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Type of disability and education as predictors of the occupational status of people with disabilities

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ABSTRACT: One of the major challenges facing disabled individuals in Cyprus is access to employment opportunities despite more than 10,000 disabled individuals being qualified and experienced. According to global estimations, unemployment or underemployment of disabled individuals is higher than the general population. The current study examined the relationship between unemployment and the underemployment among disabled individuals with their demographic characteristics in countries with the same legal and cultural environments. This study adopts the correlational and regression method of study. Primary data was collected from 117 online questionnaire responses from 6000 individuals who are registered as people living with disabilities from various organizations in Cyprus. The study used the purposive sampling method to determine demographic factors and disability type concurrently. The method applied was also used to determine the unemployment or underemployment status of the disabled and the possible relationships. Hence, the method was suitable in the identification of whether the demographic variables and the nature of disability have a significant relationship to unemployment and underemployment among the disabled. The results of the study showed that individuals with a specific type of disability have higher chances of employment compared to other types of disability. The study revealed that individuals with neurological disabilities, paraplegia, dystrophy, and quadriplegia experience lower employment rates. Also, those with visual disabilities and individuals who lack limb or have limited limb performance have high chances of unemployment and employment, which were found to be at the same rate. The study shows a positive correlation between the type of disability and the occupational status. However, the results of the current study differ with existing literature as it shows a lower rate compared to what is reported in the literature.

Keywords: *Employment, Disability, Discrimination, Occupational Status, Unemployment.*

I. INTRODUCTION

According to various researchers, about one billion people across the world are living with a disability (Disability Overview, 2016; Sun, Wilson, Schreiber & Wang, 2017; World Report on Disability, 2011; Zheng, Tian, Hao, Gu, Tao, Liang. . . &Hao, 2016). According to the World Health Organization (2012), disability is the idiom that covers mental, intellectual, and physical impairment, inability to carry out activities, and participation limits. Global estimations provide that 25% of adults who are disabled are in the labor market (Snyder, Carmichael, Blackwell, Cleveland, and Thornton III, 2010). There is a higher employment rate of approximately 60% among disabled adults compared to non-disabled adults, which stands at 20%. 22% of these adults receive income that is below minimum wage compared to 12% of the adults in the general population. According to various researchers, these disabled adults in employment hold lower ranks in the workplace (Coffey, Coufopoulos&Kinghorn, 2014; Parlalis, 2013; Snyder et al., 2010). Underemployment or unemployment among disabled individuals is at a higher rate than those without disability (Coffey et al., 2014; Vickers, 2009). The condition seems to be a global situation. As a result, various countries across the world has come with ways and strategies to avert and eliminate discrimination of disabled individual in employment (Australia in 1992, France in 1987, U.K. in 1995, USA 1990) (Parlalis, 2013).

Despite the existence of research across the world on disabilities and employment (Bakula, Kovacevic, Sarilar, Palijan&Kovac, 2011; Caceres & Caceres, 2015; Coffey et al., 2014; Fabian, Beveridge &Ethridge, 2009; Folguera, 2014; Graf, Marini &Blankeship, 2009; Hashim& Wok 2014; Hernandez & McDonald, 2010; Roessler, Rumrill, Hennessey, Nissen, Neath, 2011; Snyder et al., 2010; Vickers, 2009; Vornholt, Uitdewilligen, &Nijhuis, 2013), there is no study that considers the research area in Cyprus. A possible reason for the lack of such a research study in the country is the reluctance of the government to invest in the issue. Research studying

employment and disability would disclose problems faced by disabled individuals. Besides, such knowledge would prompt the government to enforce the Disability Act N.127(1)/2000 that ensures that every disabled individual received equal opportunities in employment. The law would either penalize employers for having hiring practices that are discriminatory in nature or providing incentives for employers who hire disabled individuals.

The Department of Social Inclusion of Persons with Disabilities made an unofficial estimate of employment in Cyprus, indicating that approximately 12000 people registered as disabled are unemployed. The number translates to approximately 16% of the 75000 unemployed persons out of the 428000 working-age population (Ministry of Labour and Social Insurance, 2013). Therefore, it is reasonable to argue that the global situation is present in Cyprus; hence, this study investigated whether the type of disability and level of education predict the occupational status of disabled people in Cyprus. Therefore, the research question with the relative hypothesis was developed as follows:

R.Q. To what extent does the type of disability and level of education predict the occupational status of disabled people in Cyprus?

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

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

Generally, since it is atypical to find higher position jobs or jobs that will allow them to contribute in decision making (Ababneh, 2016; Cábelková, 2015; Thianthai, 2014; Schur et al., 2009; Sliwicki&Rêklewski, 2014), workers with disabilities face much more supervision and control compared to those workers without disabilities. Research by Schur et al. (2009) shows that about one-third of the respondent with a disability participate in management (31%) compared to almost half of those without a disability (47.2%). However, both studies above focus on disability employment data and fail to link disability employment and demographics (such as education); hence it is not clear whether disabled people that are underemployed possess the necessary education, skills and, experience to obtain higher position jobs.

People with disabilities are still a disadvantaged group which occupies a deprived position in the labor market (Hashim& Wok, 2014). The main reason for this is that employers consider them as incapable due to their disability, a bias they carry into the hiring process, and not because they possess lower education or skills compared to the non-disabled people. Research by Sevak, Houtenville, Brucker, & O'Neil (2015) showed that 51.5% of the disabled that have a bachelor's degree are employed compared to 82.3% of the non-disabled that are employed and have a bachelor's degree.

Having a disability is still considered as a disadvantage that restricts the completion of a task that is regarded as natural for that individual, based on demographic elements such as age and sex, and some other social-cultural aspects (Bakula et al., 2011). Workers with disabilities are, to no small extent, underrepresented in professions that can offer higher compensation, job security, and career progression. For instance, Kaye's (2009) research revealed that 24.6% of the disabled people are employed in managerial positions compared to 34.7% of non-disabled, and 17% were working in lower-paid jobs compared to the 12.7% of the non-disabled. Additionally, 16.1% of the disabled employees were working in higher paid jobs, compared to 21.4% of the non-disabled employees, even though disabled people may possess the required skills and education (Kaye, 2009).

Additionally, employers rely on or are affected by stereotypes about people with disabilities, thus demoting them to less high-status jobs, whose conceptual and interactional skills requirements are much less or even inexistent. Another reason is that employers do not give disabled workers the same chances as non-disabled ones regarding education and training. Research showed that disabled employees believe they are being discriminated against regarding training opportunities (20%) and promotion opportunities (38%), this may not be justified due to lack of research (Satyamurti, 2014). Research shows that the level of discrimination among employees with disabilities is much higher compared to individuals without disabilities (Hashim& Wok, 2014). Perhaps, according to Hashim& Wok (2014), some reasons for the high levels of discrimination is the lack of support from top management and the absence of proper work accommodations. Other reasons, according to Hashim& Wok (2014), are assistive technology, as well as the negative attitudes of coworkers towards disabled employees. For instance, 50% of older working adults with disabilities report that there are no accommodations for their impairments, nor any support from top management (Bjelland et al., 2010).

Data collected in 2014 by the Bureau of Labor Statistics show that the more educated people are, the higher the chances of finding employment. More specifically, regarding disabled people, 16% of the unemployed were high school graduates, 11.3% had some college education, and 8.3% had a bachelor's degree. Unemployment for non-disabled is also decreased as education increases; 5.7% of the unemployed were high

school graduates, 5.2% had some college education, and 3% of unemployed had a bachelor's degree (U.S. Bureau of Labor Statistics, 2014).

II.   METHODS

The hypothesis developed in the study dealt with cause and effect relationships. Therefore, for effectively investigating if the variables in the study co-varied according to the constructed hypothesis, correlation analysis had to be used. As correlation deals with the relationship of certain variables, regression aims at revealing if one variable predicts another variable (Jain, Gupta, & Jain, 2015; Krzywinski, & Altman, 2015; Yang, 2014; Zhang, 2015). Regression analysis, in this case, therefore, shows if the variable 'type of disability' and the variable 'education' predicted the occupational status of disabled people in Cyprus.

Regarding primary data, these were represented numerically, as the variables in the study could be measured using numbers. In collecting the data, online questionnaires addressed to Cypriots with physical disabilities were used. Nearly 6,000 disabled people are registered as members of organizations relative to disabilities, and the aim was to recruit a 5% sample of the population (300 study participants). Ultimately though, only 117 questionnaire responses were gathered using Qualtrics.

For 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, to investigate the extent to which the type of disability and level of education predicted the occupational status of disabled people in Cyprus.

2.1 Population and sample

The study method was the correlational and regression study method that involved the researcher collected primary data from the responses provided in the questionnaires. The responses were collected from registered members living with physical disabilities. Approximately 6000 individuals were found to be registered as people living which physical disability. Despite the lack of a certified number of registered members as some individual was not officially registered but received support from related organizations, the study population exhibited the statistics. Further, out of the approximately 6000 registered members, approximately 1300 were registered by the Cyprus Organization for the Blind, Cyprus Antirheumatic Association registered 3000, 600 were registered by the Muscular Dystrophy Association,70 were registered by the Cyprus Association of Multiple Skliryncis, 1000 were registered by the Cyprus Federation of the Deaf, and the Cyprus Paraplegic Organization registered 250. The study excluded 1000 members registered by the Cyprus Federation of the Deaf because the organization withdrew from the study. The organizations were verbally contacted to establish their interest in participating in the study. The researchers then received site permission and invitation letters. Certified translators first translated the letters to both Greek and English.

The sampling method employed was the non-probability sampling of 5% of approximately 6000 disabled individuals registered by organizations serving the disabled population. A total of 300 participants were produced. Initially, the researcher intended to gather a sample of approximately 65 participants registered by the Cyprus Organization for the Blind, four participants from the Cyprus Association of Multiple Skliryncis, and 150 participants from the Cyprus Antirheumatic Association. Further, the study intended to include 13 participants from the Cyprus Paraplegic Organization, 30 participants from the Muscular Dystrophy Association, and 50 participants from the Cyprus Federation of the Deaf. Participants from the Cyprus Federation of the Deaf withdrew from the study hence excluded. Data collected for analysis were in seven categories, namely; visual impairment, paraplegia, hearing impairments, quadriplegia, neurological disabilities, dystrophy, and multiple sclerosis. However, the researcher set a new target of 154 responses after running a G*Power analysis.

2.2 Ethical Assurances

An approval was initially received from the associations relative to disabled individuals in Cyprus. Then, prior to completing the questionnaire, participants were asked to sign an informed consent form providing all details regarding the study, ensuring the anonymity and privacy of participants. It was made clear that the participation is voluntary and that they could change their responses at any time, skip a question, or even drop out of the survey if they wished to. To ensure the ethical dimension of the survey -since the participants were human- all actions taken were adhered to the Belmont ethical principles of justice, respect for persons, and beneficence (Brakewood&Poldrack 2013; Hodges &Sulmasy, 2013; Kelleher, 2014).

III.   RESULTS

3.1 Validity and Reliability of the Data

To safeguard the validity of the survey's instrument that it will measure what is supposed to measure, the expert opinions of practitioners (directors and managers) of organizations and associations relative to physical disabilities were received and considered in developing the questionnaire. In addition, to ensure

questionnaire reliability, a field-test was taken in place. The field-test encompassed collecting data from roughly 20 participants, and then to run a Cronbach's (α) Alpha on the collected field-test data. Cronbach's (α) Alpha was run on the variables which were correlated to test the reliability and construct validity of the questionnaire. The result showed that all variables had a coefficient higher than 0.8, signaling very high reliability.

3.2 Results

The demographic characteristics of the sample, which included 117 responses collected using Qualtrics, comprised of 50 men (42.7%) and 67 women (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. Further, the table below portrays all the demographic characteristics of the 117 questionnaire responses:

Table 1 *Demographic characteristics of the sample*

		Frequency	Percent	Valid Percent
	Male	50	42.7	42.7
Gender	Female	67	57.3	57.3
	Total	117	100	100
	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
Education level	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

(continued)

Table 1 *(continued) Demographic characteristics of the sample*

		Frequency	Percent	Valid Percent
	Unemployed	49	41.9	42.6
	Full-time employed	51	43.6	44.3
Employment status	Part-time employed	11	9.4	9.6
	Self-employed full-time	2	1.7	1.7
	Self-employed part-time	2	1.7	1.7
	Total	115	98.3	100
Missing	System	2	1.7	
Total		117	100	
	Director/chief executive	2	1.7	1.7
	Upper manager	1	0.9	0.9
	Middle manager	2	1.7	1.7
	Junior manager	4	3.4	3.5
	Supervisor	14	12	12.2
Occupational status	Technical/associate professional	12	10.3	10.4
	Clerical support worker	16	13.7	13.9
	Skilled worker	10	8.5	8.7
	Unskilled worker	5	4.3	4.3
	Unemployed	49	41.9	42.6
	Total	115	98.3	100
Missing	System	2	1.7	
Total		117	100	
		Frequency	Percent	Valid Percent
	Visual disability	42	35.9	36.8
	Neurological disability	7	6	6.1
	Paraplegia	8	6.8	7
	Quadriplegia	10	8.5	8.8
Type of disability	Dystrophy	3	2.6	2.6

Missing Total	Absent limb/ reduced limb function Other Total System		28 16 114 3 117	23.9 13.7 97.4 2.6 100	24.6 14 100

			Statistic	Std. Error
Age	Mean		39.6	0.847
	95% Confidence Interval for Mean	Lower Bound	37.93	
		Upper Bound	41.28	
	5% Trimmed Mean		39.53	
	Median		38.5	
	Variance		83.215	
	Std. Deviation		9.122	
	Minimum		20	
	Maximum		59	
	Range		39	
	Interquartile Range		16	
	Skewness		0.147	0.225
	Kurtosis		-0.875	0.446

Research question:To what extent does the type of disability and level of education predict the occupational status of disabled people in Cyprus?

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To answer the above research question and check if the 'occupational status' variable is predicted by 'typed of disability' and 'education,' the study used ordinal regression. When running the test, the p values of the coefficients were more than 0.05, resulting in accepting the null hypothesis, meaning the two variables do not significantly predict the occupational status of disabled people in Cyprus. The above is shown in table 2 below. However, results show that these coefficients are different for the variable 'education' and the variable 'type of disability.' Thus, this made it imperative to proceed with running an ordinal regression test for these variables separately, to examine if any variable predicts the variable 'occupational status'. In running the ordinal regression for 'disability' and 'occupational status,' it was found that the p values are more than 0.05, showing that the disability type does not predict occupational status. However, when running the ordinal regression for 'education' and 'occupational status,' p values are less than 0.05, indicating that education predicts the occupational status of disabled people in Cyprus. The two additional ordinal regression tests are shown in tables 3 and 4 below:

Table 2 Parameter estimates – type of disability, education, and occupational status

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q10group = 3]	-23.140	1.903	147.808	1	.000	-26.870	-19.409
	[Q10group = 5]	-21.926	1.903	132.799	1	.000	-25.655	-18.197
	[Q10group = 6]	-21.221	1.907	123.778	1	.000	-24.960	-17.483
	[Q10group = 7]	-20.462	1.913	114.420	1	.000	-24.212	-16.713
	[Q10group = 8]	-20.031	1.916	109.309	1	.000	-23.786	-16.276
	[Q10group = 9]	-19.820	1.917	106.852	1	.000	-23.578	-16.062
Location	[Q4group=1]	-19.797	1.861	113.129	1	.000	-23.445	-16.149
	[Q4group=2]	-20.155	1.880	114.954	1	.000	-23.840	-16.471
	[Q4group=3]	-21.665	1.874	133.653	1	.000	-25.338	-17.992

	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
[Q4group=4]	-19.972	1.899	110.667	1	.000	-23.693	-16.251
[Q4group=5]	-22.556	0.000		1		-22.556	-22.556
[Q4group=6]	0[a]			0			
[Q12=1]	-.186	.560	.111	1	.739	-1.283	.911
[Q12=2]	-.420	.816	.265	1	.607	-2.020	1.180
[Q12=4]	.133	.813	.027	1	.870	-1.461	1.727
[Q12=5]	.902	.831	1.179	1	.278	-.726	2.530
[Q12=7]	20.734	0.000		1		20.734	20.734
[Q12=8]	.023	.597	.002	1	.969	-1.148	1.194
[Q12=9]	0[a]			0			

Link function: Logit.

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

Furthermore, when performing a cross-tabulation between the variables 'education' and 'occupational status,' results show significant dependence between education and occupational status (p=0.017). This association is also valid in disabled employees like any other group in the workforce. Therefore, providing them continuing education is imperative in organizations. Further, table 5 below provides significant results relative to the cross-tabulation of education and occupational status, which are discussed in detail in the evaluation of the findings section:

Table 3 - *Parameter estimates – type of disability and occupational status*

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q10group = 3]	-2.396	.543	19.498	1	.000	-3.459	-1.332
	[Q10group = 5]	-1.311	.476	7.579	1	.006	-2.244	-.378
	[Q10group = 6]	-.733	.462	2.521	1	.112	-1.637	.172
	[Q10group = 7]	-.088	.456	.037	1	.847	-.981	.805
	[Q10group = 8]	.303	.457	.441	1	.506	-.592	1.198
	[Q10group = 9]	.501	.458	1.196	1	.274	-.397	1.399
Location	[Q12=1]	-.254	.524	.235	1	.628	-1.282	.774
	[Q12=2]	-.075	.809	.009	1	.926	-1.660	1.510
	[Q12=4]	.416	.790	.277	1	.599	-1.133	1.964
	[Q12=5]	1.236	.799	2.391	1	.122	-.331	2.803
	[Q12=7]	20.356	0.000		1		20.356	20.356
	[Q12=8]	.333	.565	.346	1	.557	-.776	1.441
	[Q12=9]	0[a]			0			

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

Table 4 - *Parameter estimates – education and occupational status*

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q10group = 3]	-23.062	1.807	162.937	1	.000	-26.604	-19.521
	[Q10group = 5]	-21.852	1.806	146.389	1	.000	-25.392	-18.312
	[Q10group = 6]	-21.163	1.811	136.599	1	.000	-24.712	-17.614
	[Q10group = 7]	-20.446	1.816	126.797	1	.000	-24.005	-16.887
	[Q10group = 8]	-20.050	1.818	121.580	1	.000	-23.614	-16.486
	[Q10group = 9]	-19.856	1.820	119.069	1	.000	-23.423	-16.290
Location	[Q4group=1]	-19.649	1.835	114.638	1	.000	-23.245	-16.052
	[Q4group=2]	-20.224	1.848	119.786	1	.000	-23.846	-16.603

[Q4group=3]	-21.577	1.835	138.289	1	.000	-25.173	-17.981
[Q4group=4]	-20.026	1.869	114.835	1	.000	-23.689	-16.363
[Q4group=5]	-22.457	0.000		1		-22.457	-22.457
[Q4group=6]	0[a]			0			

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

Table 5 *Occupational status and education cross-tabulation*

			Education Level							Total
			High School	Some College/ diploma (1-2 years)	Degree (4 years)	Postgraduate	Doctorate	Professional Qualification	Other	
Occupational Status	Director/chief executive	Count	0	0	2	0	0	0	0	2
		% within Occupational status	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
		% within Education level	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	1.7%
	Upper manager	Count	0	0	1	0	0	0	0	1
		% within Occupational status	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
		% within Education level	0.0%	0.0%	3.8%	0.0%	0.0%	0.0%	0.0%	.9%
	Middle manager	Count	1	0	1	0	0	0	0	2
		% within Occupational status	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%
		% within Education level	2.4%	0.0%	3.8%	0.0%	0.0%	0.0%	0.0%	1.7%
	Junior manager	Count	0	2	0	2	0	0	0	4
		% within Occupational status	0.0%	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	100.0%
		% within Education level	0.0%	8.3%	0.0%	12.5%	0.0%	0.0%	0.0%	3.5%
	Supervisor	Count	1	4	8	0	1	0	0	14
		% within Occupational status	7.1%	28.6%	57.1%	0.0%	7.1%	0.0%	0.0%	100.0%
		% within Education level	2.4%	16.7%	30.8%	0.0%	100.0%	0.0%	0.0%	12.2%
	Technical/ associate professional	Count	4	1	5	2	0	0	0	12
		% within Occupational status	33.3%	8.3%	41.7%	16.7%	0.0%	0.0%	0.0%	100.0%
		% within Education level	9.5%	4.2%	19.2%	12.5%	0.0%	0.0%	0.0%	10.4%
	Clerical support worker	Count	11	1	3	1	0	0	0	16
		% within Occupational status	68.8%	6.3%	18.8%	6.3%	0.0%	0.0%	0.0%	100.0%
		% within Education level	26.2%	4.2%	11.5%	6.3%	0.0%	0.0%	0.0%	13.9%
	Skilled worker	Count	1	6	0	3	0	0	0	10
		% within Occupational status	10.0%	60.0%	0.0%	30.0%	0.0%	0.0%	0.0%	100.0%
		% within Education level	2.4%	25.0%	0.0%	18.8%	0.0%	0.0%	0.0%	8.7%
	Unskilled worker	Count	4	0	0	1	0	0	0	5
		% within Occupational status	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	100.0%
		% within Education level	9.5%	0.0%	0.0%	6.3%	0.0%	0.0%	0.0%	4.3%
	Unemployed	Count	20	10	6	7	0	1	5	49
		% within Occupational status	40.8%	20.4%	12.2%	14.3%	0.0%	2.0%	10.2%	100.0%
		% within Education level	47.6%	41.7%	23.1%	43.8%	0.0%	100.0%	100.0%	42.6%
Total		Count	42	24	26	16	1	1	5	115
		% within Occupational status	36.5%	20.9%	22.6%	13.9%	.9%	.9%	4.3%	100.0%
		% within Education level	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Further, 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.

IV. DISCUSSION

In studying how the occupational status of people living with disabilities in Cyprus is influenced by the level of education and type of disability, the coefficients had p values that were above 0.05. As a result, the null hypothesis that the two variables do not have a significant impact on the occupational status of disabled individuals in Cyprus is accepted. Despite this, table 2 provides data that illustrated that although the type of disability and education levels does not have any relationship with the occupational status of the disabled, each variable has a distinct effect when considered separately. Education coefficients in table 2 are all 0. It shows a significant relationship between the level of education and occupational status despite the type of disability having no relationship since the corresponding coefficient is more than 0.05.

At the initial stages, the study began by examining the relationship between types of disability and wage levels, employment and occupational status, and education levels since research considering the global context reveals the association of the variables. The association is specifically true in countries with the same cultural and legal conditions as the U.K. and Greece. The data analysis showed the researcher logically formulated both the hypotheses and research and ascertained that Cyprus has the same situation. The study reveals that despite the type of disabilities that have a close relation with employment status, the type of disability does not have a direct impact on wage and occupational levels. The existing literature does not support this finding because it seems inexistent.

Cross-tabulation between education and occupational status, as illustrated in table 5, reveals that unemployment among disabled individuals in Cyprus reduces as education increases. From the analysis, 40.8% of the unemployed, disabled individual has a high school certificate, 20.4% of the sample have a college

diploma, and 12.2% of the same have a university degree. Lastly, 14.4% of the unemployed disabled individuals had a postgraduate degree. Similarly, the analysis reveals that among the disabled individuals in managerial positions at various levels, 15.3% had undergraduate degrees, 12.5% had postgraduate degrees, 8.3% had undergraduate degrees, while 2,4% had high school certificates. Table 5 also shows that 47.6% of individuals with high school certificates hold jobs at lower levels with lower salaries, while 47.6% of individuals with high school certificates remain unemployed.

According to a study conducted by the National Council of Disability (2011), 36% of people living with a disability that has an associate degree are employed. Besides, the research reveals that education among the population increases as employment increases as 55% of people living with disabilities who have an undergraduate degree or higher are employed. Sevak et al. (2015) conducted a similar study and found out that 51.5% of the people with disabilities who have attained an undergraduate degree hold job positions. According to Schur et al. (2009), approximately a third (31%) of the study participants living with disabilities are in management positions compared to 47.2% of the participants without any form of disability. Although these studies aimed at analyzing disability employment data, they did not study the relationship between employment among disabled people and demographics such as education levels. Therefore, it is unclear whether disabled individuals that are underemployed have the required skills, education, or expertise to hold higher occupational positions of whether education influences their occupational status. The lack of this crucial information resulted in the current study to assume that education affects the occupational status of people living with disabilities. As a result, the researcher formulated the research question in correspondence with the hypotheses. From the study, there is no significant relationship between the type of disability and occupational status, but there is a positive relationship between levels of education and occupational status. Therefore, the study confirms that focusing on education investment without considering the type of disability can significantly enhance the occupational status of individuals living with disabilities.

The statistical analysis for this question showed that the two variables (the type of disability and education) do not significantly predict occupational status. However, further analysis revealed that although disability type did not predict the occupational status of disabled people, education did. The statistical test ran on the variable of education, found that as the level of education increases, the occupational status increases as well, meaning that the more education disabled people have, the higher positions they can acquire when employed. It can be further concluded that unemployment for disabled people in Cyprus decreases as education level increases (table 5). The literature strongly supports the above correlation. The U.S. Bureau of Labor Statistics (2014) reveal in their report that the more educated people are, the higher are the chances of finding employment. More specifically, regarding disabled people, 16% of unemployed were high school graduates, 11.3% had some college education, and 8.3% had a bachelor's degree (U.S. Bureau of Labor Statistics, 2014).

Similarly, the National Council of Disability (2011) showed that 36% of the disabled people with an associate degree were employed, and this percentage increased to 55% for those holding a bachelor's degree. However, both percentages were significantly lower when compared to those with no disability, where 76% with an associate degree were employed and 83% for those holding a bachelor's degree (National Council of Disability, 2011). Likewise, Sevak et al. (2015) found that 51.5% of the disabled that have a bachelor's degree are employed compared to 82.3% of the non-disabled with the same educational qualifications. As a significant association between educational level and occupational status exists, it is confirmed that prioritizing investment in education regardless of their types of disability would be helpful to enhance their occupational status.

The current study also depicts that unemployment for disabled people in Cyprus decreases as their education decrease and that from all the unemployed people examined, the majority had only high school or some college education (61.2%). This outcome indicates that national and official bodies relative to disabled people need to invest more in vocational training or academic education of disable people to reduce the unemployment levels or improve the probabilities for employment. The accomplishment of this requires effective strategic planning as various training and educational programs must be crafted and implemented for various disability types. Additionally, this presents implications for organizations as well. Organizations need to re-engineer their training and development policies and practices to provide equal employment and training opportunities for all.

Further, the results showed that education levels of people living with disability influences occupational status and well as the wage levels in Cyrus. A key finding that the results reveal and make significant contributions to the existing literature is that the type of disability significantly affects the occupational status of people living with disabilities in the country. The findings indicate that people who are living with a specific type of disability, such as visual impairment, have higher chances of employment than those with other types of disabilities such as dystrophy and paraplegia. Since the literature lack findings that link employment and disability type, the current research makes a significant contribution to this area. However, the area should be examined further.

The relation of the conceptual framework is another significant implication. The findings above do not confirm that Cyprus used the social or medical model of disability. Based on the findings of this study, it is assumed that Cyprus is changing from the medical model and adopting the social model of disability. This is evident by the high unemployment rates. Despite this, a higher number of people living with disabilities and getting higher education may ultimately result in higher employment, better jobs with higher rankings, and better salaries. From a legal aspect, Cyprus employs the European legislative provisions like other member states by identifying the social model of disability at least theoretically. The study reveals that in practice, people living with disabilities still experience high rates of unemployment hence proving that Cyprus did not entirely shift from the medical model.

4.1 Recommendations for Future Research

Several studies can be carried out to continue with the current study. Immediate future research should first consider incorporating a larger sample with more types of physical disability, such as mental and hearing disabilities. Besides, future research may consider studying individual disability type independently by studying whether the type of disability such as visual acuity influences variables like education, salary, or occupational status of an individual with such a disability.

Another implication is the legal conditions of disability and employment discrimination in Cyprus. The existing literature briefly reviews the issue of legal conditions. Therefore, there is a need for the area to be examined further and more extensively. Future studies can investigate the implementation of legislative provisions by both public and private organizations. Personal perspectives of people living with disabilities should also be considered as well as the examination of the legislative provision practices. In relation to this, conducting a comparative analysis may be carried out on the legislative provisions on the E.U. member states or other countries like the USA and U.K.

Further qualitative studies can examine the perspectives of people living with disabilities regarding the challenges and issues they experience while seeking employment, career progression, and their view on how society perceives disabled people.

V.   CONCLUSION

The aim of this correlational and regression study was exploring underemployment and employment among individuals with physical disabilities in Cyprus. Further, the study examined the relationship of the status of employment with demographic variables such as level of wages and education, disability type, and occupational status. Correlation and regression analysis is a common method of analysis used to determine the relationship between two or more quantitative variables. The method of analysis is efficient in examining the covariance between two variables and determines if one variable is consistent with another variable's value. In specific, the study used chi-square and ordinal regression analyses to answer the research questions. Data were collected from 117 people living with a disability. The results of the study showed that there is a positive relationship between disability type and the employment status of a person with a disability in Cyprus. The result implies that individuals with a specific type of disability have higher chances of employment. For example, individuals with paraplegia and related neurological incapacities were identified to have a very low possibility of employment, maybe due to the severity of their disability.

The study also reveals that there is no significant relationship between disability type and occupational status as well as levels of wages among people living with disabilities in Cyprus. The finding illustrates that an employed disabled person has equal chances of career progression compared to other individuals with another type of disability. Despite this finding, education has a significant association with both employment and salary levels of people living with disabilities. However, the type of disability does not have a significant relationship with occupational/employment status. Further, education affects both occupational and wage levels of disabled individuals in Cyprus, which is the same case across the globe.

The results of the study are significant to both practitioners and scholars. For scholars, the results show a research gap and identify further research areas to determine the relationship between disability and employment. For practitioners, the results show the need to focus on investing in educational initiatives for people with disabilities to provide them with incentives and employment and career progression opportunities. The outcome of the study may serve as a guideline to organizations that employ disabled individuals hence improving their performance and effectiveness by motivating these organizations to restructure their employment policies to take advantage of the experiences and skills of the disabled employees. Organizations can meet this by enhancing awareness and understanding of key issues about physical disability among members of the organization at various levels.

REFERENCES

[1] Disability Overview. (2016, September 21). Retrieved from http://www.worldbank.org/en/topic/disability/overview#1

[2] Sun, W., Wilson, M. G., Schreiber, D., & Wang, R. H. (2017). Ethical challenges related to assistive product access for older adults and adults living with a disability: A scoping review protocol. *Systematic Reviews,* doi:http://dx.doi.org.proxy1.ncu.edu/10.1186/s13643-017-0419-5.

[3] World Report on Disability (2011). *The Lancet*, 377, 1977-2054. Retrieved from http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)60844-1/fulltext?rss=yes. doi:10.1016/S0140-6736(11)60844-1

[4] Zheng, Q., Tian, Q., Hao, C., Gu, J., Tao, J., Liang, Z., . . . Hao, Y. (2016). Comparison of attitudes toward disability and people with disability among caregivers, the public, and people with disability: Findings from a cross-sectional survey. *BMC Public Health, 16*doi:http://dx.doi.org.proxy1.ncu.edu/10.1186/s12889-016-3670-0.

[5] World Health Organization (2012). Disabilities. Retrieved from http://www.who.int/topics/disabilities/en/

[6] Snyder, L. A., Carmichael, J. S., Blackwell, L. V., Cleveland, J. N., & Thornton III, G. C. (2010). Perceptions of discrimination and justice among employees with disabilities. *Employment Responsibility Rights Journal, 22,* 5-19. doi:10.1007/s10672-009-9107-5.

[7] Coffey, M., Coufopoulos, A., &Kinghorn, K. (2014). Barriers to employment for visually impaired women. *International Journal of Workplace Health Management,* 7(3), 171-185. doi:10.1108/IJWHM-06-2013-0022

[8] Parlalis, S. K. (2013). Legal framework against disability discrimination at work in Cyprus. *Equality, Diversity and Inclusion: An International Journal, 32*(4), 426-437. doi:10.1108/EDI-07-2012-0055

[9] Vickers, M. H. (2009). Bullying, disability and work: a case study of workplace bullying. *Qualitative Research in Organizations and Management: An International Journal, 4*(3), 255-272. doi:10.1108/17465640911002536.

[10] Bakula, A. M., Kovacevic, D., Sarilar, M., Palijan, Z. T., &Kovac, M. (2011). Quality of life in people with physical disabilities. *Collegium Anthropologicum Journal, 2*, 247-253. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22220446

[11] Caceres, L. R., & Caceres, S. A. (2015). Underemployment in Latin America. *The Journal of Developing Areas, 49*(3), 293-322. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1711498841?accountid=28180

[12] Fabian, E., Beveridge, S., &Ethridge, G. (2009). Differences in perceptions of career barriers and supports for people with disabilities by demographic, background and case status factors. *Journal of Rehabilitation, 75*(1), 41-49. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/236401958?accountid=28180

[13] Folguera, C. (2014). Women with disabilities. *Equality, Diversity and Inclusion: An International Journal, 33*(8), 776-788. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1629988410?accountid=28180

[14] Graf, M. N., Marini, I., &Blankeship, C. J. (2009). One hundred words about disability. *Journal of Rehabilitation*, 72(2), 25-34. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/236273667?accountid=28180

[15] Hashim, J., & Wok, S. (2014). Predictors to employees with disabilities' organizational behavior and involvement in employment. *Equality, Diversity and Inclusion: An International Journal, 33*(2), 193-209. doi:10.1108/EDI-03-2012-0018

[16] Hernandez, B., & McDonald, K. (2010). Exploring the costs and benefits of workers with disabilities. *Journal of Rehabilitation, 73*(3), 15-23. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/613949968?accountid=28180

[17] Roessler, R., Rumrill, P., Hennessey, M., Nissen, S., Neath, J. (2011). The employment discrimination experiences of adults with multiple sclerosis. *Journal of Rehabilitation*, 77(1), 20-30. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/848185443?accountid=28180

[18] Vornholt, K., Uitdewilligen, S., Nijhuis, F. J. N. (2013). Factors affecting the acceptance of people with disabilities at work: A literature review. *Journal of Occupational Rehabilitation, 23*(4), 463-475. doi:http://dx.doi.org/10.1007/s10926-013-9426-0

[19] Ministry of Labor and Social Insurance (2013). Final report of Cyprus on the United Nations convention on the rights of persons with disabilities. Retrieved October 10, 2015, from https://www.google.com.cy/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAAahUKEwifsMiJwrfIAhWLWBQKHYMMCoU&url=http%3A%2F%2Fwww.mlsi.gov.cy%2Fmlsi%2Fdsid%2Fdsid.nsf%2FA8A5F20B4E23E622C2257A7C002CEBC5%2F%24file%2FFINAL%25

20First%2520CY%2520Report%2520on%2520the%2520UNCRPD.doc&usg=AFQjCNHucByXvd1Ujf
Q3T2PTTYr9iGre5A&bvm=bv.104819420,d.bGQ

[20] Ababneh, R. I. (2016). Disabled employees in Jordanian public sector: An exploratory study. *The International Journal of Public Sector Management, 29*(2), 164-182. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1766259695?accountid=28180

[21] Cábelková, I. (2015). The effect of social transfers on the level of unemployment of disabled in the EU. *Economics & Sociology, 8*(1), 298-307. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1696717955?accountid=28180

[22] Thianthai, C. (2014). Educational options difficulties and barriers for vision hearing and mobility impaired persons living in Bangkok. *International Journal on Disability and Human Development, 13*(1), 33-44. doi:http://dx.doi.org.proxy1.ncu.edu/10.1515/ijdhd-2013-0013

[23] Schur, L., Kruse, D., Blasi, J., &Blanck, P. D. (2009). Is disability disabling all workplaces? Workplace disparities and corporate culture. *Industrial Relations, 48*(3), 381–410. doi:10.1111/j.1468-232X.2009.00565.x

[24] Sliwicki, D., &Rêklewski, M. (2014). Application of the logit model to the analysis of economic activity factors of the disabled. *OeconomiaCopernicana,* (3), 75-92. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1641936273?accountid=28180

[25] Sevak, P., Houtenville, A. J., Brucker, D. L., O'Neil, J. (2015). Individual characteristics and the disability employment gap. *Journal of Disability Policy Studies, 26*(2), 80-88. doi:10.1177/1044207315585823

[26] Kaye, H. S. (2009). Stuck at the bottom rung: Occupational characteristics of workers with disabilities. *Journal of Occupational Rehabilitation, 19*, 115-128. doi:10.1007/s10926-009-9175-2

[27] Satyamurti, E. (2014). Discrimination against disabled people in the workplace still common. Leigh Day. Retrieved from https://www.leighday.co.uk/Blog/November-2014/Discrimination-against-disabled-people-in-the-work

[28] Bjelland, J. M., Bruyere, S. M., Von Schrader, S., Houtenville, A. J., Ruiz-Quintanilla, A., & Webber, D. A. (2010). Age and Disability Employment Discrimination: Occupational Rehabilitation Implications. *Journal of Occupational Rehabilitation, 20*, 456-471. doi:10.1007/s10926-009-9194-z.

[29] US Bureau of Labor Statistics. (2014). Employment status of the civilian noninstitutional population by disability status and selected characteristics. Retrieved from http://www.bls.gov/news.release/disabl.t01.htm.

[30] Jain, S., Gupta, A., & Jain, D. (2015). Common statistical tests in dental research. *Journal of Advanced Medical and Dental Sciences Research, 3*(3), 38-45. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1732763488?accountid=28180

[31] Krzywinski, M., & Altman, N. (2015). Points of significance: Multiple linear regression. *Nature Methods, 12*(12), 1103-1104. doi:http://dx.doi.org.proxy1.ncu.edu/10.1038/nmeth.3665

[32] Yang, J. M. (2014). Regression & correlation analysis of higher mathematics on probability and statistics. *Applied Mechanics and Materials, 556-562*, 4167-4170. doi:http://dx.doi.org.proxy1.ncu.edu/10.4028/www.scientific.net/AMM.556-562.4167

[33] Zhang, W. (2015). General correlation and partial correlation analysis in finding interactions: With spearman rank correlation and proportion correlation as correlation measures. *Network Biology, 5*(4), 163-168. doi:http://dx.doi.org.proxy1.ncu.edu/10.0000/issn-2220-8879-networkbiology-2015-v5-0013

[34] Brakewood, B., &Poldrack, R. A. (2013). The ethics of secondary data analysis: Considering the application of Belmont principles to the sharing of neuroimaging data. *NeuroImage, 82*, 671-676. doi:http://dx.doi.org.proxy1.ncu.edu/10.1016/j.neuroimage.2013.02.040

[35] Hodges, K. E., &Sulmasy, D. P. (2013). Moral status, justice, and the common morality: Challenges for the principlist account of moral change. *Kennedy Institute of Ethics Journal, 23*(3), 275-96. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1442723961?accountid=28180

[36] Kelleher, J. P. (2014). Beneficence, justice, and health care. *Kennedy Institute of Ethics Journal, 24*(1), 27-49. Retrieved from http://search.proquest.com.proxy1.ncu.edu/docview/1523893837?accountid=28180

[37] National Council on Disability (2011). Disability and Economics: The nexus between disability, education, and employment. *DESA Briefing Seminar Series, United Nations Headquarters.* Retrieved from http://www.un.org/disabilities/documents/events/1July2011_economics_panel_nexus.pdf