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The Predictive Role of Green Space in Reducing the Stress of English Language Students of Alborz Payame Noor University: A Mixed Design

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ABSTRACT
Increasing urbanization has resulted in urban stress, and this issue has affected adults, including university students. This study investigates the relationship between the utilization of nearby green spaces by university students and their perceptions of stress and health. According to Ulrich's Stress Reduction Theory, this study designs an online survey method on students' stress and analyzes their stress based on the results of the survey. The statistical population of the research included all 417 undergraduate students of English Language Translation at Alborz Payame Noor University in the academic year 2022-2023. Finally, 186 students who completed the online survey were selected for the study. The Perceived Stress Scale scores were combined and entered into IBM SPSS statistics 25. The results obtained from the regression analysis showed that the utilization of green spaces is negatively correlated with perceived stress levels, indicating that the frequency and time of visiting green areas have a predictive role in reducing the stress of students. This research adds to the body of knowledge regarding the function that urban green spaces predict promoting wellbeing and stress reduction. Thus, some suggestions for utilizing urban green spaces to improve university students' health might be proposed.

KEYWORDS
Green Spaces, Stress, Stress Reduction Theory, Payame Noor University Students.

نشریه علمی
آموزش محیط‌زیست و توسعه پایدار

«مقاله پژوهشی»
نقش پیش‌بینی کننده فضای سبز در کاهش استرس دانشجویان زبان انگلیسی دانشگاه پیام نور البرز: یک طرح آمیخته

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چکیده

افزایش شهرنشینی منجر به استرس شهری شده است و این موضوع بزرگسالان از جمله دانشجویان را تحت تاثیر قرار داده است. این مطالعه به بررسی رابطه بین استفاده از فضاهای سبز مجاور دانشگاه توسط دانشجویان و ادراک آنها از استرس و سلامت می پردازد. با توجه به نظریه کاهش استرس اولریش، این مطالعه با استفاده از نظرسنجی آنلاین که در مورد استرس دانشجویان طراحی شده و بر اساس نتایج همین نظرسنجی، استرس آنها را تحلیل می کند. جامعه آماری پژوهش شامل کلیه دانشجویان مقطع کارشناسی مترجمی زبان انگلیسی دانشگاه پیام نور البرز در سال تحصیلی ۱۴۰۱–۱۴۰۲ بوده است. در نهایت، ۱۸۶ دانشجو که نظرسنجی آنلاین را تکمیل کردند برای مطالعه انتخاب شدند. نمرات مقیاس استرس درک شده با کمک نرم افزار آماری IBM SPSS نسخه ۲۵ تحلیل شدند. نتایج به دست آمده از تحلیل رگرسیون نشان داد که استفاده از فضاهای سبز با سطوح استرس درک شده همبستگی منفی دارد، که نشان می دهد دفعات و زمان بازدید از مناطق سبز نقش پیش بینی کننده ای در کاهش استرس دانشجویان دارد همچنین پیش بینی می کند که فضاهای سبز شهری در ارتقای سلامت دانشجویان اثرگذار است. بنابراین پیشنهادهایی برای استفاده از فضاهای سبز شهری برای کاهش استرس و ارتقای سلامت دانشجویان ارائه می شود.

واژه‌های کلیدی

استرس، دانشجویان دانشگاه پیام نور، فضاهای سبز، نظریه کاهش استرس.

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Introduction

According to the World Health Organization (2016), the amount of research on the connection between urban green spaces and human health is growing. Extensive research has been conducted to identify the mechanisms behind the correlations that now exist between health status assessments and environmental characteristics (Mass et al., 2009), as well as to determine which kinds of green spaces or aspects are more effective in promoting health (Qiu, 2015). Notably, a few studies have concentrated on the effects of green space on groups of people who may be more susceptible to health problems than others, including the elderly (Thompson & Aspinall, 2011) and residents of underprivileged areas (Roe et al., 2017).

Over time, a number of theoretical frameworks have been put up to explain the connections between green space and health, like the Biophilia Hypothesis, Attention Restoration Theory, Psycho-evolutionary Theory, and Stress Reduction Theory. According to the Stress Reduction Theory (Ulrich, 1984), people who are under a lot of stress can benefit from both direct and indirect contact with nature, such as going to green spaces or taking in views of a natural setting, as this can help them relax and change to a more positive emotional state. Ulrich et al. contend that exposure to natural stimuli results in feelings of improved wellness and relaxation because people are inherently prone to find them pleasant when they are non-threatening (1991). Similar to this, natural settings are more likely to provide restorative elements that can aid in emotional regulation and recovery from stress, exhaustion, and poor mood (Roe et al., 2017).

In order to maintain or balance their moods, humans employ coping mechanisms to provide emotional regulation, which can be either conscious or automatic (Korpela, 2003). Interactions with the physical and social surroundings are examples of external elements that may influence this process (Ulrich et al., 1991). Given this, it has been demonstrated that green spaces are vital resources because they offer restorative experiences like self-reflection, good mood changes, directed attention capacity restoration, and relaxation.

Living near natural surroundings has been linked to various health benefits, including but not limited to increased physical activity and outdoor experiences, exposure to natural lighting, stimulation of the senses, and aesthetic enjoyment (Korpela, 2003).

Hartig et al. (2014) claim that visits to urban parks and forests, for example, have been proven to improve population health through four pathways: physical, social, mental, and physiological. These paths are intricate and not mutually exclusive. Nonetheless, green areas typically provide chances for social interaction, physical activity, rest, and clean air, all of which contribute to a host of health advantages. Thus, a growing number of studies have shown that merely having access to green space may affect people's stress levels. Previous research has demonstrated that, irrespective of sociodemographic factors, individuals who resided in areas with a higher proportion of green space reported lower levels of stress (Ward Thompson et al., 2012).

Accessibility has been investigated in this setting in a number of ways. In terms of visual accessibility, it was discovered that the presence or absence of a view of green spaces from homes was a significant predictor of the perceived stress levels of the residents in impoverished cities in Scotland (Ward Thompson et al., 2016), which is consistent with Ulrich's original findings on the impact of hospital window views on patients' recovery following surgery (Ulrich, 1984). According to the World Health Organization (2016), proximity is another way to think about accessibility. In this instance, research has shown a correlation between stress levels and the distance between a person's house and the closest green area (Grahn & Stigsdotter, 2003). Access to a private garden from home and shorter commutes to green space were linked to reduced levels of self-reported stress (Ward Thompson et al., 2016). Whether or not individuals use the green spaces around them acts as a significant mediator between their use of these spaces and their accessibility. Regardless of gender and age, people generally report feeling less stressed the more often they visit green places (Roe et al., 2017).

According to Ulrich et al. (1991), stress is the process by which an individual responds

psychologically, physiologically, and often with behaviors, to a situation that challenges or threatens wellbeing. While physiological reactions involve multiple bodily systems like the cardiovascular, skeletomuscular, and neuroendocrine systems, psychological reactions might include feelings like fear, wrath, and grief. Generally, stress can be quantified using physiological data by utilizing one or more of the previously mentioned systems: neuroendocrine, which measures skin conductance and cortisol; skeletomuscular, which measures muscle tension; and cardiovascular, which uses electrocardiograms, heart rate variability, blood pressure, or pulse transit time (Ward Thompson et al., 2016).

As Ward Thompson et al. (2016) mention, data from self-reported stress is another method of measuring stress. One often employed technique is the Perceived Stress Scale (PSS), which characterizes the stress it assesses as the extent to which one's life circumstances are evaluated as stressful. The validity of this approach is confirmed by prior research, which demonstrated a substantial link between PSS scores and physiological measures of stress. Studies on university green spaces are currently becoming more prevalent. They address how students use and interpret these areas, as well as how they affect their self-reported quality of life and perceived stress level. However, research on the usage of green space and its possible health advantages by students studying abroad is still lacking (Holt et al., 2019).

Therefore, the uniqueness of this study resides in its examination of whether the widely recognized associations between urban green spaces and health also apply to Iranian EFL students that are presently expanding in university-centered cities and originated from an urban setting in a nation that is fast becoming more urbanized, with distinct cultural norms for the utilization of green space and stress reduction; therefore, more research is still needed to determine how green spaces could benefit university students' stress reduction. Thus, the purpose of this study is to determine whether green areas help Iranian EFL students manage their stress and how they are used by them at Alborz PNU. Our primary research question is: What is the association between

access to green space and the perceived stress of Iranian EFL students at Alborz PNU?

Research Methodology
Study Design
The cross-sectional design of this study was employed, and an online survey was used to gather data. Mixed methods—quantitative and qualitative—were used to get a more thorough insight. In this study, self-reported use of and perceived access to green space were taken into account when analyzing contact with green space.

Participants
The statistical population of the research included all 417 undergraduate students of English Language Translation at Alborz Payame Noor University in the academic year 2022-2023. Finally, 186 students who completed the online survey were selected for the study. Out of the 186 undergraduate students in the sample, 118 were female (64%), and 68 were male (36%). The age range of the majority of participants was 20 to 27 years old.

Instrument
The main instrument is a questionnaire, which consists of five closed and open-ended parts: students' demographic information, health status indicators, coping strategies, use of green space and access to green space, and their stress level. The first part of the questionnaire is related to students' demographic information and asking their age and gender.

The second part of the questionnaire is related to health status and coping strategies. A single-item question asking participants to rate their overall health on a 5-step scale from 1 (very poor health) to 5 (very good health) was used to measure their perceived general health, which has been used in several studies examining the connection between human health and green spaces (Dadvand et al., 2016; Maas, 2006; Maas et al., 2009). The Perceived Stress Scale (PSS) was used to calculate the perceived stress level (PLS) (Cohen et al., 1983), which is a frequently utilized, reliable instrument for determining stress levels in the context of landscape and wellness (Ward Thompson et al., 2012). The PSS comprises ten

items that ask participants to rate the frequency of their feelings and thoughts during the past month on a 5-point scale ranging from 0 (never) to 4 (very often). A higher score indicates a higher perceived degree of stress. The calculated results reflect this perception. Participants were questioned to list their preferred coping mechanisms for handling stress in response to an open-ended inquiry. Examples like exercise, walking, and listening to music were given.

The third part of the questionnaire examined the use of green space from two angles: the reasons and obstacles for visiting such areas, as well as self-reported use of and perceived availability of green space. When asked if they thought that going to green places was a good way to decrease stress, participants were asked if they were aware of the health advantages of green spaces. Five choices were chosen from the pilot study based on self-reported use of green spaces, including the frequency of visits and the amount of time spent there each week. In an open-ended inquiry, the respondents who stated they had never used these types of facilities were asked why they had never gone. The others were asked open-ended questions concerning their reasons for coming, the things they did, and the names of the places they typically went.

The fourth part is related to perceived accessibility, which includes having a garden around the house, a view of greenery, and an estimate of how long it would take to get to the closest green space. Finally, the last part of the questionnaire deals with the participants' stress levels. It asks questions such as, 'How often have you felt stressed?'

Based on satellite maps and an interview with ISNA (2022), Hamidreza Abdullahpour, referring to the municipality's special approach to the development of urban green spaces, stated: With the efforts made in recent years, the per capita urban green space in Karaj (the center of Alborz province) has reached 17 square meters, which is about two meters more than the national standard. Figure 1 is the aerial map of Alborz province and shows the density of green spaces there.

Figure 1. Aerial Map of Alborz Province

Figure 2. Aerial Map of Alborz PNU

Figure 2 is the aerial map of Alborz PNU and shows the parks near the university. To mention some of the main green spaces in Alborz province, we can mention Jahan Nama Forest Park, Chamran Park, Iran Zameen Park, Family Park, Hamoon Park, and Bird Park. For example, Jahan Nama Forest Park is the largest park in Karaj, with diverse plant species and a beautiful lake covering an area of 1400 hectares. Another big and beautiful park in Karaj is Chamran Park, which has an area of 37 hectares, and the Karaj River passing through it. The nearest parks to Alborz PNU are Aseman, Kosar, Salamat, Malekshah, and Lotus. As seen in Figures 1 and 2, Alborz PNU was placed near mountains, lakes, parks, and a river, providing students with easy access to a range of green spaces within a 30-minute walk.

The definition of "green space" as parks, sports fields, natural areas like woodlands and wetlands, and other types of ecosystems was the basis for the term put forth by the World Health Organization (2016). The questionnaire included a description of the study's scope regarding green space. To help responders grasp the actual meaning of the guidelines, examples of common urban green places in Alborz were also included. The term "garden" in this study refers to the private gardens of the participants, whereas "green space" refers to public urban green spaces.

Data Collection
Pilot Study
Due to the lack of prior research on the subject, a pilot group comprising 10 students from the intended group was held to identify possible questionnaire ambiguities. The participants who were volunteers in Eitaa and Soroush answered the questionnaire on how often they visit green spaces, how long they think it takes to get to the closest green space, and how much time they spend there each week. Based on the pilot study, some trivial revisions were made to the questionnaire.

Prior to the commencement of the study, advertisements with the updated questionnaire were displayed, providing the communication channels with instructions and the reason for the study. Clicking the link would allow anyone who wished to participate in the survey to fill out the form.

Data Analysis
To analyze the qualitative data that was gathered, including stress management techniques, justifications for not visiting the neighborhood green space, activities done there, and the locations of regularly visited green spaces, the following steps were taken:

Participants' responses to the open-ended questions were collected in an Excel sheet exactly as they were typed, without any modification or correction for typographical mistakes, to keep the data authentic. The responses to each question were pasted in an organized way so that it could make the interpretation process easier. In the next step, the whole answers were reviewed by the researchers using content and document analysis to interpret the findings of the data collected. Themes and categories were created and sorted by proportion. In this regard, the open-coding strategy (Strauss & Corbin, 1990) was applied, based on which the data were analyzed.

The Perceived Stress Scale scores were combined and entered into IBM SPSS statistics 25 with additional quantitative data that was gathered. To gain a complete picture of the features of the participants' health state, use of, and access to nearby green areas, frequency and descriptive analyses were initially conducted. Numerous non-parametric correlation tests, including the Kruskal-Wallis test and Spearman's non-parametric correlation test, were carried out in order to look for possible correlations between measures of green space use and health indicators because the data did not meet the Kolmogorov-Smirnov criteria for normality of distribution. To further understand the relationships, regression models predicting health or reduced stress levels were constructed using the linked variables.

Two methods were used to investigate how individual characteristics (gender and age) affected the effect of modification: (i) Kruskal-Wallis and Mann-Whiney U tests between individual factors, green space measures, and health indicators; (ii) regression analysis for additional detection. All independent factors that were likely to predict stress or health were placed into a single block when the regression models were constructed using the "enter" approach; only variables that were significantly

correlated with the dependent variable were taken into account by the model.

Research Findings

Self-reported stress scores had a mean of 18 (SD = 5.65, moderate stress) and varied from a minimum of 7 (low stress) to a maximum of 31 (high stress). With a median score of 3, perceived general health varied from extremely poor to very good. Since none of the variables was determined to be regularly distributed, the remaining analysis was conducted using non-parametric tests.

The coping strategies offered by the respondents are displayed in Figure 3. Themes were used to synthesize and group the responses. The problem-focused coping techniques "help and social support seeking" and "direct action" described how students confronted the sources of their stress and attempted to offer answers to their difficulties. Students who answered in these categories indicated that they would seek assistance by, for instance, discussing the stresses in their lives with friends or family or by immediately addressing the issues that were causing them stress. Participants described how students faced the sources of their stress and attempted to offer solutions to solve their difficulties. They especially identified behaviors like asking friends or parents for aid as problem-focused coping mechanisms. Students who answered in these categories indicated that they would seek assistance by, for instance, discussing the stresses in their lives with friends or family or by immediately addressing the issues that were causing them stress. Participants suggested things like asking their parents or friends for support.
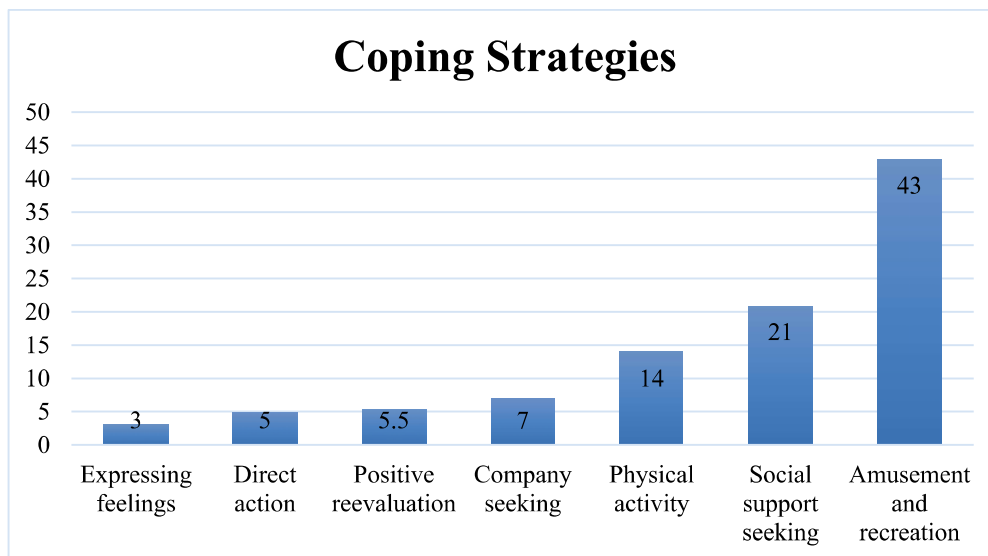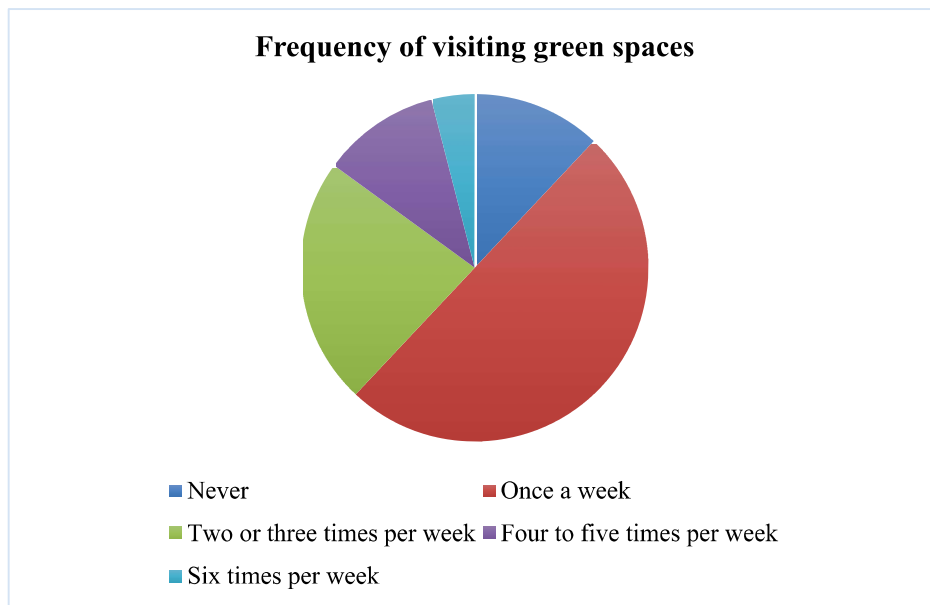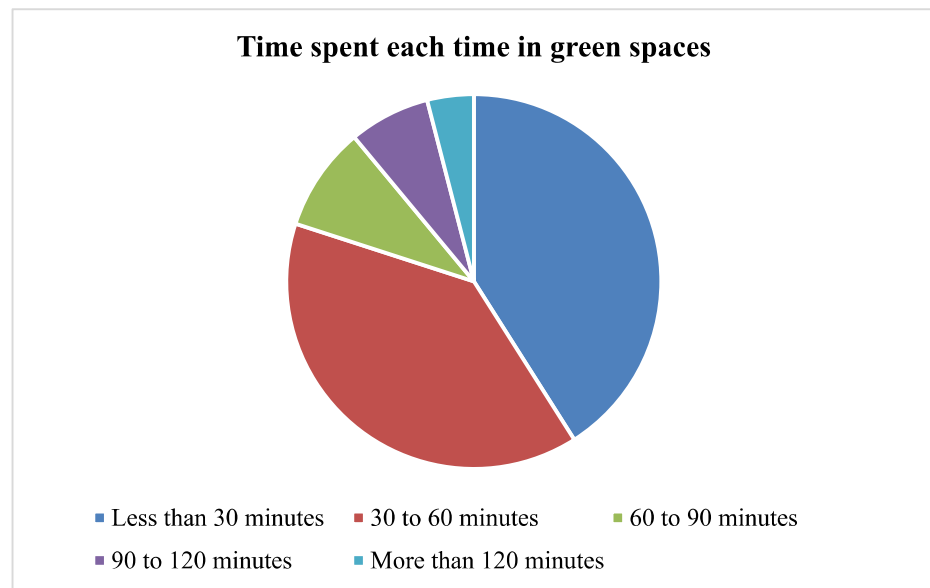

Figure 3. Overview of Coping Strategies

The actions taken to ease the discomfort brought on by stressors are categorized as emotion-focused coping methods. The most often mentioned coping strategies were amusement and recreation, such as listening to music, watching movies, and playing video games

Running, playing football, going to the gym, and other forms of "physical activity" were a significant subset of coping mechanisms. When participants wanted to stay with someone else to relieve stress, they described these circumstances as hanging out with friends and having phone calls with friends or relatives as company seeking. Strategies for positive reappraisal were included, for example, thinking, calming down, and attempting to solve the problem. Having a hard cry and smoking were the least common examples of how students let go of their feelings. According to Figures 4 and 5, the majority of participants (50%) said they visited green spaces at least once a week and spent an average of less than an hour there.

Frequency of visiting green spaces

- Never
- Once a week
- Two or three times per week
- Four to five times per week
- Six times per week

Figure 4. Students' Use of Green Space

Time spent each time in green spaces

- Less than 30 minutes
- 30 to 60 minutes
- 60 to 90 minutes
- 90 to 120 minutes
- More than 120 minutes

Figure 5. Students' Time Spent Each Time in Green Spaces

Figure 6 also presents a list of activities that students typically prefer to do in green spaces. We categorized and summarized eight categories. Taking a walk was a significant activity, accounting for about 49% of all responses. "Relaxation" primarily refers to students using the green spaces surrounding the university and their accommodations as a way to decompress and relieve stress; "being in contact with nature" includes observing wildlife and taking in the scenery; "picnic activities," mainly grilling out, are also popular; social interaction, like hanging out with friends, are important components of green activities; "passing through" is a type of activity that students who live near green spaces frequently engage in on their own; and "physical exercise" includes sports like football, tennis, mountain climbing, and jogging.
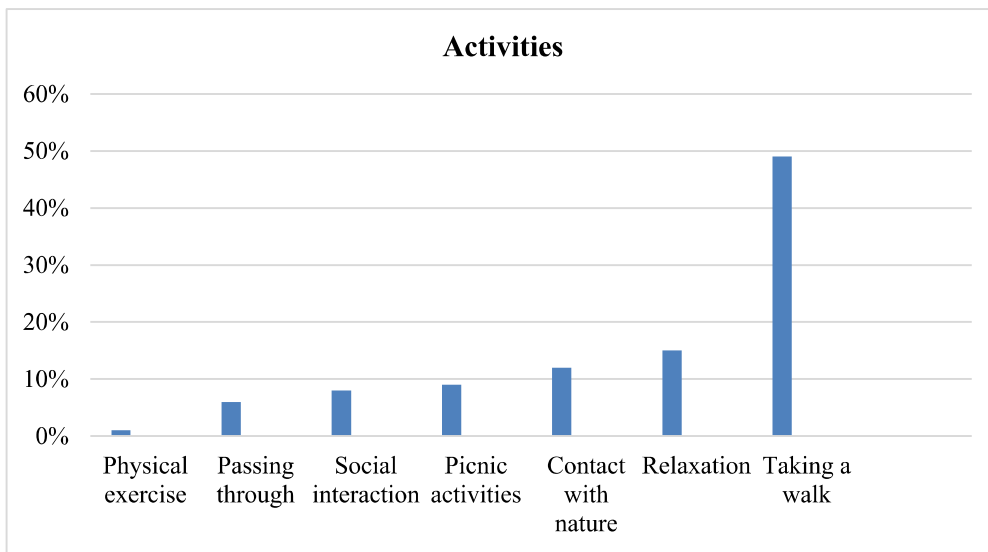
Figure 6. List of Activities in Green Spaces

The locations of the green spaces that the participants frequented are shown in Figure 7, together with significant nodes pertaining to the students' daily schedules. It shows that the majority of the green spaces that students report using regularly are located close to both the university and their housing, particularly within a 30-minute walk.
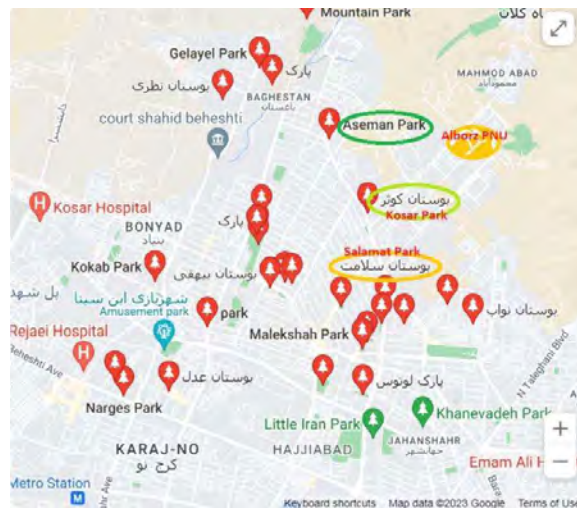

Figure 7. Locations of the Green Spaces

Most respondents thought Alborz Province's green spaces were of high quality. An average of 4 out of 5 was assigned to green areas, with 90% of respondents rating them as Good or Very Good. Variables could show varying correlations when using Spearman's non-parametric correlation test. As anticipated, there was a negative correlation (Rs = 0.439, p < 0.0001) between perceived distance and the frequency of visits to green places. The time spent in green spaces was strongly connected with it, suggesting that individuals who visit these areas more frequently also spend more time there (Rs = 0.489, p < 0.0001).

Finding on participant attitudes was that there was a strong correlation between self-reported use of green spaces and understanding of the advantages of green spaces: Rate of visitation: Rs = 0.196, p = 0.007; duration of visitation: R = 0.236, p = 0.003. There was not another noteworthy association discovered. There was no other discernible association

between the factors. Using an aggregated scale variable that represented the utilization of green spaces (frequency plus time), a Mann-Whitney U test was used to examine the differences between the survey populations. The view of green spaces from home appeared to have an impact, even though neither gender nor having access to a garden were associated with the use of green spaces. It was discovered that participants who could see green spaces from their residences used them considerably more (U = 3836, p = 0.013).

Regression models to forecast the utilization of green areas based on the factors gathered are shown in Tables 1 and 2. The amount of time students spend in green spaces each week and the frequency of visits were found to be significantly predicted by awareness and perceived journey time. This finding supports the idea that students will use green spaces more frequently the closer they live to them. There was no statistically significant correlation found between the utilization of green space and perceived quality.

Table 1. Regression Model Predicting the Frequency of Visits in Green Spaces

	Unstandardized Coefficients		Standardized Coefficients	t	p	F
	B	Std. Error	Beta			
(Constant)	2.32	0.37		5.25	0.000**	
Awareness	0.24	0.09	0.17	2.86	0.003**	25.76(0.000**)
Travel Time	-0.44	0.05	-0.33	-6.48	0.000**	

Dependent variable: frequency of visits. **Significant at the p < 0.01 level (two-tailed). Note: The model was significant at p < 0.01 with an R2 value of 0.222.

Table 2. Regression Model Predicting Time Spent in Green Spaces

	Unstandardized Coefficients		Standardized Coefficients	t	p	F
	B	Std. Error	Beta			
(Constant)	0.62	0.52		1.23	0.235	
Awareness	0.42	0.12	0.24	3.63	0.000**	13.00(0.001**)
Travel Time	-0.27	0.08	-0.23	-3.18	0.002**	

Dependent variable: time spent in green spaces. **Significant at the p < 0.01 level (two-tailed). Note: The model was significant at p < 0.01 with an R2 value of 0.114.

The utilization of green spaces was substantially connected with perceived general health using the same non-parametric correlation test: frequency of visitation: Rs = 0.504, p < 0.000; time spent during visitation: Rs = 0.436, p < 0.000. It also showed a negative association (Rs = 0.318, p < 0.000) with the perceived travel time to green spaces; however, this could be accounted for by the correlations already present between the variables pertaining to access and use of green spaces. Likewise, there was a negative correlation (Rs = 0.181, p = 0.013) and a positive correlation (Rs = 0.190, p = 0.009) between knowledge of the advantages of green areas and favorable general health. There was a negative correlation found between perceived stress and using green spaces. The two health variables—perceived stress and general health—also showed an expected correlation with one another: It is confirmed that those who experience higher levels of stress also report worse levels of health (Rs = 0.475, p = 0.000).

A linear regression was conducted to predict perceived general health, with gender, age, frequency of visits, and amount of time spent in green spaces per week as the independent variables. This was done to test the relationship between students' use of green spaces and their perceived general health for potential confounding variables. The 'enter' technique was used to add the independent variables to the model. Only two factors, though—frequency and amount of time—were significant. According to Table 3 of the model, the use of green spaces was found to be a significant predictor of the reported general health condition.

Table 3. Regression Model Predicting Perceived General Health

	Unstandardized Coefficients		Standardized Coefficients	t	p	F
	B	Std. Error	Beta			
(Constant)	2.08	0.15		13.21	0.000**	
Awareness	0.28	0.07	0.29	3.40	0.001**	37.90(0.000**)
Travel Time	0.19	0.05	0.27	3.14	0.002**	

Dependent variable: perceived general health. **Significant at the $p < 0.01$ level (two-tailed). Note: The model was significant at $p < 0.01$ with an R2 value of 0.295.

Similarly, another linear regression model was constructed to predict levels of stress in order to examine the relationship between the use of green space and stress levels for potential influencing factors. Frequency and amount of time spent were significant predictors of stress levels, as shown in Table 4. The utilization of green spaces is negatively correlated with perceived stress levels, indicating that students who visit green areas more frequently and spend more time there report feeling less stressed.

Table 4. Regression Model Predicting PSS

	Unstandardized Coefficients		Standardized Coefficients	t	p	F
	B	Std. Error	Beta			
(Constant)	23.91	0.86		28.61	0.000**	
Awareness	-1.04	0.46	-0.16	-2.21	0.027**	71.23(0.000**)
Travel Time	-2.37	0.35	-0.51	-6.59	0.000**	

Dependent variable: predicting PSS. **Significant at the $p < 0.01$ level (two-tailed). Note: The model was significant at $p < 0.01$ with an R2 value of 0.436.

It has been demonstrated that the accessibility of green spaces, and specifically the perceived journey time from home and the visual accessibility from home through the view of green areas, are correlated with use. Therefore, it stands to reason that access to green spaces is also associated with improved well-being. The correlation between reported stress and health and the perceived availability of green spaces was validated by the Mann-Whitney and Kruskal-Wallis tests. Once more, no obvious correlation was found for age and gender.

Nonetheless, it was also discovered that those who never went to green areas but had a view of greenery from their homes reported reduced stress levels (U = 36, p = 0.021), suggesting a relationship independent of use. In terms of general health, this was not the case (U = 83, p = 0.768). Participants who did not visit green spaces but who did have gardens around their homes reported significantly lower stress levels (U = 15, p = 0.001) and better perceived general health (U = 28, p = 0.011), despite the fact that the presence or absence of a garden was found to be uncorrelated with the use of green spaces from home. They were also seen to report reduced stress levels (U = 36, p = 0.021), suggesting a relationship that held true regardless of usage. It was not the case regarding general health (83, p = 0.768).

The utilization of green areas was not shown to be connected with the presence or absence of a garden; however, those who had gardens near their homes but did not frequent green spaces reported much lower stress levels (U = 15, p = 0.001) and improved overall health perception (U = 28, p = 0.011). The notion that going to green places is a good approach to decompressing was accepted by 77% of the participants. Despite the fact that the use of green spaces and health characteristics were found to be connected with awareness of the health advantages of green spaces, participants were also questioned about why they did not visit local green spaces.

The explanations provided by the participants who stated they had not used any green places in Alborz province over the previous four weeks were divided into five main categories, as Figure 8 illustrates. "Lifestyle" and " Uninterested in visits" alluded to individual lifestyle choices. "Lack of time" and "Distance" both affirmed how crucial it is

that green places be accessible.
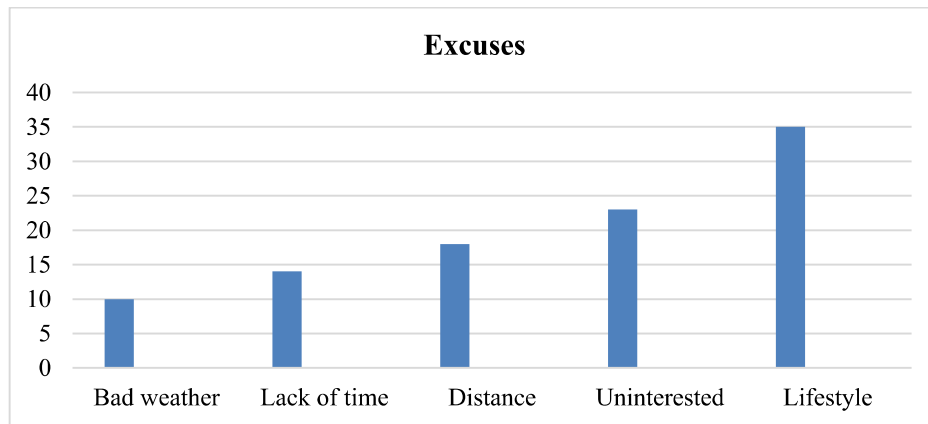
Figure 8. A Summary of the Stated Excuses for Not Going to the Nearby Green Spaces

Remarkably, individuals who demonstrated knowledge of the advantages of green spaces were shown to have improved perceived general health (Rs = 0.410, p = 0.043), even among those who reported never visiting a green spa. However, this effect was not seen with feelings of stress.

Conclusion

The study's findings are in line with prior research, as the participants' self-reported general health and perceived stress were significantly correlated with the amount of time and frequency they spent in green spaces. Furthermore, consistent with earlier experimental findings, no discernible variations in the health advantages of green spaces were discovered that may be connected to an individual's gender and age.

Our findings (Figure 3) further demonstrate that participants' favorite methods of stress relief were seeking out social support and getting moving. As a result, it was also discovered that students loved going for walks, picnics, working out, and hanging out with friends when they visited nearby green places (Figure 6). Thus, it seems that PNU students can engage in social and physical activities in the neighborhood's green spaces, which helps them manage their stress. This is consistent with other research that identified social interactions (Maas et al., 2009; Ward Thompson et al., 2016) and physical activities (Barton & Pretty, 2010) as potential mediators of the

relationships between the utilization of green spaces and stress reduction and health promotion.

More data on the factors that influence PNU students' improved use of local green spaces is required if the benefits of green space utilization for stress relief and health promotion can now be proven. Students' utilization of green areas was found to be influenced by their perception of the places' accessibility, as determined by examining the relationships between the variables.

First, it was shown that a major predictor of the frequency of visits was the perceived time it took to get to the closest green space. Put another way, students will visit green places more frequently the fewer times they have to walk there, which is consistent with the research on the significance of proximity. Stated differently, students will visit green spaces more frequently the fewer times they have to go there, which is consistent with the literature already in existence emphasizing the significance of proximity to green spaces for active use (Grahn & Stigsdotter, 2003; Nielsen & Hansen, 2007).

There is some evidence to suggest that having visual access to nature from home may also encourage people to spend more time in green spaces. Secondly, a view of green spaces from the participants' homes also showed a positive correlation with their use of green space, referring to both the frequency of visits and the amount of time spent there. This

outcome would corroborate the hypothesis from a prior study (Grahn & Stigsdotter, 2003) that suggested being able to see green spaces from one's house might potentially be enticing.

The vast majority of participants in our sample concurred that going to green areas was a good way to decompress. Nevertheless, a few students continued to ignore these areas. Therefore, it is important to think about the obstacles that these students had to overcome.

The findings indicated that the two main causes were lifestyle and a lack of interest in visiting (Figure 8). This might be interpreted as supporting the findings of Ward Thompson et al. (2008) and the idea that early experiences have a moderating effect on the utilization of green areas in later life. It is reasonable to presume that some students do not regularly frequent these kinds of places, which could be due to a number of things, including culture or past living situations. In fact, the familiarity and connectivity of nature are also associated with the utilization of green areas for health and well-being (Martin et al., 2020). Students may be less likely to visit green spaces because of the country's rising urbanization, which is detrimental to their sense of connection to and interaction with nature (Zhang et al., 2014).

Consistent with our findings, research from the UK and the US has demonstrated a strong correlation between general health, self-rated quality of life, perceived stress levels, and frequent use of green spaces, particularly active usage of such places, among college students. Consistent with our findings, university students in the UK were discovered to mostly use green places for socializing and relaxation (Holt et al., 2019; Mcfarland et al., 2008).

However, one of the most significant disparities identified in our survey relates to the coping mechanisms employed by PNU students. According to a study conducted in the UK on impoverished urban neighborhoods, young people were more inclined to walk or seek out company as a coping mechanism for stress (Roe, Aspinall, & Thompson, 2017). In contrast, our sample's participants were more likely to utilize amusement activity as a coping mechanism, as seen by the fact that they most frequently mentioned using recreation as a coping method. One of the biggest obstacles to utilizing green spaces, according to US students, is "not being aware of opportunities"

(Holt et al., 2019). In contrast, regardless of whether they were aware of the numerous chances available, participants in our sample were shown to be disinterested in using green spaces.

In addition to the observation that students who lived nearer to or had a view of greenery from their homes would also use the local green areas more, there appears to be a separate relationship between visual accessibility and health. In fact, students who had visual accessibility to local green areas, reported feeling less stressed than those who did not, even within the group of students who claimed to have never visited any green places. This theory is supported by earlier research, which found that looking out of windows at natural scenery or even just looking at images of it can improve people's health and well-being (Ward Thompson et al., 2016). As a result, homes with a view of greenery may also directly benefit students' health promotion. While prior research has linked stress levels to having access to a private garden (Grahn & Stigsdotter, 2003), our findings have produced contradictory findings.

In fact, no such correlations were found in the sample's primary population. On the other hand, students who had a garden around their housing also reported better perceived general health and lower stress levels than those without, even among the group of students who claimed never to have visited neighborhood green areas. These results may once again emphasize how important it is to have green spaces near pupils' daily routines. Our findings do not indicate a substantial correlation between the utilization of green spaces and perceived quality despite the findings of other studies (Hadavi, 2017). The pupils' assessments of the green spaces' generally good quality provide one explanation for this.

One intriguing conclusion from the survey was that the majority of participating students thought that going to green spaces was a good way to grow. The variable was first added to the survey in an attempt to determine the significance of green areas in Iranian culture; hence, this outcome was unexpected. Nonetheless, a study done by Hoglhammer, Muhar, and Stokowsky (2019) assessing the outdoor recreation practices of two immigrant communities in Austria produced findings

similar to these. It was discovered that Iranian PNU students were conscious of the advantages of being in natural settings and expressed the significance of being in nature (Hoglhammer, Muhar, & Stokowsky, 2019). Furthermore, it was discovered that this variable was one of the primary determinants of the usage of green spaces and that it even had a correlation with the reported health of students who did not use green spaces.

It is noteworthy to note that there is a correlation between this awareness and reported health status but not between perceived stress levels. This outcome might be explained by the significance of internal variables impacting the perception or experience of stress. It is probable that PNU students' perceptions of their health will improve just by knowing that they may go to green areas to deal with their emotions if necessary. To comprehend the connection between this awareness and the perceived health of communities, further data is necessary.

According to the data gathered, while participants openly acknowledged the health advantages of going to green areas, they seldom ever indicated coping mechanisms that were specifically associated with green spaces. Alternatively, a large percentage of participants said they sought support from friends or parents as a way to deal with stress. This result aligned with an earlier UK study (Gu, 2009), which found that stressed-out PNU students tended to put up with issues rather than deal with them. Two phrases that emerged from the student interviews were "enjoying loneliness" and "friendship patterns," highlighting the significance of having a support system (Gu, 2009). It was discovered that they hardly ever sought out the kind of expert assistance provided by psychologists or counselors, which may have been worsened by communication and language hurdles.

The term "amusement and recreation" may theoretically refer to a wide range of activities that people might engage in in green areas. As was already indicated, the primary activities students engaged in green spaces were, in fact, associated with the coping mechanisms they discussed, including socializing, physical

activity, and relaxing. Walking in nature may be the most significant coping mechanism used in urban green spaces, according to the responses, with "taking a walk" being the most common activity in green spaces (Stigsdotter & Grahn, 2011). This finding is consistent with earlier research in the field.

This study includes PNU students enrolling in Alborz province, Karaj, in the body of information already available regarding the benefits of urban green areas and health. This new information adds to the body of research on the positive effects of natural environments on health by demonstrating a substantial correlation between urban green areas and students' health. The frequency and duration of trips to green spaces, independent of the students' age and gender, were found to be connected with their perceptions of their general health and stress. The survey also revealed two important influencing elements for the utilization of green spaces: the perceived time it takes to go to the closest green space and the view the green space has from home.

The results of the qualitative survey also showed that three major barriers to student visits were time constraints, a lack of interest in the field, and lifestyle. Additionally, it was discovered that EFL PNU students were more likely to turn to recreational and amusement pursuits like playing video games and listening to music to help them relax. This study emphasizes how critical it is to spread knowledge about urban green spaces' advantages for health and stress reduction. These results offer some empirically supported recommendations on how EFL students' health problems and stress levels might be addressed by urban planners and university administration.

The cross-sectional design of this study is a limitation since it only shows correlations between variables; it cannot prove causality. There are still confounding elements in the study, despite the fact that it was motivated by earlier experimental investigations that obtained data on alternative coping techniques under controlled conditions and produced comparable conclusions. Students' overall health and perceived stress levels may also be impacted by their lifestyle choices, other

environmental factors in their living environment, and their participation in physical activities and other tactics. It is also plausible that the relationship between health and the usage of green spaces is inverse, with individuals who are content and at ease having more time and energy to spend in green areas.

Furthermore, there are a number of restrictions in relation to the variable measurements. It is true that accessibility was only evaluated subjectively, not objectively. Similarly, self-reported amounts of time required to walk between residences and green areas were used to calculate the separation between them. Hence, rather than the objective distance, the variable under measurement was the perceived journey time. Since the measurement of the accessible gardens surrounding the dwellings was provided by the homeowners themselves, it may not be entirely precise. In a similar vein, the poll asked participants to list the green areas they usually visited in order to analyze their favorite sites. Because some respondents might have only given the locations for which they knew the names, this could have constrained the reporting.

Moreover, the survey was conducted in the summer, and the information respondents provided was limited to the previous month. Given that the PSS only addresses problems encountered within that time period, this was required for the health-related variables. It is anticipated that the findings might alter in the winter because 10% of individuals who did not visit green spaces identified the weather as a barrier.

The following are a number of views for future work based on the study's limitations, current findings, and prior research. The possible effects of green areas on PNU students' health and welfare while they are studying overseas may be investigated in more detail. It would be easier to evaluate green space quality if objective indicators were used, such as satellite maps that show the locations of homes and green areas and meticulously describe the characteristics of the habitats. It would be easier to evaluate the association between different types of green spaces and students' answers if objective markers of green spaces were used, such as the locations of residential and green spaces obtained via satellite maps and thoroughly defining the features of the surroundings.

Ultimately, in a similar vein, more research should be done on the findings that indicate how important it is to increase public knowledge of the advantages of green space for students' health and wellness. Relevant university groups should hold more outdoor events and courses, especially during examination season, to help students manage stress, given the research showing the health advantages of interacting with nearby green spaces. Universities should encourage students to make use of the local environment in addition to providing this support. More chances for students to interact with nature might be created by hosting social and physical events in the natural spaces surrounding campus, such as football and barbecues.

The existing research is insufficient to offer landscape architects useful recommendations because there is not enough data indicating the connections between particular environmental features, students' preferences, or any health benefits. Nonetheless, walking and relaxing may be two essential components connecting green areas and health promotion. Therefore, through their designs, planners, designers, and local authorities might focus especially on encouraging these activities in local green spaces. Green spaces ought to be situated as close as feasible to the areas where students conduct their everyday activities, according to data that consistently indicates that the distance to them is a barrier to utilization. Promoting views of the natural environment is a good idea when it is not feasible. Similar to how on-street greenery has been demonstrated to enhance health and welfare in crowded urban settings, this strategy may also be used in situations when space is at a premium.

In conclusion, the results pertaining to the correlation between the use and awareness of the health advantages of green spaces could supply dependable proof that academic institutions and associations could assist university students by publicizing these advantages to students who might not be aware of them otherwise.

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