

The Effect of Window and Office Views of Live Plants on the Job and Life Satisfaction of Academic Staff

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Abstract

The aim of this study is to investigate the role of indoor plants in the effect of individuals' job satisfaction on their life satisfaction. The study group consists of academic staff working at the Farabi Campus of Zonguldak Bülent Ecevit University. In the year the research was conducted (2025), a total of 459 academic personnel were employed in various units on the campus. Due to various constraints, it was not possible to reach the entire population; therefore, convenience sampling was employed. In this context, face-to-face questionnaires were administered to 228 individuals who agreed to participate in the study. The analyses revealed that academic staff without any plants in their offices reported lower levels of job and life satisfaction. Participants who had plants in any part of their office or on their windowsills reported higher job satisfaction and moderate levels of life satisfaction. It was found that academic staff with plants both on their office windowsills and elsewhere in their offices was more satisfied with their jobs than those without any plants. No statistically significant relationship was found between job satisfaction and life satisfaction among participants without indoor plants. In contrast, a moderate positive relationship was identified between job and life satisfaction among participants who had indoor plants both on their windowsills and in other parts of their offices. Accordingly, it was determined that the job satisfaction of academic staff who had plants in these locations contributed to an increase in their life satisfaction.

Keywords: Awareness, Perception, SDG's, Sustainability, University.

Introduction

The first studies on job satisfaction, the importance of which is increasingly understood in business life, made its name known with the studies called Hawthorne Studies (1924-1933). Hawthorne Studies, conducted at the beginning of the 20th century, pioneered studies on the relationship between human resources of businesses and job satisfaction (1). Another concept that began to be discussed in the 1920s is life satisfaction. It has been suggested that life satisfaction is a factor that also affects work performance because it affects life outside of work (2). In 1935, when human-oriented studies in the work environment increased, the definition regarding job satisfaction was generally accepted (3). According to this definition, job satisfaction is evaluated as the personal emotional reactions of employees towards their jobs (4). In fact, studies conducted during this period emphasized that individuals inherently desired to be satisfied with their jobs (1). After World War II, negative industrial relations brought about new negativities (stress,

burnout, suicide, alcohol and substance addiction, etc.) and job terminations. This situation led to the understanding that it was not enough to consider the social aspects of individuals in working life, and that their psychological aspects should also be taken into account. During this period, both businesses and countries focused on the issue of job satisfaction in order to get rid of negativities such as financial burden and inefficiency, and this situation began to be supported by academic studies (5). In this context, in the 1950s, the issue of job satisfaction became a subject researched in many disciplines, primarily management, organizational behavior, psychology and social psychology. In the 1980s, the issue of job satisfaction was addressed within the framework of different approaches. The issue of job satisfaction, which is addressed in terms of scope and process, has been addressed within the framework of the suitability of the individual and the work environment (6). With the globalization movement experienced in the 1990s, social life

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and business life entered an important process and witnessed different developments due to the developments in political, health, social and technological fields. Due to the developments in this period, all public institutions and organizations, especially private enterprises, had to develop and implement new management approaches in order to be able to combat the intense competition conditions that emerged in the sectors they operated in and to carry themselves to the future (7). One of these new approaches was the abandonment of the perception of employees as material assets. Therefore, the new management approach foresaw that employees have social and psychological characteristics and that they work to meet their different expectations and needs in addition to their economic expectations (8). Therefore, it has now been understood that job satisfaction is important in ensuring organizational efficiency and performance, as well as satisfaction in the general lives of employees, regardless of sector (9). For this reason, the positive benefits of plants in indoor and outdoor physical environments have been accepted since the early 1970s to maintain the mental and physical health of employees and have been proven by scientific research since the early 1980s (10). Today, people all over the world have started to use plants in their homes, waiting areas, shopping malls, food and beverage businesses, as well as in their work (11). Although plants are used in the specified places in our country, their effects on employees' job and life satisfaction have not been investigated. It is seen that the studies focused on the effects of one or a few environmental variables and limited other independent variables (12). Studies have mostly focused on which indoor plants are preferred and the effects of indoor plants on user satisfaction and purchasing preferences (13-16). Based on this deficiency, this study examined the role of indoor plants in offices in the effect of employees' job satisfaction on their life satisfaction.

Plants, which have a wide range of uses, clear the mind, stimulate the senses, arouse curiosity, and motivate the soul (17). Plants with functional qualities can be used in individuals' daily lives to help them develop or improve certain physical or cognitive skills (17). Indoor plants are reported to improve mood, reduce stress, increase productivity, increase reaction speed, improve

attention span, improve air quality in their environment, reduce blood pressure, and reduce fatigue and headaches (18-20). Due to these qualities, they can provide satisfaction in both their work and life. Despite these known benefits of plants, the impact of plants on employees' job and life satisfaction has not been researched in our country. Studies have focused on the effects of one or a few environmental variables while limiting other independent variables (12). Studies have also focused on which indoor plants are preferred and the effects of indoor plants on user satisfaction and purchasing preferences (13-15). Based on this deficiency, this study examined the role of indoor plants in offices in the impact of employees' job satisfaction and life satisfaction.

Theoretical Framework

Job Satisfaction

The concept of satisfaction is derived from the word "satis". The word "satis" of Latin origin is used in the meaning of "sufficient" (21). In the literature, there are two basic approaches to the concept of "satisfaction": process-oriented and result-oriented. In the process-oriented approach, the concept of satisfaction is evaluated with the effective environmental and psychological elements and it is stated that these elements have an effect on the formation of satisfaction. According to the result-oriented approach, satisfaction occurs as a result of the evaluation between what is expected and what is achieved. Therefore, the satisfaction obtained as a result of meeting the expectations is accepted as satisfaction (6). The Turkish Language Association (TDK) defines the concept of satisfaction as the realization of a desired thing, satisfaction or having contentment (22). The concept of job satisfaction emerged as personal satisfaction became important in business life. Job satisfaction; It is a symptom that emerges as a result of the interaction between employees' personal and physical expectations and psychological and mental feelings (23). Job satisfaction is generally a result of being happy with the characteristics of the job or the satisfaction that employees feel from their jobs (24). Job satisfaction as the happiness experienced by employees as a result of creating original works in the company, together with the material gains they earn from their work (25). Job satisfaction is a result of the positive feelings that occur as a result of employees' evaluation of their jobs (26). Job

satisfaction is a situation that includes the positive or negative feelings that the employee has as a result of the internal and external perspective he/she shows towards his/her job (23). Job satisfaction is the positive mood that employees show or experience towards their jobs; while job dissatisfaction is the negative attitude that employees show towards their jobs (27). In another definition, job satisfaction is the comparison between the outputs that occur as a result of the emotions, thoughts and tendencies that the employee has towards his/her job or work environment and the development of a positive attitude towards the job as a result. Therefore, if the expectations are in line with the employee's wishes as a result of the comparison, job satisfaction occurs, if not, job dissatisfaction occurs (28).

There are many factors that affect job satisfaction. These are generally classified as individual and organizational factors, and the results of these factors are considerably large. It is not possible for managers to set aside job satisfaction once they have achieved it. Because job satisfaction can occur suddenly, or it can turn into dissatisfaction. On the other hand, the basic evidence that negative conditions have begun to occur in a business is the decrease in the level of job satisfaction. The basis of job dissatisfaction is slowing down work, disciplinary problems, low productivity and other organizational problems. Job dissatisfaction weakens the immune system of the business. It weakens and even eliminates the reaction that the business should show against internal and external threats (29). On the other hand, just as the importance of the factors affecting job satisfaction varies from person to person, job satisfaction can also vary from person to person. This feature also makes it difficult to measure. Although a universal measurement cannot be made, knowing the factors that cause satisfaction or dissatisfaction is of vital importance for the healthy operation of businesses (30).

Life Satisfaction

Life satisfaction is one of the subjects that has been the focus of humanity for ages. It was first used as a concept in 1961 and later guided many researchers (31). Life satisfaction is the situation or result obtained by comparing a person's expectations (what they want) with what they have (what they have) (32). Life satisfaction shows a

conceptual evaluation or judgment of a person's own life. When evaluated from this perspective, life satisfaction can be seen as an attitude. Life satisfaction is a summary evaluation of the aspects of a person's own life that they like or dislike (33). Life satisfaction expresses the degree of positive emotions experienced. The dominance of negative emotions in human life brings unhappiness and depression (34). It is possible to define life satisfaction as a person's shaping of his life according to the criteria he has determined and his general evaluation of this shaping (35).

When life satisfaction is mentioned, it is not satisfaction related to a specific situation, but satisfaction in all experiences in general. It refers to a state of well-being from different perspectives such as happiness, morale, etc. It is often also defined as happiness (31). There are four types of life satisfaction. These four types of satisfaction reveal the taxonomy between permanent and temporary life satisfaction. These are; pleasures, partial satisfaction, the peak of experience, life satisfaction. Pleasures: It means the pleasure felt from a certain part of life with a certain activity. For example, this can be emotional activities such as drinking a glass of wine or mental activities such as reading a book. The idea that such satisfactions should be experienced at high levels is called hedonism. Partial Satisfaction: This is a partial reflection of the satisfaction felt from a certain part of life. Such satisfactions can be related to work life or an area of life. At this point, happiness can be used for the partial satisfactions that a person feels. The Peak of Experience: If the experienced satisfaction consists of an intense experience, it offers an inference about the whole of life. It is similar to the satisfaction in poets' happiness narratives. In religious texts, the word happiness also means a mystical enthusiasm, and from this perspective, it can also be called the peak of experience, enlightenment. Life Satisfaction: It refers to the permanent satisfaction that an individual feels with his life as a whole. It is generally called happiness and life satisfaction. It is the state of appreciating an individual's life as a whole (36).

It can be stated as the sum of the individual's general attitude towards his/her life (37). In other words, life satisfaction is the individual's brief review of the aspects of his/her life that he/she likes or dislikes (33). Since the individual has

become conscious of his/her own life and will know his/her feelings and thoughts better; the observation of the level of life satisfaction is done by the individual himself/herself (38). The individual reveals his/her life satisfaction by evaluating the things that make him/her happy in his/her life (39). While the positive situations that the person is in cause the level of life satisfaction to increase, the negative situations are effective in decreasing the level of life satisfaction (40). As can be seen in the definitions; Life satisfaction can be described as the positive or negative judgments that emerge as a result of an evaluation made by the individual by taking into account his/her entire life and general behaviors towards his/her life (41).

There are many factors that affect life satisfaction. These are age, gender, education level, income status, income level, social functionality, professional status, state policies, social networks and culture (42, 43). One of the most important factors affecting individuals' life satisfaction is the individual's working life. It is not possible to consider life satisfaction and work life separately. There is a close relationship between satisfaction from work and life satisfaction. For example; It has been observed that intensity in work life and inappropriate working conditions negatively affect the individual's life satisfaction (44). On the other hand, it is seen that individuals who have job satisfaction in the environment they work experience less burnout and have more life satisfaction. For this reason, it is possible for individuals to increase their life satisfaction by making the necessary arrangements (45). As a matter of fact, it is thought that it will be difficult for people who are unhappy, restless and stressed in their normal lives to concentrate on any work (2).

The Role of Indoor Plants on Job and Life Satisfaction

Indoor plants are plants that are removed from their natural ecological environments, artificially provided in pots or various containers, and can survive in indoor spaces similar to their own growth and development environments, and have flowers or leaves or both (14,16). These plants have a unique aesthetic and functional feature in their environment with their showy flowers, fruits, branches and leaves (13). Plants are considered a vital and indispensable part of any healthy

environment, offices, hotels, waiting rooms, restaurants, classrooms or certain indoor areas (20). With the transfer of plants from outdoors to indoors, the positive energy of nature began to be reflected in indoor spaces, allowing people to feel more peaceful and comfortable in these spaces (16). Therefore, contact with plants brings many benefits, including improvements in physical, cognitive, psychological and social functions (46,47).

Plants clarify the mind, stimulate the senses, inspire curiosity, and motivate the spirit (17). Plants with functional qualities can be used in daily life to help individuals develop or improve certain physical or cognitive skills (17). Plants not only purify the environment and potentially reduce air pollution, but also reduce noise pollution and the accumulation of dust and airborne particles. Due to their ability to minimize dust accumulation and reduce pollutants in indoor spaces, plants are known to minimize harmful effects (10). It is reported that indoor plants improve mood, reduce stress, increase productivity, increase individuals' reaction speed, improve attention span, improve the air quality of their environment, reduce blood pressure, and reduce fatigue and headaches (18-20). For example; it was found that the total score of symptoms was 23% lower when the subjects had plants in their offices compared to the control period (48). When there were plants in the offices, complaints about cough and fatigue decreased by 37% and 30%, respectively. Self-reported levels of dry/hoarseness and dry/itchy facial skin decreased by approximately 23% when plants were present. It was found that spaces with plants were more cheerful, pleasant, and inviting than spaces with other aesthetic amenities (49). It was stated that women are more likely to be affected by different plants, so they can better distinguish the scents and tastes of the plants in question (50). It was found that observing nature and working in an area with indoor plants reduces tension and anxiety (51). It was states that indoor plants encourage physical capacity, material comfort, emotional maturation, creative ability, moral belief, spiritual meaning, and intellectual development (52). It was estimated the relationships between plants and perceived stress, sick leave, and productivity, and found that indoor plants near an employee's desk positively affected the employee's level of illness and productivity (53). It was found

that the general job satisfaction and life satisfaction of employees with live indoor plants in their offices were higher than the job and life satisfaction of those without plants in their offices (10). It is observed that patients found an increase in their personal well-being after the application (54). It was found that 81.3% of the participants thought that plants had a positive effect on people's mental health (16). It was also reported that indoor plants positively affected the physical functions of the participants, especially relaxed physiology and improved cognitive functions. All these studies reveal that plants affect people's general and specific satisfaction (55). The findings of these studies show that indoor plants in the offices of academic staff, like other people, will play a decisive role in their overall job satisfaction and life satisfaction.

Methodology

Work Area

The establishment of Zonguldak Bülent Ecevit University, where this study is conducted, dates back to the Maden Mekteb-i Alisi, which was established in 1924. The school, which was established with the aim of providing mining engineering education, was closed a short time later. The State Engineering and Architecture Academy was established in Zonguldak in 1961. This academy started to provide education especially in mining engineering and other engineering fields. This institution formed the core of the university. With the YÖK reforms in 1982, Zonguldak State Engineering and Architecture Academy was transformed into Zonguldak Faculty of Engineering affiliated with Hacettepe University. Zonguldak Karaelmas University (ZKU) was officially established with the law numbered 3837 dated 11 July 1992. With the decision of the Council of Ministers published in the Official Gazette on 11 April 2012, the name of the university was changed from Zonguldak Karaelmas University to Bülent Ecevit University. Today, the university includes; It provides services with 14 faculties, 3 institutes, 2 colleges, 9 vocational schools and many research and application centers.

Working Group

The study was conducted at the Zonguldak Bülent Ecevit University Farabi Campus. There are a total of 459 academic staff on the campus. Since it was difficult to reach all the staff for various reasons,

people were selected using the convenience sampling method. The study was conducted only with academic staff. Staff were recruited by asking whether plants had an impact on their job and life satisfaction. Those who responded yes and agreed to participate were included. Participating staff were grouped into three categories: those with no plants in their offices, those with plants in their office windows, and those with plants elsewhere in the office. The number of people to be included in the study was determined by looking at the sample size table developed by the researchers. (56). The table stated that the number of people to be reached in a universe of 460 people according to $\alpha=0.05$ significance and $\pm 5\%$ error margin is approximately 210 people. In order to make the study results more reliable and generalizable, 228 people were included in the study.

Data Collection Process and Analysis

The data in the study was collected using the face-to-face survey technique. Within the scope of the study, the academicians' rooms were visited one by one, and a survey was conducted on the personnel, taking into account whether there were indoor plants in their windows or elsewhere in their rooms and whether they wanted to participate in the study. The survey included demographic characteristics and job and life satisfaction scales. The 5-item short form was used to determine the satisfaction that academicians get from their jobs (57). The Turkish adaptation of the scale was also investigated (58). The Chi-square value of the 5-point Likert-type scale was determined as 23.0; RMSEA value as 0.05; NFI value as 0.90; CFI value as 0.92; GFI value as 0.91 and SRMR value as 0.058, and it was determined that the fit criteria of the resulting model were good. The Life Satisfaction Scale was used to determine the satisfaction that academicians get from their lives (59). The scale, which has a one-dimensional structure, was adapted to Turkish (60). As a result of the adaptation, the χ^2/sd value of the 5-item Life Satisfaction Scale was found to be 1.17. The NFI value was found to be 0.99; the NNFI value was found to be 1.00; the CFI value was found to be 1.00; the SRMR value was found to be 0.019. In addition, the RMSEA value was found to be 0.030; the GFI value was found to be 0.99 and the AGFI value was found to be 0.97.

Data collected from academics were analyzed with SPSS 22 package program. Firstly, demographic

characteristics of the participants in the study were determined with frequency analysis. Then, arithmetic means of scales were calculated to decide on the job and life satisfaction of the personnel. In the third stage, job and life satisfaction of the people with plants in the window or somewhere else in their offices were compared with those with no plants in their offices. The comparison was made with One-Way ANOVA test. In the fourth stage, the relationship between job and life satisfaction was analyzed separately in terms of groups. In the last stage, the effect of job satisfaction on life satisfaction was examined.

Results and Discussion

Validity and Reliability Results of the Scales

Exploratory Factor Analysis (EFA) was conducted to determine the structural validity of the "Job Satisfaction" and "Life Satisfaction" scales using data collected within the scope of the study. Cronbach's alpha coefficients were then analyzed to test the reliability of the resulting structure. In this context, the EFA and reliability results for job satisfaction are presented in Table 1.

Table 1: EFA and Reliability Results for the Job Satisfaction Scale

Dimensions	Articles	Factor Loading	α
Job Satisfaction Scale	Statement 1	0.998	0.996
	Statement 2	0.998	
	Statement 5	0.996	
	Statement 4	0.995	
	Statement 3	0.972	
Total Variance Explanation Ratio		98,408	
Kaiser-Meyer -Olkin (KMO)		0.903	
Bartlett test: χ^2	4232,414	0,000	

Varimax rotation was applied to the data collected from academic staff. The KMO value of the scale was found to be 0.903 and the Bartlett value was found to be significant at $p < 0.01$. Based on this value, the data collected from 228 people was deemed sufficient for EFA. The total variance ratio of the Job Satisfaction Scale was determined to be 98.408%. As in its original structure, the scale showed a one-dimensional structure. The factor loadings of the statements were ≥ 0.35 , and the

factor loadings of the data set were also found to be at an acceptable level (61). The overall reliability coefficient of the scale was found to be highly reliable at $\alpha = 0.996$ (62).

From academic staff working at the Zonguldak Bülent Ecevit University Farabi Campus, EFA was applied to the data, and then the reliability of the scale was examined. The relevant results are presented in Table 2.

Table 2: EFA and Reliability Results for the Life Satisfaction Scale

Dimensions	Articles	Factor Loading	α
Life Satisfaction Scale	Statement 2	0.991	0.988
	Statement 3	0.991	
	Statement 5	0.969	
	Statement 1	0.968	
	Statement 4	0.963	
Total Variance Explanation Ratio		95,350	
Kaiser-Meyer -Olkin (KMO)		0.916	
Bartlett test: χ^2	2484,237	0,000	

According to the EFA results in Table 2, the KMO value of the Life Satisfaction Scale was $0.916 > 0.60$, and the Bartlett test of sphericity yielded a

significant result at the $p < 0.01$ level. Based on these values, it was decided that the data collected for 5 items were suitable for factor analysis (63).

The scale exhibits a single-factor structure with an eigenvalue greater than 1, and the total variance explanation rate is 95.350%. Considering that a minimum of 35% of the variance is considered sufficient for single-factor structures in social sciences (64), it can be said that the variance explanation rate of the Life Satisfaction Scale is quite sufficient. Care was taken to ensure that the factor loadings of the scale were ≥ 0.35 (65). In this context, the factor loadings were also determined to be greater than 0.35. In addition, the scale was

found to be highly reliable, with a reliability coefficient of ≥ 0.70 (66).

General Characteristics of Personnel Participating in the Research

Frequency analysis was conducted to determine the general characteristics of the personnel participating in the research. The findings regarding the general characteristics of the personnel are given in Table 3.

Table 1: General Characteristics of Academic Staff

Features	Variables	No Plants		There is a plant in the window		There is a Plant in the Office	
		n	%	n	%	n	%
Gender	Male	42	89.4	46	63.0	63	58.3
	Woman	5	10.6	27	37.0	45	41.7
Age	Age 40 and Under	28	59.6	28	38.4	60	55.6
	41-45 Years Old	10	21.3	20	27.4	14	13.0
	Ages 46 and Above	9	19.1	25	34.2	34	31.5
Title	Instr.	2	4.3	7	9.6	10	9.3
	Research. See.	8	17.0	18	24.7	39	36.1
	Dr. Lecturer	13	27.7	11	15.1	27	25.0
	Associate professor	8	17.0	23	31.5	18	16.7
	Professor	16	34.0	14	19.2	14	13.0
	10 Years and Under	21	44.7	30	41.1	49	45.4
Working Time in the Institution	11-15 Years	7	14.9	8	11.0	28	25.9
	16-20 Years	11	23.4	18	24.7	8	7.4
	21 Years and Above	8	17.0	17	23.3	23	21.3
Plant Loving Status	Yes	-	-	73	100	108	100
	No	47	100	-	-	-	-
Grand Total		47	100	73	100	108	100

47 academic staff that did not have plants in their rooms or on their windows participated in the study. 42 of them were male and 5 were female. 28 of the staff were 40 years old and under, 10 were 41-45 years old, 9 were 46 years old and over. 2 of the staff were lecturers, 8 were research assistants, 13 were assistant professors, 8 were associate professors, and 16 were professors. 21 of them had been working at the institution for 10 years or less, 7 for 11-15 years, 11 for 16-20 years, and 8 for 21 years or more. In addition, all 47 staff stated that they did not like plants. Of the 73 academic staff who had plants in their study windows, 46 were male and 27 were female. Of the personnel, 28 are under 40 years of age, 20 are between 41-45 years of age, and 25 are over 46 years of age. Of the personnel, 7 are lecturers, 18 are research assistants, 11 are assistant professors, 23 are

associate professors, and 14 are professors. Of these, 30 have been working at the institution for 10 years or less, 8 for 11-15 years, 18 for 16-20 years, and 17 for 21 years or more. In addition, all 73 personnel stated that they like plants. Of the 108 academic personnel who have plants elsewhere in their study rooms, 63 are male and 45 are female. Of the personnel, 60 are under 40 years of age, 14 are 41-45 years of age, and 34 are 46 years of age or more. Of the staff, 10 are lecturers, 39 are research assistants, 27 are assistant professors, 18 are associate professors and 14 are professors. 49 of them have been working at the institution for 10 years or less, 28 for 11-15 years, 8 for 16-20 years and 23 for 21 years or more. In addition, all 108 staff love plants.

Findings Regarding Job and Life Satisfaction

In this part of the study, the job and life satisfaction of academic staff was analyzed in terms of whether there were plants in their offices. The descriptive analysis results were interpreted by taking into account the value ranges of “1.00-1.80 = strongly disagree; 1.81-2.60 = disagree; 2.61-3.40 =

partially agree; 3.41-4.20 = agree and 4.21-5.00 = strongly agree” (67). The findings regarding job and life satisfaction in terms of groups are given in Table 4.

Academic staff that do not have plants in their office and life satisfaction was found to be low. People who have plants in any part of their office or in their windows had high job satisfaction and medium life satisfaction.

Table 4: Academic Staff Job and Life Satisfaction Levels

Groups	Variables	n	$\bar{X}$	SS
No Plants	Job Satisfaction	47	2,404	1,295
	Life Satisfaction	47	2,510	1,337
There is a plant in the window	Job Satisfaction	73	3,940	1,136
	Life Satisfaction	43	3,189	1,120
There is a Plant in the Office	Job Satisfaction	108	3,622	1,457
	Life Satisfaction	108	2,753	1,282

Table 5: Comparison of Job and Life Satisfaction across Groups

Variables	Groups	n	$\bar{X}$	SS	t	p	Tukey
Job Satisfaction	1. No Plants	47	2,404	1,895	16,809	0,000 *	2>1 3>1
	2. There is a plant in the window	73	3,947	1,136			
	3. There is a Plant in the Office	108	3,622	1,457			
Life Satisfaction	1. No Plants	47	2,510	1,337	4,772	0,009 *	2>1
	2. There is a plant in the window	73	3,189	1,120			
	3. There is a Plant in the Office	108	2,753	1,282			

*p<0.05

Distribution of Job and Life Satisfaction by Groups

In this part of the study, it was examined whether the job and life satisfaction levels of academic staff differed in terms of the groups they were in. In this context, One-Way ANOVA test was conducted and the findings are shown in Table 5.

It was determined that academic staff with plants in their office windows and other parts of the office were more satisfied with their jobs than staff with no plants in their rooms [$F=16.809$; $p<0.05$]. However, it was determined that academic staff with plants in their office windows enjoyed life

more than staff with no plants in their rooms [$F=4.772$; $p<0.05$].

Findings Regarding the Relationship between Job and Life Satisfaction

In this part of the study; the relationship between the job and life satisfaction of academic staff was analyzed separately in terms of groups. The level of the relationship between the variables was interpreted by taking into account the value ranges of “0.00-0.25 = very weak; 0.26-0.49 = weak; 0.50-0.69 = medium; 0.70-0.89 = high; 0.90-1.00 = very high” (66). The findings of the Pearson Correlation analysis conducted within this framework are as shown in Table 6.

Table 6: The Relationship between Job and Life Satisfaction

Groups	Variables	Life Satisfaction	
No Plants	Job Satisfaction	r	0.157
		p	0.292
		n	47
There is a plant in the window	Job Satisfaction	r	0.566 **
		p	0,000
		n	73

		r	0.676 **
There is a Plant in the Office	Job Satisfaction	p	0,000
		n	108

Note: **p<0.01

The Impact of Job Satisfaction on Life Satisfaction

In this part of the study; the effect of the academic staff's job satisfaction on their life satisfaction was analyzed separately for the groups. However, as seen in Table 4, since there was no significant relationship between the job and life satisfaction of

the staff who did not have plants in their offices, in this part only the job and life satisfaction interaction of the staff who had plants in their windows and elsewhere in their offices was tested. In this context, the findings regarding the job and life satisfaction interaction of the academic staff that had plants in their office windows are shown in Table 7.

Table 7: The Effect of Job Satisfaction of Employees with Plants in Their Windows on Life Satisfaction

There is a plant in the window	B	Std. Error	Beta	t	p
Still	0.988	0.396		2,494	0.015 *
Job Satisfaction	0.558	0.096	0.566	5,780	0,000 *
R		0.566			
R ²		0.320			
Adjusted R ²		0.310			
Standard Error		0.930			
F		33,414			0,000 *

*p<0.05

The model established for the job and life satisfaction of academic staff with plants in their office windows was found to be significant [F=33.414, p<0.05]. According to the model; 31% of the change in the staff's life satisfaction is explained by the satisfaction they get from their

job. In other words, the satisfaction academic staff gets from their job increases their life satisfaction by 0.558 units. The office was tested and the results of the regression analysis are given in Table 8.

Table 8: The Effect of Job Satisfaction on Life Satisfaction of Employees Who Have Plants in Different Parts of The Office

There is a Plant in the Office	B	Std. Error	Beta	t	p
Still	0.597	0.246		2,431	0.017 *
Job Satisfaction	0.595	0.063	0.676	9,453	0,000 *
R		0.576			
R ²		0.457			
Adjusted R ²		0.452			
Standard Error		0.949			
F		89,364			0,000 *

*p<0.05

The model established for the job and life satisfaction of academic staff who have plants in different places outside the windows of their offices was found to be significant [F=89.364, p<0.05]. According to the model; 45.2% of the change in the life satisfaction of the staff is explained by the satisfaction they get from their job. In other words, the satisfaction that academic

staff gets from their job increases their life satisfaction by 0.595 units.

Conclusion

Plants have been used indoors since ancient times. Today, people around the world use plants in their homes, waiting areas, shopping malls, restaurants, hotels, schools, and work environments. With the

transfer of plants from outdoors to indoors, the positive energy of nature began to be reflected in interior spaces, allowing people to feel more peaceful and comfortable in these spaces (16). Therefore, contact with plants has brought many benefits, including improvements in physical, cognitive, psychological, and social functions (46, 47). It is reported that indoor plants improve mood, reduce stress, increase job and life satisfaction, increase productivity, increase individuals' reaction speed, improve attention span, improve the air quality of the environment they are in, reduce blood pressure, and reduce fatigue and headache (10, 16, 18-20, 48-55).

Although indoor plants are used in practice in Turkey, the examination of their effects in academic studies (13-16) has been very limited. In order to address this deficiency, a field study was conducted at Zonguldak Bülent Ecevit University. The study investigated the role of indoor plants in the effect of job satisfaction on life satisfaction of academic staff. In line with the findings obtained; and life satisfaction was found to be low. People who have plants in any part of their office or in their windows had high job satisfaction and medium life satisfaction.

It has been determined that academic staff with plants in their office windows and other areas of the office is more satisfied with their jobs than staff with no plants in their rooms. In addition, it has been determined that academic staff with plants in their office windows enjoys life more than staff with no plants in their rooms. Having plants is not just an "ornament" or "preference"; it is a deeper psychosocial indicator of an individual's mental health, stress level, relationship with the work environment and desire to be close to nature. Plants in the window and in the room not only give the feeling of natural green space; they also create a more spacious atmosphere by interacting with daylight. This can increase both work motivation and general life energy.

No statistically significant relationship was found between the job and life satisfaction of academic staff who did not have plants in their offices. On the other hand, a moderately positive relationship was found between the job and life satisfaction of academic staff who had indoor plants in their office windows and in other places in the office. In this context, it was found that the job satisfaction of academic staff who had plants in their office

windows increased their life satisfaction by 0.558 units; and the job satisfaction of academic staff who had plants in different places in their offices other than the windows increased their life satisfaction by 0.595 units. When the statements of academic staff are also taken into consideration; it has been proven that plants are effective in job and life satisfaction. Indeed, it was found that the total symptom score of participants in the period with plants in their offices was lower compared to the control period. It was found that spaces with plants were more cheerful, pleasant, and inviting than spaces with other aesthetic amenities (49). It was stated that women are more susceptible to different plants and are better able to distinguish their scents and flavors (50). It was found that observing nature and working in an area with indoor plants reduces stress and anxiety (51). It was investigated that the relationship between plants and perceived stress, sick leave, and productivity, finding that indoor plants near an employee's desk positively impacted their sickness and productivity (53). It was found that employees with live indoor plants in their offices had higher overall job satisfaction and life satisfaction than those without plants (10). It was observed that patients experienced increased personal well-being after using plants (54). It was found that the majority of participants believed plants had a positive impact on mental health (22). It was also reported that indoor plants positively affected participants' physical functions, particularly relaxed physiology and improved cognitive function (55). The findings in all these studies are consistent with those in our study.

Based on the findings of this study, the use of plants in office environments should be encouraged in order to increase the job and life satisfaction of personnel in higher education institutions. Plants can increase both individual and institutional productivity by supporting the psychological well-being of employees. University administrations should make interior arrangements that include natural elements in order to improve the work environments of academic and administrative personnel. Plants placed in areas with intense natural light, such as in front of windows, can make positive contributions to the mental well-being of employees. Awareness seminars can be organized for personnel to inform them about the positive effects of indoor plants on the work environment.

Such trainings can indirectly increase job satisfaction by improving employees' awareness of environmental regulation. In future studies, the effects of having plants in the office environment on job and life satisfaction should be examined with larger samples and different variables (personality traits, stress level, etc.). In this way, the findings can be generalized and causal relationships can be understood more clearly. It is undoubtedly difficult to claim that plants alone are the determining factors in individuals' job and life satisfaction. Plants, particularly in office environments, can provide several positive effects, such as psychological relaxation, stress reduction, and visual aesthetics. However, job and life satisfaction is a much more complex and multifaceted issue. Numerous factors can influence this, including working conditions, salary and benefits, job quality, management relationships, career development, work-life balance, personal relationships, financial situation, individual and organizational values, hobbies, and social and environmental factors. Therefore, further studies should explore these factors in conjunction with plants.

Abbreviations

TDK: Turkish Language Association.

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Author Contributions

All authors contributed equally to all work on the article.

Conflict of Interest

The authors declare that they have no conflict of interest that could have appeared to influence the work reported in this paper.

Declaration of Artificial Intelligence (AI) Assistance

The author declares no use of artificial intelligence (AI) for the write up of the manuscript.

Ethics Approval

Zonguldak Bülent Ecevit University Human Research Ethics Committee approved this study (Ref. No. 13.03.2025/575668).

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