.

A possible limitation of our study was that the survey was sent to young ESPGHAN members only, therefore some countries might be under-represented in accordance with the number of young ESPGHAN members. The other limitation is the fact that 44% of the responders were already young GI consultants. The real effect on fellows and residents in ped GI could not have been exactly captured. However, it is important to emphasize the impact on all young GI doctors.

This study was performed during the first months of the first wave of the pandemic when hospitals had to manage the emergent situation, with restricted information and data on COVID which then impacted on training. The results of this study may have differed if performed during the second wave or later as hospitals and teams build on their knowledge from the first wave.

Another limitation is that the number of cases per centre, the number of doctors per unit or information about university vs non-university hospitals were not collected in the survey therefore subgroup comparisons based on these data could not be performed.

Proposed Interventions

There has been an overall negative impact on training over a number of months which may affect trainee's career progression or the quality of care provided if it is not addressed effectively and efficiently.

We suggest a number of proposals to compensate for the impact of COVID-19 pandemic on the training of young paediatric gastroenterology trainees which are detailed in Table 1. These

measures take into consideration the general wellbeing of the trainees as well as the financial burden each country is under. The gaps made by the COVID-19 pandemic must be filled with compensatory endoscopy training hours via all means available. During the phases of recovery from the pandemic, units could design a work setting involving trainees in the virtual clinics together with consultants. Educational supervisors/mentors should aim to assist trainees in developing a catch-up plan to cover all gaps in training caused by COVID-19 pandemic. Hands-on training must continue where possible while formal education can shift to web-based following a regular schedule.

Training bodies could extend fellowships to compensate for time lost outside PGHAN field. Flexibility and adaptability are key attributes for a tailored approach to support trainees in PGHAN to counteract the effects of the pandemic. This can translate into changing the framework for obtaining completion of training especially since there is uncertainty on the duration of the pandemic.

The authors propose as a solution the transfer of knowledge in the form of short teaching sessions, journal clubs and clinical simulation scenarios bridging junior doctors, senior experts and allied health professionals. This approach could be implemented at a local, national or international level with presumed good outcomes and minor logistic requirements.

CONCLUSION

Overall, the training and practice of young ESPGHAN doctors have been compromised due to the reduction in all health-care delivery forms. Educational bodies in the PGHAN field need to rebuild their approach in training by developing and implementing strategies adapted to the new needs. The COVID-19 pandemic has affected the mental health of young ESPGHAN members, with an on their personal life and quality of care delivered to their patients.

Supplemental Digital Content 3: <http://links.lww.com/MPG/C430>.

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