

# **Disability in the Occupied Palestinian Territories (West Bank and Gaza) Analysis Report**

## **Analysis Central Bureau of Statistics Census Results 2017**

Working Paper, January 2021

Authors

Professor Rita Giacaman, with the support of Suzan Mitwalli

*The Disability Under Siege Network+ is funded by the  
Arts and Humanities Research Council (AH/T005440/1)*



This Analysis Report was commissioned as part of the Disability Under Siege Network+ Grant Ref: AH/T005440/I funded by the Global Challenges Research Fund (GCRF) and the Arts and Humanities Research Council (AHRC).

The research was undertaken by researchers and faculty from the Institute of Community and Public Health (ICPH) part of Birzeit University. ICPH was established informally as Palestinian social action was emerging at the end of the 1970's, then as a formal university unit, a department, and as an institute in 1998. Its mission and goals have been primarily defined by the extra-ordinary conditions of Israeli military occupation of the West Bank and Gaza Strip. The institute's inception, growth and development were a response to the Palestinian community's need for generating the evidence required to develop independent and informed health policies, plans and programmes.

ICPH aims to contribute to the protection and improvement of the health of the Palestinian population through research, teaching the MPH and Diploma programs, and the capacity building of public health providers and planners. Its theoretical foundations are based on the notion that health is socially constructed; and on understanding health and disease in context, taking shape over the life course. Medical services are considered important for achieving health, but not sufficient, requiring additional action outside health services and within community and society to address the structural factors that influence health and well-being, such as economic, social, cultural, political, and environmental influences on health.



The Disability Under Siege Network+ Project is a co-created programme bringing together a community of researchers, educational practitioners, advocacy organisations and disability led groups in the UK and Middle East. It will contribute to research efforts by providing intellectual and logistical resources that local practitioners need to transform education provision for children with disabilities in conflict-affected countries.

For more information please visit: [www.disabilityundersiege.org](http://www.disabilityundersiege.org)

Contact: [disabilityundersiege@contacts.bham.ac.uk](mailto:disabilityundersiege@contacts.bham.ac.uk)



## Acronyms

<b>CRPD</b>	Convention of Rights of Persons with Disability
<b>CRPD</b>	International Convention on the Rights of Persons with Disability
<b>DPOs</b>	Disabled People's Rights
<b>GMR</b>	Great March of Return
<b>GUPD</b>	General Union of the Palestinian PWDs
<b>HCRPD</b>	Higher Council for the Rights of Persons with Disability(s)
<b>HWC</b>	Health Work Committees
<b>ICF</b>	International Classification of Functioning, Disability, and Health
<b>ICHR</b>	The Independent Commission for Human Rights
<b>ICPH</b>	Institute of Community and Public Health
<b>MOH</b>	Ministry of Health
<b>MOSA</b>	Ministry of Social Affairs <sup>1</sup>
<b>MOSD</b>	Ministry of Social Development
<b>NGO</b>	Non-Governmental Organization
<b>OHCHR</b>	Office of the United Nations High Commissioner for Human Rights
<b>oPt</b>	Occupied Palestinian Territory
<b>PA</b>	Palestinian Authority
<b>PAL</b>	Palestinian Authority Leadership
<b>PDC</b>	Palestinian Disability Coalition
<b>PFDs</b>	Person(s) free of Disability/ies
<b>PWDs</b>	Person(s) with Disability/ies
<b>PCBS</b>	Palestinian Central Bureau of Statistics
<b>SPSS</b>	Statistical Package for Social Sciences
<b>STL</b>	Standard of Living Scale
<b>UK</b>	United Kingdom
<b>UNICEF</b>	United Nations Children's Fund
<b>WB</b>	West Bank
<b>WHO</b>	World Health Organization
<b>WG</b>	Washington Group Short Set on Functioning
<b>YMCA</b>	Young Men's Christian Association

---

<sup>1</sup> The Ministry of Social Affairs was renamed as Ministry of Social Development by a presidential order on April 13<sup>th</sup> 2016. Therefore, we refer to it as MOSA whenever we discuss the 1999 law and MOSD when discussing the new 2019 draft law.



## Table of Contents

1	Background .....	5
2	Methodology.....	5
3	Results.....	8
4	Regression Analysis.....	13
5	Summary.....	16
	References.....	17



## **I Background**

This report forms part of the Global Challenges Research Fund 'Disability Under Siege' Network+ project led by Professor Dina Kiwan from the University of Birmingham. The Network comprises partners from Lebanon, Jordan, the occupied Palestinian Territories and the UK.

The report is based on an analysis of the Palestinian Central Bureau of Statistics (PCBS) Census of 2017. It focuses on identifying the main factors associated with People With Disabilities (PWDs) of all ages as compared to People Free of Disabilities (PFDs). We were limited by the questions contained in the census, and included in this analysis questions which could allow a comparison between PWDs and PFDs. Data inspection, analysis and writing of this report was completed by Rita Giacaman. The statistical results were double checked and reviewed by Suzan Mitwalli.

This report represents an overview of the situation of PWDs, whereby we will continue to work on an analysis of the data later on by focusing on specific age groups: children, adults and the elderly, as the causes of and consequences of disability can differ substantially by age.

## **2 Methodology**

We obtained a 20% sample of the 2017 census data from PCBS representative of all of the West Bank and Gaza Strip. The data set included details on the West Bank and Gaza Strip governorates, including disability and demographic and socio-economic characteristics of persons and their households. Palestinian East Jerusalem is not included, as PCBS census staff and field workers could not reach East Jerusalem because of the ongoing Israeli military occupation and annexation of East Jerusalem by Israel, and the need for permits from the Israeli military to enter the city.

PCBS has for a while been using the Washington Group Short Set on Functioning (WG) of five questions for use in censuses and surveys.<sup>(1)</sup> The questions ask about: difficulties in seeing even if wearing glasses; hearing even if using a hearing aid; walking or climbing steps; remembering or concentrating; washing all over or dressing (self-care), and communicating using mother tongue. Responses have four categories: no difficulty, some difficulty, a lot of difficulty and cannot do it at all. However, these questions omit the sixth WG question: using your usual language, difficulty communicating (for example, understanding or being understood by others). We do not know why this last question was not used, perhaps because PCBS wanted to be consistent and provide results to compare with the 2011 disability survey, which included only five questions. On the one hand, this allows for comparisons with 2011; on the other hand, it becomes more difficult to compare internationally using recent data.

Discussions with PCBS staff confirmed that they use the 'narrow' WG definition of disability, where only a lot of difficult and cannot do it at all are included in the calculation of the number and proportion of people with disabilities in Palestine. Discussions with PCBS also pointed to their definition of difficulty, which is simply a difficulty in one or more of the WG questions,



versus identifying persons with disability based on the definition of disability by the WG. We use the same definition of disability identifying only those with long-term difficulties, as opposed to those, for example, who suffer from a broken leg, or a temporary difficulty. Another limitation of the WG questions is that they are designed for a census context, for a general population 5 years of age or more, so this report does not include children with disabilities who are under 5 years of age. It is also recognized that the results will under-estimate the prevalence among 5-17-year-old children, given child development and transition from infancy through adolescence limitations. In other words, these results are minimum estimates of disability among Palestinians on the West Bank and Gaza Strip, excluding East Jerusalem.

We received two SPSS data sets: one detailing the main demographic and socio-economic characteristics of each person in each household; and another with questions about the family as a whole. We then merged the two SPSS files provided by PCBS using the provided key. In total, there were 185,848 households included in the obtained data set, and 940,613 persons in these households bringing the average number of household members to 5.1 persons per household (excluding East Jerusalem). Merging means that the data set contains the family information merged with each person with one or more disability (PWD). Because some families had more than one PWD at home, there are necessarily some duplicated households in the data set, to reflect the living conditions of each PWD. We removed children <5 years from the data set in line with the WG method of assessing disability, and obtained a total of 810,031 persons, which are the participants in this report. The binary logistic regression results included 803,704 persons, because of some missing values, and representing 99% of the working sample.

Using the SPSS compute and count commands, we developed new variables which include: total number of PWDs and total disabilities per person using the WG narrow definition by including only those who reported a lot of difficulty or not being able to perform the function at all, and by referring to the WG syntax with some modification in variable names for simplicity of understanding (2). Our view is that it is best to use the narrow definition so that we can identify pressing priorities for policies and action, given our resource limited environment, and especially now with the COVID-19 pandemic which reached the country on March 5 2020 via Greek tourists/pilgrims, and spiked during the first week of April with Palestinian workers in Israel coming home just before the beginning of the Jewish Passover feast.<sup>2</sup> Using the narrow WG definition would also allow us to be able to compare with PCBS data over time later. We also recoded several variables to exclude missing cases, and exclude selected ages when relevant (for example with questions on marriage and work, which PCBS asks only for certain age groups). We then constructed a scale using responses to the presence or absence of 17 amenities at home (such as LED TVs, computers, smart phones, central heating, clothes dryer etc.) and constructing a new variable, the Standard of Living Scale (STL), with a very good Alpha of 0.8. Chronbach's Alpha is an inter-rater reliability test which is performed when we build scales, that is, creating one variable by merging several variables, or assessing the different dimensions of a phenomenon by constructing one view using several questions. The Alpha of 0.8 indicates good reliability of the scale; that is, that the 17 variables are homogenous, relate to each other, and that they measure a particular phenomenon. The STL scale, also called the assets index, can be used as a proxy for the relative poverty of households given the relation between household amenities and

---

<sup>2</sup> See for details: Corona.ps <https://www.corona.ps/details>



household assets, (3) or where household amenities can reflect the household's economic vulnerability (4). In addition, family composition (nuclear versus extended households) will also be used to assess relative poverty, with extended households thought to be formed as a response to poverty (5) or a survival strategy against unemployment (6). We have also previously noted that, in the occupied Palestinian territory, higher unemployment levels were found among extended households compared to nuclear households (7).

The number of persons in the 20% 2017 census sample is quite large, and makes discerning significant differences in characteristics between groups when conducting cross tabulations and the usual Chi-Square and P values unhelpful. Usually P values of  $<0.05$  mean that we cannot accept the null hypothesis (that the differences between groups are due to chance, or no difference in characteristics between groups). The  $P < 0.05$  then indicates that the differences between groups are real. However, significance and the null hypothesis are usually used when working with small samples where we try to get as good estimates as possible to reflect what is there in the population at large. Given our very large sample size, all comparisons will yield results as significantly different. However, with such a large sample size, we are also obtaining estimates which reflect reality better among all of the population; and this is so much for the better. Yet, this is why we had to look carefully at crosstabs to discern what comparisons are meaningful for identifying the factors associated with disability, the gaps and priority groups and for deciding about which independent variables to enter into regression to check for confounders (associated factors, such as demographic, socioeconomic and other variables), with PWD as the dependent variable. Finally, binary logistic regression analysis was performed to check for confounders, that is, to ultimately identify the factors associated with disability, and identify priority groups. We conducted one regression covering all with PWDs as the dependent variable. Later on, we will focus our analysis on children, as disability among children can mean different consequences from disability among adults, and then adults, and finally, a regression model focusing on elderly people.



### 3 Results

Overall, 2.2% (or almost 18,000 persons) of those included in the census above 4 years of age (as defined by the WG) are people with one or more disability using the narrow definition of the WG. Of the total sample, 0.7% reported a seeing, 0.5% hearing, 1.2% mobility, 0.4% remembering, and 0.5% communicating disability. Some reported multiple disabilities, with 1.6% reporting one disability, and the rest (0.6%) reporting 2-3 disabilities (Figure 1). These results are slightly lower than the results of the 2011 disability survey of 2.7% which included 15,572 households in the West Bank and Gaza Strip (8). This is probably due to the 2011 PCBS survey having included two additional to the WG questions (difficulty learning and mental health) into their calculation of the prevalence of PWDs in the West Bank and Gaza Strip.

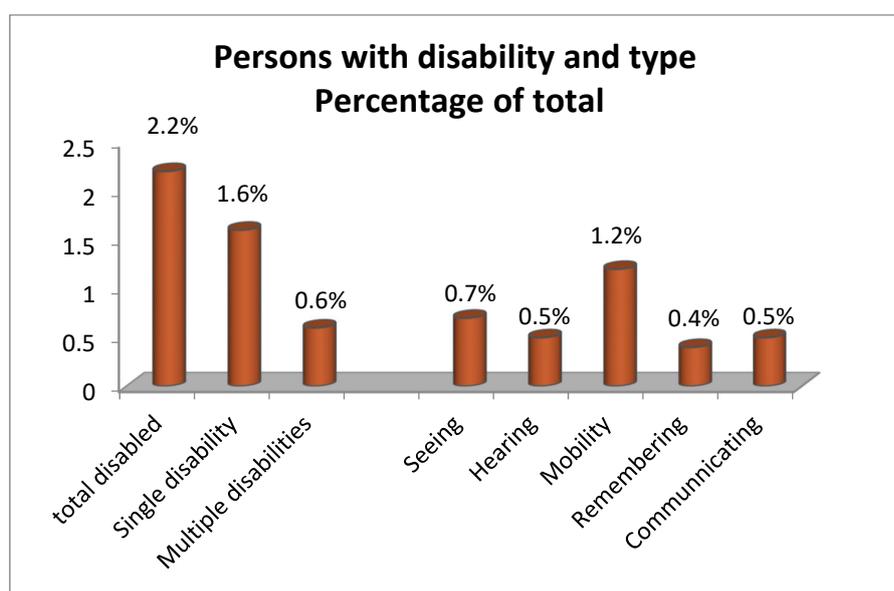


Figure 1 % Persons with disability and type.

Asking the question of who are the people with disabilities in the country, we find that 2.4% of males reported being disabled, compared to 2% of females. This result is consistent with the PCBS 2011 disability Survey where 2.9% of men were PWDs in contrast to 2.5% for females. It is possible to propose here that disabled girls die early, while disabled boys live longer because families take better care of them because of son preference (9). But we will check this hypothesis later when we conduct regression analysis on children. It is also possible that because of the nature of their work outside the home, or because of the political context where more males are injured due to political violence compared to females, males tend to suffer from disability more than women (10). The average life expectancy of men is lower than women (72.3 for men and 75.4 for women) may also be a factor (11). This too may be clarified further when conducting regression analysis with the elderly sample.

We set older ages at 50 as opposed to 65 years as is usually found in the literature. It has been argued that this definition of old age beginning at 65 is arbitrary, and that such a definition should not only be based on chronological age, but must take into consideration historical, regional and



social variations (12). In the context of the oPt, our experience indicates that people tend to age younger than in other countries, perhaps because of the difficulties of life where military control and exposure to violence is an additional part of daily life. As noted by the World Health Organization, adult and older age problems are rooted in early life experiences and living conditions (13). In a study of the Palestinian Ministry of Health's clinics, with report presented to the Ministry and unpublished, we found that among women with a mean age of 53 years, a variety of health problems which limit their activities were reported, including different types of pain, arthritic conditions, muscle and joint pain, back pain and frequent falling. Indeed, others have also noted the high prevalence of musculoskeletal pain among post-menopausal women (14). In addition, this is the age when chronic conditions set in, and such morbidities are known to be major factors associated with disability among adults 50-65 years old (15).

Data indicates that the proportion of disabled person is higher among the older age groups as one would expect, with 1% of those 5-9 and 10-14 years old each are people with disabilities, 1.1% for those 15-18, 1.6% for those 19-49, 4.5% for those 50-64, and 17.5% for those 65 years or more (Figure 2).

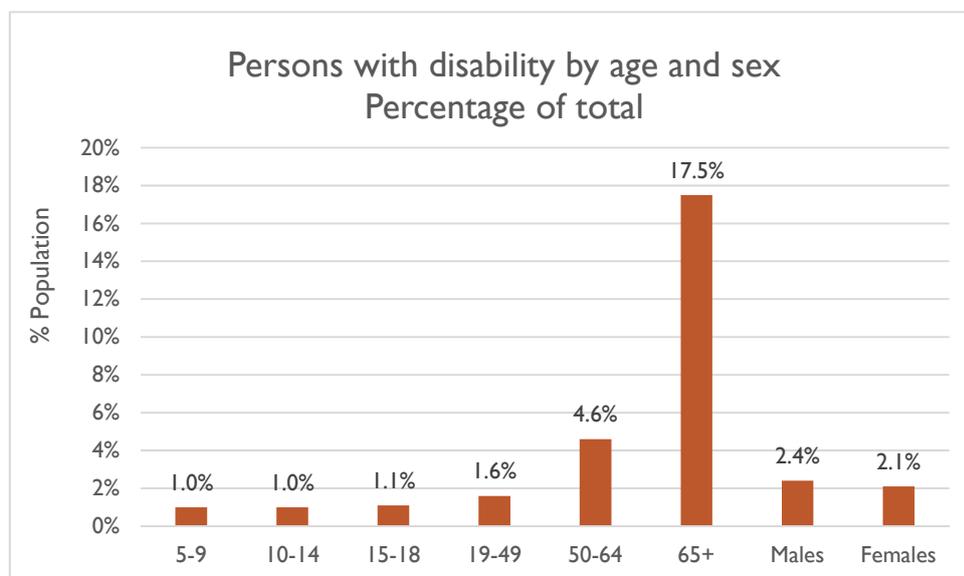


Figure 2 Persons with disability by sex and age.

There were more PWD in the Gaza Strip (GS) at 2.9% compared to 1.8% on the West Bank (WB), while the prevalence in 2011 was 2.9% for the WB and 2.4% for the GS. This contrast may possibly be due to a combination of factors all related to the GS political context. The GS has been under intensified and choking siege since 2007, with Gazans 'locked in' and isolated from the West Bank and abroad, and severely restricting the movement of people and goods.(16) This has undermined living conditions so much so that the UN reported the GS as becoming unliveable by 2020 (17). This is compounded by the increased Israeli army violence in the GS, where in 2014, the war against the Strip resulted with more than 2000 Palestinian killed and 11,000 injured, with about 10% with permanent disabilities (18). Attacks on Gazans have intensified following the beginning of the Great March of Return, largely non-violent protests beginning March 30 2018



and ongoing (19). As of September 2019, it is estimated that since March 2018, there were over 6500 limb injuries, and that at least 1200 people in the GS have become amputees and will require limb reconstruction (20).

The highest proportion of people with disability was found in the northern GS (North Gaza and Gaza) at 3.1% compared to 2.8% for the southern GS, followed by 2.2% for north WB, 1.8% for south WB, and 1.7% for center WB. Of the total by locale, 2.3% of urban dwellers, 2% of rural and 3.5% of refugee camp dwellers were people with disabilities. This indicates that refugee camp dwellers are at higher risk of disability, likely confounded by the Gaza Strip where two thirds of the population is composed of Palestinian refugees in contrast to the West Bank with 26% reported as refugees. This point will be clarified with regression analysis. Of the total, 2.6% of Palestinian refugees (living in and outside refugee camps) are PWDs compared to 1.9% among non-refugees, while 2.3% of those living in urban areas, 2% in rural and 3.5% in refugee camps were people with disabilities, suggesting that disability among Palestinian refugees is higher than among the rest of the population regardless of locale (Figure 3).

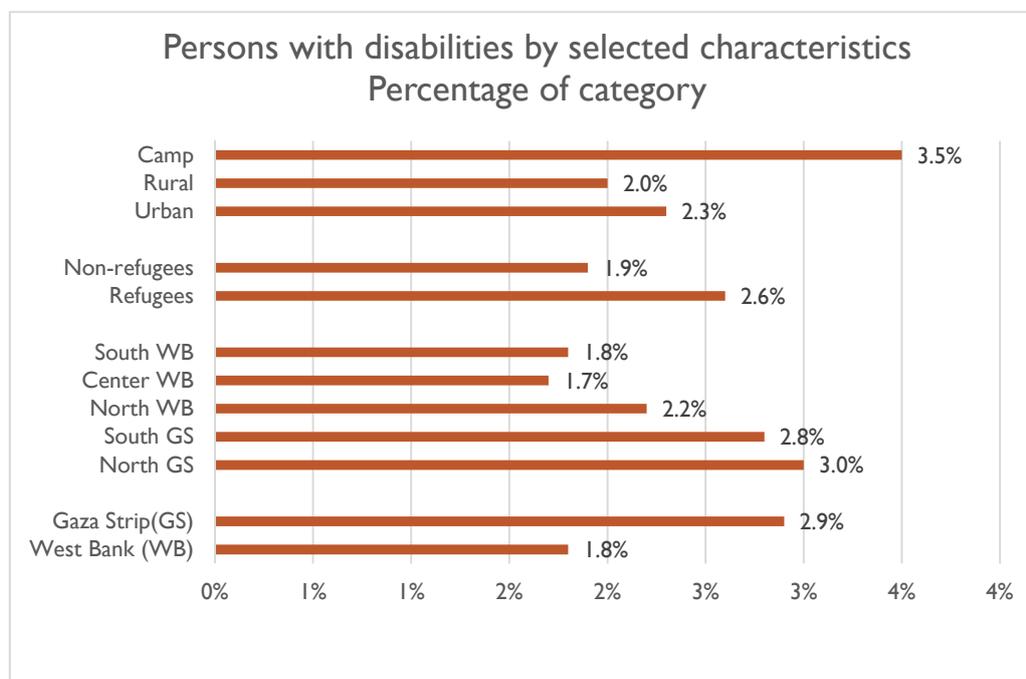


Figure 3 Persons with disabilities by selected characteristics.

Of the total 14 years or older, 59.4% of people with no disabilities are married, compared to 53.7% among people with disabilities. For current enrolment in school/university (5 years or more as required by the WG directives), we found that 2.8% of children with no disabilities aged 5 years are currently enrolled in pre-school compared to 1% among children with disabilities, 38.7% currently enrolled in school, compared to 10% among the disabled; 26.9% enrolled and left among those with no disability compared to 34.4% among those with disabilities; 29.6% among those without disabilities who enrolled and graduated compared to 21.7% among those with disabilities;



and 2.1% who never enrolled in school among those without disabilities compared to a high of 33% who never enrolled. Quite clearly, people with disabilities are at a higher risk of lacking education compared to those with no disabilities.

Another question on education, asked for those 10 years old or more, was the question on the highest successfully completed educational level. The usual is combining primary or less education, preparatory, secondary and post-secondary. Here we find that 31.5% of those with no disability had primary or less education compared with 64.7% among people with disabilities; 29% of those without disabilities reported having had preparatory education (10 schooling years) compared to 18% among the disabled; 19.8% of those without disability reporting having completed high school compared to 9.5% among those with disabilities, and 19.7% of those with no disabilities reporting having completing post high school education (from post high school diploma to PhD) compared to 7.8% among people with disabilities (Figure 4). These results confirm the above results on enrolment.

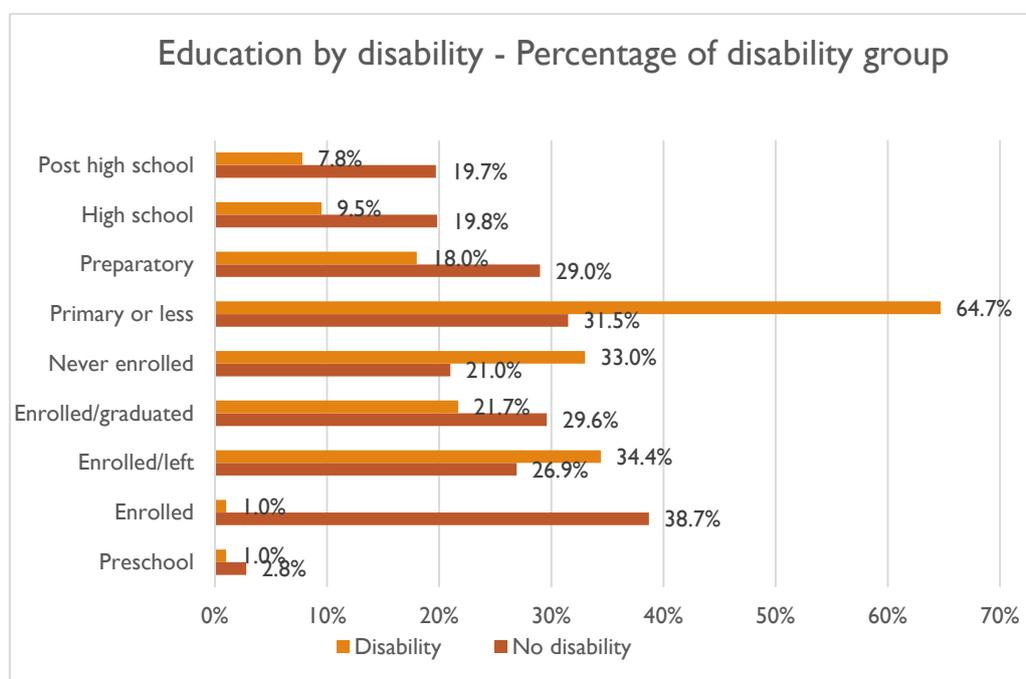


Figure 4 Enrolment in education for all and successful completion of level for those 10 years or more

For employment, a question asked for persons 7 years old or more, 3.9% of people with no disability reported working part time compared to 0.1% with disability; 11.9% reported working full time with no disability compared to 4.6% with disability; 10.7% looking for work with no disability compared to 7.4% with disability, 42.6% reported they were students with no disability compared to 10% with disability; 24.5% reporting themselves as housewives with no disability compared to 11.2% with disability; and 6.4% reporting no work and does not or cannot work with no disability compared to 64.1% with disability (Figure 5). This question on work will be elucidated further when we focus on adults in regression.

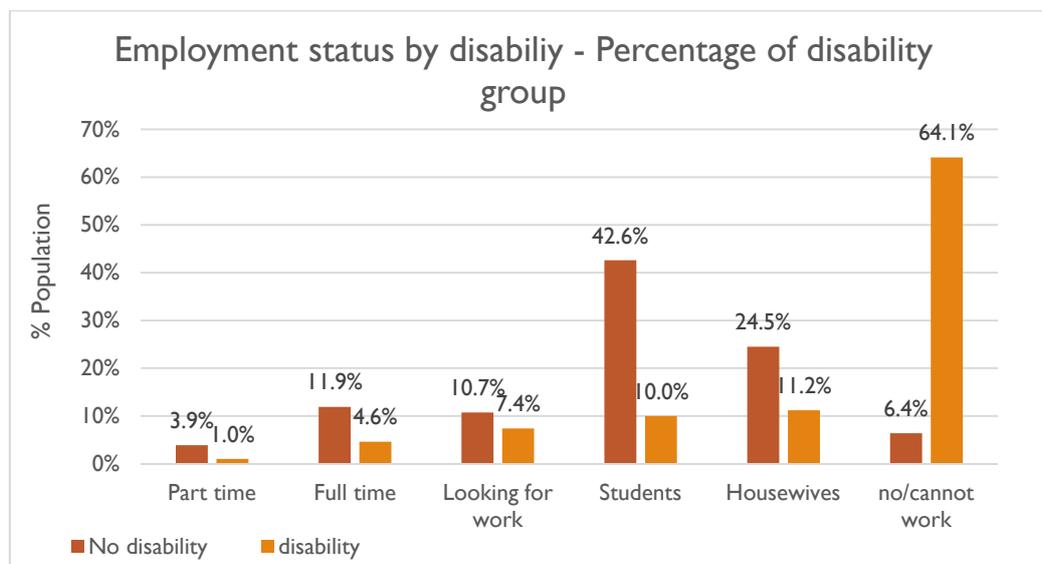


Figure 5 Employment status.

One way through which we can estimate the financial status of households is by assuming that extended households are usually poorer, which has been noted here previously (7) and elsewhere (6). It is also noted that extended family arrangements arise as a response to poverty where sharing and pooling resources in larger households can result in economic benefit (5). Another way is to construct a standard of Living Index (STL). STL assesses access to basic amenities, and infrastructure as a measure of deprivation (4), that is, part of the phenomenon of life in poverty.

In this data set, we find that 85.5% of households with no disabled person are nuclear families, compared to 71.6% in households with one or more disabled person; and 14.5% of households with no disability are extended households compared to 28.4% for those with disability. We also find that, of 17 amenities at home used constructed into an STL scale, 45.6% of those with no disabilities have 0-4 amenities compared to 61% of those with disabilities; 37.9% of those with no disabilities have 5-8 amenities compared to 31.5% of those with disabilities, and 16.5% of those with no disabilities have 9 and up to all 17 items compared to 7.5% of those with disabilities (Figure 6). Later analysis will let us know if our hypothesis that people with disabilities in the Gaza Strip are in fact poorer than those on the West Bank.

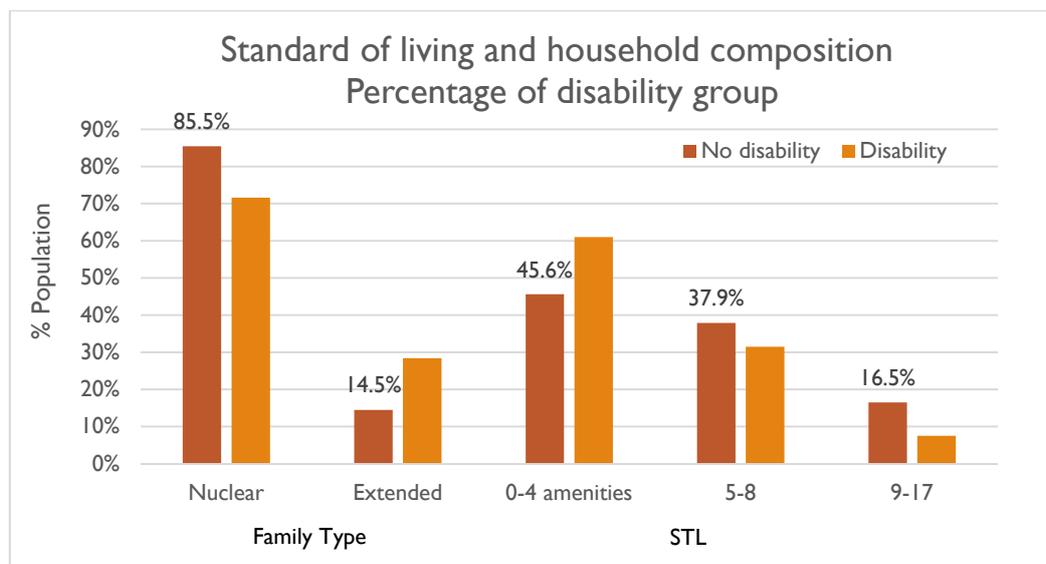


Figure 6 Household composition and Standard of Living (STL) by disability group.

The above results are general in nature, and useful overall. But they also indicate that we need to analyze results by age group: children up to age 18, adults 19-49, and likely older people 50 or more.

#### 4 Regression Analysis

We conducted binary logistic regression to check for confounders. Confounding is usually understood as a distortion of the association between a dependent variable or exposure (disability) and outcome or independent variable (demographic and socio-economic variables) by a third variable. Confounders correlated with both the dependent and independent variables (21) They affect the results in ways where the real relationship between the dependent and independent variables cannot be reflected or ascertained. An example many learn at University is the association found between drinking coffee and yellowed fingers. The confounder is cigarette smoking, as coffee drinking with cigarette smoking is common. If you do not include cigarette smoking into the analysis then you may end up coming to the conclusion that yellow fingers are associated with coffee drinking! If you include cigarette smoking into the regression model, then coffee drinking becomes insignificantly associated with yellow fingers while smoking cigarettes remains significant. Regression models are used to adjust for such confounders.

For the overall regression we find the following (did not include marital status or work for the overall as it does not make sense to include these variables and also include children and the missing cases would seriously bias the results):



### Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup>			14489.473	2	.000			
age to enter in overall regression								
age to enter in overall regression(1)	-2.144	.021	10096.928	1	.000	.117	.112	.122
age to enter in overall regression(2)	-1.726	.017	9847.979	1	.000	.178	.172	.184
Sex(1)	.293	.016	354.107	1	.000	1.341	1.301	1.383
REGION_CODE1(1)	-.102	.018	30.694	1	.000	.903	.871	.936
Loctype			111.391	2	.000			
Loctype(1)	-.251	.024	111.104	1	.000	.778	.742	.815
Loctype(2)	-.239	.033	53.133	1	.000	.788	.739	.840
STL scale based on 17 items alpha 0.8			2196.363	3	.000			
STL scale based on 17 items alpha 0.8(1)	1.487	.037	1646.590	1	.000	4.426	4.119	4.755
STL scale based on 17 items alpha 0.8(2)	1.120	.031	1308.897	1	.000	3.064	2.883	3.255
STL scale based on 17 items alpha 0.8(3)	.625	.031	407.114	1	.000	1.868	1.758	1.985
recoded htype(1)	-.496	.018	783.710	1	.000	.609	.588	.630
Constant	-2.663	.041	4224.480	1	.000	.070		

a. Variable(s) entered on step 1: age to enter in overall regression, Sex, REGION\_CODE1, Loctype, STL scale based on 17 items alpha 0.8, recoded htype.



Regression results indicated that, overall, PWDs have an unfair disadvantage compared to the rest of the Palestinian population. As one would expect, people below 50 years of age are less likely to suffer from disability compared to all younger age groups. It is known that the physical and mental changes accompanying aging entail limitations in people's capacities to function (22) and that aging is a known risk factor for disability (23, 24) The issue here is not making the inevitable evitable, but how government and health services address and include aging in its priorities for care. A demographic shift is taking place in Western countries especially, but also elsewhere, where the projected growth in the proportion of older people in developing countries is expected to be high, yet where financial resources lag behind those of northern countries (25) In the oPt, the proportion of people 60 years or more was 5% in 2017 (11) with 4.6% for men and 5.4% for women, compared to 4.5% in 2007 (4.1% men and 4.9% women) (26). Although these proportions have not reached those in Europe and North America, where older people 60 years or more exceeded 25% of the population in several of these countries, it is expected that developing countries (including the oPt) will follow suit (27). In the oPt, we have yet to develop a system of social security in old age. Palestinians continue to rely on their children in lieu of social security (7) as the quasi state structure of the Palestinian Authority is highly constrained by the ongoing Israeli occupation and colonization of Palestinian land, and has not attained the political, economic and social freedoms, or the sovereignty needed to institute a social security system for old age.

Regression results reveal a gendered dimension. Compared to females, males are more likely to suffer from disability. Our results are consistent with the 2011 PCBS disability survey where more males were reported as having a disability compared to females (8). It is not clear why this is so, as the expectation is that more females would have a disability compared to males, especially that Palestinian females live longer than men, with an average life expectancy of 72.3 years for males compared to 75.4 years for females (11) In addition, females are not usually in control of financial resources, are still largely housewives, and their labor force participation rate was 21% of women in working age in contrast to 72% for men according to the 2018 Labor Force Survey (28). So less likely to control the needed resources to remain healthy. The above cited indicators provide the intuition that the risk of disability among females may be more than males, yet our results indicate the opposite. Further work is necessary to understand these counter-intuitive results, especially when we complete analysis on children, adults and the elderly separately, which could give us insights to explain these findings.

Compared to people from the Gaza Strip, West Bank Palestinians are less likely to suffer from disability. In addition, compared to refugee camp dwellers, urban and rural area households are less likely to have a PWD at home. In other words, living in the Gaza Strip and living in a refugee camp are independent risk factors for having a disability. Perhaps the generally inadequate infrastructure, crowding and problematic environmental sanitation in refugee camps could contribute to explaining these results (29). The results may also reflect the effects of poverty, environmental degradation and stretched health services experienced as a result of the choking Israeli siege on the Strip. While both the West Bank and Gaza Strip have suffered the effects continued occupation of Palestinian land, a serious deteriorated in GDP was noted for the Gaza Strip to a larger extent than the West Bank in 2018, with deepening poverty, and a 52% unemployment rate in 2018, and with 68% of households reported as food insecure (30). In



addition, the Gaza Strip is suffering the chronic problems of electricity shortage, inadequate sanitation, and an environmental breakdown in general. Since March 2018, mass, largely non-violent, demonstrations protesting the siege have also led to the death of hundreds of Palestinians and the injury of thousands, putting additional burdens on an already overburdened health sector in the strip. From March 30 2018 till July 2019, over 7500 Palestinians have been injured by live Israeli ammunition, with 87% of those reported as limb injuries, including amputations of lower and upper limbs, and at least 1200 people requiring limb reconstruction (20). We may be able to examine the relation between exposure to political violence and disability when we complete analysis on adults 18-49 years.

Finally, compared to households who have a high STL (an indicator of poverty), those with middle, low and very low STL are all more likely to have PWDs in their households, with the very low STL households a high of 4.43 times as likely to have a PWD in the family compared to the high STL group. Likewise, with family composition with nuclear families less likely to have a PWD at home compared to extended families (an indicator of poverty). Indeed, the relation between poverty and disability is known in the literature (31, 32) although whether disability is a cause of poverty or that poverty is a cause of disability cannot be ascertained in this study. This is because the data we are using here is a cross sectional type of data, capturing phenomena in one moment in time only, and cannot infer causality; that is, it cannot delineate whether poverty causes disability or that disability causes poverty. Please note however, that the confidence intervals found in the regression table are very narrow, which means that the accuracy of the results are high.

## 5 Summary

This analysis demonstrates that even when using the strict WG definition, PWDs form a substantial proportion of the population of 5 years or more, at almost 18,000 persons in this 20% sample, or 90,000 among the entire population. PWDs are at a disadvantage as far as the indicators we have been able to extract from the 2017 census data. The results demonstrate a higher risk of disability among older people, men, refugee camp dwellers, people from the Gaza Strip, and people from poorer households.

These results represent initial findings only as it is important to analyze the Census 2017 in the future by focusing on specific age groups: children 5-18 years, adults 19-49 and early and later old age, for those 50 years or more, to obtain results specific to the contexts and needs of each of these groups. However, these initial results can be used as a tool for policy making and interventions which can, and should, focus on alleviating and eliminating these generally avoidable disparities.



## References

1. Washington Group on Disability Statistics. The Washington Group Short Set on Functioning (WG-SS), 2017 [cited 2020]. Available from: <http://www.washingtongroup-disability.com/wp-content/uploads/2016/12/WG-Document-2-The-Washington-Group-Short-Set-on-Functioning.pdf>.
2. Washington Group on Disability Statistics. 2017. Available from: [http://www.washingtongroup-disability.com/wp-content/uploads/2017/09/WG-Short-Set-Questions\\_SPSS-Syntax\\_rev2017\\_2.pdf](http://www.washingtongroup-disability.com/wp-content/uploads/2017/09/WG-Short-Set-Questions_SPSS-Syntax_rev2017_2.pdf).
3. Bhagat R, Sarode<sup>o</sup> S, Dwivedi<sup>o</sup> L, Kumar M. Access to Household Amenities and Assets in India: A Census Based Study Mumbai, India: International Institute for Population Sciences (IIPS); 2019 [cited 2020 3/13/2020]. Available from: [https://www.researchgate.net/profile/R\\_Bhagat/publication/339374889\\_Access\\_to\\_Household\\_Amenities\\_and\\_Assets\\_in\\_India\\_A\\_Census\\_Based\\_Study/links/5e4e01cb92851c7f7f48b878/Access-to-Household-Amenities-and-Assets-in-India-A-Census-Based-Study.pdf](https://www.researchgate.net/profile/R_Bhagat/publication/339374889_Access_to_Household_Amenities_and_Assets_in_India_A_Census_Based_Study/links/5e4e01cb92851c7f7f48b878/Access-to-Household-Amenities-and-Assets-in-India-A-Census-Based-Study.pdf).
4. Mukherjee M. Mapping of Regional Disparity in Standard of Living: Issues and Challenges to Urban Resilience in India. *Amity Journal of Economics*. 2017;2(1):35-49.
5. Klocker N, Gibson C, Borger E. Living together but apart: material geographies of everyday sustainability in extended family households. *Environment and Planning A*. 2012;44(9):2240-59.
6. Ebrahim A, Leibbrandt M, Woolard I. Strategies of the unemployed in South Africa: does moving allow the unemployed to get ahead? *Africanus*. 2016;46(1):52-75.
7. Giacaman R, Johnson P. Characteristics of Heads of Households, Household Composition, and Household Labor Patterns. In: Giacaman R, Johnson P (eds): *Inside Palestinian Households. Initial Analysis of a Community-based Household Survey*. 2002. Birzeit: Institute of Women's Studies and the Institute of Community and Public Health, Birzeit University; [46]. Available from: <http://icph.birzeit.edu/system/files/2002-%20Inside%20Palestinian%20Households.pdf>.
8. Palestinian Central Bureau of Statistics (PCBS), Palestinian Ministry of Social Affairs. *Survey of People with Disabilities, 2011, Main Findings Reprt*. Ramallah: Palestinian Central Bureau of Statistics (PCBS), 2011.
9. Hammoudeh W. The effect of son preference on Palestinian fertility. *The Lancet*. 2017;390:S37.
10. Giacaman R, Shannon HS, Saab H, Arya N, Boyce W. Individual and collective exposure to political violence: Palestinian adolescents coping with conflict. *European Journal of Public Health*. 2007;17(4):361-8.



11. Palestinian Central Bureau of Statistics (PCBS). On the Occasion of the International Day of Older Persons 2017. Available from: [http://www.pcbs.gov.ps/portals/\\_pcbs/PressRelease/Press\\_En\\_1-10-2017-elder-en.pdf](http://www.pcbs.gov.ps/portals/_pcbs/PressRelease/Press_En_1-10-2017-elder-en.pdf).
12. Orimo H, Ito H, Suzuki T, Araki A, Hosoi T, Sawabe M. Reviewing the definition of “elderly”. *Geriatrics & Gerontology International*. 2006;6(3):149-58.
13. National Institute on Aging, National Institute of Health, U.S. Department of Health and Human Services, The World Health Organization. *Global Health and Aging* Undated. Available from: [https://www.who.int/ageing/publications/global\\_health.pdf](https://www.who.int/ageing/publications/global_health.pdf).
14. Ogwumike OO, Adeniyi AF, Orogbemi OO. Musculoskeletal pain among postmenopausal women in Nigeria: Association with overall and central obesity. *Hong Kong Physiotherapy Journal*. 2016;34:41-6.
15. Zhao G, Ford ES, Li C, Crews JE, Mokdad AH. Disability and its correlates with chronic morbidities among US adults aged 50–< 65 years. *Preventive medicine*. 2009;48(2):117-21.
16. United Nations Office for the Coordination of Humanitarian Affairs OCHA. *Gaza Blockade: OCHA; 2020 [16/3/2020]*. Available from: <https://www.ochaopt.org/theme/gaza-blockade>.
17. The United Nations. *Gaza 'Unlivable', UN Special Rapporteur for the Situation of Human Rights in the OPT Tells Third Committee - Press Release: The United Nations; 2018 [16/3/2020]*. Available from: <https://www.un.org/unispal/document/gaza-unliveable-un-special-rapporteur-for-the-situation-of-human-rights-in-the-opt-tells-third-committee-press-release-excerpts/>.
18. Medical Aid for Palestinians. *Voices from Gaza: Living with a Disability under Blockade* London: Medical Aid for Palestinians; 2017 [cited 2020 16/3/2020]. Available from: <https://www.map.org.uk/news/archive/post/699-voices-from-gaza-living-with-a-disability-under-blockade>.
19. United Nations Relief and Works Agency for Palestine Refugees (UNRWA). *Gaza's "Great March of Return" One Year On Amman: UNRWA; 2019 [cited 2020 14/3/2020]*. Available from: [https://www.unrwa.org/sites/default/files/content/resources/gaza\\_gmr\\_one\\_year\\_on\\_report\\_eng\\_final.pdf](https://www.unrwa.org/sites/default/files/content/resources/gaza_gmr_one_year_on_report_eng_final.pdf).
20. United Nations Office for the Coordination of Humanitarian Affairs OCHA. *At Least 1200 People Injured in Gaza Demonstrations Will Require Limb Reconstruction.: OCHA; 2019 [cited 2020 14/3/2020]*. Available from: <https://www.ochaopt.org/content/least-1200-people-injured-gaza-demonstrations-will-require-limb-reconstruction>.
21. Pourhoseingholi MA, Baghestani AR, Vahedi M. How to control confounding effects by statistical analysis. *Gastroenterology and Hepatology from bed to bench*. 2012;5(2):79.
22. Chatterji S, Byles J, Cutler D, Seeman T, Verdes E. Health, functioning, and disability in older adults—present status and future implications. *The Lancet*. 2015;385(9967):563-75.



23. Strobl R, Müller M, Emeny R, Peters A, Grill E. Distribution and determinants of functioning and disability in aged adults-results from the German KORA-Age study. *BMC Public Health*. 2013;13(1):137.
24. Hazzard WR, Woolard N, Regenstreif DI. Internal medicine: at the nexus of the health care system in responding to the demographic imperative of an aging population. *The American journal of medicine*. 2001;110(6):507-13.
25. Polivka L, editor *THE POLITICAL ECONOMY OF AGING IN DEVELOPING COUNTRIES*. *GERONTOLOGIST*; 2016: OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA.
26. (PCBS) PCBoS. *The Situation of Older People and Requirement for their Care in the Palestinian territories (Arabic)* Palestinian Central Bureau of Statistics (PCBS); 2009 [20/3/2020]. Available from: [http://www.pcbs.gov.ps/Portals/\\_PCBS/Downloads/book1647.pdf](http://www.pcbs.gov.ps/Portals/_PCBS/Downloads/book1647.pdf).
27. (PCBS) PCBoS. *Palestine in Figures 2007 Ramallah*: Palestinian Central Bureau of Statistics (PCBS); 2007 [20/3/2020]. Available from: [http://www.pcbs.gov.ps/Portals/\\_PCBS/Downloads/book1432.pdf](http://www.pcbs.gov.ps/Portals/_PCBS/Downloads/book1432.pdf).
28. Palestinian Central Bureau of Statistics (PCBS). *The Situation of Palestinian Women on the Even of International Women's Day, 08/03/2019 Ramallah*: Palestinian Central Bureau of Statistics; 2019 [21/3/2020]. Available from: <http://www.pcbs.gov.ps/post.aspx?lang=en&ItemID=3406>.
29. United Nations Environment Programme. *Desk Study on the Environment in the Occupied Palestinian Territory* Nairobi: United Nations Environment Programme; 2003 [3/29/2020]. Available from: <https://postconflict.unep.ch/publications/INF-31-WebOPT.pdf>.
30. United Nations Conference on Trade and Development. *Report on UNCTAD Assistance to the Palestinian People: Developments in the Economy of the Occupied Palestinian Territory*. Geneva: 2019.
31. Mitra S, Posarac A, Vick B. Disability and poverty in developing countries: a multidimensional study. *World Development*. 2013;41:1-18.
32. Palmer M. Disability and poverty: A conceptual review. *Journal of Disability Policy Studies*. 2011;21(4):210-8.