

ORIGINAL RESEARCH

Reliability and Validation of Turkish Version of the 25-item Hikikomori Questionnaire

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Abstract

Objective: Hikikomori, a form of severe and long-term social withdrawal, known to cause the waste of work force in society and the decrease in performance, has recently been accepted as a psychiatric disorder. After realizing the lack of assessment instruments related to this syndrome, the 25-item Hikikomori Questionnaire (HQ-25) was developed by the researchers. The aim of the study is to examine the HQ-25's adaptation to the Turkish language, its validity and reliability.

Methods: The sample consists of 343 healthy participants who are not suffering from any mental or physical illnesses. HQ-25, Multidimensional Scale of Perceived Social Support (MSPSS), UCLA Loneliness Scale, and Preference for Solitude Scale (PSS) have been used.

Results: The average age of the participants was 33.15±13.56 years and 46.0% (n=159) of the participants were female. The value of Cronbach's alpha is 0.91, in the internal consistency reliability assessment of the questionnaire. According to the Exploratory Factor Analysis (EFA), the questionnaire had three sub-scales: "Socialization", "Isolation" and "Emotional Support" (Variance description:55.67%, Kaiser-Meier-Olkin Value:0.923). The Confirmatory Factor Analysis (DFA) Assessment found that the original 3-Factor Structure of the scale was supported. It is seen that the total scale and subscale correlations are between 0.47 to 0.93. HQ-25's correlation coefficient with MSPSS, UCLA Loneliness Scale, and PSS has been calculated as $r > 0.30$.

Conclusion: HQ-25 is a new potential self-report instrument that might help assess social isolation. As a result of our study, it has been seen that HQ-25 might be safely used in academic studies and clinical practice to assess social isolation.

Keywords: Hikikomori, Social Isolation, Questionnaire, Validation, Reliability

INTRODUCTION

The term "Hikikomori" is believed to be deriving from "hiku" (pull back), and "komoru", (isolate) has been described as "acute social withdrawal" lasting for at least 6 months, with no obvious psychotic disorder, whereby a person fails to fulfill the responsibilities and does not participate in social activities such as school or work (1-3). In the 2000s, it was thought that it was a phenomenon specific to Japanese culture, and it is specifically for Japanese young people from middle – and upper-class families, considering the modernization and

developing technology. However, it is later discovered that it was also seen in different countries, such as France, the United States, Canada, Oman, Spain and Hong Kong (2, 4-7).

Although community-based studies regarding Hikikomori are scarce, its lifetime prevalence is estimated to be about 1-2%, especially more common in the young male population. And it is also estimated that the time before people apply to psychiatric clinics for the first time due to mental complaints is a term between 1 and 10 years (2, 4, 5, 8). A 2016 report prepared by the Japanese government found that about 541,000 people aged 15-39 in Japan, suffer from Hikikomori syndrome (2). Over this situation, the Japanese government and researchers planned to provide therapeutic interventions such as providing individual support, group therapies, family information sessions and social-professional support for people suffering from Hikikomori syndrome, and even backed the establishment of research centers in hospitals to work on this issue (2, 9).

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Although the etiology of Hikikomori is not fully understood, it has been reported that people experiencing problematic domestic disputes and intense psychosocial stressors and suffering from intense feelings of loneliness, and lack of social and environmental support (1, 10). Studies found that, similar to Turkish culture, the lack of the father figure in the family structure in Japanese culture and the excessive devotion to the mother may cause insufficient interpersonal relationship skills from an early age. And it is also considered that phenomena like “*Amae*” (dependent behaviors of the child towards the family) and “*Seiken*” (judgment by the public) in Japanese culture may cause the emergence of the Hikikomori syndrome (2, 11). In the studies, this situation can be considered as primary or secondary to psychiatric disorders such as avoidant personality disorder, social anxiety disorder, major depression, autism spectrum disorder, and the prodromal phase of schizophrenia, and it is significant to evaluate this situation in consideration of the patients' psychopathology approach (2, 5, 8).

The fact that diagnostic criteria for Hikikomori have not been determined yet and there is no specific guideline for its treatment, is an obstacle to understanding how important this is in the international arena, due to high rates of school attendance and workforce loss among individuals (2, 5, 8). Although efforts concentrate on determining diagnostic criteria, the studies also stated that the severity of this condition should be rated as mild, moderate and serious according to the time of leaving the house or room (12). It is also stated that social isolation and economic problems emerging from the quarantine processes implemented under current COVID-19 pandemic conditions might cause Hikikomori syndrome and lead to increased loneliness in people in the long term with a feeling of anxiety, depression, alcohol/substance use disorders and diseases such as increasing internet addiction (9). In order to evaluate this situation, the “25-item Hikikomori Questionnaire (HQ-25)” was developed by Teo and his colleagues in 2018 (8). The scale contained 25 items across three subscales representing socialization, isolation, and emotional support (8) and it has been developed on solid theoretical foundations after long-term observation of the characteristics of the Hikikomori such as social isolation, social distancing, alienation and marginalization. The scale does not measure only behavior, but also emotional and cognitive characteristics. The scale contains 25 items and all items are rated on a scale ranging from 0 to 4, and the

total score of the scale ranges from 0-100 in a catchy way (8). Although some scales' certain items have some references to social isolation, there is no Turkish scale that can be used to evaluate social isolation, to the best of our knowledge (13, 14). Thus, it is thought that a scale, Turkish validity and reliability of which has been tested, is necessary to assess this state of social isolation, which can be addressed as a phenomenon or mental disorder symptom and might be ignored due to insufficient recognition in countries other than Japan.

Considering these facts, this study aims to test the validity and reliability of the Turkish version of the HQ-25 and that way to demonstrate the usage of the scale in clinical practice and academic field for the population of our country.

METHODS

Participants

This cross-sectional study was conducted by the Department of Psychiatry, Gulhane Training and Research Hospital. Individuals who apply for Health Board Medical Examination and who do not have any physical or mental illness who were examined by a psychiatrist were involved in the study. The study sample consists of 343 willing participants including 159 women (46%) and 187 men (54%). The eligibility criteria in the study were as follows: Being between 18-65 years old, having a sufficient cognitive level to participate in the study, being literate and volunteered to participate in the study. The ineligibility criteria were as follows: Suffering from known physical and mental disorders, having known severe head traumas before and having physical disabilities that can prevent social communication.

Data Collection Tools

Sociodemographic Information Form: It was developed by researchers in accordance with the literature, to survey the participants' sociodemographic characteristics such as age, gender, marital status, economic status, and living conditions, and physical and mental health.

25-item Hikikomori Questionnaire (HQ-25): This scale was developed by Teo and his colleagues in order to evaluate the Hikikomori a form of severe social withdrawal (8). The scale which is based on 25 statements and a 5-point Likert scale (0 = Strongly Disagree, 4 = Strongly Agree) consists of 3 sub-scales:

socialization, isolation and emotional support. Items 4, 7, 10, 15, 21 and 25 are reverse items on the scale. These marks are rated between 0-4 for each item, and the total score that can be taken from the scale ranges between 0-100. The scale has 11 items for the socialization sub-scale, 8 items for the isolation sub-scale, and 6 items for the emotional support sub-scale. To measure the reliability of the scale, the questionnaire has been conducted at the beginning of the study and 1 month later again, and the correlation between the data was set as 0.92 ($p < 0.001$). The diagnostic accuracy of the scale is determined as 0.86 (95% CI: 0.80-0.91) and the cutoff score as 42 (sensitivity 94%, specificity 61% and positive predictive value 17%). In the original form of the study, as a result of internal consistency analysis, the Cronbach alpha value was calculated as 0.96 for the entire scale, 0.94 for the socialization subscale, 0.88 for the isolation subscale and 0.89 for the emotional support subscale (2).

Multidimensional Scale of Perceived Social Support (MSPSS): The scale, developed by Zimet et. al., is designed to measure perceived social support from three sources: Family, Friends, and a Significant Other. The scale consisted of 12 items and these items were answered on a 7-point Likert scale (1 = "very strongly disagree"; 7 = "strongly agree") (15). Subscale scores are calculated by summing 4 items in each subscale and the total scale score is achieved by summing all subscale scores. Higher scores indicate greater perceived social support. The validity and reliability study of the scale was conducted by Eker et. al. in Turkey. Cronbach's alpha coefficient was 0.89 for the scale, and between 0.85 and 0.92 for subscales (16).

UCLA Loneliness Scale (UCLA-LS): A 20-item scale was designed by Russell, Peplau and Ferguson in 1978 to measure one's subjective feelings of loneliness and the scale is evaluated on a 4-point Likert-type scale (17). Higher scores indicate greater feelings of loneliness. Reliability and validity of the Turkish version of the scale was conducted by Demir. The Cronbach Alfa of the scale was 0.96 (13).

Preference for Solitude Scale (PSS) : The scale developed by Burger in 1995 to measure and evaluate the preference for solitude, is based on 12 items with two options for each question (18). A Turkish validity and reliability study of the scale has been conducted (19).

Procedure

After getting required permissions from researchers who developed the original scale to conduct a Turkish

validity and reliability study of the scale, approval was obtained from the Ethics Committee of the University of Health Sciences, Gulhane Training and Research Hospital (IRB:2019/07-19/144). A translation and reverse translation of the form has been made by clinicians who are experts in their field and have the command of both languages and those have been submitted for approval by reverse translation developers. After the required corrections were made, the scale was first applied to a small sample, a preliminary evaluation was made and applied to the study sample. Individuals who apply for a medical board examination were invited to participate in the study if they do not have a mental and physical disease after their examination is completed. Participants who volunteered to participate in the study were told about the purpose and structure of the study, and their consent was obtained. Participants were asked to fill out anonymous standard sociodemographic data forms and forms including scales. The forms of participants who did not want to complete or left the scales incomplete were excluded from the study. The data of participants who completed the forms appropriately was scored according to the scale guidelines and recorded in the appropriate data set and subjected to statistical analysis.

Statistical Analysis

SPSS 22.0 and AMOS 24.0 were used for statistical analysis. Descriptive analysis methods were first applied in the analysis of the data. Using item-total correlation and item-item correlation, item structures were examined, and exploratory factor analysis of the scale was conducted. Confirmatory factor analysis was conducted in accordance with the original version of the scale items. The Cronbach alpha value was analyzed to assess the internal consistency of the scale. Correlation analysis was conducted to examine the relationship between the two numerical variables. The relationship of the scale with the Multidimensional Scale of Perceived Social Support (MSPSS), UCLA Loneliness Scale (UCLA-LS) and Preference for Solitude Scale (PSS) was examined to determine the content validity. The statistically significant value was calculated as $p \leq 0.05$.

RESULTS

The average age of the participants in the study was 33.15 ± 13.56 and the period of education was 15.89 ± 2.08 years. As a result of the evaluation, it was determined

that 46.0% (n=159) of the sample was female. Other descriptive data of participants is given in Table 1.

Table 1. Demographic characteristic variables of participant

Variable	
Age (year, Mean±SD)	33.15±13.56
Education (year, Mean±SD)	15.89±2.08
Gender, n(%)	
Female	159 (46.0 %)
Male	187 (54.0 %)
Marital status, n(%)	
Unmarried	210 (60.7 %)
Married	133 (38.4 %)
Divorced	3 (0.9 %)
Economic status, n(%)	
Low	119 (34.4 %)
Middle	57 (16.5 %)
High	170 (49.1 %)
Lives with, n(%)	
Family	225 (65.0 %)
Alone	54 (15.6 %)
Friend	67 (19.4 %)

Reliability Analysis

Internal Consistency Analysis: The Hotelling T^2 test value applied to the scale was found to be statistically significant ($T^2=798,437$; $F(24-322)=31.05$ $p<0.001$).

Cronbach Alpha coefficient was 0.917 in reliability analysis, McDonald's ω coefficient was 0.919; and Guttman Split Half coefficient was 0.839 and Spearman-Brown coefficient was 0.858 in semi-reliability analysis. Cronbach Alpha coefficients of scale sub-dimensions were calculated as 0.895 for the socialization sub-scale, 0.769 for the isolation sub-scale, and 0.749 for the emotional support sub-scale.

The correlations between total and sub-scales are given in Table 4. Accordingly, all correlations between the subscales and the correlations between the subscales and the total scale score were statistically significant ($p<0.001$).

Item Analysis: Item averages of scale items, total-item correlations, and Cronbach's Alpha values if an item is

deleted, are given in Table 2. The item-total correlation coefficients of the scale items ranged from 0.182 to 0.718 ($p<0.01$), and Cronbach's Alpha values ranged from 0.910 to 0.919 if an item is deleted.

Validity Analysis

Structure Validity: When evaluating the factor structure of the HQ-25, the sampling adequacy was evaluated by using Kaiser-Meyer-Olkin (KMO) and the relationship required for inter-item factor analysis was measured by the Barlett test. According to the analysis, the KMO value was determined as 0.916 and the result of the Barlett test ($\chi^2=3728$, $df=300$, $p<0.001$) was found to be statistically significant and the exploratory factor analysis was used. Exploratory factor analysis results of the scale and the factor loads of items are given in Table 3. Exploratory factor analysis results show that the HQ-25 can explain 55.67% of the total variance in three sub-dimensions. It is also seen that when the Varimax method was used as a rotation method in factor analysis, it was found that 25 items contributed to the three factors in the original scale with a structure as in Table 3.

According to the exploratory factor analysis, the Turkish version of HQ-25 was found to be separated like the factor structure in the original scale, and the confirmatory factor analysis was tested in the same way and given in Figure 1. Accordingly, as a result of the analysis for the structure validity of the scale, the χ^2/SD value obtained for the three-dimensional structure was found to have acceptable model compliance values of $2,663<3$; the GFI value of $0.90\geq 0.865$; the RMSEA value of $0.076\leq 0.08$.

Content Validity: To test the content validity of the scale, the correlations between the scale and (MSPSS), UCLA-LS and PSS respectively have been examined. The correlations between the HQ-25 and the other scales are given in Table 5. Accordingly, the total and subscale scores of HQ-25 were significantly ($p<0.001$) and negatively correlated with the total and subscale scores of MSPSS. The total and subscale scores of HQ-25 were significantly ($p<0.001$) and positively correlated with the UCLA – LS and PSS.

Table 2. Mean of scale items, total-item correlations, and Cronbach's Alpha if items deleted

	Mean±SD	Total-Item Correlation	If item deleted Cronbach's Alpha
1. I stay away from other people.	1.26±1.10	0.718	0.911
2. I spend most of my time at home.	1.67±1.25	0.601	0.913
3. There really isn't anyone with whom can discuss matters of importance.	1.23±1.01	0.554	0.914
4. I love meeting new people.	1.30±0.92	0.565	0.914
5. I shut myself in my room.	1.05±1.10	0.529	0.914
6. People bother me.	1.12±0.92	0.648	0.912
7. There are people in my life who try to understand me.	1.13±0.92	0.520	0.915
8. I feel uncomfortable around other people.	1.23±0.95	0.700	0.911
9. I spend most of my time alone.	1.31±1.06	0.648	0.911
10. I can share my personal thoughts with several people.	0.97±0.79	0.182	0.919
11. I don't like to be seen by others.	1.35±1.08	0.631	0.912
12. I rarely meet people in-person.	1.51±1.14	0.527	0.915
13. It is hard for me to join in on groups.	1.43±1.12	0.645	0.912
14. There are few people I can discuss important issues with.	1.86±1.22	0.548	0.915
15. I enjoy being in social situations.	1.15±0.86	0.649	0.912
16. I do not live by society's rules and values.	1.27±1.02	0.276	0.919
17. There really isn't anyone very significant in my life.	0.77±0.90	0.479	0.915
18. I avoid talking with other people.	1.08±0.91	0.731	0.911
19. I have little contact with other people talking, writing, and so on.	1.13±0.99	0.675	0.912
20. I much prefer to be alone than with others.	1.49±1.06	0.701	0.910
21. I have someone I can trust with my problems.	0.92±0.82	0.496	0.915
22. I rarely spend time alone.	2.06±1.11	0.393	0.915
23. I don't enjoy social interactions.	1.20±0.95	0.611	0.913
24. I spend very little time interacting with other people.	1.63±1.05	0.666	0.912
25. I strongly prefer to be around other people.	1.54±0.95	0.611	0.913

Table 3. Factor loadings for the 25 items included in the Hikikomori Questionnaire

Items	Factor		
	Socialization	Isolation	Emotional Support
Item 1	0.779		
Item 4	0.597		
Item 6	0.549		
Item 8	0.641		
Item 11	0.621		
Item 13	0.708		
Item 15	0.623		
Item 18	0.681		
Item 20	0.622		
Item 23	0.547		
Item 25	0.623		
Item 2		0.667	
Item 5		0.704	
Item 9		0.650	
Item 12		0.653	
Item 16		0.489	
Item 19		0.516	
Item 22		0.598	
Item 24		0.726	
Item 3			0.729
Item 7			0.800
Item 10			0.408
Item 14			0.598
Item 17			0.649
Item 21			0.765

Table 4. Correlations of the subscales of the Hikikomori Questionnaire

		Hikikomori Questionnaire				
		Socialization	Isolation	Emotional Support	Total	
Hikikomori Questionnaire	Socialization	r	1			
		p				
	Isolation	r	0.748**	1		
		p	0.000			
	Emotional Support	r	0.491**	0.470**	1	
		p	0.000	0.000		
	Total Score	r	0.936**	0.871**	0.705**	1
		p	0.000	0.000	0.000	

		Correlation				
		Hikikomori Questionnaire				
		Socialization	Isolation	Emotional Support	Total	
The Multidimensional Scale of Perceived Social Support	Family	r	-0.367**	-0.340**	-0.537**	-0.465**
		p	<0.001	<0.001	<0.001	<0.001
	Significant others	r	-0.473**	-0.393**	-0.363**	-0.490**
		p	<0.001	<0.001	<0.001	<0.001
	Friends	r	-0.528**	-0.462	-0.575**	-0.605**
		p	<0.001	<0.001**	<0.001	<0.001
	Total	r	-0.566**	-0.474**	-0.597**	-0.636**
		p	<0.001	<0.001	<0.001	<0.001
The Revised University of California, Los Angeles (R-UCLA) Loneliness Scale		r	0.609**	0.512**	0.555**	0.660**
		p	<0.001	<0.001	<0.001	<0.001
The Preference for Solitude Scale		r	0.632**	0.464**	0.244**	0.570**
		p	<0.001	<0.001	<0.001	<0.001

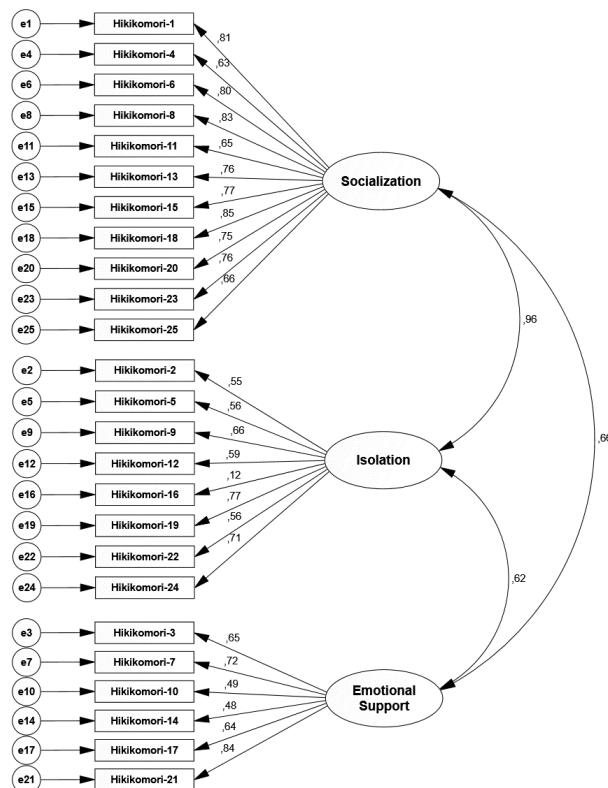


Figure 1. Diagram of the Hikikomori Questionnaire for Confirmatory Factor Analysis.

DISCUSSION

Our study aims to evaluate the Turkish version of HQ-25 used to evaluate and identify Hikikomori, a state of social isolation, that can be considered either as a phenomenon or as a symptom of a psychiatric disorder in clinical practice and academic studies. The results of this study show that the Turkish version of the scale is valid and reliable.

For the reliability analysis of HQ-25, Cronbach's alpha internal consistency coefficient was used. In this study, the overall Cronbach Alpha coefficient of the scale was calculated as 0.91, 0.89 for the socialization subscale, 0.76 for the isolation subscale and 0.74 for the emotional support subscale. These values show that the Turkish version of the scale is well consistent and reliably in terms of assessing social isolation (20). The fact that the scale's Cronbach's Alpha values range from 0.91 to 0.91 if an item is deleted, can be considered as an indication that the scale items contribute to the structure of the scale at a close rate.

To evaluate the scale's structure validity, all items were analyzed together and according to the AFA test results, it was determined that the items were collected in three factors consentaneously. These factors have been translated as socialization, isolation and emotional support. After that, these items were tested by using DFA whether they will be confirmed according to the AFA results and in the selected sample, similar to the original, and it has been seen that the DFA model compliance is sufficient (21). These results show the structural validity of the Turkish version of the scale. However, correlations between the scale subscales and total scores were examined and it has been seen that correlation coefficients ranged from 0.470 to 0.936. These results indicate the internal consistency of the scale. The item-total correlation coefficients of scale items range between 0.182-0.718. When examining Table 2, it is seen that the correlation coefficients of items other than item 10 ($r=0.182$) and item 16 ($r=0.276$) are above 0.3.

To evaluate the content validity of the scale, the relationship between HQ-25 total and subscale scores and MSPSS, PSS AND UCLA-LS total and subscale scores was examined. UCLA-LS measures the experiential loneliness intensity and the PSS measures preference for loneliness (13, 18). In this current study, the correlation between HQ-25 and UCLA-LS and PSS was found statistically significant. A study conducted by Kato et. al. (2018) found that the intensity of the feeling

of loneliness can vary from society to society, but we can often see the Hikikomori syndrome along with the feeling of loneliness (4). This conclusion, which we got in our study, suggests that HQ-25 correctly measures loneliness and that, as in previous studies, the feeling of loneliness can be seen with Hikikomori together. In the study, we also examined the relationship between HQ-25 and MSPSS measures perceived social support (15). In previous studies, it has been stated that people do not have social support even in the family, have weak social bonds, have poor social skills in real life, and therefore they establish indirect relationships in the virtual world (22,23). Supporting this argument, our study also determines a negative statistical relationship between HQ-25 and MSPSS (24). This result suggests that the HQ-25 correctly evaluates the existence of social support. When all these relationships are examined together, the fact that the Turkish version of HQ-25 measures both loneliness and loneliness preference and social support at a sufficient level can be shown as proof of its validity.

The results of our study should be evaluated considering there are some limitations. First, our study did not consist of individuals who could qualify as Hikikomori by clinical examination. It will be useful to conduct future studies on a clinical sample. The fact that the study was conducted through self-report forms, might be another limitation. That can make participants vulnerable to manipulation. In addition, it must be mentioned that there was a possibility for the participants to select higher points in the questionnaires because the study was performed in the lockdown period of COVID which affects mental health and is known as a risk factor for depression and anxiety. Finally, the fact that the study has a cross-sectional design and that its retests have not been conducted can be considered as other limitations of the study.

CONCLUSION

There is a lack of measurement tool which is needed for the assessment of the phenomenon of social isolation such as Hikikomori in societies where individualization is very high. It is thought that this lack can be filled with a Turkish version having adequate internal consistency, factor structure, content validity, of practical HQ-25 with the optimum number of items, which is developed on a solid theoretical foundation. Focusing on various predictor and protective factors related to Hikikomori and social isolation in future studies and developing prevention studies and therapeutic interventions

throughout the country will be effective in preventing the lack of both individual and social functionality.

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REFERENCES

- [1] Furlong A. The Japanese hikikomori phenomenon: acute social withdrawal among young people. *Sociol Rev.* 2008;56:309-325.
- [2] Kato TA, Kanba S, Teo AR. Hikikomori: experience in Japan and international relevance. *World Psychiatry* 2018;17:105-106.
- [3] Maglia M. Hikikomori: A systemic-relational analysis. *Health Psychol Res.* 2020;8:97-100.
- [4] Kato TA, Kanba S, Teo AR. Hikikomori: Multidimensional understanding, assessment, and future international perspectives. *Psychiatry Clin Neurosci.* 2019;73:427-440.
- [5] Koyama A, Miyake Y, Kawakami N, Tsuchiya M, Tachimori H, Takeshima T. Lifetime prevalence, psychiatric comorbidity and demographic correlates of "hikikomori" in a community population in Japan. *Psychiatry Res.* 2010;176:69-74.
- [6] Teo AR, Feters MD, Stuffelbam K, Tateno M, Balhara Y, Choi TY, Kanba S, Mathews CA, Kato TA. Identification of the hikikomori syndrome of social withdrawal: psychosocial features and treatment preferences in four countries. *Int J Soc Psychiatry.* 2015;61:64-72.
- [7] Furuhashi T, Tsuda H, Ogawa T, Suzuki K, Shimizu M, Teruyama J, Horiguchig S, Shimizu K, Sedookai A, Figueiredo C, Pionnié-Dax N, Tajan N, Fansten M, Vellut N, Castelo P. État des lieux, points communs et différences entre des jeunes adultes retirants sociaux en France et au Japon (Hikikomori). *L'Evolution Psychiatrique* 2013;78:249-266.
- [8] Teo AR, Chen JI, Kubo H, Katsuki R, Sato-Kasai M, Shimokawa N, Hayakawa K, Umene-Nakano W, Aikens JE, Kanba S, Kato TA. Development and validation of the 25-item Hikikomori Questionnaire (HQ-25). *Psychiatry Clin Neurosci.* 2018;72:780-788.
- [9] Kato TA, Sartorius N, Shinfuku N. Forced social isolation due to COVID-19 and consequent mental health problems: Lessons from hikikomori. *Psychiatry Clin Neurosci.* 2020;74:496-497.
- [10] Hayakawa K, Kato TA, Watabe M, Teo AR, Horikawa H, Kuwano N, Shimokawa N, Sato-Kasai M, Kubo H, Ohgidani M, Sagata N, Toda H, Tateno M, Shinfuku N, Kishimoto J, Kanba S. Blood biomarkers of Hikikomori, a severe social withdrawal syndrome. *Sci Rep.* 2018;8:1-9.
- [11] Bommersbach T, Millard H. No longer culture-bound: Hikikomori outside of Japan. *Int J Soc Psychiatry* 2019;65:539-540.
- [12] Kato TA, Kanba S, Teo AR. Defining pathological social withdrawal: proposed diagnostic criteria for hikikomori. *World Psychiatry* 2020;19:116-117.
- [13] Demir A. UCLA yalnızlık ölçeğinin geçerlik ve güvenilirliği. *Psikoloji dergisi.* 1989;7:14-18.
- [14] Meral BF, Cavkaytar A. Çok Boyutlu Algılanan Sosyal Destek Ölçeği'nin Psikometrik özelliklerinin otizmli çocuk aileleri üzerinden incelenmesi. *e-Uluslararası Eğitim Araştırmaları Dergisi* 2013;3:20-32. (Turkish)
- [15] Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. *J Pers Assess.* 1988;52:30-41.
- [16] Eker D, Arkar H, Yıldız H. Çok boyutlu algılanan sosyal destek ölçeği'nin gözden geçirilmiş formunun faktör yapısı, geçerlik ve güvenilirliği. *Türk Psikiyatri Dergisi* 2001;12:17-25. (Turkish)
- [17] Russell D, Peplau LA, Cutrona CE. The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *J Pers Soc Psychol.* 1980;39:472.
- [18] Burger JM. Individual differences in preference for solitude. *J Res Pers.* 1995;29:85-108.
- [19] Akgün A, Gündoğmuş İ, Taşdelen Kul A, Öznur T. Yalnızlık tercihi ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması. *Türk Psikiyatri Dergisi* 2019;31(55. Ulusal Psikiyatri Kongresi Bildiri Kitapçığı):44. (Turkish)
- [20] Kiliç S. Cronbach's alpha reliability coefficient. *Psychiatry and Behavioral Sciences* 2016;6:47-48.
- [21] Sümer N. Yapısal Eşitlik Modelleri: Temel kavramlar ve örnek uygulamalar. *Türk Psikoloji Yazıları* 2000;3:49-74. (Turkish)
- [22] Frankova I. Similar but different. Psychological and psychopathological features of primary and secondary hikikomori. *Front Psychiatry.* 2019;10:558.
- [23] Bowker JC, Bowker MH, Santo JB, Ojo AA, Etkin RG, Raja R. Severe social withdrawal: Cultural variation in past hikikomori experiences of university students in Nigeria, Singapore, and the United States. *J Genet Psychol.* 2019;180:217-230.
- [24] Yılmaz E, Yılmaz E, Karaca F. Üniversite öğrencilerinin sosyal destek ve yalnızlık düzeylerinin incelenmesi. *Genel Tıp Dergisi* 2008;18:71-79. (Turkish)