

Research Article

The Mental Health Toll: Medical Trainees Living with Disabilities during the COVID-19 Pandemic

Yael Mayer ¹, Noga Shiffman ², Shir Etgar ³, Ido Lurie ⁴, and Tal Jarus ⁵

¹Department of Counseling and Human Development, Faculty of Education, University of Haifa, Haifa, Israel

²Mayanei HaYeshua Medical Center, Bnei Brak, Israel

³DAN Department of Communication, The Faculty of Social Sciences, Tel Aviv University, Tel Aviv, Israel

⁴Shalvata Mental Health Center, Affiliated with the School of Medicine, Tel Aviv University, Tel Aviv, Israel

⁵Department of Occupational Science and Occupational Therapy, Faculty of Medicine, The University of British Columbia, Vancouver, Canada

Correspondence should be addressed to Ido Lurie; ido.lurie@gmail.com

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Objectives. Throughout the world, medical trainees have experienced psychological distress during the COVID-19 pandemic due to substantial changes in their educational programs and COVID-19 patient care. When medical trainees live with a disability, their psychological distress may be exacerbated. This study aimed to explore how having a disability may be associated with an additional emotional toll for medical trainees during the COVID-19 pandemic. **Methods.** Participants in the study were 201 medical trainees (62 interns and 138 residents) and 147 medical attending physicians in various fields of medicine. Participants completed an online survey including the Fear of COVID-19 scale, the Depression Anxiety and Stress Scale, and the Mental Health Continuum Scale measuring aspects of wellbeing, including emotional wellbeing, belonging, and sense of psychological meaning. **Results.** Disabled participants experienced higher levels of fear of COVID-19, depression, anxiety, stress, and lower levels of emotional wellbeing, sense of belonging, and psychological meaning compared to participants with no disabilities. Residents generally experienced higher stress levels and lower wellbeing levels than attendings. Residents living with disabilities were more prone to experience stress and fear of COVID-19, and residents and interns living with disabilities experienced higher levels of depression, anxiety, and stress compared to their peers who live without disabilities and compared to attendings living with disabilities. **Conclusions.** Medical trainees living with disabilities were more prone to experience high levels of psychological distress and lower levels of wellbeing during the COVID-19 pandemic compared to their peers without disabilities. Therefore, there is a need to address this emotional toll and provide support in medical education programs promoting trainees' wellbeing, sense of belonging, and psychological meaning.

1. Introduction

Recent studies have shown that the coronavirus-19 (COVID-19) pandemic placed healthcare professionals (HCPs) in unprecedented medical and moral situations, involving difficult decision making and working under

extreme pressures [1]. Subsequently, emotional distress and adverse psychological outcomes including stress, anxiety, depression, and sleep disturbances were found to be prevalent among HCPs worldwide [2]. Among HCPs, medical trainees are uniquely vulnerable, functioning simultaneously as both learners and frontline service providers.

1.1. Medical Training during the COVID-19 Pandemic. Since medical trainees are continuously evaluated and need to develop their sense of professional identity, they are one of the more vulnerable groups within the medical field [3]. It has been shown that some of the main concerns of medical trainees during the COVID-19 pandemic are similar to concerns that HCPs experience in general, such as fears regarding their own safety, the safety of their patients and their loved ones, fear of potential shortages of protective personal equipment (PPE), moral distress and ethical dilemmas, and feeling distant from patients while wearing PPE [4].

Nevertheless, medical interns and residents have been expressing additional concerns regarding their medical training, which has been altered during COVID-19. For instance, in many institutions, clinical clerkships have been considerably modified. Many clerks were removed from clinical rotations, and final year clerks were asked to graduate early and begin residency immediately so that they would be able to provide patient care [5]. Residents were reassigned and rotations revised or suspended [6]. Procedural specialties postponed many elective surgeries and many hospitals and clinics have transitioned to a virtual model [7]. In some countries, residents experienced an unprecedented stressful workload of COVID-19 patient care [8]. At the same time, outpatient volume and non-COVID patients' volume declined, leading to a decrease in exposure to diverse patients [9]. Decision making has become more difficult during the current pandemic, as residents are at the frontline of care and need to maximize every moment spent with patients in order to make appropriate medical decisions while limiting unnecessary exposure [10]. Moreover, a shortage of trainees due to illness or quarantine has put a strain on hospital wards, and some residents and fellows were redeployed to internal medicine wards and intensive care units [11].

In addition, since many educational activities such as lectures, conferences, and in-person meetings were cancelled, trainees had fewer opportunities for learning and receiving the emotional and social support that comes with being part of a community of learners [10, 11]. In a study conducted in Saudi Arabia, 46.7% of the residents reported being instructed to work in COVID-19 wards, not by choice [12]. For some final year residents, the postponement of their licensing examinations influenced their employment trajectories [5].

The changes in training processes as well as in workload may have an emotional toll on medical trainees. For example, among urology residents, cancellation of elective cases was associated with higher rates of concern about their training, while this concern was found to correlate with a higher severity of depression [13]. A qualitative study of medical residents working at the frontline in Pakistan found that psychological distress was related to the shortage of PPE, direct exposure to COVID-19, concern for personal safety, fear of being infected and infecting loved ones, physical distancing from loved ones, and working long hours [14]. Moreover, two-thirds of otolaryngology residents perceived that residents were at a higher risk for being infected with COVID-19 compared to attendings [15]. The fear of rationing

PPE and ventilators was shown to cause moral distress among residents who may feel that they are not qualified to make these difficult moral decisions [16]. Despite having more days off per month during the pandemic, one-third of medical residents reported more burnout than usual [4], while attendings have been shown to experience decreased burnout in comparison to residents [17]. These initial findings are important, but since these studies did not compare medical learners and trainees to experienced HCPs, it is not clear if the distress impacts all medical teams in the same manner, or if there is variability associated with role and level of training.

1.2. Disabled Trainees during the Pandemic. The COVID-19 pandemic presented notable challenges for people living with disabilities (we alternate between identity-first language and Person-first language to allow representation of the different preferences within the disabilities communities). Studies documenting these challenges have shown that disabled patients experience lower rates of access to care [18], increased emotional distress [19], and the need for more psychological support [20]. The current pandemic may also pose additional barriers to daily living—for example, the requirement to wear masks may be extremely challenging for people who are assisted by lip-reading [21]. Furthermore, according to the Centers for Disease Control and Prevention [22], people living with disabilities are three times more likely than adults living without disabilities to have underlying medical conditions (e.g., heart disease, stroke, or diabetes) that may lead to a higher risk of COVID-19 infection or severe illness [22].

As for the work environment, the World Health Organization (WHO) recommended that flexible work arrangements and infection control measures be supported by employers through working remotely or allowing immunocompromised individuals to take leave until the risk of infection is reduced [23]. These changes in the work environment, such as normalizing the option of working from home and enabling flexible schedules, actually enabled the COVID-19 pandemic to accommodate individuals with disabilities and chronic health conditions [24]. Unfortunately, these changes in the work environment are more difficult to apply for HCPs, and especially for medical trainees, who are engaged in clinical “hands-on” learning.

All studies conducted among disabled people were conducted from the perspective of patients and service receivers. However, HCPs and trainees could be both service providers and service receivers [25]. Being a medical trainee and living with a disability during the pandemic could be stressful and burdensome, but not much is known about the mental health toll of being a medical trainee living with a disability during the pandemic. This study aimed to explore the impact of the pandemic on the mental health of medical trainees who live with a disability. The main research question was: in what ways do the level of medical training and living with disability impact the mental health of medical interns and residents, in comparison to attending physicians during the COVID-19 pandemic?

2. Methods

2.1. Participants and Procedures. This was a cross-sectional study, with online recruitment including advertisements, email campaigns, blogs, social media, and snowball text message campaigns. The Israeli Medical Association endorsed recruitment among doctors (internal medicine, family medicine, intensive care, and psychiatry). The Internal Review Board of the Shalvata Mental Health Center approved the study (approval number: 0012-20-SHA). Informed consent was obtained electronically before data were collected from the participants. The survey was administered during the first lockdown in Israel, between April 15 and April 25, 2020.

2.2. Measures

2.2.1. Demographic Questionnaires. Demographic questionnaires included age, gender, marital status, socioeconomic status, and field of specialization, as well as questions regarding disability. Disability was defined as a condition of the body or mind that makes it more difficult for the person with the condition to perform certain activities (activity limitations) and interact with the world around them, whether formally or informally diagnosed [26].

2.2.2. Fear of COVID-19 Scale (FCV-19S) [27, 28]. The FCV-19s is a self-report scale for the assessment of fear of COVID-19. The scale is comprised of seven items referring to fear responses to the pandemic. For example: "I am afraid of losing my life because of the coronavirus." Participants are asked to respond on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The total score ranges from 7 to 35, with a higher total score indicating higher fear of COVID-19. The measure showed good internal validity (Cronbach alpha 0.82). In the current study, the scale showed good internal consistency, with an alpha Cronbach of 0.84.

2.2.3. Depression, Anxiety, and Stress (Depression and Anxiety Stress Scale-DASS-21) [29]. The DASS-21 is a self-report measure for the assessment of three dimensions of mental health: depression, anxiety, and stress. The subscales include seven items each, for example, "I found it difficult to relax." Participants are asked to respond using a four-point Likert scale ranging from 1 (did not apply to me at all) to 4 (applied to me very much). In the current study, the DASS-21 scale showed good internal consistency, with an alpha Cronbach of 0.86 for the depression scale, alpha Cronbach 0.78 for the anxiety scale, and alpha Cronbach of 0.90 for the stress scale.

2.2.4. Wellbeing (Mental Health Continuum-Short Form-MHC-SF) [30]. The 14-item Mental Health Continuum-Short Form (MHC-SF) [30] was developed to assess the three components of wellbeing: emotional, social, and psychological. The emotional wellbeing subscale (EWB) includes the measurement of positive affect or satisfaction

with life. Social wellbeing (SWB) is assessed with five items representing different aspects of belonging: social contribution, social integration, social actualization, social acceptance, and social coherence. The other six items correspond to the dimensions of psychological wellbeing (PWB) mainly the sense of psychological meaning. Participants are asked to respond to items on a 6-point Likert-type scale based on their experiences over the last month (never, once or twice, about once a week, 2 or 3 times a week, almost every day, or every day). The measure had good internal consistency, Alpha Cronbach for the total score of the emotional wellbeing subscale was 0.86, Alpha Cronbach for the belonging subscale was 0.80, and Alpha Cronbach for the psychological meaning subscale was 0.87.

2.3. Data Analysis. Descriptive statistics were used to explore demographic data. Two-way ANOVA with "training level" and "disability" as independent variables, and "Fear of COVID 19" as the dependent variable was conducted. To test the relation between fear of COVID-19 and mental health outcomes, a series of Pearson correlation tests was conducted. Additionally, two MANOVAS were conducted. The first MANOVA tested training level and disability as independent factors and the three DASS scales as dependent variables. The second MANOVA tested training level and disability as independent factors and the three wellbeing subscales as dependent variables. Statistical analysis was performed with an SPSS Version 26 package.

3. Results

The final sample included 347 HCPs participants: 68 (19.59%) medical interns, 132 (38.04%) medical residents, and 147 (42.36%) attendings. Of the 347 HCPs, 91 participants (26.2%) presented with self-reported disability. Of the 91, 16 (17.49%) reported of the existence of physical disabilities such as cancer, arthritis, or quadriplegia and 36 (39.56%) reported a neurological or mental health chronic condition such as Tourette syndrome, PTSD, or depression. Forty-two (46.15%) participants did not agree to disclose their specific disabilities. Table 1 presents the demographic characteristics of the sample and Table 2 presents the means and standard deviations of the mental health outcome measures by groups

3.1. Fear of COVID-19. Two main effects and an interaction effect were found to be significant (Table 3). Post hoc tests of the main effects revealed that residents ($M=16.75$, $SD=0.52$) reported higher levels of fear of COVID-19 than attendings ($M=14.64$, $SD=0.424$, $p<0.05$). Additionally, disabled participants ($M=16.17$, $SD=5.46$) were more afraid of COVID-19 than those who had no disabilities ($M=14.81$, $SD=4.60$, $p<0.05$). However, the significant interaction effect supersedes those main effect results. Simple effects analysis revealed that the sources of interaction were that residents living with disabilities reported higher levels of fear of COVID-19 than residents with no disabilities ($p<0.05$). No other significant simple effects were found, all $p's>0.05$.

TABLE 1: Demographic characteristics of the sample.

	Interns (<i>n</i> = 68)	Residents (<i>n</i> = 132)	Attendings (<i>n</i> = 147)
<i>Gender</i>			
Female	44 (64.7%)	101 (76.5)	111 (75.5%)
Male	24 (35.3%)	31 (23.5%)	36 (24.5%)
<i>Age</i>			
Less than 30	35 (51.5%)	10 (7.6%)	0 (0.0%)
31–40	33 (48.5%)	118 (89.4%)	29 (19.7%)
41–50	0 (0.0%)	4 (3.0%)	56 (38.1%)
51–60	0 (0.0%)	0 (0.0%)	41 (27.9%)
61 and above	0 (0.0%)	0 (0.0%)	21 (14.4%)
<i>Marital status</i>			
Single	18 (26.5%)	14 (10.6%)	9 (6.1%)
Married	30 (44.1%)	100 (75.8%)	122 (83%)
In relationship	19 (27.9%)	14 (10.6%)	4 (2.7%)
Divorced/separated	1 (1.5%)	5 (3.8%)	8 (5.4%)
Widow/er/other	0 (0.0%)	0 (0.0%)	4 (2.8%)
<i>Socioeconomic level</i>			
Below average	21 (30.9%)	5 (3.8%)	2 (1.4%)
Average	39 (57.4%)	13 (9.8%)	7 (4.8%)
Above average	8 (11.8%)	114 (86.3%)	138 (93.9%)
<i>Living with a disability</i>			
One or more disabilities	19 (27.9%)	26 (19.7%)	46 (31.3%)
The disability increases risk for COVID-19 complications	13 (19.11%)	17 (12.87%)	38 (25.85%)

TABLE 2: Means and standard deviations of the mental health outcome measures by groups.

	Interns mean (SD)		Residents mean (SD)		Attendings mean (SD)	
	Living with a disability (<i>n</i> = 19)	No disability (<i>n</i> = 49)	Living with a disability (<i>n</i> = 26)	No disability (<i>n</i> = 106)	Living with a disability (<i>n</i> = 46)	No disability (<i>n</i> = 101)
Fear of COVID-19	15.36 (4.77)	15.95 (4.58)	18.57 (5.73)	14.93 (4.66)	15.15 (5.25)	14.13 (4.46)
DASS depression	6.11 (5.51)	2.94 (2.99)	5.92 (4.43)	2.55 (2.70)	3.26 (3.40)	2.59 (3.14)
DASS anxiety	2.83 (3.55)	1.02 (1.94)	3.00 (2.97)	0.75 (1.18)	0.91 (1.74)	0.74 (1.83)
DASS stress	7.55 (5.13)	4.49 (3.75)	9.84 (5.26)	4.93 (3.64)	5.21 (4.36)	4.52 (3.80)
Emotional wellbeing	13.47 (4.75)	14.28 (4.61)	12.68 (3.74)	14.77 (4.11)	14.25 (3.61)	14.91 (4.28)
Belonging	17.70 (7.93)	20.02 (7.09)	16.68 (6.49)	19.67 (6.26)	20.46 (6.28)	21.74 (7.08)
Psychological meaning	26.43 (8.76)	30.63 (8.29)	25.40 (7.87)	29.38 (7.86)	29.55 (6.38)	31.38 (7.42)

TABLE 3: The relations between level of training and having a disability on fear of COVID-19 and DASS subscales.

	Factor	<i>F</i>	df	<i>p</i> value	^a η^2
Fear of COVID-19	Training (interns/residents/attendings)	4.947	2,341	0.008**	0.028
	Living with a disability (yes/no)	4.758	1,341	0.030*	0.014
	Level of training \times disability	3.583	2,341	0.029*	0.021
DASS-21 depression subscale	Training (interns/residents/attendings)	6.125	2,336	0.002**	0.035
	Living with a disability (yes/no)	30.176	1,336	0.001**	0.082
	Level of training \times disability	5.112	2,336	0.007**	0.030
DASS-21 anxiety subscale	Training (interns/residents/attendings)	10.146	2,336	0.001**	0.057
	Living with a disability (yes/no)	31.312	1,336	0.001**	0.085
	Level of training \times disability	8.313	2,336	0.001**	0.047
DASS-21 stress subscale	Training (interns/residents/attendings)	9.620	2,336	0.001**	0.054
	Living with a disability (yes/no)	29.415	1,336	0.001**	0.80
	Level of training \times disability	6.903	2,336	0.001**	0.039

Note. * $p < 0.05$; ** $p < 0.01$. ^aEta sq.: small es 0.01–0.058; medium es 0.059–0.137; large es >0.137.

3.2. *Depression, Anxiety, and Stress (DASS-21)*. The results of the MANOVA indicate that there were three disability main effects on all three DASS subscales: participants with

a disability reported higher levels of depression, levels of anxiety, and levels of stress ($M = 4.58$, $SD = 4.36$; $M = 1.88$, $SD = 2.72$; $M = 6.98$, $SD = 5.14$ respectively) than those with

no disabilities ($M = 2.64$, $SD = 2.93$, $p < 0.001$; $M = 0.79$, $SD = 1.62$, $p < 0.001$; $M = 4.68$, $SD = 3.72$, $p < 0.001$) respectively). Disabled participants reported higher levels of anxiety and stress ($M = 1.88$, $SD = 2.72$; $M = 6.98$, $SD = 5.14$, respectively) than those with no disabilities ($M = 0.79$, $SD = 1.62$, $p < 0.001$; $M = 4.68$, $SD = 3.72$, $p < 0.001$). Three levels of training main effects emerged for all three DASS scales. The main effects stemmed from the differences found between interns and residents ($M = 3.39$, $SD = 4.04$; $M = 3.21$, $SD = 3.73$) who reported higher levels of depression than attendings ($M = 2.80$, $SD = 3.23$, $p < 0.003$, $p < 0.006$); interns and residents ($M = 1.50$, $SD = 2.57$; $M = 1.187$, $SD = 1.89$) who reported higher levels of anxiety than attendings ($M = 0.79$, $SD = 1.80$, $p < 0.001$); and residents ($M = 5.89$, $SD = 4.44$) reported higher levels of stress than attendings ($M = 4.74$, $SD = 3.98$, $p < 0.001$). No other significant differences were found (all p 's > 0.05).

Finally, the significant interaction effects found for all three DASS subscales (see Table 4) supersede those reported for the main effects. Post hoc tests revealed that the sources of interactions found between living with a disability and the level of training on the depression, anxiety and stress subscales were the differences between participants with disability and participants with no disability for both interns (p 's < 0.05), and residents ($p < 0.005$), while no such differences were revealed for the attendings (p 's > 0.05) (see Figure 1 and Table 3).

3.3. Emotional Wellbeing, Belonging, and Psychological Meaning. The results of the MANOVA indicated that there was a disability main effect on all three subscales (see Table 4).

Post hoc tests revealed that the main effects presented in Table 4 stemmed from lower levels of wellbeing reported by disabled participants compared to those with no disability: on the emotional subscale, disabled participants reported lower emotional wellbeing than participants with no disability ($M = 13.67$, $SD = 3.91$; $M = 14.81$, $SD = 4.60$, respectively), $p < 0.05$; on the belonging subscale, participants with a disability reported lower belonging than participants with no disabilities ($M = 18.87$, $SD = 6.87$; $M = 20.59$, $SD = 6.81$, respectively), $p < 0.05$; on the psychological meaning subscale, disabled participants reported lower psychological meaning than participants with no disabilities ($M = 27.81$, $SD = 7.46$; $M = 30.45$, $SD = 7.79$, $p < 0.005$). More main effects emerged for the belonging and meaning scales, such that residents reported lower sense of meaning than attendings ($M = 25.40$, $SD = 7.87$; $M = 29.56$, $SD = 6.38$, $p = 0.008$). On the belonging scale, residents had lower sense of belonging compared to attendings ($M = 16.68$, $SD = 6.49$; $M = 20.46$, $SD = 6.28$), $p = 0.004$. No other significant differences were found, all p 's > 0.05 .

To explore the relation between fear of COVID-19 on the DASS subscale and wellbeing subscale, a series of Pearson correlation tests was conducted comparing the three training levels. Fear of COVID-19 was found to be positively and significantly correlated with depression among interns, residents, and attendings ($r(342) = 0.35$, $p < 0.001$), anxiety

($r(342) = 0.52$, $p < 0.001$), stress ($r(342) = 0.43$, $p < 0.001$), and negatively and significantly related to emotional wellbeing ($r(312) = -0.204$, $p < 0.001$), belonging ($r(312) = -0.13$, $p < 0.05$), and psychological meaning ($r(312) = -0.124$, $p < 0.05$).

4. Discussion

This cross-sectional study aimed to explore the mental health of medical trainees during the COVID-19 pandemic as related to their level of training and living with a disability. In terms of fear of COVID-19, disabled residents had the highest scores for fear of COVID-19, which were greater than the scores of all other participants. There was no difference in fear of COVID-19 levels between interns and attendings living with or without disabilities, meaning that the most vulnerable group is the disabled residents.

Medical training is a challenging phase for residents who are engaged in frontline work and challenging decision making while still learning and practicing how to become HCPs [3]. COVID-19 intensified challenges for medical residents; some trainees had to work with an overload of COVID-19 patients and make difficult moral decisions, while receiving less support [31]. Our results indicate that the combination of being a resident and living with a disability probably compounded fear during the pandemic. It is known that disabilities could increase feelings of stress [32], and the COVID-19 pandemic added another source of psychological distress to residents with disabilities. This new finding could be attributed to the fact that some disabilities increase the risk for COVID-19 complications, thereby increasing the fear of people with disabilities of becoming infected [22]. Another possible explanation of this heightened fear could also be the limited options for accommodations and support available for medical trainees at their various stages of clinical training. Some barriers to support are lack of clear procedures, fear of disclosure due to stigma, and fear that asking for accommodations would negatively impact the evaluation [33].

Another important finding of the study is that disabled interns and residents exhibited more depression, stress, and anxiety than the rest of the participants. Interns and residents without disabilities had levels of depression, stress, and anxiety similar to the attendings. Therefore, interns and residents with disabilities are the groups most vulnerable to experience psychological distress. Some of this distress could be related to fear of COVID-19, which was positively and significantly correlated with the DASS measures. Finally, participants with disabilities (in general, from all three groups) had lower wellbeing in all three measures. Residents with disabilities had the lowest wellbeing levels. The findings regarding the vulnerability of residents could be explained by the concerns experienced during the pandemic, such as being removed from clinical rotation [5], reassignment and rotations revised or suspended [6], and unprecedented stressful workload of COVID-19 patient care [8]. The changes and extra stress could explain the results found in this study and emphasize the mental health toll paid by medical trainees during the pandemic, including lowered

TABLE 4: The relations between level of training and having a disability on the wellbeing scales.

	Factor	F	df	p value	^a η^2
Emotional wellbeing	Training (interns/residents/attendings)	1.350	2,336	0.261	0.009
	Living with a disability (yes/no)	5.349	1,336	0.021*	0.017
	Level of training × disability	0.656	2,336	0.520	0.004
Belonging	Training (interns/residents/attendings)	4.438	2,336	0.013*	0.28
	Living with a disability (yes/no)	4.419	1,336	0.036*	0.014
	Level of training × disability	0.366	2,336	0.694	0.002
Psychological meaning	Training (interns/residents/attendings)	3.755	2,336	0.024*	0.024
	Living with a disability (yes/no)	9.752	1,336	0.002**	0.031
	Level of training × disability	0.634	2,336	0.531	0.004

Note. *p < 0.05; **p < 0.01; ***p < 0.001. ^aEta sq.: small es 0.01–0.058; medium es 0.059–0.137; large es >0.137.

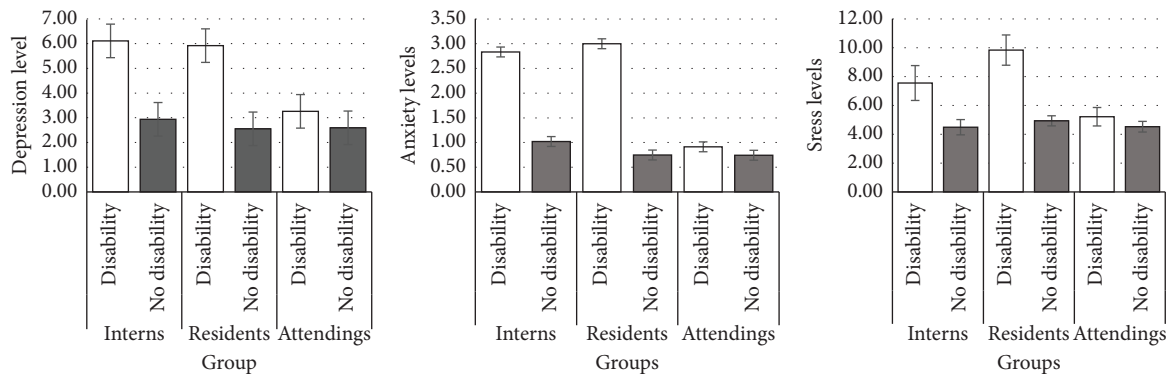


FIGURE 1: An interaction effect between level of training and having a disability on fear of depression, anxiety, and stress levels. The groups are (1) interns living with disabilities (n = 19), (2) interns with no disabilities (n = 49), (3) residents living with disabilities (n = 26), (4) residents with no disabilities (n = 106), (5) attendings living with disabilities (n = 46), and (6) interns with no disabilities (n = 141).

TABLE 5: The implications of the study and recommendations for medical education stakeholders.

- (1) Medical educators should provide the necessary accommodations, at the university, and in clinical education settings for disabled trainees to safely continue their educational journey. During pandemic time, it is important to reconsider these accommodations and adapt them to the new reality and needs
- (2) Mental health and self-care should be part of the curriculum and should be discussed in medical education settings for all trainees, especially during a pandemic
- (3) The wellbeing of medical trainees during the pandemic could be enhanced by increasing their sense of belonging, sense of mastery, and sense of meaning in their social roles as healthcare providers
- (4) Medical education settings and supervision relationships should provide empathy, encouragement, and emotional support, especially during massive crises such as a pandemic. Therefore,
- (5) It is important that supervisors, preceptors, and field educators will also receive training on how to best support their trainees and especially trainees with disabilities
- (6) In general, but especially during a pandemic, it is important to promote a culture of legitimacy to express emotional hardships without facing stigma or negative attributions

sense of meaning and belonging. The results also highlight the mental health toll paid by medical trainees or attendings living with disabilities. The pandemic presented challenges for people living with disabilities, including increased psychological stress and increased isolation and loneliness [19]. Medical trainees and attendings had to continue their education and work facing these challenges, and this study highlights the transparent mental toll of fear of COVID-19 and psychological stress.

The mental health of medical trainees living with disabilities has been highlighted before as an area of concern that is understudied [34]. Medical trainees living with

disabilities are in a unique position as both service users and service providers, and need to merge these identities. They sometimes hide their disabilities for fear of being conceived as incompetent [35] and to avoid experiences of delegitimization, which increases isolation [36]. The disclosure processes of disability could be an ongoing stressful journey for people with disabilities in healthcare professions [37]. Some of the mental distress that people with disabilities experience in medical education may be related to their perceived need to hide their disability, which in itself is very stressful. This extra stress is “transparent” and represents a hidden mental health toll paid by healthcare professionals

with disabilities [36]. Clearly, the accumulative stress of being a medical trainee and living with a disability during the pandemic resulted in increased stress and isolation, which lowered the sense of belonging and meaning for these trainees. The current results emphasize the need for educators, preceptors, and supervisors to support medical trainees with disabilities, especially during stressful times such as the pandemic.

4.1. Study Limitations. Since the study was conducted among medical trainees from one country, replication in different countries would allow a better generalization. In addition, the study used self-report measures, and therefore, the generalization of the results should be interpreted with caution. The study evaluated mental health only at one point in time, making it hard to differentiate the causes for the mental health toll on trainees and especially trainees with disabilities. Future longitudinal studies are warranted to determine how changes in their workload and education during the pandemic may impact the mental health of medical trainees.

4.2. Implications for Medical Education. This study contributes to the existing limited knowledge about the mental health of medical trainees with disabilities during the pandemic. Since medical trainees hold important positions as HCPs battling the pandemic, society depends on their coping and wellbeing. The study results focus on the extra mental health toll and isolation that medical trainees with disabilities experienced during the COVID-19 pandemic. These usually “invisible mental tolls” are not always disclosed by people with disabilities, because medical settings are usually competitive and high paced, and therefore asking for support could entail stigma and negative judgments [38, 39].

One of the implications of this study is that medical educators should be aware of the “transparent toll” on disabled trainees and create a more supportive climate that will provide the necessary accommodations for trainees to safely continue their educational journey with their peers, and increase their sense of belonging and psychological meaning. This is needed in regular times, but even more so during stressful times such as the pandemic. Disregarding this emotional toll generates inequities and an extra burden that medical trainees living with disabilities often experience when entering healthcare professions [38, 39]. Additionally, this extra burden could be considered a form of “minority tax,” a price paid by individuals from minority groups when they embark on medical education, including disparities in mentorship, advocacy efforts, feelings of isolation and the need to represent their group in various forums with no reimbursement of their time or efforts [40].

Another implication for medical educators is that mental health and self-care should be part of the curriculum and should be discussed in medical education settings for all trainees. Educational programs must provide residents the support they need to cope with the psychological burden they may experience during a pandemic, while promoting

a culture of legitimacy to express emotional hardships without facing stigma or negative attributions. Support for medical trainees should be provided in a way that will allow all trainees to maintain their psychological safety [38, 39]. Therefore, it is important that supervisors, preceptors, and educators will also receive training on how to support their trainees, in particular those who live with a disability [38]. The findings of this study also suggest possible directions for support indicated by the wellbeing outcomes. Wellbeing of medical trainees could be enhanced by increasing the sense of belonging and psychological meaning. These could be addressed within the training settings and within supervision relationships that should provide empathy, encouragement, and emotional support. This suggests the importance of providing supportive work and learning environments for medical trainees, especially during the pandemic. These specific implications for key stakeholders such as educators, healthcare institutions, and policymakers are summarized in Table 5.

5. Conclusion

Medical trainees living with disabilities were more prone to experience high levels of psychological distress during the COVID-19 pandemic compared to their peers without disabilities. Therefore, there is a need to address this emotional toll. Based on the findings of this study, future studies should focus on exploring the specific challenges for medical trainees during the pandemic and the best ways to provide accommodations and support. Future studies could also explore the unique contributions of disabled trainees to patient care during the pandemic, as they hold valuable experiential knowledge and offer dual perspectives as both service providers and service users. Other studies could explore the opportunities and new ways that the pandemic brought to medical training that could benefit disabled medical trainees (i.e., online learning or shorter shifts). The COVID-19 pandemic created substantial changes in educational settings; some could promote the creation of more inclusive medical education.

Data Availability

The data used to support the findings of this study will be available on request. For requests, please contact Dr. Yael Mayer (yaelmayer10@gmail.com).

Additional Points

Highlights. (i) Medical trainees experienced psychological distress during the COVID-19 pandemic. (ii) When medical trainees are living with disabilities, psychological distress may be exacerbated. (iii) Participants in the study were 201 medical trainees and 147 medical attendings. (iv) Participants completed an online survey regarding psychological distress and wellbeing. (v) Disabled trainees experienced greater psychological distress and lower wellbeing, belonging, and meaning than all other groups. *Tweet.*

Participants in the study (201 medical trainees and 147 medical attendings) completed an online survey regarding distress, fear and wellbeing during the COVID-19 pandemic. Disabled trainees had greater psychological distress than all other groups.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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