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Education Level and Disability Type as Causes for The Discernible Wage Divergence For People With Disabilities

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ABSTRACT

In Cyprus, disabled people face many difficulties in accessing employment, as more than 10,000 people with appropriate qualifications remain unemployed. According to worldwide estimates, disabled people receive lower wages compared to individuals without disabilities due to being either unemployed or underemployed more frequently. Using other countries with similar cultural and legal environments, this study examined the correlation between disabled people's wage levels and their disability types and educational levels. In order to gather primary data used for this correlational and regression study, 117 online questionnaire responses were collected from 6,000 registered members with physical disabilities in related organizations in Cyprus. The study examined the effect of education and disability type, on wages for disabled individuals in Cyprus using a cross-sectional survey utilizing judgment sampling (purposive sampling), in order to identify possible relationships between them, and hence see if education and disability cause a lower wage. According to the results, the two variables are not significantly associated with disability wages in Cyprus. These coefficients differ, however, between the variables 'education' and 'type of disability,' showing that in Cyprus education predicts the wage levels for disabled workers, as it is for other groups..

Keywords: Education, Employment, Disability, Discrimination, Wages, Unemployment.

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INTRODUCTION

There are approximately 1 billion disabled people in the world (Disability Overview, 2016; Sun, Wilson, Schreiber and Wang, 2017; World Report on Disability, 2011; Zheng, Tian, Hao, Gu, Tao, Liang, . . . , and Hao, 2016), referring to limitations on physical, mental, and intellectual abilities, as well as constraints on participation and activity (WHO, 2012). In total, researchers estimate that adults with disabilities participate in the labor market at only 25% as compared to 75% of the overall adult population (Snyder, Carmichael, Blackwell, Cleveland, and Thornton III, 2010). Among disabled adults, the unemployment rate is 60% compared with 20% for non-disabled individuals, 22% earn below minimum wage, in comparison to the 12% from the non-disabled group, and they occupy lower status positions at work (Coffey, Coufopoulos and Kinghorn, 2014; Parlalis, 2013; Snyder et al., 2010). The above situation indicates that disabled people have a much greater chance of being unemployed or underemployed than people without disabilities (Coffey et al., 2014; Vickers, 2009). Discrimination against disabled workers appears to be a widespread problem, so laws have been passed in first world countries addressing this issue (Australia in 1992, France in 1987, UK in 1995, USA 1990) (Parlalis, 2013).

The employment of people with disabilities has been the subject of significant research worldwide (Bakula, Kovacevic, Sarilar, Palijan and Kovac, 2011; Caceres and Caceres, 2015; Coffey et al., 2014; Fabian, Beveridge and Ethridge, 2009; Folguera, 2014; Graf, Marini and Blankeship, 2009; Hashim and Wok 2014; Hernandez and McDonald, 2010; Roessler, Rumrill, Hennessey, Nissen, Neath, 2011; Snyder et al., 2010; Vickers, 2009; Vornholt, Uitdewilligen, and Nijhuis, 2013), Cyprus has no such research on the subject because Cyprus' government seems reluctant to fund it. Disability research would reveal what issues disabled people face today, and on the other hand, enforcement of disability law would be facilitated (Disability Act N.127(I)/2000) enabling employers to penalize discrimination against employees with disabilities or to create incentives for employing them. Cyprus is culturally and legally similar to the United Kingdom (UK) and Greece, where people with disabilities have low employment rates and are placed in positions that are much lower than what their skills, education, and experiences would suggest. According to ANED (2013), in the UK, 31.4% of disabled people are employed compared to 68.1% of non-disabled people. Moreover, 46.3% of disabled persons in Greece are employed, while 76.4% of non-disabled persons are employed. Between 1878 and 1914, Cyprus was a former British protectorate, following which it was a British colony before achieving independence in 1960 (Hardy, 2014). This is reflected through the British influence in the current infrastructure (buildings, governmental processes), as well as in the following of common law (Yesilada, 2016). Greece and Cyprus share many similarities culturally as they share a common language, a similar religion, as well as heritage (customs, traditions) (Papadopoulos et al., 2016).

According to unofficial statistics associated with employment in Cyprus retrieved from associated organizations, including the Department of Social Inclusion of Persons with Disabilities, about 12,000 disabled individuals are registered as unemployed (which is approximately 16% of the overall unemployed people- 75,000- among the 428,000 people who are categorized as the working-age population) (Ministry of Labor and Social Insurance, 2013). Therefore, it was reasonable to deduce that Cyprus had comparable conditions; hence, this study investigated whether the type of disability and level of education predict the wage levels of disabled people in Cyprus.

Firstly, it's imperative to describe what society understands disability to be; a person with a disability has a physical or mental impairment which has a noticeable effect on the person's ability to carry out daily activities. In this article, a more in-depth look at this group of people is provided to see if the level of education and nature of impairment could influence their wage levels (as it appeared in other countries with similar cultural and legal environments). This work is being carried out in a bid to improving the way of life of the disabled working class, by giving them a voice and also creating more opportunities for them in their respective societies. A correlational

and regression analysis was used and primary data were collected from 117 questionnaire respondents (2.25% sample) procured online from Qualtrics, which is used by approximately 6,000 registered members with disabilities. For statistical analysis, the collected data were classified into paraplegia, quadriplegia, multiple sclerosis, dystrophy, visual impairments, hearing impairments, and neurological disabilities. The research question with the relative hypothesis were developed as follows:

RQ. Does the type of disability and level of education predict the wage levels of disabled people in Cyprus?

H0- Type of disability and education do not significantly predict the wage levels of people with disabilities in Cyprus.

Ha- Type of disability and education significantly predict the wage levels of people with disabilities in Cyprus.

Research has been conducted in various geographical areas in the past several decades pertaining to issues that are important to disabled people, such as workplace discrimination, obstacles to employment, attitudes and perceptions at work, societal perceptions, and workplace support. (Coffey et al., 2014; Fabian et al., 2009; Graf et al., 2009; Hashim and Wok, 2014; McMahon et al., 2008; Roessler et al., 2011; Shinohara and Wobbrock, 2011; Snyder et al., 2010; Solovieva et al., 2010; Vickers, 2009). In a few studies, the overall well-being of disabled people and their life was the primary focus (i.e. Bakula, et., al., 2011; Bingham, et., al., 2013), whereas others focused on employment barriers, such as salary, support, career development, and training (Coffey, et al, 2014; Malo and Pagan, 2012; Solovieva et al., 2010), but few examined employment and underemployment among disabled people. (such as Vormolt, et., al. (2013). Even though there is some related research, there is little exploration of the actual unemployment and underemployment of disabled citizens, especially in Europe. A similar study is nonexistent in Cyprus, except for the work of Parlalis in 2013, whose study was a review of the employment laws in Cyprus, rather than exposing the actual discriminatory barriers that caused unemployment and underemployment.

As it appears, the topic is a sensitive one itself, nonetheless, the concept to shed more light on certain wrong notions that people hold with regards to treating persons with disabilities is discussed in this paper. As the UK Equality Act of 2010 (Sargeant et al., 2016), section 6(1) has it, half of the persons with disabilities in this country are being paid meager wages and salaries contrary to what their counterparts receive (Coffey, Coufopoulos and Kinghorn, 2014; Parlalis, 2013; Shinohara and Wobbrock, 2011). Among these demeaning acts is also the issue of segregation constantly thrown at them at work (Parodi and Sciulli, 2012). Apart from the meager payment, this group of people also face certain limitations in terms of employment opportunities, they're being restrained from doing the work of their choice, and only left with two options; one is at the service sector, and the other is factory work, both of which yield minimal returns in terms of wages and salaries (Ababneh, 2016; Cábelková, 2015; Thianthai, 2014; Schur, Kruse, Blasi, and Blanck, 2009; Sliwicki and Rêklewski, 2014; US Census Bureau, 2008).

In addition to this is the ever-widening gap between the salaries of the disabled and non-disabled individuals presenting with the same education level (Yin, 2015). These disparities are baseless and unnecessary, and most importantly will be discouraging for people with disabilities. The data garnered from the American Institutes for Research in the year 2015 gives the following breakdown; -Disabled workers with high school certificate earn \$22,966 while those without disability earn \$29,471, and -Disabled workers with a Master's degree earn a yearly income of \$66,899 while their counterparts earn \$87,771 (Yin, 2015).

Furthermore, it's most likely for a disabled person to be employed in a very degrading job (Hastings, 2012). The reason is that these employers believe the disabled won't be efficient human resources that will generate revenue, but rather, they will become liabilities to the employer and the company (Bjelland et al., 2010). Having this understanding, it must be clarified to society that

there's a crying need to stop all forms of segregation and shaming of this particular group of people. Society should see them as theirs, and look out for them. Workplace discrimination should be eliminated. It should be added that the society will live in must be egalitarian enough in their approach to every issue regarding its people, whether the disabled or the non-disabled. A research carried out in 2014 made it known that the percentage of disabled workers underpaid is higher than those with no disability (Coffey et al., 2014), and it's the same story for those that receive salaries higher than the minimum wage stated for that time. The above tells one that disabled individuals have been ill-treated (Yin, 2015; Yin, Shaewitz, and Megra; 2014).

METHODOLOGY

Quantitative research examines the relationship between variables in order to test scientific theories (Creswell, 2014). Hence, quantitative research is used when numerical data can elaborately describe a situation using clear-cut measurable variables (Counsell, Cribbie, and Harlow, 2016; Lewis-beck and Bélanger, 2015; McCusker and Gunaydin, 2015). As the researcher's only interest was to be completely unbiased, and objective throughout the study, he opted for a quantitative study, by developing hypotheses that would be tested using variables (Counsell, Cribbie, and Harlow, 2016; Lewis-beck and Bélanger, 2015; McCusker and Gunaydin, 2015; Claydon, 2015). Each hypothesis can be either confirmed or rejected, as there are no levels in between (Counsell, Cribbie, and Harlow, 2016; Lewis-beck and Bélanger, 2015; McCusker and Gunaydin, 2015; Claydon, 2015). In order to measure the associations between quantitative variables, this study used correlation and regression analysis. In this study, correlation analysis was used to determine whether two variables co-varied, since the hypotheses developed in the study dealt with cause and effect relationships and how one variable correlates with another.

In addition, correlation concerns how variables relate to each other, while regression attempts to determine if one variable can predict another (Jain, Gupta, and Jain, 2015; Krzywinski, and Altman, 2015; Yang, 2014; Zhang, 2015). The study investigates the relationship between the type of disability and disabled people's employment status using correlation analysis, and using regression analysis to assess whether the type of disability and educational status were predictive of the wages levels and occupational status of Cyprus' disabled populace. In this study, all the data needed was presented numerically because the variables were measurable. Study variables included gender, age, education level, type of disability, and wage level; all variables were quantified and measured ordinally or nominally and a questionnaire was employed to obtain them. The study employed a cross-sectional survey approach, employing judgment (purposive) sampling. Since the sample population is divided into subcategories due to the variety of physical disabilities, data for each disability type were collected and the data sets were analyzed statistically. Regarding the analysis of data, SPSS v.23 analytics software was used, to perform regression analyses. More specifically, ordinal Regression analysis was used for the research question thus to see whether the type of disability and education predicted the wage levels of people with disabilities in Cyprus.

A correlational and regression study was conducted that was based on data collected using questionnaires from members with physical disabilities in any organization related to disabilities. There is no official number of disabled members available, as some disabled people are not officially registered, and yet, are supported by the related organizations. It was estimated that 6,000 people were registered members with a physical disability, which reflected the population of this study. Moreover, among the 6000 registered physically disabled people, around 1,300 were members of the Cyprus Organization for the Blind, 3,000 of the Cyprus Antirheumatic Association, 70 of the Cyprus Association of Multiple Skliryncis, 250 of the Cyprus Paraplegic Organization, 600 of the Muscular Dystrophy Association, and 1000 of the Cyprus Federation of the Deaf. As the Cyprus Federation of the Deaf withdrew from the study, its 1,000 members had to be excluded. The study site permissions and invitations were obtained after communication with

several organizations to find out their interest in participating, which were translated and back-translated in both Greek and English by certified translators.

In order to generate approximately 300 participants for the study, a 5% sample of about 6,000 disabled people registered with the disability service organizations was used in non-probability sampling. A sample of 65 blind or physically disabled patients whose affiliation is with the Cyprus Organization for the Blind was planned, as well as 150 antirheumatic patients from the Cyprus Antirheumatic Association and four from the Cyprus Association of Multiple Sclerosis. There were also 13 members of the Cyprus Paraplegic Organization, 50 members of the Cyprus Federation of the Deaf (from which some were excluded), and 30 members of the Muscular Dystrophy Association who participated. The following disability types categorized collected data: (a) paraplegia; (b) quadriplegia; (c) multiple sclerosis; (d) dystrophy; (e) visual impairments; (f) hearing impairments; and (g) neurological disabilities, for analysis. In the end, 154 responses were set as the new target after running a G*Power analysis.

As the questionnaires were distributed by organizations dealing with disabilities, a possible limitation of this study was the low response rate of participants; related to this, collection of the completed surveys may have been slowed down due to the long response time. As a result of daily contacts with their organizations, the researcher was able to collect a large number of questionnaires without taking up a lot of their time. The study's results were solely based on self-reported data, which was another limitation. Study participants can answer questions in such a way that demonstrate discrimination in the labor market and that equal opportunity is being denied. Their responses may have also been affected by their fear that their answers would not be confidential. Participants were informed that they would remain anonymous in order to minimise the risks mentioned above. Finally, this study was limited in that it only studied physical disabilities. This means that the results of the study are not representative of the situation of the general disabled population in Cyprus, but only of those with physical disabilities. As a result, the responses collected may not represent all types of disabilities. Various disability organizations were consulted to make sure that a sufficient number of answers were collected from people with different types of disabilities, ensuring that participants with various physical disabilities received enough questionnaires at the beginning.

In order to validate the questionnaire, data was collected from approximately 20 members of the sample organizations. On the data of the field-test data of 20 respondents, Cronbach's (α) Alpha was used to estimate the reliability of the items in the questionnaire. In order to investigate the reliability and construct validity of the questionnaire, Cronbach's Alpha (α) was run initially on variables that were thought to be naturally linked (correlated). All variables had a coefficient of 0.8 or higher, indicating a very high level of reliability.

RESULTS AND DISCUSSION

The demographic characteristics of the sample, which included 117 responses collected using Qualtrics, comprised of 50 males (42.7%) and 67 females (57.3%), out of which 35.9% had a visual disability, 6% had a neurological disability, 6.8% paraplegia, 8.5% quadriplegia, 2.6% dystrophy, 23.9% had absent limb or reduced limb function, and 13.7% other types of physical disability. The table below portrays the demographic characteristics of the sample responses:

Table 1: Demographic characteristics of the sample

		Frequency	Percent	Valid Percent
Gender	Male	50	42.7	42.7
	Female	67	57.3	57.3
	Total	117	100	100
Education level	High school	43	36.8	36.8
	Some college/diploma (1-2 years)	24	20.5	20.5
	Degree (4 years)	26	22.2	22.2
	Postgraduate	17	14.5	14.5
	Doctorate	1	0.9	0.9
	Professional qualification	1	0.9	0.9
	Other	5	4.3	4.3
	Total	117	100	100
Monthly wage	0 - 500	48	41	41.7
	501 - 1000	26	22.2	22.6
	1001 - 1500	23	19.7	20
	1501 - 2000	13	11.1	11.3
	2001 - 2500	2	1.7	1.7
	2501 - 3000	3	2.6	2.6
	Total	115	98.3	100
	Missing System	2	1.7	
Total	117	100		
Type of disability	Visual disability	42	35.9	36.8
	Neurological disability	7	6	6.1
	Paraplegia	8	6.8	7
	Quadriplegia	10	8.5	8.8
	Dystrophy	3	2.6	2.6
	Absent limb/ reduced limb function	28	23.9	24.6
	Other	16	13.7	14
	Total	114	97.4	100
Missing System	3	2.6		
Total	117	100		

It's clear that this research work is concerned about the relationship that exists between "disability and education" versus "wage level." So examining how the nature of impairment and level of education influence the wage level of disabled workers in Cyprus, it was found out that the two factors do not determine how these people are being paid. When running the test, the p values of the coefficients were more than 0.05, meaning the two variables do not significantly predict the wage levels of disabled people in Cyprus (table 2). Another statistic was carried out wanting to know whether disability types influence the wage level, and the result was also the same; it was found that the p values are more than 0.05, showing that the disability type does not predict the wage levels of disabled people (table 3). But when the level of education of disabled persons was related to their wages, it was found out that the p values are less than 0.05, indicating that education predicts the wage levels of disabled people in Cyprus (table 4), as it's also in the general labour market.

Table 2: Parameter estimates – type of disability, education, and wage levels

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q11 = 1]	19.382	1.921	101.834	1	.000	15.618	23.147
	[Q11 = 2]	20.438	1.912	114.314	1	.000	16.691	24.185
	[Q11 = 3]	21.614	1.900	129.385	1	.000	17.890	25.338
	[Q11 = 4]	23.072	1.899	147.547	1	.000	19.349	26.794
	[Q11 = 5]	23.600	1.923	150.661	1	.000	19.832	27.368
Location	[Q4group=1]	19.377	1.866	107.828	1	.000	15.720	23.034
	[Q4group=2]	20.167	1.879	115.235	1	.000	16.485	23.849
	[Q4group=3]	20.331	1.882	116.751	1	.000	16.643	24.019
	[Q4group=4]	20.362	1.892	115.869	1	.000	16.655	24.070
	[Q4group=5]	22.825	0.000		1		22.825	22.825
	[Q4group=6]	0 ^a			0			
	[Q12group=1]	.216	.558	.150	1	.699	-.877	1.309
	[Q12group=2]	-.309	.747	.171	1	.680	-1.773	1.156
	[Q12group=5]	-.688	.679	1.025	1	.311	-2.019	.643
[Q12group=8]	-.483	.601	.646	1	.422	-1.660	.694	
[Q12group=9]	0 ^a			0				

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 3: Parameter estimates – type of disability and wage levels

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q11 = 1]	-.760	.462	2.709	1	.100	-1.666	.145
	[Q11 = 2]	.242	.457	.282	1	.595	-.652	1.137
	[Q11 = 3]	1.357	.482	7.929	1	.005	.413	2.302
	[Q11 = 4]	2.748	.612	20.177	1	.000	1.549	3.947
	[Q11 = 5]	3.272	.712	21.096	1	.000	1.876	4.669
Location	[Q12group=1]	-.041	.526	.006	1	.938	-1.071	.990
	[Q12group=2]	-.645	.738	.763	1	.382	-2.091	.802
	[Q12group=5]	-1.156	.648	3.179	1	.075	-2.426	.115
	[Q12group=8]	-.757	.572	1.751	1	.186	-1.879	.365

[Q12group=9]	0 ^a			0		
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Link function: Logit.

a. This parameter is set to zero because it is redundant.

Table 4: Parameter estimates – education and wage levels

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q11 = 1]	19.875	1.819	119.394	1	.000	16.310	23.439
	[Q11 = 2]	20.875	1.813	132.631	1	.000	17.322	24.428
	[Q11 = 3]	22.038	1.803	149.370	1	.000	18.504	25.573
	[Q11 = 4]	23.515	1.803	170.014	1	.000	19.980	27.049
	[Q11 = 5]	24.049	1.828	172.997	1	.000	20.465	27.632
Location	[Q4group=1]	19.600	1.836	114.025	1	.000	16.002	23.197
	[Q4group=2]	20.559	1.844	124.255	1	.000	16.944	24.174
	[Q4group=3]	20.805	1.839	127.965	1	.000	17.200	24.410
	[Q4group=4]	20.629	1.862	122.786	1	.000	16.980	24.278
	[Q4group=5]	22.777	0.000		1		22.777	22.777
	[Q4group=6]	0 ^a			0			

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Finally, no violations occurred in running ordinal regression as the assumptions of the model are met; the dependent variable is measured at an ordinal level, the independent variables are or are treated as categorical or continuous, and it is assumed that no multicollinearity exists among the two independent variables.

Discussion

Despite the fact that the effects of each variable are different, as shown above in the tables, the disability kind and education qualifications do not significantly affect the wage levels of people with disabilities in Cyprus. Disability type coefficients are greater than 0.05, which indicates that these variables do not correlate. Nevertheless, education in Cyprus predicts wage levels for people with disabilities as it represents a coefficient below 0.05.

Previous studies have also confirmed the findings. A large percentage of disabled people in Cyprus is earning less than the minimum wage, correlating with Yin's (2015) study which found that education predicts wage levels. In addition, 22% of disabled people earn less than the minimum wage, while the overall workforce earning less than this number was 41% (Coffey et al., 2014; Parlalis, 2013; Snyder et al., 2010).

As it is confirmed that education influences the wage levels among disabled people in Cyprus, the government and individuals who hire and employ these individuals must make substantial investments in training and education programs. By investing in this project, people

with disabilities will have better employment opportunities, higher career advancement, and more opportunities to land jobs that have higher salaries and wages.

Implications

The fact that individuals' type of disability and educational level do not play a major role in determining the wage levels of people with physical and mental impairment in Cyprus it was established in this paper. Conversely, with further findings by Yin in 2015, it was realized and deemed fit that quality of education plays a pivotal role in determining the level at which a disabled worker will be paid. At least, Yin (2015) got his facts and numbers about this phenomenon, that clear-cut differences exist between the different levels of education among the disabled workers. Those that were high school certificate holders were paid lesser than those with associate's degree; associate's degree holders received lesser than the Bachelor's degree holders, and the bachelor's degree holders were lesser than the Master's degree holders.

At this point, it's important to add that since it's evident that education plays a huge part in telling how much a disabled worker will be paid, so this should be a pointer to the fact that people at the helm of affairs should rise to the occasion and save what needs to be before the situation becomes irredeemable. Government should organize skill acquisition programs and educational training for this group of persons, in a way that will help these individuals with disabilities become better prepared for life's opportunities and of more significance in society.

CONCLUSION

It is not possible to predict individuals' wage levels in Cyprus by their disability type. According to the above finding, disabled people have equal chances of advancement when employed, regardless of the type of disability they have. Disability-related wage levels are significantly influenced by education in Cyprus. Furthermore, disability type significantly relates to the employment status of disabled persons in Cyprus, but disability type and education cannot forecast the occupation status or wages of disabled individuals in Cyprus. Additionally, education appears to predict the occupational status and salary levels of disabled individuals in Cyprus, as it does with many other groups of workers globally.

Academics and practitioners alike will find these results highly significant. In terms of academics, results reveal a research gap and indicate that future research on disabilities and employment needs to be conducted, as recommended in the recommendations for future research. In order for practitioners to provide disabled people with both the incentives and the opportunities for employment and career advancement, they will need to invest in educational programs (academic or vocational). In order to improve their overall performance and effectiveness, organizations employing people with disabilities may consider re-engineering their policies, structures and practices in order to better utilize their disabled workers. In order to achieve the above, management and staff -including colleagues of disabled people - must be made more aware and understand physical disability issues in various levels.

Recommendations for Future Research

As a continuation of the current study, numerous studies can be conducted. First, research should focus on conducting a similar study that includes individuals with more types of disabilities in general, such as hearing disabilities, as well as people with more types of mental disability types, such as bipolar disorder. Also, separate studies can be conducted for each disability type, in order to determine if variables such as employment, wage levels, and educational attainment can be predicted by the level, tier, or criticality of the disability (i.e., the visual acuity).

More qualitative research studies can examine the views of disabled people in relation to the problems and obstacles they face in their efforts to find employment, and to progress professionally, as well as their personal views on how society, in general, treats people with disabilities.

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