

ORIGINAL ARTICLE

The Mediating Role of Spiral of Silence in the Effect of Nomophobia on Social Withdrawal

Ayhan Bayram¹, Ece Zeybek Yilmaz²

¹Department of International Trade and Logistic, Bolu Abant İzzet Baysal University Faculty of Applied Sciences, Bolu, Türkiye

²Department of Customs Business, İstanbul Gelisim University Faculty of Economics, İstanbul, Türkiye

ORCID iDs of the authors: A.B. 0000-0003-0640-8106, E.Z.Y. 0000-0002-6708-9017

Main Points

- A positive and very weak significant relationship was found between the variables (social withdrawal, nomophobia, and spiral of silence).
- The spiral of silence was determined to have a partial mediating effect on nomophobia and social withdrawal.
- University administrators can provide counseling services to help students cope with addictions such as smoking and technology while meeting their social needs.
- Social responsibility projects can be carried out under the leadership of universities in order to raise awareness about nomophobia and technology addiction.

Abstract

There is limited research in the literature that examines the relationships between the spiral of silence, nomophobia, and social withdrawal among university students. The objective of this research is to explore the mediating role of the spiral of silence/nomophobia/social withdrawal in the influence of nomophobia/social withdrawal/spiral of silence on social withdrawal/spiral of silence/nomophobia among university students. A survey consisting of three distinct scales was administered to assess levels of spiral of silence, nomophobia, and social withdrawal. Participants were requested to respond to three demographic questions, seven questions related to the spiral of silence construct, twenty questions pertaining to nomophobia, and twenty-two questions regarding social withdrawal. The data collected from a sample of 512 university students through convenience sampling and face-to-face survey techniques were analyzed using statistical software packages such as SPSS Process and Amos. Exploratory factor analysis was conducted to determine the factor structure of the scales. Confirmatory factor analysis was also conducted to confirm whether the research model was consistent and the result was determined to be appropriate. The findings of this investigation reveal a statistically significant relationship between the spiral of silence, nomophobia, and social withdrawal variables. This study has been deduced that among university students, the spiral of silence exerts a partial mediating effect on the relationship between nomophobia and social withdrawal ($p = .00 < .05$).

Keywords: Nomophobia, social withdrawal, spiral of silence, university students

Introduction

With the widespread adoption of technology in today's world, the use of phones and other portable devices has increased in connection with the internet. This situation leads individuals to experience a sense of absence when their smartphones are not present or, even if they are present, when they are

out of network coverage. This absence condition is described by the concept of "nomophobia," which is explained as smartphone addiction. In recent years, the increase in nomophobia rates, rising unemployment rates, and high expectations from families, especially among young people, have been observed to lead to tendencies of social isolation

Corresponding Author:

Ayhan Bayram

E-mail:

ayhan_bayram1987@hotmail.com

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and seclusion. This phenomenon has been elucidated in the literature through the concept of “hikikomori.” During the hikikomori process, individuals tend to distance themselves from social life and experience a sense of isolation. Individuals exhibit different behaviors in response to the process of social isolation within society. According to Maslow’s hierarchy of needs, individuals, in order to avoid being alone, may conform to the majority’s views rather than express their own opinions, fulfilling their needs for belonging and love. This situation is referred to in the literature as the spiral of silence.

Upon reviewing the literature, it has been observed that there is a lack of studies examining the mediator variable relationship between spiral of silence, nomophobia, and social withdrawal variables. Therefore, this study is considered important as it fills this gap in the literature. In addition, this study can be a reference for researchers and reviewers interested in the subject. The following information provides insights into the literature studies conducted on the concepts under investigation (Figure 1).

This research begins with a general overview of the dominant theoretical streams concerning the relationship between spiral of silence, nomophobia, and social withdrawal. In the conceptual model and hypotheses section, the conceptual model and hypotheses developed from previous studies in the field are presented. The methodology section provides a brief description of the data and methods used in the study, along with the fundamental indicators of reliability for the research models employed. The findings section explains the obtained results. The discussion and conclusion section presents generalized scientific insights, provide commentary on managerial implications and research

limitations, and offer information regarding future research possibilities. The conducted studies are given in Figure 1.

Spiral of Silence

The situation where an individual, instead of expressing their different ideas, attitudes, emotions, and beliefs from the expectations of society, chooses the path that aligns with those expectations, whether voluntarily or under compulsion, is explained by the “spiral of silence” theory (Noelle-Nuemann, 2010; Yesiloglu Guler, 2022; Liu et al., 2017). Primarily, authorities such as family, government, public opinion, and the church, are trusted when individuals conform to their rules. Those who oppose authority are punished, feared by others, and deemed untrustworthy, facing the threat of abandonment (Fromm, 1994; Yesiloglu Guler, 2022). It is widely accepted that feeling fear as a result of the threat of being left alone within society is a typical behavior.

Nomophobia

The phenomenon where an individual feels deprived in the absence of mobile phones, tablets, the internet, social media, and similar platforms or tools is defined as “nomophobia” (Gonçalves, etc., 2022; Nallapati et al., 2022; Yousefian & Khodabakhshi-Koolae, 2023). In a conducted study, the primary reasons for individuals experiencing phone deprivation were categorized into four factors, namely, the inability to communicate, loss of attachment, inability to access information, and relinquishing convenience (Ahmed et al., 2019).

Social Withdrawal

The term “Hikikomori,” derived from the Japanese words “hiku” (withdrawal) and “komoru” (seclude oneself), is used to describe

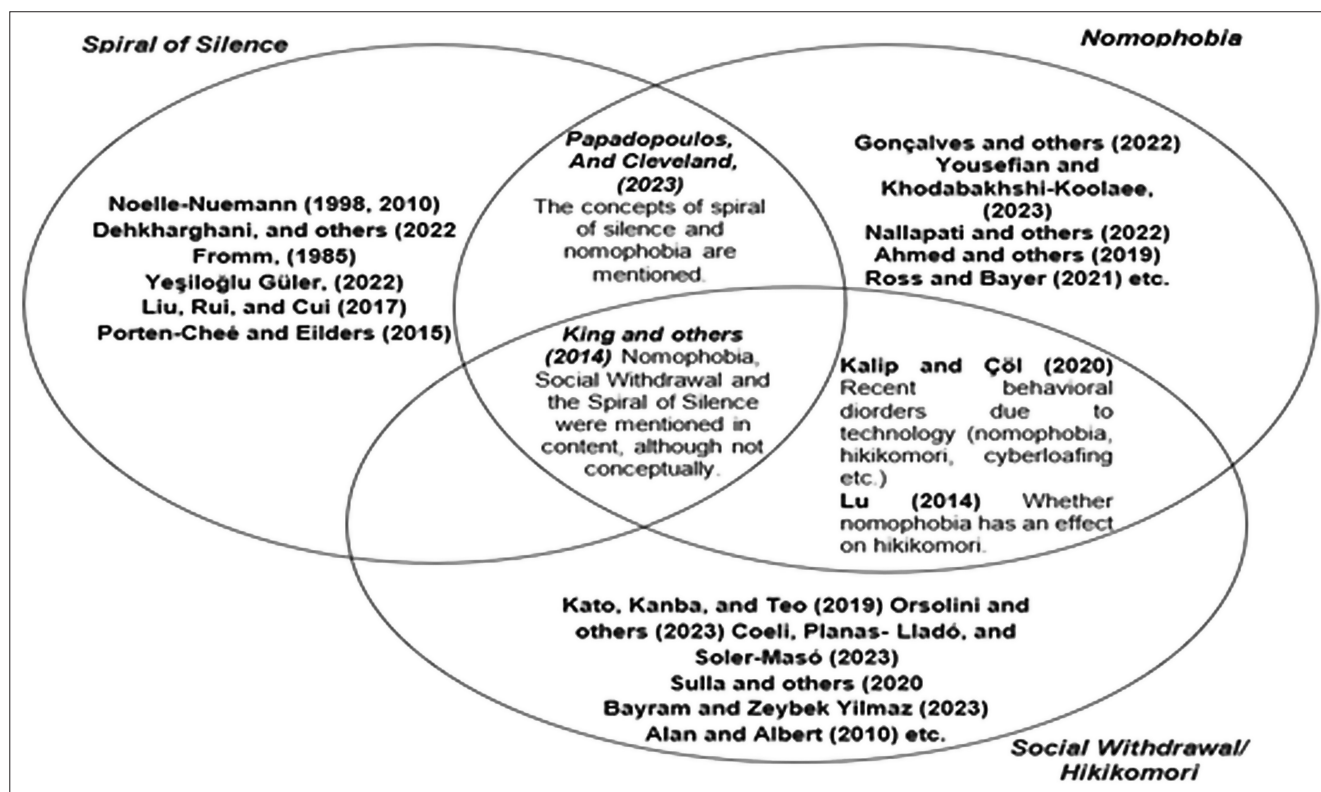


Figure 1. The Conducted Studies

the concept of long-term social withdrawal (Kato et al., 2019; Coeli et al., 2023; Orsolini et al., 2023). Hikikomori is defined as a state of social withdrawal, typically lasting at least six months, in which individuals between the ages of 15 and 39 avoid social interactions and responsibilities such as education, employment, and friendships (Sulla et al., 2020; Kato et al., 2019; Bayram & Zeybek Yilmaz, 2023).

Conceptual Model and Hypotheses

The conceptual model and the working construct are given in Figure 2.

With the proliferation of social media in today’s society, research has explored the extent to which individuals feel more or less inclined to share their thoughts. As a result, it has been found that individuals tend to share content that aligns with the majority’s opinions, particularly in categories related to entertainment, quoting, and food. In contrast, a moderate effect of the spiral of silence was observed in the context of film and society. Interestingly, the influence of the spiral of silence appeared to be weak in the domains of science, international news, sports, and technology (Luo et al., 2016). In a different study, it was noted that individuals might refrain from sharing their thoughts or engage in behaviors that align with the majority’s views when posting on the internet. This behavior was attributed to the belief that all online activities are monitored by governments, even commercial transactions being stored in e-commerce databases, and the fact that, despite the potential for erasure, traces of virtually everything written online may persist. These behaviors were seen as supportive of the spiral of silence theory (Papadopoulos & Cleveland, 2023). The following hypotheses have been developed in light of the diverse effects of technology usage on the spiral of silence and the increasing propensity of individuals seeking societal acceptance to experience nomophobia tendencies, potentially leading to greater social withdrawal every day:

H₁: The level of spiral of silence among university students has a mediator role in the impact of the nomophobia on social withdrawal.

H₂: The level of nomophobia among university students has a mediator role in the impact of the social withdrawal on spiral of silence.

H₃: The level of social withdrawal among university students has a mediator role in the impact of the spiral of silence on nomophobia.

Nomophobia is a form of social dependency, and its symptoms include an individual owning one or more mobile devices, consistently carrying charging accessories, the fear of losing or being outside the coverage area of the smartphone, anxiety about battery depletion or running out of credit, frequent checking of the phone, sleeping with the phone, and experiencing significant financial difficulties to purchase a phone (Kalip & Col, 2020). Individuals engage in sharing their photos and personal memories through their mobile phones, expecting their need for acceptance to be met by others. Particularly for individuals struggling with self-acceptance, this situation may heighten the desire for acceptance from external sources (Ross & Bayer, 2021). Despite the individual’s social withdrawal leading to detachment from social life and refraining from expressing opinions due to the spiral of silence, technological supports enable them to feel a sense of belonging in the virtual realm. Hence, the following hypothesis has been developed.

The phenomenon of social withdrawal, known as “hikikomori,” which originated in Japan, can be conceptualized as an isolation process wherein young individuals, driven by the fear of unemployment, refrain from leaving their homes and, to an advanced extent, their rooms, even avoiding communication with their families. The prevalence of communication tools such as computers and phones in today’s technological landscape expands social withdrawal beyond the confines of physical spaces, leading individuals to experience isolation within crowds in their social lives (Nonaka et al., 2022; Hamasaki et al., 2021). Individuals who withdraw in isolation may, in addition to the fear of their behaviors or statements not being accepted, maintain silence out of apprehension, and in times of deprivation, may experience nomophobia by identifying themselves with their technological devices,

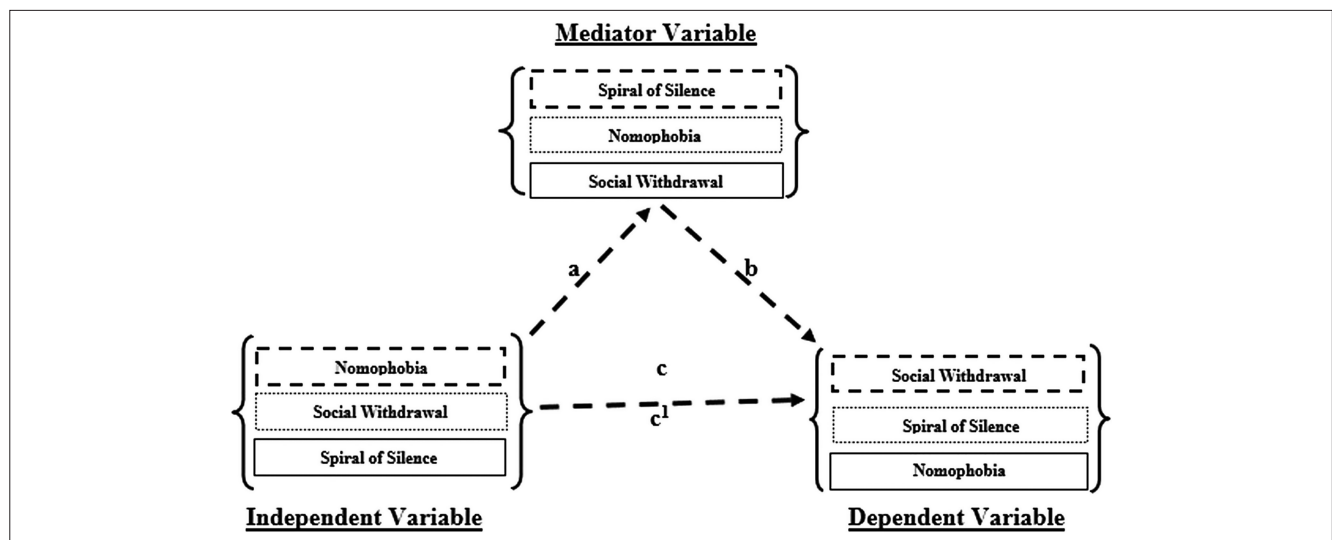


Figure 2 Proposed Research Model

particularly their phones (Ross & Bayer, 2021). Hence, the following hypothesis has been developed.

Material and Methods

Sampling Procedure

The population of the study consists of university students in Türkiye. Data collected from volunteer students were used in the study. Written informed consent was obtained from all participants. Ethics committee permission for the research and legal permissions for the application were obtained from Istanbul Gelisim University (date: January 12, 2024; meeting number: 2024-01). Non-probability convenience sampling method was used in the study and a face-to-face survey was conducted with 517 participants and 512 surveys were analyzed by excluding five incomplete or faulty surveys from the analysis.

Data Collection

Nomophobia scale developed by Yıldırım and Correia (2015) and adapted into Turkish by Yıldırım et al. (2015) and its validity and reliability were tested. The scale consists of a total of 20 statements forming four sub-dimensions. The social withdrawal scale developed by Teo et al. (2018) and adapted into Turkish by Bayram and Zeybek Yilmaz (2023) and tested for validity and reliability was used. The scale consists of a total of 22 statements forming three sub-dimensions. The spiral of silence scale developed by Lee et al. (2014) and adapted into Turkish by Bayram and Bayer (2019) and tested for validity and reliability was used. The scale consists of a total of seven statements forming three sub-dimensions (Yildirim & Correia, 2015; Yildirim et al., 2016; Teo et al., 2018; Bayram & Zeybek Yilmaz, 2023; Lee et al., 2014; Bayram & Bayer, 2019).

Analysis

Mediation role and regression analysis were conducted in SPSS PROCESS macro to determine the level of mediating effect. Exploratory factor analysis was conducted to determine the basic factor structure of the scales used in the study, and confirmatory factor analysis (CFA) was conducted to determine the consistency of the research model with the theoretical framework.

Results

The reliability of the study was measured by Cronbach’s alpha coefficient. The Cronbach’s alpha value for nomophobia was found to be 0.930, for social withdrawal it was 0.878, and for spiral of silence it was 0.767. The university students' responses to the socio-demographic questions are presented in Table 1.

According to the research, 45.7% (234) of the participants were male and 54.3% (278) were female. Additionally, 9.2% (47) were 18 years old, 10.7% (55) were 19 years old, 16.8% (86) were 20 years old, 23.2% (119) were 21 years old, 18.6% (95) were 22 years old, and 21.5% (110) were 23 years old. In terms of academic level, 33.6% (172) were in their first year, 26.8% (132) were in their second year, 14.1% (72) were in their third year, and 25.6% (131) were in their fourth year or higher.

Exploratory factor analysis was conducted to examine the construct validity of the spiral of silence scale. The results show that it is appropriate (Kaiser – Meyer – Olkin = 0.736; $X^2 = 1391.665$; $df = 21$; $p = .000$). A minimum factor loading of 0.35 was chosen,

Table 1.
Socio-Demographic Information Regarding the Sample Group

	n	%
Gender		
Male	234	45.7
Female	278	54.3
Age		
18 years old	47	9.2
19 years old	55	10.7
20 years old	86	16.8
21 years old	119	23.2
22 years old	95	18.6
23 years old	110	21.5
Academic level		
I. Year	172	33.6
II. Year	132	26.8
III. Year	72	14.1
IV. Year or higher	131	25.5

Note: n = Sample size.

and an item was considered to load on a factor if its loading was above this threshold and if it was at least 0.10 higher than its loading on other factors (Barnes et al., 2001). As a result of varimax factor analysis, three factors with eigenvalues greater than one and together explaining 77.985% of the variance were identified. Confirmatory factor analysis results showed acceptable fit indices that supported the adequacy of the model.

Exploratory factor analysis was conducted to examine the construct validity of the nomophobia scale. The results show that it is appropriate (Kaiser – Meyer – Olkin = 0.932; $X^2 = 5880.548$; $df = 190$; $p = .000$). Varimax factor analysis identified four factors that accounted for 66.266% of the variance and had eigenvalues above one. Confirmatory factor analysis results showed acceptable fit indices that supported the adequacy of the model.

Exploratory factor analysis was conducted to examine the construct validity of the social withdrawal scale. The results show that it is appropriate (Kaiser – Meyer – Olkin = 0.929; $X^2 = 3543.531$; $df = 210$; $p = .000$). Varimax factor analysis identified three factors with eigenvalues greater than one, explaining 47.284% of the variance. Item 22 was removed from the scale due to its factor loadings being less than 0.10 compared to other factor loadings. Confirmatory factor analysis results showed acceptable fit indices that supported the adequacy of the model.

Confirmatory factor analysis was conducted to evaluate the validity of the research model, which consists of dimensions resulting from the exploratory factor analysis applied to the scales used in the study. X^2/SD (1.976) and Root Mean Square Error of Approximation (0.044) indicate a good fit, while Goodness of Fit Index (0.904), Adjusted Goodness of Fit Index (0.854), Root Mean Square Residual (0.072), and Comparative Fit Index (0.908) indicate an acceptable fit. According to Consistent Akaike Information Criterion (3065.579 < 12512.243), EExpected

Table 2.
Mean, Standard Deviation, and Correlation Values Between Variables

	\bar{X}	SD	(1)	(2)	(3)
1. Social withdrawal	29.26	12.51	1		
2. Nomophobia	2.86	0.80	.193*	1	
3. Spiral of silence	2.80	0.56	.204*	.256*	1

Note: \bar{X} = Mean; SD = standard deviation. ($p < .05$).

*Correlation values showing statistically significant difference.

Cross Validation Index(4.554 < 23.994), and Akaike Information Criterion (2326.975 < 12260.803), the closest fit to reality is selected. Therefore, it can be said that the overall fit of the model is achieved.

The mean scores, standard deviations, and correlation analysis results reflecting the participants' opinions regarding social withdrawal, nomophobia, and spiral of silence are given in Table 2.

As a result of the correlation analysis, a positive and very weak relationship was determined between social withdrawal with spiral of silence. Similarly, a positive and very weak relationship was determined between social withdrawal with nomophobia, and a positive and very weak relationship was determined between nomophobia with spiral of silence.

Upon examining Figure 2, it is observed that the standardized regression coefficient for path "a" is .256, for path "b" it is .204, and for path "c" it is .193. To determine the presence of indirect effects through the mediator, one should examine the significance of path c' or whether the effect size has decreased (to detect the reduction in path c). Upon examining path c' (.151; $p < .05$), it can be seen that there is a reduction in the regression coefficient of

path c (H_1 hypothesis is accepted). Table 3 presents the standardized regression coefficients among variables and the coefficients regarding the mediation effect.

It is observed that the mediation effect decreases compared to the standardized regression coefficients. The direct effect (c') is not insignificant, but it is observed that the standardized regression coefficient decreases. The magnitude of the indirect impact is determined by the difference between the total impact and the direct impact. The indirect effect is 0.657%. After determining the indirect effect, the significance status should also be determined. The significance of this effect is determined if the lower and upper bounds of the Bootstrap confidence interval are above or below zero (both) (Büyükbese & Dag, 2018). It can be seen that both values in Table 3 are above zero. According to these results, it is determined that there is a partial mediating effect of the spiral of silence in the relationship between nomophobia and social withdrawal.

Upon examining Figure 2, it is observed that the standardized regression coefficient for path "a" is .193, for path "b" it is .256, and for path "c" it is .204. To determine the presence of indirect effects through the mediator, one should examine the significance of path c' or whether the effect size has decreased (to detect the reduction in path c). Upon examining path c' (.301; $p < .05$), it can be seen that there is an increase in the regression coefficient of path c (H_2 hypothesis is rejected).

Upon examining Figure 2, it is observed that the standardized regression coefficient for path a is .204, for path b it is .193, and for path c it is .256. To determine the presence of indirect effects through the mediator, one should examine the significance of path c' or whether the effect size has decreased (to detect the reduction in path c). Upon examining path c' (.294; $p < .05$), it can be seen that there is an increase in the regression coefficient of path c (H_3 hypothesis is rejected).

Table 3.
Coefficients for Mediation Effects

	B	SE (B)	p	LLCI-ULCI	β	R²
c: Social withdrawal						
<i>F</i> = 19.754; <i>p</i> = .000						
Nomophobia	2.992	.673	.000	1.670 – 4.315	.193	.037
a: Spiral of silence						
<i>F</i> = 35.906; <i>p</i> = .000						
Nomophobia	0.178	.030	.000	0.120 – 0.236	.256	.066
b and c'						
<i>F</i> = 17.063; <i>p</i> = .000						
Nomophobia (c')	2.335	.688	.007	0.984 – 3.687	.151	.063
Spiral of silence (b)	3.693	.991	.002	1.745 – 5.641	.165	
Toplam (a) (b)*					.251	
	Direct Effect	Bootstrap Confidence Interval		Indirect Effect	Total Effect	Mediator Effect Type
		BoLLCI-BoULCI				
N-SS-SW	2.335	0,207 – 1.303		0.657 β	2.992	Part

Note: Values in bold indicate statistical significance ($p < .05$).

N = nomophobia; SS = spiral of silence; SW = social withdrawal.

Discussion

The concept of silence is a form of communication that varies from person to person. Terms such as interruption, gap, and silence in social communication describe communication. Camus (1994) states that silence actually conveys something and that a silent individual may want it to be thought that they are not judging or do not want anything, and sometimes they really do not want anything (Camus, 1994; Erdogan, 2011; Büyükbese & Dag, 2018). Another situation is when an individual, rather than remaining silent, observes or listens for a while and then, after agreeing with the majority, feels accepted and relaxed. Therefore, it can be said that people can sometimes appear to have adopted their own views, or over time, they may indeed have adopted them (Noelle-Neumann, 1998). In the business world, people tend to either withhold their ideas or conform to the majority's opinions (Dehkharghani et al., 2022). As the rate of individuals with minority opinions expressing their own views increases on social media, especially on platforms where personal identity is shared, opinion statements are supported with visual elements such as the "like" button rather than verbal expressions (Porten-Cheé & Eilders, 2015). Today, mobile phones are used as a tool for individuals to shape how they want to be perceived by their surroundings. Over-identifying oneself with the phone to gain acceptance can lead to experiencing "nomophobia" in case of deprivation (Ross & Bayer, 2021). In fact, studies aimed at increasing productivity in the workplace have identified a high level of stress associated with phone deprivation, even though the goal is to increase efficiency. In this context, ways to minimize stress have been explored, and it has been found that knowing how long individuals will be away from their phones has anxiety-reducing effects (Tams et al., 2018). When the feelings of deprivation caused by nomophobia in individuals are investigated, it is found that there are different reasons for connecting to the phone/internet. In this context, individuals who have an anxious attachment style in their social lives are thought to be more dependent on their phones and communicate more frequently and comfortably with individuals they are hesitant to communicate with in their social lives. However, individuals tend to seek acceptance from people they do not know by using social platforms exclusively (Konok et al., 2016). This situation can lead to individuals gradually withdrawing from real life, isolating themselves socially, and spending long hours in front of the computer. While this condition is often perceived as a problem by others, individuals themselves do not usually see it as a problem (Nonaka et al., 2022). A high proportion of an individual's time allocated to activities such as playing games, reading online books, and the like is an indicator of social withdrawal. In a study on this issue, it is seen that although there is no direct relationship between nomophobia and social withdrawal, individuals associate the feelings of deprivation they experience when they cannot perform these activities with nomophobia (Lu, 2014). Recent studies on social withdrawal have shown that this ratio is 80% for men and 20% for women. Especially in families with good socioeconomic status, this ratio tends to increase, particularly in the eldest son of the household. Although the onset age of symptoms varies between 20 and 27 years, it generally begins in adolescence. A study conducted by 247 psychiatrists in 2012 indicated that social withdrawal is more prominent among male adolescents living in urban areas (Sarchione et al., 2015).

This study aimed to determine the mediating roles of nomophobia, social withdrawal, and the spiral of silence in university students. According to the results of the analysis, it was found that the spiral of silence mediated the effect of nomophobia and social withdrawal behavior. Nomophobia did not have a mediating role in the effect of the spiral of silence on social withdrawal behavior, and social withdrawal behavior did not have a mediating role in the effect of the spiral of silence on nomophobia. In addition, a positive and very weak relationship was found between social withdrawal and the spiral of silence. Similarly, a positive and very weak significant relationship was found between social withdrawal and nomophobia, and a positive and very weak relationship was found between nomophobia and the spiral of silence.

Theoretical Contribution

This study provides significant contributions to the theory. First, this study presents original findings when examining the relationship between nomophobia, social withdrawal, and the spiral of silence within a sample of students characterized by specific demographic features. These findings have the potential to contribute to the development of theoretical frameworks.

Secondly, this study has the potential to advance theoretical understanding by elucidating the relationships between nomophobia, social withdrawal, and the spiral of silence through the mediation of a variable among students. This may contribute to a better comprehension of the relationships between these concepts.

Managerial Implications

This study provides significant management implications:

- University administrators should be informed about students' issues related to technology usage, such as nomophobia and social withdrawal. This study can encourage the reconsideration of university policies by emphasizing the impact of such issues on students.
- University administrations can provide counseling services to help students cope with problems like technology addiction while meeting their social needs.
- Universities can create programs to equip students with digital literacy skills, enabling them to use technology more effectively.
- This study can assist universities in implementing efforts to enhance students' communication skills and reduce the levels of the spiral of silence through various educational programs and resources.
- Under the leadership of universities, various projects can be conducted to educate students and other segments of society about issues such as nomophobia, social withdrawal, and technology addiction, aiming to raise awareness.

Limitations and Directions for Future Study

The study has some limitations for further research. First, 512 university students were analyzed with a survey application. The most important limitation of this study is not applying the survey to all university students due to the high number of university students. Secondly, the questionnaires were obtained from students who could be reached using convenience sampling. Finally, further studies are needed to investigate the relationships between

the variables and to examine other factors that may influence the spiral of silence, nomophobia, and social withdrawal.

Ethics Committee Approval: This study was approved by the Ethics Committee of Istanbul Gelisim University (approval no: 2024-01; date: January 12, 2024).

Informed Consent: Written informed consent was obtained from the participants who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – A.B.; Design – A.B., E.Z.; Supervision – A.B., E.Z.; Resources – E.Z.; Materials – A.B., E.Z.; Data Collection and/or Processing – E.Z.; Analysis and/or Interpretation – A.B.; Literature Search – A.B., E.Z.; Writing – A.B., E.Z.; Critical Review – A.B.

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