IBAD
SOSYAL BİLİMLER DERGİSİ
Journal of Social Sciences

IBAD, 2024; (17): 25-41
DOI: 10.21733/ibad.1466730 **Özgün Araştırma / Original Article**

Individual and Collective Approaches of Students who are Members of Social Clubs at University to Mitigate Climate Change Impacts

Üniversitedeki Sosyal Kulüplere Üye Olan Öğrencilerin İklim Değişikliği Etkilerini Azaltmada Bireysel ve Kolektif Yaklaşımları

Musab Süleyman Köçer[1*]

* **Sorumlu yazar**
Corresponding author

[1]Araştırma Görevlisi, Ardahan Üniversitesi, Türkiye
E-mail: kocer.musab@gmail.com
ORCID: 0000-0001-9286-5519

Başvuru/Submitted: 08.04.2024
Son Düzeltme/Last Revision: 07.05.2024
Kabul/Accepted: 06.05.2024

Atıf bilgisi / Citation:
Köçer, M.S. (2024). Individual and collective approaches of students who are members of social clubs at university to mitigate climate change impacts. *IBAD Sosyal Bilimler Dergisi-IBAD Journal of Social Sciences*, (17), 25-41.
https://doi.org/10.21733/ibad.1466730

***intihal.net* Similarity Index** 23%

ABSTRACT
Climate change stands out as one of the most pressing global issues of our time. Addressing this challenge requires a high level of awareness and responsibility at both individual and societal levels. This study, conducted among social club members, aims to examine the levels of hope for preventing climate change in relation to sociodemographic characteristics, club-related factors, and the responsibility-taking variable. A relational survey model, one of the quantitative research methods, was employed in the study. Research data were collected through a survey from students enrolled at Ardahan University during the 2023-2024 academic year. The obtained data were analyzed using SPSS 27 and AMOS 24 statistical software packages. Given that the data followed a normal distribution, parametric tests such as the Independent Samples t-Test, One-Way Analysis of Variance (ANOVA), Pearson Correlation, and Simple Linear Regression Analysis were applied. The analysis results indicate that the sample group's mean scale scores were high, and significant differences were observed between groups in terms of hope levels based on educational level and club type. Additionally, the responsibility-taking variable accounted for 26.7% of the variance in hope levels. Specifically, a one-unit increase in responsibility-taking resulted in a 0.301-unit increase in hope levels for preventing climate change. In this context, initiatives aimed at enhancing club members' sense of responsibility could strengthen their approaches to combating climate change.
Keywords: Climate, Climate Change, Student Club, Hope, Responsibility

ÖZ
İklim değişikliği günümüzün en önemli küresel sorunlarından biri olarak karşımıza çıkmaktadır. Bu sorunun çözümü için bireysel ve toplumsal düzeyde farkındalık ve sorumluluk alma ihtiyacı oldukça fazladır. Sosyal kulüp üyeleri üzerinde gerçekleştirilen bu araştırmanın amacı, iklim değişikliğinin önlenmesine yönelik umut düzeylerinin sosyodemografik özellikler, kulüp faktörleri ve sorumluluk alma değişkenine göre incelenmesidir. Araştırmada nicel araştırma yöntemlerinden ilişkisel tarama modeli kullanılmıştır. Araştırma verileri 2023-2024 eğitim-öğretim döneminde Ardahan Üniversitesi'nde öğrenim gören öğrencilerden anket aracılığıyla toplanmıştır. Elde edilen veriler SPSS 27 ve AMOS 24 istatistik paket programları kullanılarak analiz edilmiştir. Bu kapsamda verilerin normal dağılım göstermesi sebebiyle Bağımsız Örneklemler T Testi, Tek Yönlü Varyans Analizi (ANOVA), Pearson Korelasyon ve Basit Doğrusal Regresyon Analizi gibi parametrik testler uygulanmıştır. Analiz sonuçları incelendiğinde örneklem grubunun ölçek puan ortalamalarının yüksek olduğu; öğrenim düzeyleri ve kulüp türlerine göre umut düzeyleri açısından gruplar arası anlamlı farklılığın olduğu; sorumluluk alma değişkeninin ise umut düzeyinde %26,7'lik bir etkiye sahip olduğu görülmektedir. Böylelikle sorumluluk düzeyindeki bir birimlik artış, iklim değişikliğinin önlenmesine yönelik umut düzeyinde 0,301 birimlik bir artışa sebep olmaktadır. Bu bağlamda, kulüp üyelerinin sorumluluk bilincini artırmaya yönelik teşvik edici çalışmalar yapılarak iklim değişikliğini önleme konusundaki yaklaşımları güçlendirilebilir.
Anahtar kelimeler: İklim, İklim Değişikliği, Öğrenci Kulübü, Umut, Sorumluluk

1. INTRODUCTION

Climate is defined simply as "average weather" (WMO, 2023). Climate change (CC), on the other hand, refers to alterations in the global atmosphere composition due to human activities alongside natural climate variability observed over comparable periods (UN, 1992). Particularly, the surge in anthropogenic activities post the industrial revolution indicates that the changes witnessed over the past 200 years are abnormal and unnatural (Mikhaylov, Moiseev, Aleshin, & Burkhardt, 2020). Until 2019, the largest emissions occurred due to carbon dioxide originating from fossil fuels and industrial activities (IPCC, 2023). The countries that stand out as the primary contributors to these emissions are typically those with large industries and economies characterized by intensive energy consumption. According to reports by the Intergovernmental Panel on Climate Change (IPCC), Türkiye located in the Mediterranean region like other developing countries is highly susceptible to the adverse effects of CC due to its geography and socio-economic conditions (Kaddo, 2016; World Bank, 2023). Moreover, Türkiye is considered an important tourist destination. Factors such as increased forest fires due to heatwaves in summer and a shortened ski season due to reduced snowfall in winter have a more significant economic impact on the decrease in tourist numbers (IPCC, 2022; Köçer & Aslan, 2023).

1.1. Approaches to Addressing CC

In general, there are two main approaches to addressing the climate change crisis: adaptation and mitigation. Adaptation involves responding to the effects of climate change cautiously and reactively, often used in place of mitigation, which is a preventive approach aimed at reducing greenhouse gas emissions (Schipper, 2007). Reviewing existing literature, it can be observed that there are many studies attempting to predict behaviors related to mitigation/reduction through precursors such as environmental-friendly behaviors, carbon footprint, consumption behaviors, adaptation to and affinity with nature and ecological paradigms (Brügger, Morton, & Dessai, 2015; Chen, 2020; Dunlap, van Liere, Mertig, & Jones, 2000; O'Connor, Bard, & Fisher, 1999; van der Linden, 2015, 2017). Additionally, it should be noted that many studies have been conducted on different sample groups to measure levels of concern and anxiety (Aslan, Köçer, & Mizrak, 2023; Clayton & Karazsia, 2020). However, there appears to be a scarcity of studies examining the variable of hope or belief regarding mitigation of climate change (Bury, Wenzel, & Woodyatt, 2020; Ettinger, Walton, Painter, & DiBlasi, 2021; Geiger, Swim, Gasper, Fraser, & Flinner, 2021; Li & Monroe, 2018).

1.2. Hope in Mitigating CC

Hope is among the concepts emphasized in determining mitigation and adaptation behaviours for the prevention of climate change. Variables such as hope, belief, doubt, perception, and awareness are precursor factors influencing individuals' manifestation of desired behaviors regarding a specific issue. In this context, hope is a significant component that directs and motivates individuals to solve problems and act (Akerlof, Maibach, Fitzgerald, Cedeno, & Neuman, 2013; Li & Monroe, 2018; Sundblad, Biel, & Gärling, 2007). This component is influential in determining individuals' coping strategies with climate change, participation in adaptation and mitigation efforts and exhibiting solution-oriented behaviors. Supporting individuals and societies with such social-psychological factors enables an increase in determination and resilience in combating climate change, leading to more effective solutions (Bury et al., 2020; Ettinger et al., 2021; IPCC, 2023; Schipper, 2007). It is necessary to draw attention to the critical importance of a sense of hope in combating climate change. Although big

goals such as reducing greenhouse gas emissions to zero may seem difficult to achieve at first glance, an approach filled with hope can strengthen the process of coping with potential problems and seeking solutions (Kurnaz, 2023). In this context, hope in combating climate change is not only a feeling but also a call to action. Hope encourages people to act, search for scientific solutions and cooperation between societies. In combating climate change, hope can increase the potential to achieve positive results by mobilising individuals and societies (Gezer & İlhan, 2020; Li & Monroe, 2018). Therefore, acting decisively in combating CC with a sense of hope is a crucial step in achieving the goal of leaving a livable world for future generations.

1.3. Social Clubs and CC

When examining the sample group of social student clubs, communities are established within universities for professional, educational, scientific, social, cultural, and artistic purposes (Ardahan University, 2023). These volunteer-based social clubs engage students in various tasks and responsibilities outside of their classes as extracurricular activities (Turan, Duysak, & Kuğuoğlu, 2017). At this point, hope is recognized as one of the most crucial factors that will enable action to be taken. Keeping the hope levels of social student clubs high on climate change and encouraging them to see themselves as part of the solution process can help them develop a more positive perspective on the future (Bury, Wenzel, & Woodyatt, 2020; Geiger, Swim, Gasper, Fraser, & Flinner, 2021). This approach can make them more willing to take necessary adaptation measures and take an active role in combating climate change. Hope and mobilization are interlinked. While hopelessness and despair prevent change, hope and faith encourage us to act and find solutions. Therefore, maintaining students' levels of hope and engaging them in climate action is key to building a more liveable world for future generations (Ardahan Üniversitesi, 2023; Ettinger, Walton, Painter, & DiBlasi, 2021; Li & Monroe, 2018).

The primary aim of this research is to delve into the levels of hope concerning the prevention of climate change within the membership of social clubs. This investigation seeks to establish correlations between hope levels and various sociodemographic characteristics, club-related factors, and the variable of assuming responsibility. By undertaking this study, it is anticipated that valuable insights will be gleaned, shedding light on the perceptions and attitudes of social club members regarding climate change prevention. Furthermore, it is hypothesized that the findings of this research will underscore the significance of the subject matter and potentially offer substantial contributions to the existing body of knowledge on climate change mitigation efforts. Through the participation of social club members, this research endeavors to provide meaningful data that can inform policy-making and advocacy initiatives aimed at addressing the challenges posed by climate change.

H_1: There is a significant difference among groups regarding the sociodemographic characteristics of participants (gender, age, education level, region of childhood) and club factors (type of club, duration of membership, frequency of participation) in terms of hope levels towards preventing climate change.

H_2: There are significant relationships (correlations) among participants' sociodemographic characteristics, club factors, responsibility-taking and the overall and subscale scores of the hope scale towards preventing climate change.

H_3: Participants' levels of taking responsibility significantly predict the hope scale towards preventing climate change.

METHOD

In this study, the correlation type of the relational survey model was preferred as one of the quantitative research methods. Quantitative research tries to reach facts by externally measuring, observing, or experimenting with events and phenomena (Gürbüz & Şahin, 2014; Karasar, 2014). The correlational survey model is used to determine the level of change between two or more variables. This model can perform relational analysis in two ways: correlation-based and comparative relationships. Thus, it is possible to identify attitudes and tendencies (Creswell, 2017).

Population and Sample of the Study

The population of the research consists of the social club students affiliated to the Department of Health, Culture and Sports who are studying at Ardahan University in the 2023-2024 academic year. "Stratified Random Sampling" method was preferred in the sample selection of the research. This method involves dividing the population into homogeneous groups with different characteristics and taking random samples from each group. In this way, subgroups are also included in the sample and better representation is ensured (Onwuegbuzie & Collins, 2007). In line with the purpose of the study, according to the data of the Department of Health, Culture and Sports, clubs with fifty or more members were included in the study and proportional stratified random method was applied. A total of eight social student clubs were identified. It was aimed to collect at least one-third of the data from each club according to the number of active club members by interviewing the club presidents. In this direction, all data collected from 310 students were included in the analysis.

Data Collection Tools

Within the scope of the research, the "Personal Information Form" consisting of 7 items was used to measure the sociodemographic and club information of the participants and the "Hope Scale for Preventing Climate Change" consisting of 11 items was used to measure the participants' approaches to reduce the negative effects of climate change. In addition, to measure the participants' level of taking responsibility for climate change, a data collection tool was prepared as a single question with the statement "How responsible do you feel about reducing the negative effects of climate change?".

Personal Information Form

The Information Form explains the situations related to the first problem of the study to reveal personal and community information such as gender, age, education level, region of residence, club, duration of membership and frequency of participation.

Scale of Hope for Preventing Climate Change (SHPCC)

In order to determine the participants' level of hope for mitigation of the negative effects of climate change, the 11-item "Hope Scale for the Prevention of Climate Change" developed by Li and Monroe (2018) and validated in Turkish by Gezer and İlhan (2020) was used (Gezer & İlhan, 2020; Li & Monroe, 2018). The original form of the scale consists of three sub- dimensions: individual, social and hopelessness and has a five-point Likert-type scale ranging from Strongly Agree (5) to Strongly Disagree (1). The authors set the minimum average score as 11 and the maximum score as 55. The scale includes three negative statements within the scope of the "Hopelessness" sub-dimension. The negative statements were reversed in the analysis process.

Responsibility

It is thought that the participants' feeling responsible for mitigating the negative effects of climate change will have an impact on their level of hope. In this context, a question consisting of a single statement was asked by analyzing similar studies in the literature (Brügger et al., 2015; Chen, 2020; Smith & Leiserowitz, 2012; van der Linden, 2017; van Valkengoed, Steg, & Perlaviciute, 2021). The statement "To what extent do you feel responsible for mitigating the negative impacts of climate change?" is a continuous variable and provides respondents with a 5-point Likert-type response. It calculates the level of responsibility of the participants, with the lowest "1=not at all" and the highest "5=completely".

Data Collection

The data obtained in the study were collected online through the "Google Forms" platform between 22.01.2024 - 20.02.2024. IBM SPSS 27 and AMOS 24 programs were used to analyze the data.

Data Analysis

In the study, descriptive statistics such as frequency, percentage, mean, and standard deviation were used to indicate personal information. To determine whether the data showed normal distribution, some procedures generally accepted in the literature were carried out (George & Mallery, 2010; Özdamar, 2004; Pituch & Stevens, 2016; Stevens, 2009). Firstly, skewness and kurtosis values were analyzed, and these values were divided by the standard error. Afterwards, the control of extreme values and Z scores were analyzed. Finally, Kolmogorov Smirnov tests were applied, and it was seen that the data showed normal distribution since the Skewness and Kurtosis values were within the range of ±1.5. After the data showed normal distribution, it was accepted that the study was suitable for regression analyses.

To evaluate the construct validity of the Scale of Hope for Preventing Climate Change, first Confirmatory Factor Analysis (CFA) and then Exploratory Factor Analysis (EFA) were used. According to the results of the analysis, it was determined that the scale was appropriate for the sample group. The KMO value was found to be 0.812, and the p-value was .001, with a degree of freedom (df) of 55 and a total explained variance of 64.75%. As a result of the CFA analysis, the goodness of fit parameters, indices and acceptable values of the research are shown in Table 1. The averages of the participants' responses and the factor loadings of the scale's subscales are presented in Table 3.

Table 1. *Goodness of Fit Values of Scale of Hope for Preventing Climate Change*

Compliance Measures	Acceptable Fit Values	Measurement Value
$\chi 2/df$	≤ 3	2,019
AGFI	≥0.85	,926
GFI	≥0.90	,950
CFI	≥0.90	,962
IFI	≥0.90	,962
TLI	≥0.90	,952
NFI	≥0.90	,927
RMSEA	≤0.08	,057
($\chi 2$: 88,854 / df: 44 / p: ,000)		

*Goodness of fit values are at acceptable levels according to the commonly accepted publications in the literature (Hooper, Coughlan, & Mullen, 2008; Hu ve Bentler, 1999; Kline, 2023; Rigdon, 1996; Schermelleh-Engel, Moosbrugger, & Müller, 2003; Thompson, 2004).

Regression analysis was conducted to examine the impact of participants' level of responsibility-taking on the Hope Scale for Preventing Climate Change. Regression analysis is a statistical method used to analyze the effect of one or more independent variables on a dependent variable (Pagano, Gauvreau, & Mattie, 2022). Before conducting regression analysis, some prerequisites were checked. The dependent variable is a continuous variable measured on an equal interval and equal ratio scale. Both variables (dependent-independent) exhibit normal distribution and have a linear relationship. There are no outliers in the dataset (Std. Residual/Cook's Distance) and the errors are normally distributed. Finally, the variables are homoscedastic, and the errors are independent of each other. For this purpose, the Durbin-Watson coefficient was examined. Thus, after ensuring the prerequisites for regression analysis, the analysis results are provided in Table 7.

FINDINGS

The findings related to the three problems forming the hypothesis of the study were examined within the scope of the research. Descriptive statistics of the participants are presented in Table 2, while the mean, standard deviation (SD), and factor loadings of each statement in the scale items are shown in Table 3. As observed in Table 2, the sample group consisted of a total of 310 individuals, with 198 females and 112 males. Approximately 49% of the participants fall within the age range of 21-23. The most common duration for students to join social clubs is indicated to be one semester, with a percentage of 62.6. The frequency of participation in activities during the semester is observed to be one or two, accounting for 38.4%. Upon examining Table 3, the mean score of participants' responses to the overall scale items is 40.56. Regarding the mean scores of its sub-dimensions, they are determined as Individual ($\bar{x}$=10.42), Social ($\bar{x}$=19.55), and Despair ($\bar{x}$=10.66). When looking at the responsibility level of participants regarding climate change, it is noted that this value is high, with a mean of $\bar{x}$=3.82 out of 5.

Within the scope of the first hypothesis of the study, significant differences were found only in participants' levels of hopefulness towards climate change SHPCC and its sub-dimensions concerning their educational levels and types of clubs ($p<.005$). Upon examining Table 4, it is evident that participants studying at the graduate level demonstrate significantly higher levels of hopefulness in the social sub-dimension of SHPCC towards climate change compared to both undergraduate and associate degree students. However, in the despair sub-dimension, participants at the undergraduate level exhibit lower levels of despair regarding climate change when compared to associate degree students.

Table 2. *Demographic Information of Participants*

Variables	Category	N	%
Gender	Woman	198	63,9
	Male	112	36,1
Education Level	Associate degree	130	41,9
	License	176	56,8
	Postgraduate	4	1,3
Age	18 - 20	123	39,7
	21 - 23	152	49,0
	24 and above	35	11,3
Region of Childhood	Metropolitan	68	21,9
	Province	63	20,3
	District	95	30,6
	Village/Town	84	27,1
Club	Fire Search and Rescue	35	11,3
	Mountaineering	66	21,3
	Wise Theologians	32	10,3
	Goodness	56	18,1
	Sport	33	10,6
	Red Crescent	32	10,3
	History, Society and Sociology	28	9,0
	Climate Ambassadors	28	9,0
Duration of Club Membership (Period)	1	194	62,6
	2	44	14,2
	3	52	16,8
	4	13	4,2
	5 and more	7	2,3
Frequency of Participation in Activities (Period)	1-2	119	38,4
	3-4	74	23,9
	5-6	40	12,9
	7-8	29	9,4
	9 and more	48	15,5
Level of Responsibility for Climate Change	1 (None)	15	4,8
	2 (Less)	29	9,4
	3 (Medium)	73	23,5
	4 (Very)	72	23,2
	5 (High)	121	39,0
Total		310	100,00

Upon examining the relationship between club types and the significance level of sub-dimensions of SHPCC in Table 4, a significant difference was observed between the Charity Club and the Sports Club. This difference favors the Charity Club. When exploring the overall scores of the scale in Table 5, the Climate Ambassadors Club has the highest mean score ($\bar{x}$=42.14) among the social clubs. Following this, the ranking continues with the Fire Search and Rescue Club ($\bar{x}$=41.86), the Charity Club ($\bar{x}$=41.82) and the Mountaineering Club ($\bar{x}$=41.55).

Table 3. *Factor Loadings and Means of the Scale of Hope for Preventing Climate Change*

	M	SD	Factor 1	Factor 2	Factor 3	CA	VE %
Individual	10,42	3,28					
1. I am willing to help solve the problems causedby climate change.	3,75	1,39	,695				
2. I know there is something I can do to help solve the problems caused by climate change.	3,44	1,27	,852			,771	26,57
3. I know what to do to help solve the problemscaused by climate change.	3,23	1,30	,800				
Social	19,55	4,51					
4. If everyone works together, we can solve the problems caused by climate change.	4,18	1,09		,602			
5. I believe that scientists can find ways to solve the problems caused by climate change.	3,92	1,12		,749			
6. I believe that people can solve the problems caused by climate change.	3,77	1,25		,822			
7. I believe more people want to take action to solve the problems caused by climate change.	3,76	1,21		,795		,831	19,99
8. Even if some people give up, I know there willbe others who will try to solve the problems caused by climate change.	3,91	1,15		,687			
Despair	10,60	3,19					
9. Climate change is beyond my control, so I'm not even going to bother trying to solve theproblems caused by climate change. (-)	3,69	1,42			,851		
10. The actions I can take are too small to solve the problems caused by climate change. (-)	3,07	1,25			,707	,724	18,17
11. Climate change is so complex that we cannot solve the problems caused by climate change. (-)	3,83	1,28			,829		
Responsibility= How responsible do you feel formitigating the negative impacts of climate change?	3,82	1,18					
Total	40,56	7,61				,770	67,75

Note: M=Mean, SD=Standard Deviation, Factor 1=Individual, Factor 2=Social, Factor 3=Hopelessness, CA=Cronbach's Alpha, VE=Variance Explained.

For the second hypothesis of the study, a Pearson Correlation Test was conducted. A correlation coefficient between 0.70-1.00 indicates a high relationship, while a coefficient between 0.70-0.30 represents a moderate relationship. On the other hand, a coefficient between 0.30-0.00 reflects a low relationship. These coefficients are crucial measures in evaluating the strength and direction of the relationship between variables (Büyüköztürk, 2014; Gürbüz & Şahin, 2014). Upon examining Table 6, it is observed that the responsibility independent variable is moderately positively correlated with the total score of SHPCC (r=0.517**). Similarly, moderate positive correlations are observed in the individual (r=0.422**) and social (r=0.559**) sub-dimensions. Looking at other factors, numerous low-level significant positive and negative correlations are observed, with r=0.30** being the highest correlation coefficient. This relationship is between the

frequency of student participation in club activities and the duration of club membership. In this context, the third hypothesis of the study was tested by conducting simple linear regression analysis to explain how significantly participants' levels of responsibility influence SHPCC.

Table 4.*One-Way Analysis of Variance between the Scale of Hope for Preventing Climate Change and its Subscales and Level of Education and Club Type*

Variable	Sum of Squares	Group	Squares Total	df	Mean Square	F	p.	Significance
Education Level	Social	Between Groups	163,260	2	81,630	4,080	,018	c-a, c-b
		Within Groups	6141,515	307	20,005			
		Total	6304,774	309				
	Despair	Between Groups	159,583	2	79,792	8,201	,001	b-a
		Within Groups	2986,817	307	9,729			
		Total	3146,400	309				
Club Type	Social	Between Groups	382,846	7	54,692	2,789	,008	4-5
		Within Groups	5921,929	302	19,609			
		Total	6304,774	309				
	SHPCC (Total)	Between Groups	950,950	7	135,850	2,422	,020	4-5
		Within Groups	16937,259	302	56,084			
		Total	17888,210	309				

Note: a=Undergraduate, b=Undergraduate, c=Graduate. 1=Fire Search and Rescue, 2= Mountaineering, 3= WiseTheologians, 4= Goodness, 5= Sports, 6= Red Crescent, 7= History, Society and Sociology, 8= Climate Ambassadors

Table 5. *Mean Scores of Clubs' Scale of Hope for Prevention of Climate Change*

Clubs	*M*	SD	SE	Lower Limit	Upper Limit	Min.	Max.
Fire Search and Rescue Club	41,86	7,353	1,243	39,33	44,38	30	55
Mountaineering Club	41,55	6,531	,804	39,94	43,15	20	55
Wise Theologians Club	40,78	8,167	1,444	37,84	43,73	21	54
Kindness Club	41,82	7,814	1,044	39,73	43,91	19	55
Sports Club	36,82	7,943	1,383	34,00	39,63	23	55
Red Crescent Club	39,19	6,626	1,171	36,80	41,58	26	55
History, Society, Sociology Clu.	38,29	7,096	1,341	35,53	41,04	24	50
Climate Ambassadors Club	42,14	8,947	1,691	38,67	45,61	23	55
Total	40,56	7,609	,432	3,610	3,765	19	55

Note: M=Mean, SD= Standard Deviation, Sh= Standard Error, Min= Minimum, Max= Maximum.

Table 6. *Correlation Analysis between the Scale of Hope for Preventing Climate Change and Other Variables*

Variables	Gender	Age	Education Level	Inhabited Region	Club Type	Membership	Frequency of	Responsibility	Individual	Social	Despair
Age	,074										
Education Level	-,045	,148**									
Region of residence	-,083	,001	-,035								
Club Type	-,169**	-,051	,074	-,109							
Membership Duration	-,102	,211**	,153**	,052	,055						
Frequency of Participation	,044	,122*	,137*	,019	-,081	**,269****					
Responsibility	-,080	,087	-,002	,011	-,098	-,068	-,019				
Individual	,007	,108	,010	,023	-,111	,061	,102	**,422****			
Social	-,014	,088	-,057	,058	-,093	,006	,021	**,559****	,564**		
Despair	-,083	,019	,166**	-,002	,014	,123*	,031	,008	,013	-,016	
SHPCC (Total)	-,040	,107	,040	,044	-,097	,082	,070	**,517****	,771**	,830**	,416**

Note: **=0.01, *=0.05 significance level.

The model established in Table 7 was found to be significant. The independent variable (responsibility) explains 26.7% of the variance in the dependent variable SHPCC. The level of responsibility significantly influences the level of hope regarding climate change mitigation (p=0.00). The regression equation between responsibility and the level of hope is found to be "**y=2.536+0.301*x**". Accordingly, a one-unit increase in the level of responsibility results in a 0.301 unit increase in the level of hope. Furthermore, when evaluated within a 95% confidence interval, this increase ranges from 0.245 to 0.357.

Table 7. *Simple Linear Regression Analysis between the Scale of Hope for Preventing Climate Change and the Responsibility Variable*

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients	t	p	95% Confidence Interval	
		b	Std.Error	β			Lower	Upper
SHPCC	(Fixed)	2,536	,114		22,291	,000	2,312	2,759
	Responsibility	,301	,028	,517	10,605	,000	,245	,357

Note: F(1, 308)=112.457, P=0.00; R2 =0.267; Durbin-Watson=1.738.

DISCUSSION

Within the scope of the research, it is seen that the mean scores of the participants' hope levels scale for climate change are high. In this context, some studies conducted on different sample groups (Aslan et al., 2023; Smith & Leiserowitz, 2012; van der Linden, 2015) The results of the research reveal comparable results. When the participants' levels of hope in terms of social clubs are analyzed, it is seen that the club with the highest average is the climate ambassadors, which has climate change studies. Then, the average scores of search and rescue, mountaineering and kindness clubs related to nature, ecosystem and environment are quite high. In a study conducted on outdoor athletes, it was observed that people who canceled or postponed their activities due to a climate-related event had higher climate change anxiety compared to the opposite situation (Aslan et al., 2023). The high hope levels of the members of clubs that focus on climate change studies such as climate ambassadors may be related to the fact that the mission and activities of these clubs are directly related to climate change. The observation of high levels of hope in other clubs related to nature, ecosystem and environment may be related to the fact that their members are sensitive to nature and the environment. Studies on outdoor athletes reveal that these athletes are sensitive to the natural environment and therefore may have higher climate change hopes. These explanations explain the differences in members' hope levels related to climate change depending on the fields of activity of social clubs.

Demographic variables were examined, revealing a significant distinction primarily concerning educational attainment and club affiliation. The research findings indicate a positive correlation between higher education levels and a heightened sense of hope regarding climate change mitigation efforts. This aligns with prior studies such as one conducted in Pakistan, which underscored the significance of youth and higher education among farmers in fostering adaptive capacities (Ali & Erenstein, 2017). However, contrasting results were noted in a study by Ngo et al. (2020), where educational attainment did not exhibit a significant influence (Ngo, Poortvliet, & Feindt, 2020). Regarding gender dynamics, no substantial disparity was observed in the research. Nevertheless, existing literature frequently suggests that women tend to demonstrate higher levels of hope, risk awareness, and proactive engagement in climate-related initiatives compared to men (Akerlof et al., 2013; Ngo et al., 2020; Sundblad et al., 2007). These findings reveal that the factors affecting climate change hope levels are quite complex and diverse. While the level of education may play a key role in determining the participants' environmental sensitivity and thus their climate change hope, the social environment and the clubs they join may also affect these hope levels. It should be taken into consideration that demographic factors such as gender may also have different effects on individuals' climate change perceptions and attitudes.

When examining the correlation between independent variables, it is observed that there is a moderate positive relationship between the level of responsibility-taking and the level of hope, which significantly influences hope levels. Important variables influencing this relationship in previous studies include individuals' level of knowledge, perceived threat, social norms, and personal experiences (Wolf & Moser, 2011). In a study, it was found that there is a relationship between individuals' level of responsibility-taking and their actions, such as reducing emissions stemming from their daily activities, changing lifestyles, and encouraging others in their communities to act (Wolf, Brown, & Conway, 2009). In this context, hope and taking responsibility are two important complementary factors in the fight against climate change. By

focusing on developing these two factors, social learning clubs can inspire their members to act and be part of the solution.

Within the scope of the research, it is seen that the responsibility variable significantly affects the hope for the prevention of climate change. In other words, as the level of responsibility increases, the level of hope also increases. In a study conducted specifically for women, it was observed that as the belief in climate change increases, the willingness to take responsibility and role in the struggle also increases (Besnili Memiş, 2019) In other studies conducted in this context, the participants' sense of responsibility for climate change gives comparable results. In addition to responsibility, self-efficacy, self-identity, and commitment to nature are also seen as important antecedents affecting the level of hope (Brügger et al., 2015; Dunlap et al., 2000; van der Linden, 2015; van Valkengoed et al., 2021). Finally, it is seen that there is a significant positive relationship between the frequency of participation in club activities and the duration of membership in the clubs. In this relationship, as the duration of membership increases, the number of participations in activities increases and decreases linearly. This is expected in social psychology and supports the commitment-attachment theory. According to this theory, the longer a person spends time in a group, the greater his/her commitment to that group (Howe, Brandon, Hinings, & Schofield, 2012). Therefore, as the duration of social club membership increases, the frequency of individuals' participation in club activities also increases. This is an indication that club members strengthen their commitment to their group and their social relationships.

Limitations

The study conducted within the scope of this research is limited to Ardahan University students. In addition, it is known that climate change has many antecedents such as cognitive knowledge, values and orientations, conservation motivation, ecological paradigms, and risk perception. In this study, only the responsibility factor was evaluated. These aspects determine the limitations of the study, and more research is needed on large sample groups, especially for policy makers.

CONCLUSION

Within the scope of this research conducted with students studying at Ardahan University who are members of at least one social club, it has been observed that the participants have high climate change mitigation approaches. When all of the social clubs are evaluated within the equation of commitment to nature, respect and consciousness, it is seen that they are well above the general average and the clubs related to the environment (search and rescue, mountaineering, etc.) are the leading ones. In fact, the significant difference in the level of education indicates that the environmental perspective has improved in undergraduate and graduate education. In addition to this, the increase in the level of responsibility shapes the perspective on the negative effects of climate change, as in all other social psychological determinants, by affecting the hope variable. In this context, it emphasizes the need for further research to understand the effectiveness of policymaking and community-level awareness-raising efforts on climate change. Increasing community hope levels and promoting positive behavioral changes in combating climate change is an important part of developing an effective response to the climate crisis. Therefore, a deeper understanding of the impact of demographic factors and other factors on climate change hope levels can help to design future strategies more effectively.

Additional Suggestions:

- Create platforms where students can express their concerns and hopes about climate change.
- Organize educational programs and workshops that emphasize the importance of hope and action.
- Bring together experts and activists working in the fight against climate change with students.
- Develop projects that encourage student participation in climate action.
- Future research should examine the relationships between levels of hope and taking responsibility among different types of social student clubs and different member profiles.
- Social student clubs should organize activities to improve the knowledge and skills of their members, reduce perceived threat, promote positive social norms, and allow members to share their personal experiences.
- Politicians and decision-makers should recognize that social student clubs can play an important role in combating climate change and that there is a need to develop policies to support them.

Bilgilendirme / Acknowledgement:

Yazar(lar) aşağıdaki bilgilendirmeleri yapmaktadır(lar):

1- Ethics committee permission was obtained from Ardahan University Scientific Research and Publication Ethics Committee on 22.01.2024 for the realization of the research (Number: E- 67796128-819-2400002344).

2- This article adheres to research and publication ethics.

Hakem Değerlendirmesi: Dış bağımsız
Çıkar Çatışması: Yazar(lar) çıkar çatışması bildirmemiştir.
Finansal Destek: Yazar(lar) bu çalışma için finansal destek almadığını beyan etmiştir.

Peer-review: Externally peer-reviewed.
Conflict of Interest: The author has no conflict of interest to declare.
Grant Support: The author declared that this study has received no financial support.

REFERENCES

Akerlof, K., Maibach, E. W., Fitzgerald, D., Cedeno, A. Y., & Neuman, A. (2013). Do people "personally experience" global warmingand if so howand does it matter? *Global EnvironmentalChange*, *23*(1), 81-91. https://doi.org/10.1016/j.gloenvcha.2012.07.006

Ali, A., & Erenstein, O. (2017). Assessing farmer use of climate change adaptation practices andimpacts on food security and poverty in Pakistan. *Climate Risk Management*, *16*(2), 183-194.https://doi.org/10.1016/j.crm.2016.12.001

Ardahan Üniversitesi. (2023). *Öğrenci kulüp ve toplulukları kuruluş ve işleyiş yönergesi.* Ardahan Üniversitesi Sağlık Kültür Spor Daire Başkanlığı.

Aslan, R., Köçer, M. S., & Mızrak, S. (2023). Worry about climate change of outdoor recreation participants: A case study in Türkiye. *Weather, Climate, and Society*, *15*(3), 801–812. https://doi.org/10.1175/WCAS-D-23-0039.1

Besnili Memiş, O. (2019). Kadınların iklim değişikliği ile ilgili algılarının belirlenmesi. *Journal of Academic Value Studies, 5*(4). https://ideas.repec.org/a/atj/journl/v5y2019i4p700-718.html

Brügger, A., Morton, T. A., & Dessai, S. (2015). Hand in hand: Public endorsement of climate change mitigation and adaptation. *PloS One*, *10*(4), e0124843. https://doi.org/10.1371/journal.pone.0124843

Bury, S. M., Wenzel, M., & Woodyatt, L. (2020). Against the odds: Hope as an antecedent of supportfor climate change action. *The British Journal of Social Psychology*, *59*(2), 289-310. https://doi.org/10.1111/bjso.12343

Büyüköztürk, Ş. (2014). *Veri analizi el kitabı.* Pegem Publishing.

Chen, M.F. (2020). Moral extension of the protection motivation theory model to predict climate change mitigation behavioral intentions in Taiwan. *Environmental Science and Pollution ResearchInternational*, *27*(12), 13714-13725. https://doi.org/10.1007/s11356-020-07963-6

Clayton, S., & Karazsia, B. T. (2020). Development and validation of a measure of climate change anxiety. *Journal of Environmental Psychology*, *69*(2), 101434. https://doi.org/10.1016/j.jenvp.2020.101434

Creswell, J. W. (2017). *Research design qualitative, quantitative, and mixed method approaches.* Sage Publications.

Dunlap, R. E., van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New trends in measuring environmental attitudes: Measuring endorsement of the new ecological paradigm: A revisedNEP scale. *Journal of Social Issues*, *56*(3), 425-442. https://doi.org/10.1111/0022-4537.00176

Ettinger, J., Walton, P., Painter, J., & DiBlasi, T. (2021). Climate of hope or doom and gloom? Testingthe climate change hope vs. fear communications debate through online videos. *Climatic Change*, *164*(1-2), 8. https://doi.org/10.1007/s10584-021-02975-8

Geiger, N., Swim, J. K., Gasper, K., Fraser, J., & Flinner, K. (2021). How do I feel when I think about taking action? Hope and boredom, not anxiety and helplessness, predict intentions to take climate action. *Journal of Environmental Psychology*, *76*(2), 101649. https://doi.org/10.1016/j.jenvp.2021.101649

George, D. ve Mallery, M. (2010). *SPSS for windows step by step: a simple guide and reference, (10a ed.).* Pearson.

Gezer, M., & İlhan, M. (2020). İklim değişikliğinin önlenmesine yönelik umut ölçeği: Türkçeye uyarlama çalışması. *Mediterranean Journal of Educational Research, 14*(34), 337–356. https://doi.org/10.29329/mjer.2020.322.16

Gürbüz, S., & Şahin, F. (2014). *Sosyal bilimlerde araştırma yöntemleri: felsefe, yöntem, analiz* (2nd ed.). Seçkin Publishing.

Hooper, D., Coughlan, J. & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *The Electronic Journal of Business Research Methods, 6*(1), 53 –60.

Howe, D., Brandon, M., Hinings, D., & Schofield, G. (2012). *Attachment theory, child maltreatment and family support: A practice and assessment model*. Macmillan Press.https://www.torrossa.com/gs/resourceproxy?an=5017614&publisher=fz7200#page=92

Hu, L. T., & Bentler, P. M. (1999). Cutoff Criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Structural equation modeling: *A Multidisciplinary Journal, 6*(1), 1–55.

IPCC (2022). *Mediterranean region*. Cambridge, UK and New York, USA. https://doi.org/10.1017/9781009325844.021

IPCC (2023). *Synthesis report. Contribution of working groups I, II and III to the sixth assessment report of the Intergovernmental Panel on Climate Change: Climate Change 2023*. Switzerland, Geneva. https://doi.org/10.59327/IPCC/AR6-9789291691647

Kaddo, J. R. (2016). *Climate change: Causes, effects and solutions. A with Honors Projects.* Spring Publishing. http://spark.parkland.edu/ah/164

Karasar, N. (2014). *Bilimsel araştırma yöntemleri* (26. bs.). Nobel Publishing.

Kline, R. B. (2023). *Principles and practice of structural equation modeling.* Guilford Publications.

Köçer, M. S., & Aslan, R. (2023). Gönüllü arama kurtarma ekiplerinin orman yangınlarındaki tahliye deneyimleri: 2021 Akdeniz orman yangınları. *Afet ve Risk Dergisi, 6*(3), 829–851. https://doi.org/10.35341/afet.1236021

Kurnaz, M. L. (2023). İklim değişikliği ve uyum süreçlerinde Türkiye. *Resilience, 7*(1), 199–208. https://doi.org/10.32569/resilience.1312684

Li, C., & Monroe, M. C. (2018). Development and validation of the climate change hope scale for high school students. *Environment and Behavior*, *50*(4), 454-479. https://doi.org/10.1177/0013916517708325

Mikhaylov, A., Moiseev, N., Aleshin, K., & Burkhardt, T. (2020). Global climate change and greenhouse effect. *Entrepreneurship and Sustainability Issues*, *7*(4), 2897-2913. https://doi.org/10.9770/jesi.2020.7.4(21)

Ngo, C. C., Poortvliet, P. M., & Feindt, P. H. (2020). Drivers of flood and climate change risk perceptions and intention to adapt: an explorative survey in coastal and delta Vietnam. *Journal of Risk Research*, *23*(4), 424-446. https://doi.org/10.1080/13669877.2019.1591484

O'Connor, R. E., Bard, R. J., & Fisher, A. (1999). Risk Perceptions, general environmental belief sand willingness to address climate change. *Risk Analysis*, *19*(3), 461-471. https://doi.org/10.1111/j.1539-6924.1999.tb00421.x

Onwuegbuzie, A. J., & Collins, K. M. (2007). A typology of mixed methods sampling designs in social science research. *Qualitative report*, *12*(2), 281-316. http://www.nova.edu/ssss/QR/QR12- 2/onwuegbuzie2.pdf

Özdamar, K. (2004). *Paket programlar ile istatistiksel veri analizi* (5. ed.). Kaan Kitabevi.

Pagano, M., Gauvreau, K., & Mattie, H. (2022). *Principles of biostatistics* (3rd ed.). Chapman and Hall/CRC. https://doi.org/10.1201/9780429340512

Pituch, K. A. ve Stevens, J. P. (2016). *Applied multivariate statistics for the social sciences,* (6. ed.). Routledge. http://spark.parkland.edu/ah/164

Rigdon, E. E. (1996). CFI versus RMSEA: A compari- son of two fit indexes for structural equation mo- deling. structural equation modeling: *A Multidisciplinary Journal, 3*(4), 369–379.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online, 8*(2), 23-74.

Schipper, E. L. F. (2007). Climate change adaptation and development: Exploring the linkages. *Tyndall centre for climate change research working paper,* 107, 13.

Smith, N., & Leiserowitz, A. (2012). The rise of global warming skepticism: Exploring affective image associations in the United States over time. *Risk Analysis: An Official Publication of the Society for Risk Analysis*, *32*(6), 1021-1032. https://doi.org/10.1111/j.1539-6924.2012.01801.x

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences,* (5. ed.). Routledge.

Sundblad, E.-L., Biel, A., & Gärling, T. (2007). Cognitive and affective risk judgments related to climate change. *Journal of Environmental Psychology*, *27*(2), 97-106. https://doi.org/10.1016/j.jenvp.2007.01.003

Thompson, B. (2004). *Exploratory and confirmatory factor analysis understanding concepts and applications.* APA.

Turan, İ., Duysak, A., & Kuğuoğlu, İ. H. (2017). Üniversite öğrenci topluluklarının toplumsallaşmada yeri ve önemi. *Recep Tayyip Erdoğan Üniversitesi Sosyal Bilimler Dergisi*, *3*(6), 203-217.

UN (1992). *United Nations Framework Convention on Climate Change.* https://unfccc.int/resource/docs/convkp/conveng.pdf

Van der Linden, S. (2015). The social-psychological determinants of climate change risk perceptions:Towards a comprehensive model. *Journal of Environmental Psychology*, *41*(1), 112-124. https://doi.org/10.1016/j.jenvp.2014.11.012

Van der Linden, S. (2017). *Determinants and measurement of climate change risk perception, worry, and concern.* The Oxford Encyclopedia of Climate Change Communication. Oxford University Press. https://doi.org/10.1093/acrefore/9780190228620.013.318

Van Valkengoed, A. M., Steg, L., & Perlaviciute, G. (2021). Development and validation of a climatechange perceptions scale. *Journal of Environmental Psychology*, *76*(3), 101652. https://doi.org/10.1016/j.jenvp.2021.101652

WMO (2023). *The United Nations Terminology Database*.

Wolf, J., & Moser, S. C. (2011). Individual understandings, perceptionsand engagement with climate change: insights from in-depth studies across the world. *WIREs Climate Change*, *2*(4), 547-569. https://doi.org/10.1002/wcc.120

Wolf, J., Brown, K., & Conway, D. (2009). Ecological citizenship and climate change: perceptions and practice. *Environmental Politics*, *18*(4), 503-521. https://doi.org/10.1080/09644010903007377

World Bank (2023). *Türkiye country climate and development report.* https://www.csgb.gov.tr/media/92451/turkiye-ccdr-full-report.pdf