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Determined to be resilient: Analysis of the well-being of people with disabilities (People of determination) in Abu Dhabi during the COVID-19 pandemic

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Abstract

This study examines whether people with disabilities report different COVID-19-related challenges and adverse impacts on their psychological well-being compared to people without disabilities. During the pandemic, most people, including those with disabilities, faced strict rules of movement restriction and isolation that might have resulted in certain psychological feelings, challenges, and social reactions. Data were gathered through the 3rd cycle of the Abu Dhabi Quality of Life Survey conducted in 2021, which included 1,954 respondents who categorized themselves as having some disabilities. Through descriptive analysis, t-tests, and analysis of variance, this study indicated a significantly higher level of fear, loneliness, and stress among people with disabilities during the pandemic. There were also significant findings related to the impact of new technologies on the quality of life of people with disabilities. For all psychological wellbeing concerns, challenges, and reactions, significant differences were observed regarding gender, marital status, education attainment, nationality, and age of people with disabilities, but not to a large extent. The findings were discussed in light of international and regional literature and provided a resource for social policymakers to identify gaps in disability services. Finally, policy recommendations and future research directions were summarized and discussed, while the limitations of this study were acknowledged.

Keywords: Abu Dhabi, COVID-19, Disability, People of determination, Psychological feeling, Social isolation.

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1. Introduction

Governments around the globe instituted many policies to combat the COVID-19 pandemic that included social distancing measures, lockdowns, travel restrictions, and closing business and industrial activities [1-4]. More specifically, the COVID-19 pandemic has overwhelmed healthcare systems worldwide [5]. Moreover, it encouraged a knock-on effect on diagnosing and treating other diseases [6]. Surprisingly, social distancing and lockdowns have reduced diagnosis rates of infectious diseases, as would be expected with reduced social contact [7, 8]. However, at the start of the pandemic, in general, many public institutions responsible for relevant policies and decisions did not declare the specifics of who is most affected by COVID (i.e., age composition, more elderly, people with disabilities) [9, 10]. As a result, the pace of involvement varied significantly from one country to another [11].

Countries used a variety of precautions in their approaches to the management of this pandemic. Countries like Italy, the United States, Spain, and France struggled to contain the infection, perhaps due to a lack of social distancing, despite their advanced health systems in place [12]. Containment measures implemented in countries like China, South Korea, and Taiwan have reduced new cases significantly; however, the effectiveness of measures taken in other countries (i.e., Italy, Spain, and the United States) has been much less [13, 14].

For people with disabilities, countries used various methods to comeback from the COVID-19 pandemic. In a study by Lugo-Agudelo, et al. [15], they summarized the experiences of some countries regarding the pandemic for people with disabilities. For example, some countries, such as Mexico, the US, Spain, Canada, Singapore, and the UK, relied on informative measures and general recommendations during their stay at home. Many used other protection measures and prevention measures for COVID-19 contagion (i.e., Columbia, Brazil, Uruguay, the US, Canada, and India). Many relied on detecting positive cases, management, and isolation of people with disabilities (i.e., Australia, France, Nigeria, Singapore, and Finland). They used mobility, transport, and isolation (i.e., UK, Peru, and Argentina).

Numerous studies have pointed to the fact that the effects of the pandemic on people with disabilities are far more significant compared to people without disabilities, as the prolonged pandemic and its restrictions have led to physical, psychosocial, and mental health implications for people with disabilities [16-21]. In addition, the drastic negative impacts of lockdown on various aspects of the lives of people with disabilities and their carers have been particularly highlighted [22-24]. For instance, stay-at-home policies, economic instability, online learning strategies, and the loss of essential supports and rehabilitation services have been the most severe challenges for parents of pupils with disabilities [25-27].

Due to disruptions to the services they depend on, people with disabilities known as People of Determination (PoD) in the United Arab Emirates (UAE) may suffer disproportionately from these measures [28, 29]. They face higher risks of contracting COVID-19 because of barriers to implementing basic hygiene measures, enacting social distancing, and accessing public health information and facilities [28, 30]. Additionally, they are at greater risk of developing certain diseases if infected because of pre-existing health conditions that underline their disability [29]. As a result, people with disabilities are likely to experience more severe and adverse mental and psychological consequences and challenges due to COVID-19 [31].

While the reactions and difficulties experienced by people with disabilities during COVID-19 have attracted extensive research and publicity worldwide, little attention has been paid to the situation in the UAE and Gulf Cooperation Council (GCC) countries [32]. Since the first case of COVID-19 was recorded in the UAE in January 2020, the government has implemented various initiatives to make it easier to care for People of Determination (PoD) and their families during the COVID-19 pandemic. For example, the National Home Testing Program was launched for disabled citizens, especially those who cannot move normally or have difficulty communicating with others and other residents, to ensure all community segments have adequate access to testing facilities [33]. In addition, the 'Rest Assured' initiative aims to support the disabled by educating the community members about their requirements for safety and well-being during the pandemic through offering home psychological aid kits, therapeutic intervention kits, training programs, and home-schooling guides [33]. The Ministry of Community Development also established the Kheta platform to facilitate educational services and rehabilitation of people with disabilities since the start of the 2020-2021 academic year. Nevertheless, the prolonged COVID-19 pandemic warrants the examination of the well-being of PoDs to inform other policies and interventions.

The Ministry of Community Development has also setup a series of additional precautionary measures to deal with disabled people in light of the spread of the COVID-19 pandemic. The measures were intended to help the parents and carers of this group overcome the challenges surrounding them and to support them morally to continue their daily lives in safety and security. Through its Welfare and Rehabilitation Department for People of Determination, the ministry issued a series of procedural instructions and steps that allow parents to help their children with intellectual disabilities cope with the reality of staying at home. For example, they set and developed several strategies to support people with autism, specifically during their time in home quarantine. The strategies aimed to help them understand what was happening around them in a simplified way and allow them to express what was on their minds. They also aimed to encourage them to follow appropriate calming skills while maintaining the daily routine activities they are accustomed to as much as possible. The focus was to gradually build new routine activities to adapt to the current reality and encourage communication with others remotely while observing any behavior change.

The objectives of this study are to expand our understanding of some common psychological feelings and other challenges felt most by PoDs during the pandemic in the Emirate of Abu Dhabi, UAE, and to further understand the effect of movement restrictions or the staying-at-home measure and PoDs' perceptions about the use of new technologies on their well-being. In addition, such an evaluation of the short-term impact of the COVID-19 pandemic on various living features of PoDs could assist policymakers and mental health professionals in designing practical support for PoDs.

2. Review of Literature

Research on COVID-19 worldwide shows that the pandemic has increased mental distress in the general population, especially among high-risk groups with less access to socioeconomic resources and supportive social networks [34, 35]. There are some unique stressors and challenges that people with disabilities, in particular, have been facing during the COVID-19 crisis [36]. Research on past pandemics shows that disabled people struggle to access critical medical supplies, which can become even more challenging as resources become scarce [37]. Policies around the rationing of medical care can intensify discriminatory attitudes towards disabled individuals during times of crisis [38]. Some COVID-19 preventative measures, such as physical distancing and isolation, and their social and economic impacts are likely to affect mental and physical health [36, 39].

Some unique stressors and challenges could worsen mental health for people with disabilities during the COVID-19 crisis. For example, research on past pandemics shows that disabled people find it harder to access critical medical supplies, which can become even more challenging as resources become scarce [37]. In addition, some people with disabilities report higher levels of social isolation than their non-disabled counterparts [39]. They may experience intensified feelings of loneliness in response to physical distancing measures. Social isolation and loneliness have been associated with increases in heart disease, dementia, and other health problems, according to the National Academies of Science, Engineering, and Medicine. Furthermore, policies around the rationing of medical care can intensify discriminatory attitudes towards disabled individuals during times of crisis [38]. Such policies can understandably worsen a person's anxiety about getting sick and needing medical care.

The American Psychological Association [40] stresses that unique challenges could worsen the physical and mental health of people with disabilities during the COVID-19 crisis. Meanwhile, research on past pandemics shows that disabled people find it more challenging to deal with pandemics [37]. Research stresses that people with disabilities are at specific risk during the COVID-19 coronavirus pandemic because of significant mental and physical health factors [16, 41]. Many countries have implemented strict social distancing and isolation measures to manage the pandemic [42, 43]. Some also point out the challenge that such a burden is likely more significant for people with disabilities because they generally have poorer coping abilities [36]. Let us also not forget that caring for people with various disabilities could be more stressful, leading, even under normal conditions, to high levels of perceived stress and burnout [44-47]. Many point out that during pandemics, various burdens of greater care demands might lead to further exacerbation of the anxieties and practical difficulties for caretakers who might be under increasing strain [27, 48].

Many studies tried evaluating health-related quality of life for people with disabilities during pandemics. For example, a study in China reported a significant increase in pain/discomfort and anxiety/depression factors in the general Chinese population [35]. Another study assessed the quality of life of persons with disabilities (cancer patients) during the COVID-19 pandemic and found that their quality of life was distinctly affected [49]. A survey in Italy among patients confirmed the impact of the COVID-19 pandemic on certain risks, such as anxiety and depression in patients with primary antibody deficiencies Pulvirenti, et al. [50]. Chakraborty [31] examined the relationship between COVID-19 vulnerability and disability status in the U.S. The statistical analyses compared the mean percentages of people with disabilities across five quintiles of the Pandemic Vulnerability Index (PVI). The results indicate that the percentages of people with any disability and multiple disabilities reporting vision, cognitive, ambulatory, self-care, and independent living difficulties are significantly greater in counties with the highest 20% of the PVI.

During pandemics, some point out that people with disabilities may report higher levels of social isolation than their nondisabled counterparts [39]. According to the National Academies of Science Engineering and Medicine [51] disabled persons may experience intensified loneliness in response to physical distancing measures. They add that social isolation and loneliness have been associated with increases in other physical health problems. Research by Na and Yang [52] examined the psychological and behavioral responses of US individuals with disabilities during the pandemic. Results confirmed that Individuals with mobility and self-care disabilities tend to have poorer mental health. Moreover, they might be differentially more affected by their risk factors.

During the COVID-19 pandemic, abandoned studies studied related persons with disability, and the associations between social and family circumstances and physical disabilities could impact their quality of life in general [50, 53]. However, most of those studies concentrate on other stressors, such as pandemics and disease outbreaks, that may affect people's quality of life due to numerous psychological feelings that may arise from challenges to social and family circumstances. A report from the UK Office of National Statistics [54] reveals the severity of social indicators from the (Opinions and Lifestyle Survey) on the social impact of the coronavirus (COVID-19) pandemic on disabled people in Great Britain. The research report highlights that a higher percentage of disabled people than non-disabled people were worried about the effect of the coronavirus pandemic on their social well-being. The report also highlights challenges for the disabled concerning access to groceries, medications, and essentials; access to health care; and treatment for non-coronavirus-related issues. Other concerns for people with disabilities included feeling lonely, anxious, unsafe outside their homes, and having poor mental health. Other research points to disabled people facing multiple barriers within society, including social challenges [55]. Others also highlight that the COVID-19 pandemic has placed the disabled population at an extreme social disadvantage [56, 57].

A Save the Children organization report offered important advice about grandparents and social distancing during COVID-19 [58]. The report focused on older adults and how they have been disproportionally affected. It pointed out that many grandparents found themselves separated from family members, including grandchildren, due to regulations of social distancing or cautionary measures to prevent their possible exposure to the COVID-19 virus. The message warned that such

a lack of in-person contact for remote grandparents could be challenging as it might lead to proportional anxiety, stress, and confusion.

The United Nations' report on the socioeconomic impact of COVID-19 on people with disabilities stresses the importance of providing financial support to persons with disabilities in the informal sector during the pandemic [59]. The report adds that financial and communication barriers prevent people with disabilities from accessing many services. Moreover, for the working disabled, many surveyed reported a reduction in their income owing to job loss, salary reduction, profit reduction, and financial support from family. The report warns that usually, the financial support provided by the state often does not meet the needs of persons with disabilities.

Much research exists that explored sleeping disorders during the COVID-19 pandemic. Sleep disorders are common in pediatric [60]. Some have recorded more sleep disorders in the younger ones [61, 62]. Youth may also be particularly vulnerable to worsening sleep disorders due to restrictive measures [63]. Studies declare that there is scarce research exploring the impact of the COVID-19 pandemic on sleep in people with disabilities. However, a study by Heinze, et al. [64] provides a preliminary assessment of sleep in people with disabilities during the pandemic. Results showed that participants with disabilities reported significantly poorer global sleep quality, and higher sleep disturbance levels, and higher use of sleep medication than those without disabilities. Other research also suggested that self-reported sleep patterns, sleep duration, and sleep quality have all worsened under lockdown [57, 65].

Public Health England [66] report provides evidence-based insights on the relationship between excess weight, lack of activity, and COVID-19 for the general population. The report also highlights that excess weight prevalence and disease burden are primary international public health concerns. It highlights that almost two-thirds of adults in England live with excess weight for their height (Body Mass Index ≥25kg/m2), with similar figures in Scotland, Wales, and Northern Ireland. The Mayo Clinic also reported that The Centers for Disease Control and Prevention (CDC) had expanded its coronavirus risk warning to include people who gain excess weight and are considered overweight, as it puts them at increased risk of severe illness from the virus that causes COVID-19. In addition, an National Health Service report [67] reveals that people with disabilities are more likely to have problems with their weight than those without disabilities. Research also confirms that, in general, patients with COVID-19 disease are prone to developing significant weight loss and clinical cachexia [68].

A study by Cho and Kim [69] explored the extent of the digital divide between people with disabilities and people without disabilities during the COVID-19 pandemic in South Korea. Results identified significant differences between the two groups in their Internet usage during the pandemic. While more people with disabilities reported that their Internet usage remained similar to the pre-pandemic period, the other group reported that their Internet usage via the same has increased. Many studies pointed to the digital inequalities that have put the most digitally disadvantaged (i.e., people with disabilities) more at risk [70, 71] during the COVID-19 pandemic. In addition, research shows that some vulnerable social groups, including people with disabilities, are challenging to reach if digital media serves as the main route of communication [72].

Many points point to the need to focus more on the disabled. Such researchers point out that although multiple factors such as race and age (older adults) and other characteristics have been revealed to be associated with COVID challenges and risk, little has been reported on the pandemic's impacts on people with disabilities [30]. For Abu Dhabi in particular, the current research considers disability as a critical demographic identifier. As a result, it should be incorporated into data collection to monitor the COVID-19 outbreak. While the reactions and difficulties experienced by people with disabilities during COVID-19 have attracted extensive publicity worldwide, little attention has been paid to the situation in Abu Dhabi or similar Gulf countries. Many studies point to the strategic importance of understanding the challenges faced by people with disabilities, which could provide significant insights for policymakers to better react early during lockdowns that are highlighted by the relatively severe difficulties experienced by people with disabilities, their families, friends, and caretakers [73-75].

Research by Holmes, et al. [76] stressed the immediate priority of paying more attention to all, especially the most vulnerable groups, on their mental health and other challenges due to the effects of the COVID-19 pandemic. Data is critical to informing the public health response as the virus spreads. For Abu Dhabi in particular, while adequate research on the specific impact of COVID-19 on the disability community is not yet available, much attention should be given to overcoming challenges. Such data is essential so policymakers can better understand the impact of COVID-19 on disabled groups. As a result, federal and local agencies will need to coordinate and use that data to serve the disability community better.

Many other COVID-19-incurred issues for people with disabilities need to be examined. In addition, although multiple factors, such as race and age, have been revealed to be associated with COVID challenges and risks, little has been reported on the pandemic's impacts on people with disabilities [30]. Our extensive search reflected only a few research articles that indirectly addressed the differences that might exist with the disabled challenges and risks associated with COVID-19 based on the different segments (i.e., gender, age, marital status, education, and region of living). Nevertheless, studies by Cho and Kim [69]; Beaunoyer, et al. [70], and Dobransky and Hargittai [71]pointed to the importance of better understanding the biographic features of such digital inequalities that have put the most digitally disadvantaged (i.e., people with disabilities) more at risk during the COVID-19 pandemic. A study by Cho and Kim [69] identified a significant digital divide between those with disabilities and the other group.

For Abu Dhabi, in particular, the current research considers disability a critical demographic identifier, which should be incorporated into data collection to monitor the COVID-19 outbreak.

3. Methods and Design

The current study reported research involving human participants (Abu Dhabi community in all regions and sectors). The study survey was conducted by the Department of Community Development in a corporation with the Statistics Center Abu Dhabi under the code OUT/061/2021. Mr. Abu Gharbia, the legal overseer and advisor to the Department of Community Development chair, presided over an institutional review board (ethics committee) that examined and approved the study.

3.1. The Survey Instrument

In collaboration with the Statistic Center Abu Dhabi (SCAD), the Abu Dhabi Community Development Department (DCD) developed the third cycle of the Abu Dhabi Quality of Life (QoL-3) survey. The survey components were designed according to a thorough review of the relevant literature. Since the survey was launched during the COVID-19 pandemic, it also contained items related to the threats and challenges of COVID-19 that all Abu Dhabi community members, including people with disabilities, might experience. The survey used Qualtrics software and platform, which allows such a merging facility [77].

The QoL-3 instrument included a limited but multitude of dimensions, such as COVID-19 awareness and attitude, economic and business challenges, education-related concerns, health concerns, mental health concerns, community and daily practices, technology-related challenges, and concerns about and trust in government responses. This current study concerning people with disabilities selected some relevant elements from the survey. First, the survey asked respondents to rate, on a scale from one to five, the extent of some psychological feelings being developed since the outbreak of the COVID-19 pandemic. The ten feelings were fear, loneliness, sadness, stress, irritability, emotional exhaustion, depressive symptoms, sleeping disorders, overeating, and excessive screen use. The survey also asked adults (mostly older adults with children or grandchildren) to rate, on a scale of 5, the degree of eight specific challenges. They included factors such as more restrictions imposed, not being able to go out to public places, social life being disturbed more than before, lack of physical activity, lack of access to regular medicine or physiotherapy, not having necessities like food, not seeing grandchildren whenever desired, and being lonely. In addition, the survey asked respondents to rate their level of agreement on a scale of one to five about the role of technology during the pandemic. Four items were included: 'New technologies contribute to a better quality of life; 'I can usually figure out new high-tech products and services without help from others; 'Sometimes technology systems are not designed for use by ordinary people; and 'technology lowers the quality of relationships by reducing personal interactions.' Finally, a question asked respondents about their weight status and if the pandemic had any impact. The options included a 5-point Likert scale from underweight to overweight. A further question was asked to identify the kilograms gained or lost for overweight or underweight. The survey was administered from June 2020 to May 2021.

In addition, the COVID-19 portion of the survey added specific questions regarding (To what extent has COVID-19 affected you?). Five factors were introduced: (income and financial situation, health, family relationships, social relationships, and life overall.) Furthermore, respondents were asked to use a (1-5) scale: negatively to a great extent, negatively to some extent, neutral, positively to some extent, and positively to a great extent.) Concerning the demographics of respondents, the survey collected various information concerning age, gender, level of education, marital status, residential location, region, type of residents, monthly household income, nationality, number of family members, type and category of work, and health characteristics.

3.2. Study Sample and Survey Distribution

The online survey started with an introductory section about the nature of the survey. The intention was to obtain participant consent successfully. The introductory section ended with a click on a consent statement confirming the participation agreement. In addition, before ending the survey, the participants were asked to provide their email or mobile numbers to get a summary of the survey results. About 97% of respondents provided mobile numbers (for social media contacts such as *WhatsApp*.)

The study sample included residents across Abu Dhabi: Al Ain, and Al Dhafra. The responsible survey team made extra efforts to reach all community residents to achieve representative samples. The survey acquired more than 83,000 responses, among which people with disabilities accounted for 1,954 respondents. The survey was available in Arabic, English, and six other Asian languages. Through a total of 50 survey links, the survey was distributed online. In addition, DCD sent numerous encouraging calls and notes to the communities, inviting their participation in the survey. The means of survey distribution included phone calls, messages, emails, and social media. Survey representatives also appeared in several national and semi-national television newscasts to encourage participation (*we should note in this regard that in presenting the results, the term PoD will be used instead of disabled to confirm with standards in the UAE*).

3.3. Analysis Methods

The analysis mainly used descriptive analysis, t-tests, and analysis of variance (ANOVA). The descriptive statistics included means and standard deviations regarding the Pods and the means for the rest of the respondents without disabilities. One-sample t-tests were used to compare the Pods with those with no disability. ANOVA was conducted to understand differences by gender, age, marital status, education attainment, and nationality of the Pods. When possible, Cronbach's Alpha will be calculated to assess the reliability of the overall dimension in question. SPSS (version 27) was used throughout the analysis [78].

4. Results

Table 1 shows the breakdown of each specific demographic category of PoDs. About 62.7% were male, and 32.8% were female. Most were married (68.7%), 15.9% were single, and around 15.4% were separated, widowed, or divorced. About 72.8% were Emiratis, and 27.2% were non-Emiratis. Regarding education attainment, 19.1% of PoDs held a bachelor's degree. Those with no educational qualifications and qualifying bachelor's degrees accounted for 73.8%. Most PoDs were between 30 and 49 years old (54%). Sixty years of age or older accounted for 16.3%.

Table 1.
Respondent's profile.

Gender	**Percentage**
Male	67.2%
Female	32.8%
Marital status	
Married	68.7%
Single	15.9%
Divorced	6.9%
Separated	.9%
Widowed	7.6%
Education level	
Read/Write (No qualifications)	12.8%
Below secondary school	19.7%
Secondary school	26.3%
Post high school training certificate	5.9%
College diploma	9.1%
Bachelor's degree	19.1%
Master's degree	5.4%
Doctorate degree	1.6%
Age	
Less than 15	7.5%
15-19	2.0%
20-24	2.6%
25-29	6.4%
30-34	10.3%
35-39	15.6%
40-44	15.5%
45-49	12.6%
50-54	7.4%
55-59	3.8%
60+	16.3%
Nationality	
Emirati	72.8%
Non-Emirati	27.2%

4.1. Effect of COVID-19

Table 2 presents five consequences of the extent to which COVID-19 has affected the respondent. The 1 to 5 scale ranged from (negative to a large extent to positive to a large extent. Results show that for the PoDs and others (people without disabilities) group, their responses to all five COVID-19 effect variables recorded a mean lower than the midpoint of (3.0), indicating that respondents overall experienced some extent of the negative impact of COVID-19. On the two items of effects on health and effect on income and financial situation, PoDs recorded are significantly lower than those of people without disabilities. These results might reveal the indirect extent of the financial responsibilities of the different individuals (Pods and people without disabilities.) They, however, registered a significantly higher mean on the effect of social relationships. The other two variables (effects on family relations and effects on life overall) did not exhibit significant differences between the two groups. The Cronbach coefficient of (0.8765) is highly indicative of the reliability of the construct.

ANOVA analysis shows a significant difference between male and female PoDs concerning COVID-19's effects on income and financial situation (F=4.134; 0.042), with females scoring a higher mean (2.731 relative to 2.531 for males). The result might reflect that females are more engaged in family spending than males. Significant differences are observed among the different marital status groups concerning COVID-19's effects on all five items (F-values 2.483, 5.145, 4.885, 3.337, and 2.421, respectively).

Table 2.
Effects of COVID-19 (Pod's and others).

COVID-19 effects	Mean Pod's	Mean others	St. dev. Pod's	T-value	Sig.
Income and financial situation	2.579	2.650	1.197	-2.118	0.034
Health	2.777	2.896	1.193	-3.597	0.000
Family relationships	2.915	2.947	1.258	-0.865	0.387
Social relationships	2.713	2.613	1.212	2.774	0.006
Life overall	2.727	2.702	1.216	0.702	0.483

The divorced and separated PoDs consistently report higher means than other segments on the effects of COVID-19 on income and health. However, the means of their responses to the effect of COVID-19 on family relations, social relations, and life overall are much lower. There are no significant differences in the means across age groups concerning the impact on income. In contrast, significant differences exist in the means of responses to the rest four variables (health, family relations, social relations, and life overall) across different age groups of PoDs (F-values 3.824, 4.443, 3.895, and 2.817, respectively). A closer look shows that younger PoDs exhibit higher means than older PoDs. Significant differences are also observed between and among PoDs with different educational attainments in their responses to all five variables. Concerning COVID-19's impact on income, those with a college degree or higher report a significantly higher mean. Those with lower educational qualifications exhibit a higher mean regarding the impact on health. PoDs with higher qualifications report significantly lower means concerning the overall impact on family relations, social relations, and life. Emirati PoDs produced significantly higher means than non-Emirati PoDs in their responses to the effects of COVID-19 on all five variables.

4.2. Psychological Feelings

The Cronbach Alpha for psychological feelings is (0.9132), indicating high reliability that the items measure a standard definition. For PoDs, most mean values of their reported psychological health attributes are below 3.0, except for stress and excessive screen use, which record the highest means (3.544 and 3.120). Overeating, depressive symptoms, and loneliness are physiological symptoms or feelings that register relatively low mean scores (2,514, 2.668, and 2.796). The independent t-test of PoDs and persons without disabilities shows significant differences in the three types of feelings or issues. The feeling covered sadness, depressive symptoms, and sleeping disorders. The PoDs record higher means. It should be noted that there are high dispersions in the mean scores reported by PoDs on sleeping disorders and depressive symptoms. Table 3 presents the psychological feelings during the pandemic (Pod's and others).

Table 3.
Psychological feelings during the pandemic (Pod's and others).

Psychological feelings	Mean Pod's	Mean others	St. dev. Pod's	T-value	Sig.
Fear	2.961	2.865	1.187	1.285	0.199
Loneliness	2.796	2.710	1.425	0.991	0.322
Sadness	2.895	2.627	1.333	2.052	0.040
Stress	3.120	3.050	1.339	0.864	0.387
Irritability	2.932	2.780	1.359	1.789	0.074
Emotional exhaustion	2.911	2.799	1.417	1.283	0.200
Depressive symptoms	2.668	2.376	1.480	3.376	0.001
Sleeping disorder	2.869	2.619	1.521	2.719	0.007
Overeating	2.514	2.565	1.381	-0.574	0.566
Excessive screen use	3.544	3.685	1.346	-1.644	0.100

Further ANOVA reveals no differences between genders in the means of all reported psychological feelings and physical issues except for sadness, where female PoDs register a significantly higher sadness feeling (3.227 relative to 3.005 for males). No significant differences are observed among groups of different marital statuses. PoDs with different levels of education, on the other hand, reported significantly different levels of fear (F=2.096; 0.045), sadness (3.674; 0.001), and depressive symptoms (F=2.771; 0.009). Those without a college degree consistently score significantly higher on those three feelings. Finally, no significant differences exist between the two nationality groups and among those age groups regarding all reported psychological feelings and physical issues.

4.3. Pandemic Concerns

Table 4 shows the most severe challenges for Pod's adults with children and grandchildren. For this group of PoDs, only two variables scored a value above 3.0. More specifically, the challenge of 'not being able to see my grandchildren whenever I want' reaches a mean of 3.009, and the challenge of 'not being allowed to go to public places' has a mean of 3.010, indicating moderate challenges. On the other hand, issues such as being lonely, not having necessities like food, and lack of access to regular medicine and physiotherapy score much lower means of 2.100, 2.300, and 2.700, indicating minor challenges. An independent t-test shows no significant differences between PoDs and people without disabilities

concerning any of these challenges. Further ANOVA analysis reveals no differences among PoDs by gender, marital status, nationality, age category, or education attainment. The Cronbach Alpha yields a reliability value of (0.8559).

Table 4.
COVID-19 concerns (Pod's and others).

Pandemic concerns	Mean Pod's	Mean others	St. dev. Pod's	T-value	Sig.
Being lonely	2.100	2.385	0.994	-0.727	0.468
Not being able to see my grandchildren whenever I want	3.009	3.036	1.633	-0.884	0.398
Not having necessities like food	2.300	2.461	1.252	-0.085	0.933
Lack of access to regular medicine/Physiotherapy	2.700	2.326	1.418	-0.068	0.947
Lack of physical activity	2.800	2.627	1.317	-0.354	0.723
Social life disturbed more than before	2.889	2.892	1.364	-0.399	0.699
Not being allowed to go to public places	3.001	3.010	1.563	0.895	0.372
More restrictions imposed	2.900	3.449	1.449	0.823	0.430

4.4. Other Pandemic Effects and Reactions

The results presented in Table 5 generally do not indicate that the pandemic had a significant effect on the body weight of PoDs, as only 3.2% felt that they lost too much weight, and the majority (47%) felt that they maintained their weight. Those PoDs who reported some gains in further weight also reported a mean of 6 kilograms of gained weight (relative to 5.32 Kilograms for those without disabilities). For those PoDs who reported weight loss, the mean lost weight is 4.23 kilograms (relative to 5.52 Kilograms for the non-PoD segment). Further ANOVA reveals no differences in the means by gender, nationality, age category, marital status, or educational attainment.

Table 5.
COVID-19 and weight changes (Pod's and others).

Weight changes	Pod's (%)	Others (%)
Lost too much weight	3.2%	1.8%
Lost some weight	15.7%	10.7%
Maintained my weight	47.0%	48.3%
Gained weight	27.0%	33.0%
Gained much weight	7.0%	6.1%

4.5. Communication and Technology

For staying at home during the pandemic, it was necessary to explore further the perception and readiness of the Pods to deal with new technology. Table 6 shows the mean scores for the four statements concerning the role of technology. It shows the scores for the Pods and the rest of the community members. The highest mean is assigned to 'New technologies contribute to a better quality of life, as the Pod's record show a mean of 3.842. For the Pods, the other statements also scored relatively high scores. The statement "'I can figure out new high-tech products and services without help from others"' recorded a mean of 3.662. We should note that the last two statements are negatively worded. The statement 'sometimes new technologies are not designed for use by ordinary people scored a mean of 3.625. Finally, 'technology lowers the quality of relationships by reducing personal interactions' scored a mean of 3.675. No significant differences are observed regarding either statement. In general, all four means are above the middle point of 3.0. The t-tests revealed no significant differences between the Pods and the rest of the respondents on all four statements. After reversing the negative statements, Cronbach Alpha yields a value of (0.7177). ANOVA analysis of the perceptions of PoDs about new technology for communication suggests no significant differences by gender or educational attainment. When considering marital status, only responses to the statement 'I can usually figure out new high-tech products and services without help from others' provide significant differences (F =2.544; 0.040), with those married and single PoDs reporting significantly higher means than other categories. Significant differences were observed between Emirati PoDs and non-Emirati PoDs. Emirati PoDs tend to be more positive about the role of technology. On the statement 'new technologies contribute to a better quality of life', Emirati PoDs score a mean of 4.01 while non-Emirati PoDs score 3.62 (F=7.849; 0.006). On another statement, 'I can usually figure out new high-tech products and services without help from others, Emiratis score a mean of 3.81 compared with 3.46 for non-Emiratis (F=7.939; 0.005).

Table 6.
Overall level of agreement with the role of technology.

Technology	Mean Pod's	Mean others	S.D, Pod's	T-value	Sig.
New technologies contribute to a better quality of life	3.842	3.953	1.071	-1.841	0.066
I can usually figure out new high-tech products and services without help from others	3.662	3.735	0.955	-1.178	0.239
Sometimes technology systems are not designed for use by ordinary people	3.625	3.665	0.959	-0.720	0.472
Technology lowers the quality of relationships by reducing personal interactions	3.675	3.771	0.975	-1.528	0.126

5. Discussions

The world has paid great attention to the difficulties experienced by people with disabilities during the COVID-19 pandemic. Such attention has attracted extensive publicity around the world. The current research could be considered the first attempt to shed light on the Pods in Abu Dhabi during the COVID-19 pandemic. This attention reflects the strategic importance of understanding the challenges the Pods face. Results could provide significant insights for policymakers to better implement policies during lockdowns and isolations. Such importance is also highlighted by others who have worked on similar research in other countries [73-76].

Some noticeable outcomes concerning PoD's mental and physical health have been observed. PoDs reports a generally a low level of mental and physical health issues, which was nevertheless higher than what people without disabilities reported. While this is consistent with the findings of other international studies that stress that people with disabilities are at higher risk during COVID-19 and have been suffering more significantly from mental and physical health factors [16, 41], PoDs in Abu Dhabi tend to show their mental strength and resilience. This result may partially reflect the significant attention and support given by the public health and community authorities.

In Abu Dhabi, like in many countries, relevant authorities implemented strict social distancing and isolation measures to manage the pandemic. Such measures might be the challenge likely to be greater for people with disabilities regarding their physical health [36, 44].Results point to specific stressors people with disabilities in Abu Dhabi regarded as most challenging. The two feelings of stress and excessive screen use received the highest means for the Pods. On the other hand, the feelings of (overeating, depressive symptoms, and loneliness) received relatively the lowest scores. Other countries also recognized these symptoms in the Pods and attributed them to implementing strict social distancing and isolation measures [42, 43]. The feeling of stress has been reported in other countries, too, as caring for people with various disabilities could inhibit certain stressful feelings and burnout [44-47]. For negative psychological feelings, there were no differences between genders in the means of all reported psychological feelings and physical issues except for sadness, where female PoDs registered a significantly higher sadness feeling. Such result might indicate that females, mothers, and grandmothers are more aware and involved in family needs and relationships.

As for pandemic concerns or challenges, surprisingly, for the Pods, only two variables scored relatively higher means (not being able to see my grandchildren whenever I want) and (not being allowed to go to public places). This result is consistent with the message of the Save the Children organization about grandparents and social distancing during COVID-19 [58]. Furthermore, results from Abu Dhabi consistently observe that such a lack of in-person contact for remote grandparents could be challenging as it might lead to proportional anxiety, stress, and confusion.

Significant differences were observed for the Pods compared to other segments regarding sleeping disorders**.** The results are consistent with similar research during the COVID-19 pandemic observed in other countries [16, 36, 41, 64, 65]. In addition, some studies recorded higher sleep disorders for the younger ones [79]. However, in the Abu Dhabi study, for the Pods, no significant differences were observed concerning age.

Results reflect the significant role that grandchildren play in the lives of parents and grandparents during the COVID-19 pandemic. Results reveal that the ongoing pandemic has unfortunately impacted grandparents' opportunities to spend time with their grandchildren. The study briefly addressed the effects of specific preventive measures, including physical or social distancing and quarantining. As for pandemic concerns or challenges, surprisingly, for the Pods, only two variables scored relatively higher means (not being able to see my grandchildren whenever I want) and (not being allowed to go to public places). On the contrary, the variables that received the least concern from the Pods were (being lonely), (not having necessities like food), and (lack of access to regular medicine or physiotherapy). An independent t-test showed no significant differences between the Pods and the rest concerning any challenges. Results reflected the concerns of the Pods with the most severe challenges: being unable to seetheir grandchildren whenever they wanted and not being allowed to go to public places as usual. However, feelings of loneliness**,** concerns about not having necessities like food, and lack of access to regular medicine and physiotherapy received lower scores. Both results do not confirm results obtained in other countries where people may experience intensified feelings of loneliness and lack of access to medicine [51, 59]. Nevertheless, the variables that received the lowest concern from the Pods were (being lonely), (not having necessities like food), and (lack of access to regular medicin**e** or physiotherapy). Such results are inconsistent with those from other countries' studies [80]. However, such results should be explained more effectively by looking into the culture of social support in Abu Dhabi relative to these communities.

The Pod's provided means significantly lower than the other group regarding two variables related to their concerns:income, and financial situation**.** This outcome might reveal the high level of support the Pod's got in Abu Dhabi or the UAE during the pandemic, especially from the Pod's. Most of the services were provided for free and at home when possible. This result is inconsistent with other international reports that addressed financial challenges faced by the Pod's during the pandemic, as many funds were suspended, leaving the Pod's beneficiaries without financial means to pay for essentials, including food and medicines [59]. Focusing on the effects of COVED-19, results revealed that female PoDs reported more concerns about its effect when it comes to income and family spending. For Abu Dhabi in particular, the result might reflect that females are more engaged in family spending than males.

Results also reveal that the Pods in Abu Dhabi provided significantly higher means regarding the effect of COVID-19 on **(**social relationships**)** compared to other groups. Meanwhile, no significant differences were observed regarding family relationships or life. Understandably, the imposed policies on more isolation affected everyone, but more on the Pods, especially with friends from outside family relationships. Many other similar reaches witness the challenge of social isolation for the PODs [43, 52, 81].

Results show that 34.7% of the Pod gained weight during the pandemic. Such a high percentage raises some concerns with policymakers about paying more attention to the Pod since many concerned sources have raised alarms [67]. Indeed, especially relative to the PODs, research supports that a lack of specific supportive services may lead to increased behavioral issues and treatment with psychotropic medication with adverse side effects, including weight gain [68]. It is also expected that, in general, many people who have been ill with COVID have lost their appetite. There are many reasons for this happening. For example, it might be because the person is unwell, has lost his or her sense of smell or taste, or the food is not enjoyable. In addition, sometimes weight loss occurs gradually, making it difficult to notice initially.

The tests of differences revealed no significant differences between the Pods and the rest of the respondents on all technology-related statements. This result is not consistent with the study in other countries. For example, the study by Cho and Kim [69] and other studies pointed to the digital inequalities that have put the most digitally disadvantaged (i.e., people with disabilities) more at risk [70, 71] during the COVID-19 pandemic. Regarding the perception of digitalization and quality of life for the Pods, results are consistent with other studies that dealt with the relations between technology and digitization during the pandemic, especially concerning the Pod Cho and Kim [69]. For the Pods, the highest mean is related to their belief that new technologies contribute to a better quality of life. However, the study by Cho and Kim [69] also identified a significant digital divide between the two groups. Surprisingly, the Abu Dhabi survey shows that the Pods assigned a high mean, reflecting their comfort that they could figure out new high-tech products and services without help from others. Nevertheless, the Pods provided some concerns when they also recorded a high mean reflecting that (new technologies are not designed for use by ordinary people). Regarding communication and technology, significant differences were observed between Emirati PoDs and non-Emirati PoDs. Emirati PoDs tend to be more positive about the role of technology. This might suggest, too, that Emiratis might be more involved in technology-related behavior.

The Abu Dhabi study provided more insights regarding COVID-19 and the differences concerning gender, age, marital status, region of living, and educational attainment of people with disabilities. Factors such as gender, age, education level, and other socioeconomic status may significantly influence many aspects of the dynamic behaviors of the disabled [82]. Understanding such disparities could add more insights into social policy-making responsibilities. Most studies focused specifically on a particular segment of people with disabilities (women [83], older people [84], younger ones, and children [83, 85] and regions of living [86]. However, not many compared the COVID-19 specifics between those segments.

6. Conclusions

The current study provides insight into the psychological feelings and challenges of Pod's people in Abu Dhabi during the COVID-19 outbreak. The challenges observed by the Pods might call for greater attention from social policymakers in Abu Dhabi. The symptoms and challenges differed significantly from the feelings the rest of the respondents observed. Results call for communication among social policymakers. Results also call for paying more attention to new technologies to make the Pods more in touch with their outer world. The main intentions should focus on reducing the relevant strains and providing more effective mental health to the Pods. Some results provide insights for carers on improving their communication with the Pods. Meanwhile, results point to the comfort of the Pods in dealing with new technologies. Governments and public authority agencies must facilitate more convenient digital access and services to ensure better post-pandemic effectiveness for the Pod.

The study went further than similar research on the Pods during the COVID-19 pandemic. It explored if further significant differences exist regarding the gender, age, marital status, education, and nationality of the Pods. Such analysis could also enhance our understanding of the future behavior of the different segments or categories in current or future pandemics. The limitations of this study must be acknowledged. There may be biases due to convenience sampling. The length of the survey was reduced for the purpose of encouraging the participation of PoDs. Therefore, several relevant wellbeing questions were removed, thus limiting the scope and depth of insights this study could provide. Nevertheless, these preliminary results are informative and worthy of consideration in PoD-related policy-making during current and future pandemic situations. Moreover, this study may contribute to a further longitudinal study to explore the long-term mental and physical health implications of the pandemic for PoDs. The availability of such extensive survey data could encourage future research to use a more holistic model, such as the structural equation model (SEM), to provide an overall model reflecting the wellbeing of Pods with all its determinants or associates. The model could have the ability to test and evaluate multivariate associations or relationships. It could further test the direct and indirect effects (or associations) on pre-assumed relationships.

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