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The Role Of Basic Personality Traits, Cognitive Coping Strategies In Social Anxiety Symptoms.

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Abstract

Purpose: The aim of this study is to examine the role of personality traits and coping mechanisms in social anxiety symptoms within the scope of predisposing and maintaining risk factors. Methods: The study group consists of 505 participants (female are 52.3%) between the ages of 18-42 studying at different private universities in Istanbul. Data collection tools are Liebowitz Social Anxiety Scale, Basic Personality Traits Scale, Ways of Coping with Stress Scale, Cognitive Emotion Regulation Scale. Results: In the study, Multivariate Analysis of Variance (MANOVA) and Hierarchical Regression Analysis are used. It is observed that participants with low and high social anxiety symptom levels differed in terms of (I) extraversion, agreeableness, openness and negative valence among personality traits; (II) self-confident approach, helpless approach and submissive approach among stress coping styles; and (III) refocusing on the plan, positive reappraisal and catastrophizing among cognitive emotion regulation styles. In addition, as a result of the hierarchical regression analysis, it is found that (I) extraversion, openness and negative valence from personality traits; (II) helpless approach and submissive approach from stress coping styles; and putting into perspective cognitive emotion regulation strategy predicts social anxiety.

Conclusion: The study supported the role of personality traits, ways of coping with stress and cognitive emotion regulation strategies in social anxiety symptoms. These findings provide evidence that extraversion, openness to experience, negative valence personality traits; helpless and submissive stress coping styles might be both maintaining and predisposing risk factors in the conceptualization of social anxiety symptoms. The results might provide potential targets for psychotherapeutic intervention to improve social anxiety symptoms in university students. Theoretical as well as practical implications are discussed.

Keywords: Social anxiety symptoms, personality, coping with stress, cognitive emotion regulation.

Özet

Amaç: Bu çalışmanın amacı, kişilik özelliklerinin ve başa çıkma tarzlarının toplumsal kaygı belirtilerindeki rolünü yatkınlaştırıcı ve sürdürücü risk faktörleri kapsamında incelemektir.

Yöntem: Araştırma grubu, İstanbul'daki çeşitli özel üniversitelerde öğrenim gören, yaşları 20-40 arasında değişen 505 katılımcıdan (%52,3'ü kadın) oluşmaktadır. Çalışmada Liebowitz Sosyal Anksiyete Ölçeği, Temel Kişilik Özellikleri Ölçeği, Stresle Başa Çıkma Tarzları Ölçeği, Bilişsel Duygu Düzenleme Ölçeği veri toplama araçları olarak kullanılmıştır. Bulgular: Araştırmada Çok Değişkenli Varyans Analizi (MANOVA) ve Hiyerarşik Regresyon Analizi kullanılmıştır. Toplumsal kaygı belirti düzeyi düşük ve yüksek olan katılımcıların (I) kişilik özelliklerinden dışadönüklük, uyumluluk, açıklık ve negatif değerlik; (II) stresle başa çıkma tarzlarından kendine güvenli yaklaşım, çaresiz yaklaşım ve boyun eğici yaklaşım; (III) bilişsel duygu düzenleme stratejilerinden plana yeniden odaklanma, olumlu yeniden değerlendirme ve felaketleştirme açısından farklılaştığı görülmüştür. Ayrıca, hiyerarşik regresyon analizine göre (I) dışadönüklük, açıklık ve negatif değerliğin; (II) çaresiz yaklaşım ve boyun eğici yaklaşımın; ve (III) olayın değerini azaltma bilişsel duygu düzenleme stratejisi toplumsal kaygı belirtilerini yordamaktadır.

Sonuç: Bu çalışma toplumsal kaygı belirtilerinde kişilik özelliklerinin, stresle baş etme tarzlarının ve bilişsel duygu düzenleme stratejilerinin rolünü desteklemektedir. Bulgular, dışadönüklük, deneyime açıklık, olumsuz değerlik kişilik özelliklerinin yanı sıra stresle başa çıkma tarzlarındaki çaresiz ve boyun eğici yaklaşımın, toplumsal kaygı belirtilerinin kavramsallaştırılmasında hem sürdürücü hem de yatkınlaştırıcı risk faktörleri olabileceğine işaret etmektedir. Sonuç olarak, belirtilen psikolojik yapılar üniversite öğrencilerinde toplumsal kaygı belirtilerinin tedavisinde bilişsel-davranışçı yönelimli müdahale programlarının geliştirilmesine katkı sağlayabilir.

Anahtar Sözcükler: Toplumsal kaygı belirtileri, Kişilik, Stresle başa çıkma tarzları, Bilişsel duygu düzenleme.

Social anxiety disorder (SAD) is a psychiatric condition characterized by experiencing anxiety and fear in different social interactions during which individuals may feel humiliated, shamed or evaluated negatively (1). Given that SAD is among the most common disorders in young adults (24) and significantly impacts educational attainment, interpersonal relationships and professional life (10), the underlying mechanisms and characteristics of the disorder need to be elucidated for the development and implementation of evidence-based interventions.

The prominent cognitive-behavioral models in SAD elaborate on predisposing and maintaining factors that make it difficult for people to cope with the negative emotions they experience during social interactions in their daily lives (8). Personality is among the predisposing factors related to how a person reacts to a stressful and anxiety-producing events (24). Among all proposed models, the five-factor model of personality (19) has been widely accepted, used for research purposes and also allows for a systematic examination of the relationships between personality traits and psychopathology. This model defines personality based on five traits: neuroticism, extraversion, openness, agreeableness and conscientiousness (29).

In the etiological explanations of SAD, there is a widespread emphasis on personality traits, especially neuroticism and extraversion (4) Although it is proposed that high neuroticism and low extraversion are significantly related to the disorder in both epidemiological and clinical samples (17,28), a growing body of work has indicated that the other five-factor personality traits, such as openness, agreeableness and conscientiousness may also characterize individuals with SAD (17). Thus it is suggested that greater attention to these personality traits can significantly benefit SAD psychopathology research and clinical practice (16). However the initial evidence regarding the relationships between openness, agreeableness, conscientiousness and SAD is inconclusive. For example in one study individuals with high levels of social anxiety reported lower scores in the agreeableness and conscientiousness compared to the control group (5). In another study conducted with only female university students in Iran, it was found that while social anxiety symptoms were negatively associated with agreeableness and conscientiousness, these traits are not significant predictors of social anxiety (23). The meta-analysis evaluating the contribution of personality traits to psychopathology established that SAD is negatively associated with extraversion but not related to agreeableness and openness to experience (16).

The coping strategies, closely associated with personality traits (7) are considered as factors contributing to the mainteinance of SAD (8). Coping is a very broad concept and several classifications of coping have been proposed but the fundamental categories that have garnered the most consensus include emotion and problem focused coping (7). While problem-focused coping which attempts to change the situation is defined as a adaptive strategy, emotion-focused coping which attempts to alter one's emotional reaction to a situation is defined as a maladaptive strategy (18). According to the research (11) in middle childhood emotion-focused coping strategies are found to have a predictive role in shyness behaviours. Another study (3) has demonstrated that university students who more frequently engage isocial avoidance behaviors more frequently use emotion-focused coping strategies and have lower problem-solving skills, emphasizing the importance of problem-solving ability in social anxiety. Furthermore, In Greece, a problem-focused group intervention program lasting for 5 weeks is implemented for students who exhibited symptoms of social anxiety upon entering middle school. It is observed that as students began to employ problem-focused coping strategies, there is a decrease in social anxiety symptoms as measured by self-report scales (6). Although there is growing evidence suggesting that emotion-focused coping might have an important role in social anxiety, the general lack of uniformity in the taxonomies of emotion-focused coping responses makes it difficult to understand through which strategies this coping emerges within the disorder.

Another cognitive coping mechanism that plays a maintaining role for social anxiety is cognitive emotion regulation (CER) (7). This concept encompasses only the cognitive processes of emotion regulation and includes maladaptive strategies such as self-blame, rumination, catastrophizing, other-blame, acceptance and adaptive strategies such as positive refocusing, refocus on planning, positive reappraisal, and putting into perspective strategies (12). Emprical studies focused on a limited number of CER strategies, such as cognitive reappraisal, rumination and catastrophizing have revealed inconsistencies regarding the role of these strategies in SAD. For example, some studies have found that clinically anxious young (14) and middle aged (26) individuals frequently use rumination but they are ineffective in using cognitive reappraisal, while others have failed to find this association (15). In a review article it is asserted that socially anxious individuals tend to use more catastrophic thinking strategies in interpersonal situations compared to participants with other anxiety-related disorders (2).

Taken together, the existing literature has provided consistent evidence for the links between social anxiety, personality traits and coping strategies, however uncertainities and incompatibilities draw attention so it is not clear which personality traits and cognitive coping strategies would play a role in the etiology of SAD.

Various etiological models have been proposed to explain predisposing and maintaining factors in psychopathology. Some of these models include vulnerability and

pathoplasty model. According to the pathoplasty model the presence of psychopathology affects other psychological processes independently of etiology and contributes to the persistence of psychopathologies. In vulnerability model predictor variables have been suggested to increase the risk of developing certain anxiety disorders. In psychopathologies the clearest support for these models would be provided by longitudinal data, in cross-sectional studies, only risk factors can be considered (20). To gain insight into predisposing and maintaining risk factors within the scope of these models, firstly, risk and non-risk groups for social anxiety symptoms were formed to determine if these groups differ in terms of personality traits, coping styles with stress, and cognitive emotion regulation strategies. Secondly, the predictive effects of personality traits, coping styles with stress, and cognitive emotion regulation strategies on social anxiety examined across the entire sample.

Sample

The participants consisted of 505 students attending various faculties of different private universities in Istanbul. Of the participants, 265 (52.3%) are female and 240 (47.7%) are male. The age of the participants ranged from 20 to 40 years (M = 21.8, SD = 2.80). The scales were distributed and collected in person by the researchers.

Liebowitz Social Anxiety Scale

This Scale developed to assess the level of anxiety and avoidance experienced in social interaction situations is adapted to Turkish sample by Soykan, Özgüven and Gençöz (27). Higher scores on the scale indicate greater severity of social anxiety and avoidance behaviors. During scoring, the score of the two sub-dimensions is calculated separately and the total score is calculated. In this study, the Cronbach's alpha coefficient for the total score of the scale is found to be .94.

Inventory of Basic Personality Traits

This scale is developed to examine the five-factor structure of personality in Turkish culture. Although the five-factor structure of personality is supported, it is also found that the 6th dimension of personality is called negative valence. The subscales included agreeableness, neuroticism, conscientiousness, extraversion, openness to experience, and negative valence. The Cronbach's alpha coefficients of the subscales range from .71 to .89 (13). In the current study, the Cronbach's alpha coefficients of the subscales are found to vary between .60 and .83.

Ways of Coping with Stress Scale

The scale is rated on a 4-point Likert scale and converted into a 30-item short form by Şahin and Durak (28). The scale consists of five sub-dimensions: self-confident, seeking social support, optimistic approach are adaptive; helpless and submissive approaches are maladaptive. The Cronbach's alpha coefficients of the sub-dimensions range from .45 to .73. In the current study, the Cronbach's alpha coefficients of the sub dimension range from .60 to .79.

Cognitive Emotion Regulation Scale

This scale aims to measure the cognitive emotion regulation strategies used by participants both in stressful/ negative life events and in general situations. There is nine subscales and Cronbach's alpha coefficients of the subscales ranged from .62 to .77 in Turkish culture (25). In the current study, the Cronbach's alpha coefficients of the scale range from .64 to .81 for the sub-dimensions.

Results

Analysis on Variables Differentiating Groups with High and Low Social Anxiety Symptom Levels

The research data is analyzed using SPSS 25 program. To determine the groups with high and low levels of social anxiety symptoms (SAS), mean (M=86.21) and standard deviation (SD=22.15) values were calculated based on the total scores of Liebowitz Social Anxiety Scale (LSAS). Those who scored 1 standard deviation below the mean is named as the low group (N=87) and those who scored 1 standard deviation above the mean is named as the high group (N=92).

One Way MANOVA was applied to determine whether participants differed in terms of research variables. According to the analysis, it is observed that subscales of Inventory of Basic Personality Traits (IBPT) (Wilks' Lambda = .29, F[6, 172]= 11.99, p<.01), subscales of Ways of Coping with Stress Scale (WCSS) (Wilks' Lambda = .72, F[5, 173]= 13.23, p<.01) and subscales of Cognitive Emotion Regulation Scale (CERS) (Wilks' Lambda = .77, F[9, 169]= 5.65, p<.01) significantly differed between the groups.

One-way Analysis of Variance is conducted to determine which subscales would be in the differentiation. It is found that groups differed significantly in subscales of the (IBPT), neuroticism (F[1-177] = 3.89, p<.05), extraversion (p<.01), agreeableness (F[1-177] = 7.15), openness to experience (F[1-177] = 50.41, p<.01) and negative valence (F[1-177] = 6.22, p<.01). Mean scores of extraversion (M=4.22, SD=.56), agreeableness (M=4.36, SD=.48), openness to experience (M=4.19, SD=. 48) of the group with high SAS were significantly higher than the mean scores of extraversion (M=3.47, SD=.82), agreeableness (M=4.13, SD=.66) and openness to experience (M=3.55, SD=.69) subscales of the group with low SAS. The mean scores of the negative valence (M=1.82, SD=.60) and neuroticism subscales (M=2.88, SD=.76) of the group with high SAS level were higher than the mean scores of the negative valence (M=1.62, SD=.49) and neuroticism (M=2.67,

SD=.64) subscales of the group with low social anxiety symptom level.

Participants significantly differed in the subscales of WCSS, confident (F[1, 177] = 21.57, p<.01), helpless (F[1, 177] = 37.99, p<.01), and submissive (F[1, 177] = 36.88, p<.01) subscales. The mean scores of the group with low SAS in confident (M=2.30, SD=.48) are higher than the mean scores of the group with high SAS (M=1.94, SD=.53). The mean scores of helpless (M=1.41, SD=.53) and submissive (M=1.20, SD=.57) subscales of the participants with high SAS are higher than the mean scores of helpless (M=.97, SD=.43) and submissive (M=.75, SD=.41) subscales of the participants with low SAS.

Also, participants differ significantly in the subscales of CERS, refocusing on planning (F[1, 177] = 16.27, p<.01), positive reappraisal (F[1, 177] = 8.84, p<.01), and catastrophizing (F[1, 177] = 20.50, p<.01). Accordingly, the mean scores of refocusing on the plan (M=15.92, SD=2.90) and positive reappraisal subscales (M=15.54, SD=3.12) of the participants with low SAS level are higher than the mean scores of refocusing on the plan (M=14.18, SD=2.85) and positive reappraisal subscales (M=14.13, SD=3.22) of the high level participants. The mean catastrophizing scores of the group with high SAS level (M=10.96, SD=3.55) are higher than the mean catastrophizing scores of the participants with low SAS (M=8.69, SD=3.10). The results are presented on Table1.

TABLE 1: Statistical Analysis of Scale Scores of Participants with High and Low Social Anxiety Symptom Levels.

Social Anxiety Symptom Level Groups						
Subscales	Low		High		F	η2
	M	Ss	M	Ss		
IBPT						
Extraversion	4.22	.56	3.47	.82	49.50*	.219
Conscientiousness	3.67	.69	3.61	.72	.39	.002
Agreeableness	4.36	.48	4.13	.66	7.15*	.039
Neuroticism	2.67	.64	2.88	.76	3.88*	.021
Openness to experience	4.19	.48	3.55	.69	50.41*	.222
Negative valence	1.62	.49	1.82	.60	6.22*	.034
WCSS						
Seeking of social support	1.99	.60	1.85	.52	2.85	.016
Self confident	2.30	.48	1.94	.53	21.57*	.109
Optimistic	1.80	.54	1.69	.58	1.74	.010
Helpless	.97	.43	1.41	53	37.99*	.177
Submissive	.75	.41	1.20	.57	36.88*	.172
CERS						
Self blame	9.92	2.63	10.83	2.88	4.85	.027
Acceptance	10.38	2.99	11.05	2.94	2.31	.013
Rumination	13.56	3.12	13.80	3.25	.26	.001
Positive Refocusing	12.47	2.78	12.57	3.32	.04	.000
Refocus on planning	15.92	2.90	14.18	2.85	16.27*	.084
Positive reappraisal	15.54	3.12	14.13	3.22	8.84*	.048
Putting into perspective	12.89	2.81	13.57	3.04	2.40	.013
Catastrophizing	8.69	3.10	10.96	3.55	20.50*	.104
Other-Blame	9.96	3.01	10.46	3.29	1.19	.006

*p < .05, BPTS: Basic Personality Traits Scale, WCSS: Ways of Coping with Stress Scale, CERS: Cognitive Emotion Regulation Scale

Hierarchical Regression Analysis Findings on the Prediction of Social Anxiety Symptoms by Research Variables

The correlation between the total score of the LSAS and the subdimensions of the other scales was examined using Pearson's correlation coefficient analysis. The total score of LSAS is significantly correlated with extraversion, agreeableness, neuroticism, openness to experience, and negative valence subscales (in turn r=-0.33, p<.05; r=-0.12, p<0.05, r=0.10, p<.05; r=-0.32, p<.05; r=0.12, p<.05). The total score of LSAS is significantly correlated with the self-confident approach, helpless approach, and submissive approach subscales (in turn r=-0.23, p<.05; r=-.32, p<.05, r=-0.32, p<.05). The total score of LSAS is significantly correlated with the self-blame, refocus on planning, positive reappraisal, catastrophizing, and putting into perspective subscales (in turn r=.11, p<.05; r=-0.18, p<.05; r=-0.14, p<.05, r=-0.21, p<.05, r=-0.10, p<.05). Only subscales that showed significant correlations with the LSAS are included in the regression analysis.

To examine the effects of subscales on LSAS total score, hierarchical stepwise multiple linear regression analysis is conducted. The subscales of openness, extraversion and negative valence (in turn β= -.21, p <.001; β= -.23, p < .001, β= 23, p< .001) predicts LSAS total score and all subscales explain %14 of total variance. In the second stage the subscales of helpless approach and submissive approach (in turn β= .12, p< .01; β= .22, p< .001) predict LSAS total score and all subscales explains 22% of total variance. In the third stage the subscale of putting into perspective predicts LSAS total score (β= .10, p<.05) and all subscales explains 24% total variance. The results are presented on the Table 2.

TABLE 2: Hierarchical Stepwise Multiple Linear Regrassion Analysis Results for the Prediction of Liebowitz Social Anxiety Scale Total Score

Analysis Phase	Predictor variable Subscales	R	R2	ΔR2	B	SH_B	β	t	F
1. Stage	BPTS								
	Extroversion	.39	.15	.14	-6.26	1.49	-.21	-4.19***	14.43*
	Agreeableness				2.54	2.17	.06	1.17	
	Neuroticism				.33	1.44	.01	.23	
	Openness				-8.34	1.84	-.23	-4.55***	
	Negative valence				4.09	2.09	.10	2.08*	
2. Stage	WCSS								
	Self confident	.48	.23	.22	9.59	2.02	-.04	-.73	18.32*
	Helpless				-1.48	2.18	.12	2.51**	
	Submissive				5.46	1.99	.22	4.82***	
3. Stage	CERS								
	Self blame	.50	.25	.24	-.89	.39	-.09	-1.27	12.53*
	Refocus on planning				-.82	.48	-.11	-1.71	
	Positive reappraisal				.48	.49	.07	.98	
	Putting into perspective				.68	.34	.10	1.99*	
	Catastrophizing				.52	.32	.08	1.63	

*p < .05, BPTS: Basic Personality Traits Scale, WCSS: Ways of Coping with Stress Scale, CERS: Cognitive Emotion Regulation Scale

Discussion

The present study examines the role of the five-factor personality traits, cognitive emotion regulation strategies and stress coping styles in social anxiety symptoms among university students. The first variable examined in individuals with both high and low levels of social anxiety is the five-factor personality traits. The findings demonstrate that socially anxious individuals would be defined by personality profile with high neuroticism and negative valence; low extraversion, agreeableness and openness to experience. Thus it can be considered that individuals with social anxiety might have a personality profile that reflects different manifestations of more than one personality trait rather than have just high neuroticism as reported by some of the previous research (17). On the other hand these findings are consistent with theoretical and empirical literature. For example, Costache et al (9) emphasize that socially anxious individuals exhibit a personality profile with higher neuroticism and lower extraversion compared to the control groups. Furthermore, that the findings of extraversion, openness to experience, and agreeableness which are related to interpersonal relationships (19), are low in socially anxious individuals is consistent with the theory that individuals with social anxiety disorder (SAD) often experience difficulties in interpersonal relationships (3). Our findings regarding the high presence of negative valence personality trait, indicating negative self-attributions about oneself (13), on elevated social anxiety symptoms, support cognitive model of SAD, which hypothesize the importance of negative self-beliefs such as inadequacy and worthlessness in maintaining the disorder (8).

With regard to coping with stress, our findings indicate that individuals with high socially anxious have lower levels of self-confident approach and higher levels of helpless and submissive approaches compared to individuals with low social anxiety. These results expand upon previous research (3,12) by illustrating that socially anxious individuals tend to utilize adaptive strategies less frequently and employ multiple maladaptive strategies.
Regarding cognitive emotion regulation strategies, it is found that individuals with high social anxiety exhibit lower scores in plan refocusing and positive reappraisal and higher scores in catastrophising compared to those with low social anxiety symptoms. The results replicate the findings of Rukmini et al. (26), indicating that participants diagnosed SAD use fewer adaptive strategies compared to healthy controls. On the other hand, when considered within the framework of the pathoplastic model, one could hypothesize that the personality traits and coping mechanisms differing between high and low symptom groups may serve as maintaining risk factors for social anxiety.

The symptoms of social anxiety are explained to the extent of 14% by personality traits, 8% by coping with stress strategies with stress 2% cognitive emotion regulation strategies. The findings suggest that personality traits play a greater role than coping mechanisms in social anxiety symptoms. Nevertheless, the study conducted with nonclinical sample indicates that five-factor personality dimensions make much more extensive contribution to social anxiety symptoms (17). The difference in findings regarding the contribution of personality traits to social anxiety symptoms could be related to cultural factors. It has been suggested that the underlying mechanisms of social anxiety symptoms may differ in individualistic and collectivistic cultures (21). In this regard in our country, influenced by a collectivist-based culture, one could hypothesize that environmental and familial factors relative to personality traits may play a more substantial role in social anxiety symptoms (21). Furthermore, cognitive emotion regulation strategies contributing to social anxiety symptoms are quite low, not supporting the model that addresses the importance of cognitive mechanisms in the etiology of SAD (8). This may be due to the fact that the sample is not a clinical sample one.

Regarding the predictive role of the research variables, the symptoms of social anxiety are found to be negatively predicted by openness and extraversion, while positively predicted by negative valence. In this context, it can be said that openness and extraversion act as protective factors against social anxiety symptoms, whereas negative valence serves as a risk factor for social anxiety symptoms. Among coping strategies more engagement in helpless and submissive approaches and less engagement in putting into perspective predict social anxiety. In this regard, within the framework of the vulnerability model, these psychological structures that predicts social anxiety could be considered as predisposing risk factors.

The present results point to a number of clinical implications. The findings of the study suggest that openness, extraversion, and negative valence personality traits as well as helplessness and submissive approaches may serve as common predisposing and maintaining risk factors for social anxiety symptoms. In this context, these psychological constructs could be incorporated into cognitive-behavioral models of SAD. Furthermore, in line with the notion emphasizing the clinical significance of adaptive strategies in psychopathologies (22), the results indicate that individuals with high social anxiety symptoms use adaptive coping strategies less frequently. Therefore, instead of merely reducing maladaptive strategies in the treatment of individuals with social anxiety disorder, efforts to teach adaptive strategies may assist university students in coping more effectively with their social anxieties.

There are several limitations to the present study. The study has been conducted with students who are considered to be of a high socio-economic level. It has been stated that individuals who are in low socio-economic status are exposed to more stressful situations, resort to different coping methods and have a much higher risk of psychological disorders compared to middle and upper socio-economic individuals (30). Thus, more privileged economic back ground provides less conducive environment for psychological constructs underlying mechanisms of SAD. Future studies, having participants from different socio-economic levels would be more beneficial. Future research also should nonetheless replicate this study using a clinical sample with SAD. Despite these limitations, the present study provides potential psychological constructs for future research in the etiology of SAD.

Declarations

Funding: Not Applicable.

Conflicts of Interest: Not Applicable.

Ethics Approval: The Ethical Committee Approval for the study was granted by the Maltepe University Scientific Research Ethical Board on the date of 7.1.2019, It was decided to be ethically appropriate with decision numbers 2019/01 and 2019/01-08.

Data and Material The Data and materials used in this research are available upon request.

Authors' Contributions

First Author Conceived and designed the analysis; Contributed data or analysis tools; Performed the analysis; Wrote the paper.

Second Author: Collected the data, performed the analysis.

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