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Sleep Qualitiy and Social Capital in Individuals Undergoing Isolation Due to COVID-19

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Abstract

Background: In a study conducted at the early stages of the COVID-19 pandemic, it was reported that in individuals undergoing isolation, social capital had an impact on sleep quality and that anxiety plays an intermediary role. The aim of this study is to establish whether anxiety and depression play an intermediary role on the influence of social capital on sleep quality in all individuals undergoing isolation due to COVID.

Materials and Methods: Our study was performed on all subjects, who have applied to the two sites in Izmir, undergone a 14-day isolation period, from March 15 to May 30, 2020, during the first outbreak of the Coronavirus disease 2019 (COVID-19) in Turkey. Individuals receiving inpatient treatment and/or to whom isolation at home has been recommended, individuals, receiving outpatient treatment, who had mild symptoms and to whom isolation at home has been recommended, individuals to whom isolation was recommended due to a suspected COVID-19 infection and individuals to whom isolation was recommended due to suspected exposure. Primarily, on reviewing the hospital records, all participants were divided into three groups: individuals with a positive r RT-PCR result, individuals suspected of having possible COVID-19, and individuals isolated due to suspected exposure. Then, for individuals with positive rRT-PCR results and individuals suspected of having possible COVID-19, it was noted whether they had any clinical and radiological findings and whether they needed admission and intensive care. All participants completed a questionnaire consisting of 15 questions, including questions related to sociodemographic characteristics, in addition to the Social Capital Scale, Hospital Anxiety and Depression Scale and Pittsburgh Sleep Quality Index. The research data was built with the calls made by the physician to the individuals in scope of the study, and the responses the individuals gave to the questions of the questionnaires distributed online.

Results: For this study, data were collected from 215 cases in total. 57% of these were male and 43% were female. A significant correlation was detected between social capital and the presence of clinical and radiological findings of COVID-19. A significant correlation was detected between the depression scale and PCR+ in terms of clinical stage and progress. However, the same was not established in relation to anxiety. Sleep quality was determined to be low in individuals with higher socio-economic level and individuals, who are single

Conclusions: The relation between social capital level and the course of the disease indicates the necessity to support social capital in healthcare.

Key words: *Sleep disorders, COVID-19, sleep quality, social capital*

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Introduction

In the studies carried out the relationship between sleep and the immune system has been set out very clearly. The immune system has a diurnal rhythm, just like sleep. A significant reduction in the number of CD+, CD4 and CD8+ T cells and the NK cell response were shown in chronic sleep deprivation. These changes in the immune system increase the vulnerability of the organism to many diseases. Particularly diseases with acute and chronic inflammation are more commonly observed. As the immune response weakens in sleep deprivation, acute infectious processes take a faster course (1,2).

Social capital and social support are terms that are frequently mentioned in our daily lives and in academic studies carried out for social sciences. There are differences between social support and social capital. Social support represents the size and source of social networks of individuals helping others in addition to its emotional, financial and informative supporting functions. Social capital, on the other hand, contains social trust, the sense of belonging and social engagement. The re-discovery of the importance of these two terms in both our daily lives and academic studies is not surprising considering the transformation in the family, relative, neighbourhood and friendship relations. Today is an era where we see the traditional values and culture losing its power in interpersonal social communication networks, thus it is needed to re-investigate the contributions of social capital and social support to the individual in many aspects. Despite being a sociological and economical term, this term is increasingly being used in the algology, neurology and psychiatry literature as it helps defining quantitatively hard to measure areas with a personal dimension (3,4,5,6). The impact of social capital on psychological welfare has been shown in previous studies. When the studies conducted in Turkey are examined, it is seen that there are very few studies focusing on the relationship between health and social capital.

In a study conducted at the early stages of the COVID-19 pandemic, it was reported that in individuals undergoing isolation, social capital had an impact on sleep quality and that anxiety plays an intermediary role (7,8,9,10). In Turkey, no studies investigating social capital and sleep quality have been conducted. For this reason, the purpose of our study is to establish whether anxiety and depression play an intermediary role on the influence of social capital on sleep quality in all individuals undergoing isolation due to COVID, who have applied to the two hospitals in scope of the study. Additionally, another objective is to demonstrate the correlation between the presence of clinical, laboratory and radiological findings and both social capital and sleep quality in COVID-19 cases.

Material and Methods

This cross-sectional study was performed on all subjects, who have applied to the two sites in Izmir, undergone a 14-day isolation period, from March 15 to May 30, 2020, during the first outbreak of the Coronavirus disease 2019 (COVID-19) in Turkey. Individuals receiving inpatient treatment and/or to whom isolation at home has been recommended, individuals, receiving outpatient treatment, who had mild symptoms and to whom isolation at home has been recommended, individuals to whom isolation was recommended due to a suspected COVID-19 infection and individuals to whom isolation was recommended due to suspected exposure. Primarily, on reviewing the hospital records, all participants were divided into three groups: individuals with a positive

rRT-PCR result, individuals suspected of having possible COVID-19, and individuals isolated due to suspected exposure. Then, for individuals with positive rRT-PCR results and individuals suspected of having possible COVID-19, it was noted whether they had any clinical and radiological findings and whether they needed admission and intensive care. All participants completed a questionnaire consisting of 10 questions, including questions related to sociodemographic characteristics, in addition to the Social Capital Scale, Hospital Anxiety and Depression Scale and Pittsburgh Sleep Quality Index. The research data was built with the calls made by the physician to the individuals in scope of the study, and the responses the individuals gave to the questions of the questionnaires distributed online.

Social Capital Scale

The scale consists of 8 sub-groups. With the scale it is assessed with the Participation in a Local Committee dimension whether the individual voluntarily takes part in formal or informal structures steering the life in the community they are a part of, such as local administration, small-sized working groups; with the Social Representation dimension whether the individual takes initiative on their own in social representation and social matters, engages in problem solving and assumes the role of a mediator leader in disputes; with the Trust and Reliability dimension, whether the individual finds the environment, neighbourhood, and all individuals in our circle reliable; with the Neighbourhood Relations dimension, the individual's relationship with their family and friends; with the Tolerance to Difference dimension, the individual's tolerance to individualistic differences due to culture, sexual identity and lifestyle choices; with the Value of Life dimension, whether the individual sees themselves or what they experience in life valuable; and with the Work/School Relations dimension, whether the individual sees themselves as part of the structure in the work/school environment they are in. The items of the scale were rated using the 4-point Likert scale, where 1 corresponds to Absolutely No, 2 to Often No, 3 to Often Yes and 4 to Absolutely Yes.

Pittsburgh Sleep Quality Index

PSQI is a self-report scale where the sleep quality and disorders in the past one month is assessed with 19 items. It consists of 24 questions: 19 questions are to be answered by the individual and 5 questions are to be answered by the spouse or the roommate. The 18 questions of the scale that are scored consist of 7 components. Subjective Sleep Quality, Sleep Latency, Sleep Duration, Habitual Sleep Efficiency, Sleep Disturbances, Use of Sleeping Medication and Daytime Dysfunction. All components are rated on a scale of 0-3 points. The total score of the 7 components shall provide the total score. The total score varies between 0–21. A total score above 5 indicates "poor sleep quality"(12).

Hospital Anxiety and Depression Scale

This is a self-assessment scale determining the anxiety and depression risk of patients and quantifying its level and changes in its severity. It was shown that the scale used for various diseases and used for comparison in clinical groups give clinically significant results as a psychological scanning tool. The scale consists of 14 items and consists of HADS-A (Anxiety, 7 questions) and HADS-D (Depression, 7 questions) sub-dimensions. Each item is scored using a 4-point Likert scale and the total score that can be obtained from each sub-dimension is 21. At each sub-dimension scores between 0-7 are assessed

as "normal", 8-10 are as "at limit" and a score of 11 or above indicate a significant psychological morbidity (13).

Statistical Method

For the study, it was determined that subjects applying to the two hospitals, who are undergoing isolation due to COVID-19, are to be included with the simple random sampling method. For statistical analyses, IBM SPSS Amos 21 Statistical Bundle was used. The demographic definitions for individuals participating in the questionnaire were given as Frequency (n) and Percentage (%) in statistical analyses. Average (Avg) and Standard Deviation (SD) values for the questions in the scales are presented in tables. The reliability of the questionnaires in terms of scales were checked using the Cronbach's Alpha. The relationship between the questionnaire scales were examined using the Pearson' Rho Correlation Coefficient when the variables have normal distribution, and the Spearman's Rho Correlation Coefficient when they do not. The effects of social capital on anxiety, depression and the sleeping pattern were assessed with the Simple Linear Regression Analysis and the joint effect of social capital, anxiety and depression on the sleeping pattern were assessed using the Multiple Linear Regression Analysis. Additionally, whether anxiety and depression play an intermediary role on the social capital's impact on the sleeping pattern was determined using the Structural Equation Modelling (SEM). For statistical significance, the value $p<0.05$ was taken as basis.

Results

The questionnaires were administered to the patients applying to the hospital for COVID-19, and 215 questionnaires were deemed appropriate and taken into consideration. The socio-demographical data of the cases participating in the study, their general definitive characteristics, clinical course and treatment stages are presented in Table 1-3.

Table 1. Demographic characteristics of the individuals participating in the study.

Variable	Category	Frequency (n)	Percentage (%)
Sex	Female	93	43.3
	Male	122	56.7
Marital Status	Married	156	72.6
	Single	59	27.4
Education Status	Illiterate	1	0.5
	Elementary School	24	11.1
	Middle School	36	16.7
	High School	84	39.1
	University	70	32.6
Income	Below minimum wage	44	20.5
	Minimum wage	38	17.7
	Above minimal wage	133	61.9
Age	18-30 years	42	19.5
	31-40 years	24	11.2
	41-50 years	67	31.2
	51-60 years	38	17.7
	61-70 years	24	11.2
	71-80 years	17	7.9
	80 years and above	3	1.4
Employment	Unemployed	88	40.9
	Desk job	51	23.7
	Physical effort	35	16.3

	Retired	41	19.1
Lives in	Metropolis	171	79.5
	Province	22	10.2
	District	22	10.2
Living status	Alone	6	2.8
	With family	54	25.1
	Spouse and/or children	143	66.5
	Other	12	5.6
House	Belonging to the family	45	20.9
	Owned	74	34.4
	Rental	96	44.7
Social security	No	12	5.6
	SSI	194	90.2
	Private insurance	9	4.2
Total		**215**	**100**

Table 2. Clinical definitive data of the individuals participating in the study.

Variable	**Category**	**Frequency (n)**	**Percentage (%)**
PCR test	No sample taken	28	13.0
	Negative	105	48.8
	Positive	82	38.1
Presence of clinical findings	Negative	73	34.0
	Positive	142	66.0
Chest radiography	Negative	107	49.8
	Positive	108	50.2
COVID-19 exposure history	No	139	64.7
	Yes	76	35.3
Tomography	Negative	107	49.8
	Positive	108	50.2
Alcohol	No	195	90.7
	Yes	20	9.3
Smoking	Never	89	41.4
	Quit	29	13.5
	Occasionally	30	14.0
	Less than 1 pack a day	51	23.7
	1 pack a day or more	16	7.4
Total		**215**	**100**

Table 3. How would you define the isolation period for COVID-19?

Response	**Frequency (n)**	**Percentage (%)**
I was instructed to isolate myself without a swab sample	31	14.4
I was instructed to isolate myself at home after a swab sample	67	31.2
I received outpatient treatment	29	13.5
I received inpatient treatment	69	32.1
I was admitted to the Intensive Care Unit for treatment	19	8.8

The definitive statistics for the questions and sub-dimensions of the social capital scale are presented in Table 4. The question with the highest average score (3.36) was the question "When you have a dispute with your neighbour in regard to dogs, political matters or using common areas, would you be willing to display a reconciliatory attitude?" The question with the lower average score was "Are you an active member of the management or organization committee of a club or association?" The average score of the scale was 68.73 with a standard deviation of 10.56.

Table 4. Definitive statistics for the social capital scale and its sub-dimensions.

Scale and Sub-Dimensions	Avg	SD
Participation in a Local Committee	***7.55***	***3.39***
Have you participated in any local committee groups voluntarily?	1.64	0.88
Have you played a role in any local community event (school choir, neighbourhood choir, handicraft exhibition, etc.) in the past six months?	1.61	1.08
Have you been engaged with a voluntary community movement for any emergency intervention such as pollution or a problem with public transportation within the past three years?	1.41	0.84
Have you taken part in a community project nearby voluntarily or supported their activities within the past three years?	1.55	0.93
Have you voluntarily taken part in an organization such as youth centres, scout centres, childcare and recreation for the disabled, to realize a project in order for a new service to be provided in regard to your field?	1.34	0.72
NGO Membership (Playing a Role in Civil Society)	***2.97***	***1.67***
Are you an active member of a club or association such as sports, handicrafts or social clubs and associations?	1.64	1.08
Are you an active member of the management or organization committee of a club or association?	1.33	0.84
Taking Initiative in Social Matters	**9.85**	**1.49**
Do you know where to find information when you need it to make an important decision?	3.34	0.68
When you have a dispute with your neighbour in regard to dogs, political matters or using common areas, would you be willing to display a reconciliatory attitude?	3.36	0.72
In your working environment, would you take initiative for the actions to be taken even if you were not asked or told to do so?	3.15	0.76
Trusting People (Sense of Social Trust)	***6.26***	***2.14***
Do you believe that most people are reliable?	2.08	0.76
If the car of a person you did not know broke in front of your house, would you invite him in your house to use the land phone and/or allow them to use your mobile phone?	1.97	1.04
Do you feel secure in the community you are in, like your family?	2.22	0.91
Trusting the Environment (Sense of Local Security)	***6.08***	***1.36***
Do you feel secure walking around at night in the neighbourhood you live in?	3.01	0.88
Is the neighbourhood you live in considered safe?	3.08	0.72
Neighbourhood Relations	***13.33***	***3.20***
Would you request the help of your neighbours when you need it?	2.99	0.89
Assume that you are taking care of children and you needed to get out urgently, would you request the help of a neighbour?	2.85	1.01
Did you visit any one of your neighbours, taking care of them in the past week?	1.90	1.06
Do you enjoy running into your neighbours or acquaintances	3.08	0.93

while shopping?		
Did you help a sick neighbour within the past six months?	2.52	1.11
Social Representation	***5.06***	***1.66***
Have you ever picked up the garbage left by other people in public places?	2.41	1.08
In the past week, did you help a colleague (or another individual in your life) for a matter that is not in your job description (something that is not your responsibility)?	2.65	1.09
Tolerance to Difference	***6.21***	***1.53***
Do you believe that people from other cultures enrich the place you live in?	3.19	0.88
Do you enjoy living with individuals with different lifestyles?	3.03	0.79
Sense of Belonging	***11.38***	***2.46***
Do you believe that the society values you as required?	2.38	0.87
Do you feel like a part of the community in your workplace?	3.04	0.87
Do you also spend time with your colleagues in your time off work?	2.91	0.86
Do you see yourself as a team member in your workplace?	3.06	0.77
Total Score for the Scale	***68.73***	***10.56***

Avg: Average, SD: Standard Deviation.

The definitive statistics for the questions in the hospital anxiety and depression scale are presented in Table 5. The lowest average score in the anxiety scale (0.83) was for the question "I suddenly feel a sense of panic". The question with the highest average score (1.29) was "I feel restless like I should always be doing something." The general score average of the anxiety scale was 7.55 with a standard deviation of 4.47. In the depression scale, the highest average score (1.20) was obtained with the question "I look forward to the things that will happen." The question with the lowest average score (0.46) was "I can laugh and see the funny side of things." The general score average of the depression scale was 6.49 with a standard deviation of 4.02.

Table 5. Definitive Statistics for the Hospital Anxiety and Depression Scale.

Scale and Sub-Dimensions	***Avg***	***SD***
Anxiety	***7.55***	***4.47***
I feel tense, as if I will "explode"	1.20	0.76
I fear that something bad will happen	1.06	0.90
I have concerning thoughts	1.00	0.91
I can sit and relax, and I feel comfortable	1.31	0.82
I feel nervous, as if there are butterflies in my stomach	0.84	0.64
I feel restless like I should always be doing something.	1.29	1.02
I suddenly feel a sense of panic	0.83	0.85
Depression	***6.49***	***4.02***
I still enjoy the things I used to enjoy.	1.00	0.78
I can laugh and see the funny side of things.	0.46	0.63
I feel upbeat.	0.83	0.74
I feel like I have calmed down.	1.18	0.82
I lost interest in how I look.	1.15	1.01

I look forward to the things that will happen.	1.20	1.12
I can enjoy a good book, a good TV or radio show.	0.64	0.82
Total Score for the Scale	***14.04***	***7.97***

Avg: Average, SD: Standard Deviation.

The definitive statistics for the questions and sub-dimensions of the sleep quality scale are presented in Table 4. The general score average for the scale was 5.48.

Table 6. Definitive Statistics for the Pittsburgh Sleep Quality Index.

Components	**Min.**	**Max.**	**Avg**	**SD**
Subjective sleep quality	0	3	1.21	0.80
Sleep latency	0	3	1.17	0.93
Sleep duration	0	3	0.82	1.06
Habitual sleep efficiency	0	3	0.34	0.78
Sleep disturbances	0	2	1.03	0.55
Use of sleeping medication	0	3	0.13	0.56
Daytime dysfunction	0	3	0.73	0.92
Total Score for the Scale	**0**	**18**	**5.48**	**3.50**

Avg: Average, SD: Standard Deviation

According to the Mann-Whitney U test analysis carried out to determine whether social capital varies depending on PCR, tomography and a clinical negative or positive status, a statistically significant difference was not detected between PCR negative and positive groups in terms of social capital ($p=0.428>0.05$). This is interpreted as social capital not differing based on a PCR negative or positive result. A statistically significant difference was observed between tomography and clinical positive or negative groups ($p<0.05$). In other words, social capital varies depending on a positive/negative tomography and a clinical positive/negative result (Table 7).

Table 7. Comparison of the social capital based on PCR, clinical status and tomography.

		Social Capital				
Variable		**n**	**Avg**	**SD**	**Median**	**p**
PCR*	Negative	105	68.93	10.32	67	0.428
	Positive	82	66.78	8.85	66.5	
Tomography	Negative	107	71.98	11.40	69	**<0.001***
	Positive	108	65.51	8.55	66	
Clinical	Negative	73	71.87	12.68	69	**0.019***
	Positive	142	67.11	8.91	66	

*: Indicates statistical significance (*p<0.05*). Mann Whitney U Test, Avg: Average, SD: Standard Deviation, *: Those who did not test was removed.

As a result of the Mann-Whitney U test analysis carried out to determine whether sleep quality, depression and anxiety varies depending on PCR, tomography and a clinical negative or positive status, a statistically significant difference was not detected between PCR, tomography and clinical negative and positive groups in terms of sleep quality, depression and anxiety (p>0.05). This indicates that sleep quality, anxiety and depression does not vary depending on a negative or positive PCR, tomography or clinical status.

According to the statistical analysis carried out to determine whether the total social capital score and total PSQI showed any differences in terms of sex in the group that at least one of PCR positive and/or clinical positive results (Analyses group, totally n: 170), a significant difference was not determined between these two sexes in terms of social capital and total PSQI (*p=>0.05*). And the total for social capital and PSQI did not change depending on the presence of a chronic disease(p=>0.05).

Statistical analysis carried out to determine whether the total PSQI score showed any differences in terms of income in the analyses group results, a significant difference was determined between the income groups in terms of sleep quality (*p=0.033< 0.05*). In other words, the PSQI score changed depending on the level of income. The sleep quality changes depending on the income of the individual (Table 8). The sleep quality in individuals with a higher income level was determined to be high.

Table 8. The results of the *Mann Whitney U Test* carried out to compare sleep quality depending on income levels.

		Sleep Quality				
Variable		*n*	*Avg*	*SD*	*Median*	*p*
Level of Income	Low	64	5.07	4.23	4	**0.033***
	Medium and High	106	5.77	3.44	5	

**: Indicates statistical significance (p<0.05).Avg: Average, SD: Standard Deviation*

As a result of the *Mann Whitney U test* analysis carried out to determine whether the total PSQI score showed any differences in terms of marital status in the analyses group, a significant difference was observed between the groups established based on marital status in terms of sleep quality (*p=0.001<0.05*). In other words, the PSQI score changed depending on marital status. The sleep quality changes depending on marital status. The individuals, who are single, have relatively poor sleep quality (Table 9).

Table 9. Comparison of the sleep quality depending on marital status.

		Sleep Quality				
Variable		*n*	*Avg*	*SD*	*Median*	*P*
Marital Status	Single	44	7.25	4.76	5	**0.001***
	Married	126	4.90	3.14	4	

*: Indicates statistical significance (*p<0.05*).Avg: Average, SD: Standard Deviation

According to Table 10, the total social capital score and total PSQI score does not change depending on a PCR positive and/or clinical positive or negative status *(p>0.05)*. In other words, sleep quality and social capital did not change depending on a PCR or clinical positive/negative status. However, there is a statistically significant difference between the groups establishes based on PCR positive and/or clinical positive or negative results in terms of the local committee, trusting the environment and social representation total scores for social capital *(p<0.05)* (Table 10).

Table 10. Comparison of sleep quality, social capital and sub-dimensions based on a PCR positive and/or clinical positive/negative status.

Variable		**Negative**	**PCR and/or Clinical Positive**	***p***
Sleep Quality	*n*	45	170	0,438
	Avg	5.37	5.51	
	SD	2.31	3.76	
	Median	5	4.5	
Social Capital	*n*	45	170	0,333
	Avg	70.46	68.27	
	SD	11.95	10.15	
	Median	67	66	
Local Committee	*n*	45	170	**0.001***
	Avg	8.33	7.35	
	SD	2.80	3.50	
	Median	8	6	
NGO Membership	*n*	45	170	0,844
	Avg	2.93	2.98	
	SD	1.75	1.66	
	Median	2	2	
Social Initiative	*n*	45	170	0,279
	Avg	9.73	9.88	
	SD	1.49	1.5	
	Median	9	10	
Social Trust	*n*	45	170	0,422
	Avg	6.26	6.27	
	SD	1.58	2.27	
	Median	7	6	
Trusting the Environment	*n*	45	170	**0.004***
	Avg	6.6	5.95	
	SD	1.58	1.42	

	Median	7	6	
Neighbourhood	*n*	45	170	0,739
	Avg	13.13	13.38	
	SD	3.38	3.16	
	Median	14	14	
Social Representation	*n*	45	170	**0.006***
	Avg	5.66	4.90	
	SD	1.75	1.61	
	Median	6	6	
Tolerance	*n*	45	170	0,660
	Avg	6.2	6.22	
	SD	1.17	1.61	
	Median	6	6	
Belonging	*n*	45	170	0,185
	Avg	11.6	11.32	
	SD	2.57	2.44	
	Median	12	12	

**: Indicates statistical significance (p<0.05), Avg: Average, SD: Standard Deviation*

The results of the statistical analysis carried out to determine whether the total anxiety and depression scores change based on the groups established in terms of PCR positive and/or clinical positive or negative results are provided in Table 11. Total anxiety score does not change depending on a PCR positive and/or clinical positive or negative status *(p=0.111>0.05)*. In other words, total anxiety score did not change depending on a PCR or clinical positive/negative status. There is a statistically significant difference between the groups establishes based on PCR positive and/or clinical positive or negative results in terms of total depression scores *(p=0.003<0.05)* (Table 11).

Table 11. Comparison of anxiety and depression based on a PCR positive and/or clinical positive/negative status.

		PCR and/or Clinical		
Variable		*Negative*	*Positive*	*P*
Anxiety	*n*	45	170	0,111
	Avg	6.4	7.85	
	SD	3.44	4.66	
	Median	6	8	
Depression	*n*	45	170	**0.003***
	Avg	4.86	6.92	
	SD	3.1	4.13	
	Median	5	6.5	

**: Indicates statistical significance (p<0.05).Avg: Average, SD: Standard Deviation.*

According to the result of the *Spearman Rho Correlation analysis* carried out to determine the relationship between sleep quality and anxiety, depression, social capital and its sub-dimensions, sleep quality is positively correlated to anxiety and depression *(p<0.01)*. There is a negative and weak correlation between sleep quality and neighbourhood and sense of

belonging sub-dimensions of social capital. A statistically significant correlation was not observed between the total PSQI score and the total social capital score *(Rho=-0.114; p>0.05)* (Table 12).

Table 12. The Results of the Spearman Rho Correlation Analysis carried out to Determine the Relationship Between Sleep Quality and Anxiety, Depression, Social Capital and its Sub-Dimensions.

Variable	Spearman Rho (r)	P
Anxiety	0,283**	<0.001
Depression	0,388**	<0.001
Social Capital	-0,114	0,096
Local Committee	0.02	0,772
NGO Membership	0,079	0,246
Social Initiative	0,341	0,103
Social Trust	0,082	0,229
Trusting the Environment	0,028	0,679
Neighbourhood	-0.154*	0,024
Social Representation	0,043	0,530
Tolerance	-0,079	0,247
Belonging	-0.15*	0,027

: Indicates statistical significance (p<0.05).* *: Indicates statistical significance (p<0.01).*

Discussion

In this study, it was shown that social capital has an influence on clinical course. Social capital has a positive impact on health. It was observed that in clinically severe cases, social capital was low. Previously, many studies have been conducted showing the influence of social capital on many diseases, however, there are only few studies investigating its relationship with the clinical course of COVID-19. In a study carried out in China at the beginning of the COVID-19 pandemic (9, 10), the effect of social capital on sleep quality has been examined (7, 8). It was established that low social capital, with high anxiety and stress, decrease sleep quality. In the COVID-19 pandemic, individuals with mild symptoms, suspected infection cases and individuals with close contact or individuals who have been in a potentially risky environment have been instructed to isolate themselves at home. During this isolation, although the infection was mild, negative effects have been observed in terms of psychological wellbeing. The impact of social capital on health has been shown in other previous studies. For example, Yamada, et al. have shown that social capital contributes to the mitigation of discomfort in people with diabetes in addition to the prevention of complications (15).

There are publications stating that quality sleep is helpful in improving the immunity against viral infections (2). The negative impact on mental health and the immune system has been shown, especially with the effect on sleep quality (1). Our data show the negative impact of anxiety and depression on sleep quality. Stress is correlated to sleep quality (15). In our study, the value of sleep quality did not show any variance in clinical terms. It has been similar in all clinical indications. However, a correlation has been determined in terms of the total scores for the certain sub-dimensions of the social capital; namely, local committee, trusting the environment and social representation. This indicates that certain components of the social capital may be more significant than others. Other factors influencing sleep quality are shown to be the level of income and marital status. It can be said that individuals, who are married and have higher levels of income, have higher sleep quality. Stress is closely correlated with behaviour (16). In general, individuals who have more in terms of social capital, have lower levels of stress as they receive material or moral support from others. The sensitivity of the individuals to sleep increase as they are stressed, and stress causes a decrease in sleep quality (17).

In our study, it was shown that the scores for depression are correlated to the clinical course of COVID-19. Depression may have a negative impact on both the course of the disease and sleep quality. The negative impact of depression and anxiety on sleep quality, and the negative impact of poor sleep quality on the immune system have been shown previously in many different studies. Social capital has an impact on both the clinical course of the disease and the quality of sleep. The findings reported by Valencia-Garcia et al. in 2012 show that increased social capital has an impact on depression and anxiety (5). Similarly, Li et al. have shown that this is also the case for children. Particularly living in poverty, having more family members, peer support and their friends at school were associated with better mental health (18). Social support affects the perception and assessment of the stress threat and mitigates the physiological reaction and improper behaviour caused by stress (6,19,20).

In conclusion, social capital has an influence on the clinical course of COVID-19 pandemic, as it does in other diseases. It is important for health policies that social support is increased, and social capital is strengthened for decreasing the burden of the disease in the future as well as this pandemic we are going thorough. We believe that the burden of the disease may be increased by supporting social capital.

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