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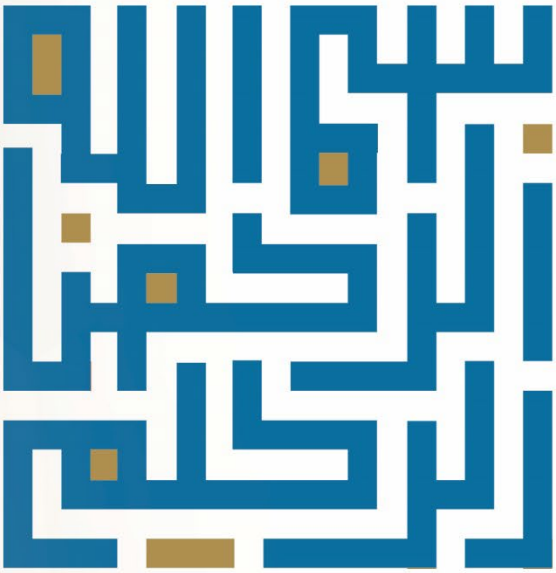
البحوث المنشورة في المجلة تعبرعن آراء الباحثـين ولا تعبر بالضرورة عن رأي المجلة



قواعد وضوابط النشر في المجلة

- أن يتسم البحث بالأصالة والجدية والابتكار والإضافة المعرفية في التخصص.
- لم يسبق للباحث نشر بحثه.
- أن لا يكون مستلاً من أطروحة الدكتوراه أو الماجستير سواء بنظام الرسالة أو المشروع البحثي أو المقررات.
- أن يلتزم الباحث بالأمانة العلمية.
- أن تراعى فيه منهجية البحث العلمي وقواعده.
- أن لا تتجاوز نسبة الاقتباس في البحوث التربوية (25%)، وفي غيرها من التخصصات الاجتماعية لا تتجاوز (40%).
- أن لا يتجاوز مجموع كلمات البحث (12000) كلمة بما في ذلك الملخصين العربي والإنجليزي وقائمة المراجع.
- لا يحق للباحث إعادة نشر بحثه المقبول للنشر في المجلة إلا بعد إذن كتابي من رئيس هيئة تحرير المجلة.
- أسلوب التوثيق المعتمد في المجلة هو نظام جمعية علم النفس الأمريكية (APA) الإصدار السابع، وفي الدراسات التاريخية نظام شيكاغو.
- أن يشتمل البحث على : صفحة عنوان البحث، ومستخلص باللغتين العربية والإنجليزية، ومقدمة، وصلب البحث، وخاتمة تتضمن النتائج والتوصيات، وثبت المصادر والمراجع، والملاحق اللازمة مثل: أدوات البحث، والموافقات للتطبيق على العينات وغيرها؛ إن وجدت.
- أن يلتزم الباحث بترجمة المصادر العربية إلى اللغة الإنجليزية.
- يرسل الباحث بحثه إلى المجلة إلكترونيًا ، بصيغة (WORD) وبصيغة (PDF) ويرفق تعهدًا خطيًا بأن البحث لم يسبق نشره ، وأنه غير مقدم للنشر، ولن يقدم للنشر في جهة أخرى حتى تنتهي إجراءات تحكيمه في المجلة.
- المجلة لا تفرض رسوما للنشر.

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الجامعة الإسلامية بالمدينة المنورة

ISLAMIC UNIVERSITY OF MADINAH

Psychological Ill-being Caused by Climate Change Among Persons with Disabilities (PWD) in the Kingdom of Saudi Arabia

اعتلال الرفاهية النفسية الناجم عن تغير المناخ لدى الأشخاص ذوي الإعاقات بالمملكة العربية السعودية

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Abstract

The current study aimed to reveal the level of Psychological ill- being caused by climate change among people with disabilities (PWD), and to identify the differences in psychological ill-being caused by climate change that are due to the variable of gender, work/non-work, and level of education. A random sample consisted of 113 participants (49 male and 64 female) from PWD residents in the Kingdom of Saudi Arabia; their ages ranged from 25 to 49 years old. The online questionnaire on ill-being caused by climate change among PWD was applied. The results concluded that there is an average level of psychological ill-being of the PWD caused by climate change. Also, there were statistically significant differences between males and females in psychological ill-being caused by climate change; females were higher than males in psychological ill-being caused by climate change. Findings also revealed statistically significant differences between the employed and unemployed PWD in psychological ill-being caused by climate change, as the employed disabled were higher in psychological ill-being caused by climate change than the unemployed. In contrast, there were no statistically significant differences in psychological ill-being caused by climate change due to the level of education of the PWD. Gender and employment/unemployment variables can explain 59.9% of the total changes in psychological ill-being caused by climate change among PWD. The ANOVA of the regression model ($F = 54.236$, $p < .000$) revealed that gender might influence psychological ill-being caused by climate change among PWD with a regression coefficient of $b=15.414$ ($t=10.758$, $p<0.01$), and employment / unemployment variable might influence psychological ill-being caused by climate change among PWD with a regression coefficient of $b=8.142$ ($t=5.347$, $p<0.01$), while the educational level variable did not predict PWD ill-being caused by climate change statistically significantly ($b=1.413$ ($t=1.493$, $p>0.01$). These findings confirm the importance of continuing social plans and programs in KSA that will increase PWD'S engagement in society and provide them with protection procedures from climate change .

Keywords: PWD, well-being, ill-being, gender, educational level, unemployment, psychological care services.

المستخلص

هدف البحث الحالي إلى الكشف عن مستوى اعتلال الرفاهية النفسية الناجم عن تغير المناخ لدى ذوي الإعاقة، والتعرف على الفروق في اعتلال الرفاهية النفسية الناجم عن تغير المناخ التي تعزى لمتغير النوع، العمل/ عدم العمل، ومستوى التعليم. أجري البحث على عينة عشوائية مكونة من ١١٣ مشاركاً (٤٩ ذكر و٦٤ أنثى) من الأشخاص ذوي الإعاقة المقيمين في المملكة العربية السعودية. تراوحت أعمارهم بين ٢٥ و٤٩ سنة. تم تطبيق مقياس اعتلال الرفاهية النفسية الناجم عن تغير المناخ على عينة البحث. توصلت النتائج إلى وجود مستوى متوسط من اعتلال الرفاهية النفسية للأشخاص ذوي الإعاقة بسبب تغير المناخ. كما وجدت فروق ذات دلالة إحصائية بين الذكور والإناث في اعتلال الرفاهية النفسية الناجم عن تغير المناخ، إذ كانت الإناث أعلى من الذكور. كما كشفت النتائج أيضا عن فروق ذات دلالة إحصائية بين الأشخاص ذوي الإعاقة العاملين وغير العاملين في اعتلال الرفاهية النفسية الناجم عن تغير المناخ، حيث كان المعاقون العاملين أعلى في اعتلال الرفاهية النفسي الناجم عن تغير المناخ من غير العاملين منهم. بينما لا توجد فروق ذات دلالة إحصائية في اعتلال الرفاهية النفسية الناجم عن تغير المناخ تعزى لمستوى تعليم الأشخاص ذوي الإعاقة. وقد أشارت نتائج تحليل الانحدار أن متغيرات الجنس والعمل/ عدم العمل تفسر ٥٩,٩٪ من إجمالي التغيرات في اعتلال الرفاهية النفسية الناجم عن تغير المناخ بين الأشخاص ذوي الإعاقة. أيضًا كشفت نتائج نموذج الانحدار أن الجنس يؤثر على اعتلال الرفاهية النفسية الناجم عن تغير المناخ بين الأشخاص ذوي الإعاقة بمعامل الانحدار (t=10.758, p<.000) b=15.414، ويؤثر متغير العمل/ عدم العمل على اعتلال الرفاهية النفسية الناجم عن تغير المناخ بين الأشخاص ذوي الإعاقة بمعامل الانحدار (t=5.347, p<0.01) b=8.142، في حين أن متغير المستوى التعليمي لم يتنبأ باعتلال الرفاهية النفسية للأشخاص ذوي الإعاقة الناجم عن تغير المناخ (t=1.493, p>0.01) b=1.413). تؤكد هذه النتائج على أهمية استمرار الخطط والبرامج الاجتماعية في المملكة العربية السعودية التي من شأنها زيادة اندماج الأشخاص ذوي الإعاقة في المجتمع، وتزويدهم بإجراءات الحماية من تغير المناخ.

الكلمات المفتاحية: الأشخاص ذوي الإعاقة، اعتلال الرفاهية النفسية، الجنس، المستوى التعليمي، البطالة، خدمات الرعاية النفسية.

1. Theoretical Background:

Climate change is considered a human rights problem affecting most communities. It is a global problem facing the entire world. It affects all individuals, including persons with disabilities PWD (Arnout, 2022b; Kett & Scherrer, 2009). Since PWD are a minority in society and suffer from psychological fragility in the face of crises, they cope with difficulties in obtaining the health services they need during natural disasters such as unprecedented climate change (Schulte, 2020; Stein & Stein, 2021). Therefore, they are the most vulnerable to environmental risks, especially in developing countries. However, there is no interest in the literature to discuss the impact of climate on the well-being and health of PWD (Wolbring, 2009).

1.1. Persons with disabilities (PWD) in KSA:

The Statement of the Kingdom of Saudi Arabia in the session to discuss its first report submitted in accordance with the Convention on the Rights of Persons with Disabilities, 21st Session Committee on the Rights of PWD (CRPD) in March 2019 referred that KSA is a leading model in the world in the field of empowering PWD and their families and achieving the sustainable development goals in the Kingdom (Goal 11 and 16) to make cities and human settlements inclusive of all, safe, resilient and sustainable, and to create peaceful societies in which no one is marginalized (Arnout, 2022a).

The PWD Survey in KSA in 2017 indicated that the prevalence of disability with extreme difficulty among the Saudi population is (2.9%) of the total Saudi population. And that the most prevalent difficulty among the Saudi population with disabilities who have one difficulty is visual difficulties, as the percentage of those who suffer from them reached (46.02%) of the total Saudi population with disabilities for those who have one difficulty, and the most common difficulty among the Saudi population with disabilities has multiple difficulties, namely the movement difficulties, where the percentage of those who suffer from them reached (29.13%) of the

total number of individuals with disabilities who have multiple difficulties (www.stats.gov.sa) .

National Transformation Program and Disability and the Sustainable Development 2030 reported that the Kingdom's Vision 2030 came to support the disabled and increase the services provided to them, including protection of the disabled from abuse, social care services, rehabilitation centers for the disabled, and health care services for the disabled (https://www.vision2030.gov.sa/ar/; https://e-inclusion.unescwa.org/). One of the most prominent aspects of the Kingdom's interest in people with disabilities is the establishment of the Authority for the Care of PWD in February 2018 to take care of them, ensure that they obtain their rights, and enhance the services provided to them. Also, a continuous increase in the establishment of rehabilitation centers for PWD in all regions of the Kingdom and a comprehensive access program to enable PWD to live independently and integrate into society (Arab Digital Inclusion Platform).

1.2. Climate change and the human rights of PWD:

Climate change is a global problem that threatens us all. It refers to any climate change due to natural variability or human activity, such as the observed increase in global average temperatures, climate events, sea levels, and changes in precipitation (Arnout, 2022b; IPCC, 2007). Climate change is expected to cause increased hardships for PWD, threaten their quality of life, reduce livelihood opportunities, decrease their resilience, and increase the incidence of many disabilities. The United Nations High for Human Rights indicated in a recent report that PWD is increasingly at greater risk than others from the negative impact of climate change (Bouchama et al., 2007; Schulte, 2020; Stein & Stein, 2021). World health organization WHO (2011, 2018) reported that 15% of the world's population, persons with physical and mental disabilities, may suffer the effects of climate change differently and more intensely than others.

CBM Program has determined how climate change affects the quality of life and well-being of PWD through the low level of food security and the

resulting malnutrition, reducing access to clean water and sanitation and hygiene services, increasing emergencies due to extreme weather events, limiting access to infrastructure, shelter, and essential services Increased displacement and migration Increased security and human protection issues including conflicts resulting from climate change (www.cbm.org).

Climate change threatens the rights of PWD due to rising temperatures, rising air pollution, and increasing exposure to extreme weather events that include heat waves, floods, hurricanes, and forest fires. A high death rate of PWD caused by natural disasters is four times the rate of ordinary persons due to the scarcity of comprehensive planning and awareness, lack of early warning devices, transportation, and disruption of access to health care services and medicines. Emergency room visits and hospital admissions for PWD increased by three times compared to ordinary persons (Bouchama et al., 2007; Schulte & Gazendam, 2019).

The number of PWD in low-income countries is 800 million persons who suffer from poverty and unemployment problems (Stein & Stein, 2021). Thus, the Disability Comprehensive Action Program (DICARP) is currently working on designing and implementing efforts to combat climate change that respect and protect the human rights of PWD (www.disabilityinclusiveclimate.org).

To achieve the sustainable development goals of the United Nations, which are represented in participation, inclusion, empowerment, non-discrimination, and accessibility. Therefore, governments in various countries of the world must reduce the impact of climate change on PWD from greenhouse gas emissions, which is one of the principles of human rights and the United Nations Convention on the Rights of PWD (Arnout, 2022b; Mex, 2021; Stein & Stein, 2021). Thus, the findings of the current study can help those responsible for caring for people with PWD the importance of continuing social plans and programs in KSA that will increase PWD'S engagement in society and provide them with protection procedures from climate change.

2. The current Study:

The impact of climate change on PWD (Estimated as 15% of the world's population) increases, in addition to the discrimination, marginalization, and injustices they are exposed to. For this reason, the issue of climate change in the context of PWD is central in societies, especially those with low incomes. It is a political and ethical issue in the 21st century. However, there are no studies yet on the impact of climate change on PWD psychological well-being, and the COP26 did not discuss the rights of PWD in combating climate change and perhaps even addressed in the COP27 (Schulte, 2020; WHO, 2011, 2018; Wolbring, 2009).

There are increasing studies showing the impact of climate change on human physical and psychological health (Clayton & Manning, 2018; Singh et al., 2017). In the Kingdom, Arnout's study (2022a) showed the impact of climate on the mental health of individuals; and found an average prevalence of psychological problems caused by climate change. From the literature review, the researcher found no study conducted about climate change and PWD. In light of the United Nations High for Human Rights report's recommendations, poverty, stigma, and discrimination are the three main elements exposing PWD to climate change's impact; thus, PWD must be included in measures to confront climate change disasters. And any climate action must preserve their rights and dignity instead of promoting social injustice, enabling them to lead comfortable lives and conducting studies on climate change and its impact on PWD, as there is a lack of research interest in this issue. Therefore, this study seeks to study the level of ill-being among PWD, and to detect the differences in ill-being caused by climate changes due to gender, work/non work, and the level of education.

3. Material and Methods:

3.1. Research design and sampling.

This study used a quantitative predictive, descriptive design to investigate the ill-being caused by climate change among PWD. Data were collected from participants through an online questionnaire. Initially, one

hundred thirteen PWD residents in the KSA were selected. The online questionnaire was from May 8 to August 20, 2022. Before answering the online questionnaire, all participants were informed about the purpose and procedures of this study by an online notification; after this, every participant provided online written informed consent. After checking the submitted replies, the researcher found that 113 replies met the criteria of the current study. The participants' ages ranged from 25 to 49 years of age; 49 (43.36%) were males; 64 (56.64%) were females (Table 1) .

Table 1. Summary of participants' sociodemographic characteristics (N = 113)

Variables	n (%)
Mean Age	28.41
Sex	
Male	49 (43.36%)
Female	64 (56.64%)
Employment/Unemployment	
Employed	77 (68.14%)
Unemployed	36(31.86%)
Educational level	
Graduate	63 (55.75%)
postgraduate	32 (28.32%)
Secondary education	18 (15.93%)

3.2. Measures:

PWD's Psychological ill-being caused by climate change questionnaire:

The researcher developed a self-report questionnaire to measure the effects of climate change among persons with disabilities. PWD Psychological ill-being caused by climate questionnaire comprises 20 items (see Table 3). It is scored on a five-point Likert scale, and higher scores indicate higher ill-being caused by climate change .

3.3. PWD Psychological ill-being related to climate change questionnaire Validity:

Before conducting the EFA analysis on the PWD Psychological ill-being caused by climate change questionnaire, the researcher conducted Bartlett's Sphericity test and the Kaiser-Meyer-Olkin sampling adequacy measurement (KMO) to verify that the sample was adequate for conducting this analysis. Bartlett's test of Sphericity for the questionnaire was significant ($\chi^2 = 1807.236$, $p < .001$), and the KMO value were acceptable at 0.947. PWD Psychological ill-being caused by climate change questionnaire items' component load ranged from 0.467 to 0.839. The EFA results suggest that PWD Psychological ill-being consisted of a one-dimensional construct (Table 2).

Table 2. Saturations of the items of the PWD ill-being caused by climate change questionnaire by Principal Component Analysis

scale	Extraction
Item1	.649
Item2	.575
Item3	.600
Item4	.737
Item5	.467
Item6	.692
Item7	.839
Item8	.654
Item9	.592
Item10	.692
Item11	.682
Item12	.758
Item13	.689
Item14	.713

scale	Extraction
Item15	.817
Item16	.700
Item17	.558
Item18	.684
Item19	.576
Item20	.713
Psychological ill-being	5.160
Cumulative %	%66.934

The PWD Psychological ill-being caused by climate change questionnaire also exhibits good reliability since Cronbach's alpha coefficient was (0.921) high. Also, the correlations between the items and the total score of the subscales were high, ranging between 0.485 to 0.847 (table 3).

Table 3. Correlations of the items of PWD ill-being caused by climate change questionnaire.

N	Item	r	N	Item	r
1	Due to unexpected and severe rains, I find it difficult to access health care services.	0.760	11	People with disabilities are more affected by global warming.	0.847
2	The temperature change increased my exposure to asthma attacks.	0.821	12	Air pollution increased my infection with diseases.	0.766
3	Weather changes increased my exposure to health problems.	0.657	13	I have the idea of an earthquake and will not survive it because of my disability.	0.532
4	Heavy rains reduce my activity.	0.559	14	It is terrifying that entire cities could disappear worldwide; my city might be one of them.	0.777

N	Item	r	N	Item	r
5	I get worried if I hear about a flood happening somewhere in the world on the weather news.	0.742	15	People with disabilities suffer countless losses if violent climate changes occur, which may lead to ending their lives.	0.804
6	During the past six months, I went to the mental health hospital because I felt depressed by changes in the weather.	0.821	16	The absence of an institution that rescues people with disabilities in crises and disasters bothers me because of their disabilities.	0.691
7	We need health care services to reach our homes in natural disasters.	0.658	17	If I hear about the possibility of weather fluctuations, I am afraid to leave the house.	0.594
8	In our work or study settings, we do not have security and safety means to protect us if a natural disaster (such as rain or earthquake) occurs.	0.669	18	People with disabilities are more concerned about weather fluctuations than others because of their inability to protect themselves.	0.745
9	There is a shortage of our transportation during climate disasters.	0.547	19	I get insomnia if I learn of an earthquake in a nearby city; I feel it is imminent in my city.	0.841
10	I feel panicky if there is a sudden change in the weather because it is challenging to move around.	0.485	20	I feel disappointed by unprecedented and extreme changes in the climate.	0.573

Significant at 0.01 level.

3.4. Data analysis:

The researcher analyzed data using IBM SPSS 21.0. The researcher used descriptive statistics, including mean and standard deviation. Kolmogorov-Smirnov test was employed, and the results indicated that the data distribution was normal (Kolmogorov-Smirnov Z= 0.589, Asymp. sig.=

0.879). Using Pearson's correlation coefficient, the researcher calculated the correlations between items and the total score of PWD ill-being caused by climate change. Additionally, Cronbach's alpha coefficients were utilized to confirm the questionnaire's internal consistency. The factor structure of the PWD ill-being caused by climate change was examined using exploratory factor analysis (EFA). Independent samples T-test and one-way ANOVA between-group comparisons were used to detect the differences due to demographic variables. Also, a linear multiple regression was applied to examine the predictability of PWD ill-being caused by climate change from gender, employment/unemployment, and educational level. In this study, the value of significance was 0.05.

4. Results:

4.1. PWD ill-being caused by climate change scores:

The researcher classified the participants' scores on the PWD ill-being caused by climate change questionnaire into three levels to determine the level of PWD ill-being caused by climate change, as follows: Low level from (20 to 46.66), average level from (46.67 to 73.33), and for each item (low level from 1 to 2.33; the average from 2.34 to 3.67; and high level from 3.68 to 5). The results in table 4 indicated an average level of PWD ill-being (M= 58,01, SD= 11.68) caused by climate change.

Table 4. Means, standard deviation, and levels of the PWD ill-being caused by climate change.

Scale	M	SD	Level
Item1	2.97	1.58	Average
Item2	2.96	1.35	Average
Item3	2.82	1.32	Average
Item4	2.90	1.41	Average
Item5	2.92	1.44	Average
Item6	2.74	1.43	Average
Item7	3.00	1.33	Average
Item8	2.96	1.38	Average

Scale	M	SD	Level
Item9	2.88	1.42	Average
Item10	2.86	1.37	Average
Item11	2.82	1.45	Average
Item12	2.89	1.39	Average
Item13	2.89	1.37	Average
Item14	2.76	1.38	Average
Item15	3.11	1.37	Average
Item16	2.79	1.28	Average
Item17	2.81	1.32	Average
Item18	2.83	1.34	Average
Item19	2.81	1.29	Average
Item20	3.25	1.50	Average
Psychological Ill-being	58.01	11.68	Average

4.2 Differences in PWD ill-being caused by climate change due to demographic variables:

4.2.1. The statistical analysis indicated that there were statistically significant differences in PWD ill-being caused by climate change (t= 10.185, p <0.05) due to gender in favor of females (M=67.245) in comparison with males (M=50.937) (table 5). This result indicated that females are higher in psychological ill-being than males.

Table 5. Differences in PWD ill-being caused by climate change due to gender.

Educational level	N	M	SD	t	Sig.
Male	49	50.937	7.892	10.185	0.05
Female	64	67.245	9.10		

4.2.2. There were statistically significant differences in the PWD ill-being caused by climate change due to the employment/unemployment variable (t= 4.541, p <0.05) in favor of the employed persons with disabilities (M=61.156) (table 6). This result revealed that employed persons with disabilities are higher in psychological ill-being than unemployed persons with disabilities.

Table 6. Differences in PWD ill-being caused by climate change due to employment/ unemployment variable.

Educational level	N	Mean	Std. Deviation	t	Sig.
Employed	77	61.156	11.311	4.541	0.05
Unemployed	36	51.278	5.501		

4.2.3. There were no differences in PWD ill-being caused by climate change due to educational level. One-way ANOVA was calculated to study the differences between educational level subgroups in psychological ill-being caused by climate change. The findings in tables (7 and 8) indicated there is no significant statistical difference due to educational level in the PWD' ill-being caused by climate change (F= 1.910, p >0.05) .

Table 7. Differences in PWD ill-being caused by climate change due to educational level.

Educational level	N	M	SD
Graduate	63	56.1587	10.80950
Postgraduate	32	60.8750	12.39602
Secondary education	18	59.3889	12.73318
Psychological ill-being	113	58.0088	11.67911

Table 8. Group differences in PWD ill-being caused by climate change due to educational level.

Sum of Squares		df	Mean Square	F	Sig.
Between Groups	512.801	2	256.400	1.910	.153
Within Groups	14764.190	110	134.220		
Psychological ill-being	15276.991	112			

Significant at 0.05 level.

4.3. Predict psychological ill-being caused by climate change among PWD :

The linear regression results in table 9, with R2=0.599, indicate that gender and employment/unemployment variables can explain 59.9% of the total changes in persons with disabilities and psychological ill-being. The ANOVA of the regression model proved to be statistically significant (F = 54.236, p< .000) and revealed that gender might influence the changes in the persons with disabilities and psychological ill-being with a regression coefficient of b=15.414 (t=10.758, p<0.01), and employment/unemployment variable might influence of the changes in the persons with disabilities psychological ill-being with a regression coefficient of b=8.142 (t=5.347, p<0.01).

The results in table 9 showed that gender and employment/unemployment variables might exert a significantly positive effect on PWD ill-being caused by climate change. At the same time, the educational level variable did not predict PWD ill-being caused by climate change statistically significantly (b=1.413 (t=1.493, p>0.01).

Table 9. Results of regression analysis of gender, employment/unemployment, and educational level on PWD ill-being caused by climate change.

Model	R2	Durbin-Watson	F	Independent Variables	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
					B	SE	Beta		
1	0.599	1.583	54.236	Constant	19.959	3.451		5.784	0.000
				Gender	15.414	1.433	0.657	10.758	0.000
				Employment/unemployment	8.142	1.523	0.326	5.347	0.000
				Educational level	1.413	0.946	0.091	1.493	0.138

5. Discussion:

The results of the current study concluded that there is an average level of psychological ill-being of the PWD caused by climate change. Also, there were statistically significant differences between males and females in psychological ill-being caused by climate change among PWD. Findings also revealed the employed disabled were higher in psychological ill-being caused by climate change than the unemployed PWD. In contrast, there were no statistically significant differences in psychological ill-being caused by climate change due to the level of education of the PWD. Also, the findings referred that gender and employment/unemployment variables can explain 59.9% of the total changes in persons with disabilities and psychological ill-being. In contrast, the educational level variable did not significantly predict PWD ill-being caused by climate change .

Literature suggests that many of the planet's population suffer from physical and mental disabilities. PWD is more exposed to climate crises than others due to their disabilities. It is related to disabilities, but most PWD face stigma, policies, and infrastructure (Elwan, 1999, Hamilton, 2019; Rohwerder, 2015; Schulte & Gazendam, 2019). Ghenis (2016, 2017) has confirmed that PWD is the most vulnerable to the effects of climate change due to health conditions and their needs. Rohwerder (2018) also mentioned that PWD suffers from stigma, lack of awareness, living in difficult-to-access environments for services, places of work, and study, especially in rural and remote areas, and a lack of protection and respect for their rights.

In general, PWD in developing countries suffers from poverty, limited access to formal education, high unemployment, difficulty accessing essential services and opportunities, and lack of coherence in public policies and programs targeting persons with disabilities. PWD still need help to enable them to lead their lives within them and achieve their mental health (Rohwerder, 2015; Bouchama et al., 2017; Kett & Scherrer, 2007; Olsson, 2014; WHO, 2011, 2018). The DALYs indicator confirms that the low quality of health services affects the severity of disability and reduces the

quality of life. For example, heat waves cause increased casualties, heat exhaustion and heat stroke, malnutrition, and diseases due to vulnerability and fragile health. A severe change in weather and other climatic disasters can damage the economy, reduce agricultural and livestock production, and increase inequality between social groups. Because of climate change, developing countries have lost the most disability-adjusted life years in 1,000 people (Devon, 2019; Hamilton, 2019).

Olsson (2014) has indicated that the poorest and most vulnerable groups, such as the elderly and PWD, are more vulnerable to the consequences of climate change. Costello and his colleagues (2009) added that climate change increases societal inequality and impacts people with less access to resources. Also, Kett & Scherrer (2009) and Schulte & Gazendam (2019) mentioned that the impact of climate change on PWD takes various forms. Including the rise in extreme temperatures and the diseases and deaths caused by frequent heat waves, deteriorating air and water quality, increasing carbon dioxide emissions, dehydration, respiratory diseases, and others.

This literature stressed the need to unite the efforts of state institutions and associations working with PWD and their families to educate them about the potential effects of climate change. As well as, that service institutions for PWD provide specialized treatment for heat-related diseases, respiratory diseases, and others, and deal with health conditions for PWD related to climate change, training PWD to adapt to climate changes and mitigate climate risks. We also need buildings in accordance with environmental construction standards and green practices to protect PWD in the implementation of Article 32 of the United Nations Convention on the Rights of persons with disabilities (UNCRPD) on international cooperation to facilitate and improve links between climate change initiatives and the rights of PWD, their families, and organizations (DICARP, 2020-2021; Mex, 2021; Kett & Scherrer, 2009).

Despite the increasing confirmation from the literature that persons with disabilities are the most negatively affected group by climate change, the current study concluded that there is an average level of psychological ill-being caused by climate change among persons with disabilities. These results agree with Arnout (2022a), who found an average level of psychological problems related to climate change among Saudi Arabian citizens. And Clayton & Manning (2018 and Singh (2017) confirm that climate change negatively affects human mental health and well-being .

The average level of psychological ill-being among PWD in KSA can be attributed to the Saudi Arabian government's incredible attention to PWD. Indeed, the Kingdom's government has directed a great interest in the rights of people with disabilities and their social, health, and occupational care. Also, the Authority for the Care of PWD was established in February 2018 to take care of them, more rehabilitation centers for PWD with disabilities in all regions of the Kingdom, and a comprehensive access program to enable PWD to live independently and engage in society. The Statement of the Kingdom of Saudi Arabia in the session to discuss its (first) report submitted in accordance with the Convention on the Rights of Persons with Disabilities, 21st Session Committee on the Rights of Persons with Disabilities (CRPD) in March 2019 reported the included of PWD in the sustainable development goals and the national vision 2030; to empower them to achieve the highest level of psychological well-being and cope with psychological stress, including climate change.

The remarkable support and attention provided by the Saudi government contributed to satisfying PWD's needs, which further improved their quality of life and their ability to face life's difficulties. In light of this care, support, and care services provided by community institutions, the acceptance of people with disabilities of their disability and the family support they receive all of this led to an increase in their adaptation to emergency conditions with their social and life skills. The study of Al-Zahrani and Al-Kishki (2020) found that people with disabilities in the Kingdom have a high level of self-

management and psychological well-being. Nel (2011) referred that psychological well-being as living a good life well and having the ability to overcome life's challenges.

Also, this study found differences between males and females in the psychological ill-being caused by climate change of people with disabilities, as females were higher in psychological well-being caused by climate change than males. This result is consistent with the findings of Al-Ghoula (2019), Al-Swerki (2013), and Sa'ayda (2016) findings that found differences between males and females with disabilities in the quality of life, as males were higher than females in the quality of life. Because of the females' socialization process in Arab societies, personal characteristics, rely on others to satisfy needs, females with disabilities feel more anxiety, fear, and tension from expecting to lose their sources of support, especially crucial family members (Al-Ghoula, 2019). Thus, they cannot access the services they need in times of crisis and disasters. Thus, females are more negatively affected by climate change in their psychological well-being than males.

The findings of the current study found no differences attributable to the level of education in the PWD's psychological ill-being caused by climate change. This result is consistent with the findings of Al-Ghoula (2019) and Al-Swerki (2013) that the level of education does not affect the quality of life of the disabled in KSA .

In addition, the results found that employed persons with disabilities are more negatively affected by climate change than non-workers. These results may be because employed persons with disabilities face many difficulties in their workplaces during crises and disasters, from moving or returning to their homes and others. Thus, employed persons with disabilities feel fear, anxiety, and pessimism that increase when they hear news about the forecast of bad weather, floods, or other unexpected weather changes.

Results also indicated that the level of education does not predict the psychological Ill-being of the PWD caused by climate change. This result may be attributed to the concept of psychological well-being as stated in the literature that it refers to a life well through the PWD awareness of the quality of the level of services and support provided to him by family, friends, and institutions. The availability of social programs that enable them to integrate into the community is educational and professional; this may increase the well-being of persons with disabilities, especially under emergency conditions, climatic disasters, and extreme and unexpected weather changes. The level of PWD education does not determine his well-being or illness. The regression analysis results show that educational level does not predict psychological ill-being due to climate change. These findings confirm the importance of continuing social plans and programs that will increase PWD'S integration into society, satisfy their needs, and provide them with means of protection from climate changes and emergency crises.

6. Conclusions:

The current study showed an average level of psychological ill-being caused by climate change among PWD in KSA. As well as, psychological ill-being among persons with disabilities is a personal response determined by the PWD'S gender and employment or unemployment. Also, the results found that females and employed persons with disabilities in psychological ill-being caused by climate change. Also, the results found gender and employment or unemployment as statistically significant predictors of psychological ill-being among persons with disabilities. These findings confirm the importance of continuing social plans and programs in KSA that will increase PWD'S engagement in society, satisfy their needs, and provide them with means of protection from climate changes and emergency crises. In addition to attention to increasing the provision of psychological care services to persons with disabilities, especially at the time of natural disasters and extreme climatic changes, to alleviate what they may suffer from psychological problems such as anxiety, fear, depression, grief,

tension, social isolation and others resulting from climate change. And efforts of psychiatric caregivers for people with disabilities to develop the capacity of PWD and their families to withstand climate change enables them and their organizations to represent their needs and identify solutions in participatory and fair planning and implementation processes.

7. Strengths, Limitations, and future directions:

This study is a quantitative predictive, descriptive study to measure the level of psychological ill-being caused by climate change in KSA and its predictability from demographic variables. One of the strengths of this study is its objective because it is considered one of the first Arabic studies that examine the effect of climate change on the psychological well-being of persons with disabilities in Saudi Arabia. Also, this study is a quantitative descriptive and comparative study of the effect of climate change on the PWD's psychological well-being levels. Therefore, we need more intervention studies to examine how we can improve psychological well-being among PWD and relief the adverse effects of climate change on PWD psychological well-being.

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