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EFFECTS OF ANXIETY AND FEAR ON NURSES' WILLINGNESS TO WORK DURING THE PANDEMIC

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ABSTRACT

Objective: *Nurses' willingness to work during the pandemic is crucial for patient treatment and the sustainability of healthcare services. This study aimed to investigate whether COVID-19-related anxiety and fear influenced nurses' willingness to work during the pandemic.*

Material and Method: *This study employed a cross-sectional design. The research was conducted on nurses working in İstanbul using a convenience sampling method. Data were collected between March and June 2022 via Google Forms and face-to-face interviews.. Data were gathered using demographic question form, COVID-19 anxiety scale, fear of COVID-19 scale and willingness to work during COVID-19 scale. Descriptive statistics, correlation analysis were conducted. Then, path analysis was conducted to test the hypothesis.*

Results: *A significant positive correlation was found between fear and anxiety. The relationship between anxiety and fear with the willingness to work during the pandemic was found to be significant and negative ($p<0.05$). Moreover, anxiety had a significant negative effect on nurses' willingness to work ($\beta=-0.16$, $p<0.05$), while fear had a significant positive effect on anxiety ($\beta=0.42$, $p<0.05$).*

Conclusion: *The fear positively influences anxiety. As fear increases, anxiety also increases in nurses. Additionally, anxiety adversely affects the willingness to work. As anxiety increases, it leads to a decrease in willingness to work. The study provided preliminary evidence that fear was an important factor that influence anxiety. Moreover, anxiety might be significant risk factors for willingness to work among nurses.*

Keywords: *Anxiety, fear, nursing, pandemic, work.*

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HEMŞİRELERDE KAYGI VE KORKUNUN PANDEMİ DÖNEMİNDE ÇALIŞMA İSTEKLİLİĞİNE ETKİSİ

ÖZET

Amaç: Pandemi sürecinde hemşirelerin çalışma isteği, hastaların tedavisi ve sağlık hizmetlerinin sürdürülebilirliği açısından hayati öneme sahiptir. Bu çalışmanın amacı, COVID-19 kaygısı ve COVID-19 korkusunun pandemi zamanında hemşirelerin çalışma isteğine etkisini incelemektedir.

Materyal ve Metot: Çalışma kesitsel bir çalışmadır. Araştırma, İstanbul ilinde görev yapan hemşireler üzerinde yapıldı ve kolayda örnekleme yöntemi kullanıldı. Veriler Mart 2022 ile Haziran 2022 arasında Google Formlar kullanılarak ve yüz yüze toplandı. Veriler, demografik soru formu, COVID-19 kaygı ölçeği, COVID-19 korkusu ölçeği ve COVID-19 sırasında çalışma isteği ölçekleri kullanılarak toplandı. Verilerin analizinde; tanımlayıcı istatistikler, korelasyon analizinden yararlanılmıştır. Yol analizinden yararlanılarak hipotez testleri yapıldı.

Bulgular: Korku ve anksiyete arasında önemli ve pozitif bir ilişki bulundu. Anksiyete ve korkunun pandemi sırasında çalışmaya isteklilikle ilişkisi önemli ve negatif bulundu (p<0,05). Anksiyetenin hemşirelerin çalışmaya istekliliği üzerindeki etkisi negatif ve istatistiksel olarak anlamlı bulundu (β=-0,16, p<0,05). Ayrıca, korkunun anksiyete üzerinde önemli ve pozitif bir etkisi tespit edildi (β=0,42, p<0,05).

Sonuç: Korku arttıkça, hemşirelerde anksiyete de artmaktaydı. Ayrıca, anksiyete çalışma isteğini olumsuz etkiledi. Anksiyete arttıkça, çalışma isteği azalmaktaydı. Çalışma, korkunun anksiyeteyi etkileyen önemli bir faktör olduğuna dair ön kanıtlar sağlamıştır. Ayrıca, anksiyetenin hemşireler arasında çalışma isteği üzerinde önemli bir risk faktörü olabileceği belirlenmiştir.

Anahtar kelimeler: Kaygı, korku, hemşirelik, pandemi, çalışma.

INTRODUCTION

The coronavirus (COVID-19) was declared a public health emergency and identified as an international issue on January 30, 2020.[1] Later, the World Health Organization declared it a global pandemic on March 11, 2020. COVID-19 had significant consequences for nurses, affecting their mental, emotional, and psychological well-being.[2-4] Nurses who have mental, emotional and psychological health problems may experience a decrease in their willingness to work (WTW) during the pandemic.

Among the most important problems nurses faced during COVID-19 were limited personal protective equipment, their own personal safety and fear of contagion to their close contacts.[5] With the COVID-19 pandemic, the whole world has suffered from a shortage of nurses. Because nurses were exposed to the virus and became unable to work.[6]

Labrague and de Los Santos stated that anxiety is common among healthcare workers who are on the forefront of COVID-19.[7] They are involved in serving health care to affected patients and main source of anxiety was fear of being infected or infecting others unwillingly. Because nurses are in close contact with patients while serving care, they often face inadequate protection against contamination, high risks of infection, anxiety, fear, work burnout, and depression.[3] A study stated that anxiety among nurses likely affected their psychological health, well-being, and work effectiveness during the pandemic.[2] The whole community and healthcare workers (HCWs) are at serious risk, including suicide due to COVID-19, and they are having psychiatric problems.[8]

Fear is a powerful emotion and has a significant effect on healthcare providers. It may result in avoidance of certain stimuli based on perceived risk.[9] Unfortunately, fear is a factor that can increase the impact of the disease on individuals.[10] Studies on fear of COVID-19 (FCV-19) have concluded that an increase in FCV-19 leads to higher psychological distress, organizational turnover, and professional turnover, while job satisfaction decreases.[2]

Nurses' WTW during the COVID-19 outbreak has been one of the rarely studied topics in the literature.[11] To date, studies investigated only the effects of demographic variables on WTW during COVID-19. The reason why this study adds valuable contribution to the literature. In limited studies on nurses' WTW, it has been determined that the occupational risks, perception of self-efficacy, respiratory protection training, and work intensity have a significant effect.[12,13] For this aim, the author examined the effect of COVID-19 anxiety (CAS) and (FCV-19) on nurses' WTW during the pandemic. The study also examined the effect of FCV-19 on CAS.

MATERIAL AND METHOD

Procedure and Criteria

The scales utilized in this research were developed by reviewing existing literature to investigate the impact of

fear and anxiety on nurses' willingness to work during the pandemic. In the beginning of the research ethical committee approval and permission to conduct study from Ministry of Health have been gathered. The data were gathered via Google Forms and pen-to-pen method. In order to enhance sample diversity, the survey link was distributed across multiple social media platforms. Before participating in the study, individuals were given explicit instructions emphasizing the confidentiality and anonymity of their responses. Informed consent was obtained from participants before data collection. 412 data were collected from participants and 28 of them eliminated due to the missing data. Ethical approval gathered from Okan University. Among the criteria for participation in the research are living in Istanbul, being 18 years of age or older, and being employed as a nurse.

Variables

COVID-19 Anxiety Scale (CAS)

The scale developed by Lee The validation of the coronavirus anxiety scale Turkish version conducted by Akkuzu *et al.*[14,15] Factor loads are between 0.69-0.75 and the internal consistency coefficient (Cronbach's Alpha) was found 0.81. Items were rated on a 5 point Likert type scale. Scale items are scored range from 1-5. High score indicates high anxiety.

Fear of COVID-19 (FCV-19) Scale

The FCV-19 scale developed to determine the fear levels of healthcare workers due to COVID-19 by Ahorsu *et al.*[10] The scale has single structure and item scale are 5-point Likert-type (1=strongly disagree; 5=strongly agree). There is no reversed item in the scale. The internal consistency was 0.82. High score obtained from the scale indicates high FCV-19. The Turkish validation of the scale was performed by Ladikli, Bahadır, Yumuşak, Akkuzu, Karaman and Türkkan.[16] It was observed that the factor loads for the scale items ranged from 0.70 to 0.78.

Willingness to Work (WTW) During COVID-19 Scale

The scale that measures WTW during COVID-19 was developed by Zewudie *et al.*17 Cronbach's alpha was 0.79. Mean score was calculated for the scale and as the mean score increases, willingness to work in nurses increases. In the scale Zewudie *et al.* stated that "Participants who scored below the mean score were classified as not willing to work but those who score above the mean were classified as willing to work".[17] In the present study, analysis was conducted based on mean score. The data was not binary. Additionally, within the section examining socio-demographic variables, a single question measuring work willingness

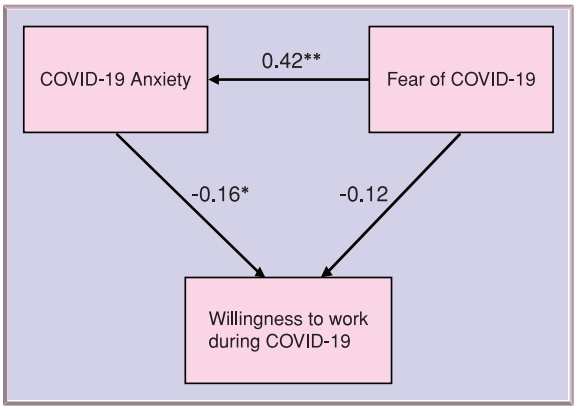

Figure. Research Model
*: p <0.05, **: p -<0.001

was included apart from scale. Validation into Turkish language assured by the authors. First of all, language validity was ensured. The English version of the WTW was translated into Turkish by the author. Subsequently, the scale was translated back into English by three bilingual experts from academia who were proficient in both languages. Following this, the back translation was assessed for grammar and content by the authors of the study. Then it was concluded that it had a one-dimensional structure result of exploratory factor analysis. Then, confirmatory factor analysis (CFA) was performed and factor loads were detected between 0.70-0.88. As a result of the reliability analysis, the Cronbach's Alpha coefficient of the scale was 0.88.

Research Hypothesis

However, the number of studies on WTW was limited.[11] Especially in Türkiye, no study carried out on willingness of working during COVID-19 outbreak. The original aspect of the research is that it is the first one that examines effects of COVID-19 fear and CAS on WTW during COVID-19 on nurses. Based on the explanations above the aim of the present research that conducted was examine the effect of anxiety and fear on WTW during COVID-19 among nurses. Additionally, effect of fear on anxiety was also examined in this research. The present study designed as cross-sectional study. Based on this aim the following hypothesis was tested:

Hypothesis 1: CAS has significant and negative effect on WTW during COVID-19 in nurses.

Hypothesis 2: FCV-19 has a significant and negative effect on WTW during COVID-19 in nurses.

Hypothesis 3: FCV-19 has significant and positive effect on CAS.

Hypotheses were generated based on a review of the previous literatureand path diagrams presented in Figure.[3,8,11,17] Hypothesis test carried out with AMOS (Version: 22.0, Armonk, NY: IBM Corp.) program.

Table 1. Descriptive characteristics of the nurses participating in the study

Variables	Groups	n	%
Age	≤38	180	46.90
	≥39	204	53.10
Gender	Women	298	77.60
	Man	86	22.40
Life style	With family	99	25.80
	With partner	47	12.20
	With partner and child/children	174	45.30
	Alone	52	13.50
	Other	12	3.10
Manner of work	Only day	248	63.60
	Day and Night	136	35.40
Working time in the institution	1-5 years	133	34.60
	6-10 years	63	16.40
	11-15 years	86	22.40
	16 years and more	102	26.60
Willing to work during COVID-19	Yes	177	46.10
	Not sure	100	26.00
	No	107	27.90
Total		384	100

Table 2. Descriptive statistics and reliability values of scales

Variables	α	Min	Max	Mean	SD
CAS	0.90	1	5	1.62	0.79
FCV-19	0.87	1	5	2.43	0.88
WTW during COVID-19	0.88	1	5	3.51	0.77

CAS: COVID-19 anxiety, **FCV-19:** fear of COVID-19, **WTW:** willingness to work, **Min:** minimum, **Max:** maximum, **SD:** standard deviation, α: Cronbach's alpha

Table 3. Relationship between variables

Variables	CAS		FCV-19	
	r	*p*	r	*p*
WTW during COVID-19	-0.162**	*p*<0.001	-0.205*	*p*<0.001
FCV-19	0.544*	*p*<0.001		

* Correlation is significant at the 0.01 level (2-tailed).

CAS: COVID-19 anxiety, **FCV-19:** fear of COVID-19, **WTW:** willingness to work, **r:** correlation coefficient, ***p:*** significance value

Study Population and Sample

The cross-sectional study was carried out in İstanbul. The participants consist of 384 nurses. This sample size is sufficient to represent the universe. In the study, convenience sampling method was used which is widely used in studies where the primary focus is on practicality and accessibility. Sample evaluation was conducted using the population unknown sample menu in Epi Info (v4.7.2.0) package program. Prior to the study, an expected frequency of 50% was taken to reach the maximum sample size. In a study it was stated that more than half (54.05%) of participants were not willing to work during COVID-19.[17] Prior to the study, an expected frequency of 50% for nurses' willingness to work was considered to reach the maximum sample size. With a 5% margin of error and an 80% confidence interval, the target was to reach at least 164 individuals. After initial evaluation, 384 individuals were reached and sample size was exceeded the calculated one. Data were collected via google forms, and some preferred to fill out the paper and pencil form of. The data were collected between March 2022 and Jun 2022. The data collected included demographic data as well as four inventories, including CAS, FCV-19 scale and WTW during COVID-19. The data were analyzed using SPSS (Version: 20.0, Armonk, NY: IBM Corp.) and SPSS AMOS (Version: 22.0, Armonk, NY: IBM Corp.) programs.

Statistical Analysis

Descriptive statistics such as percentages of variables, frequency of variables, mean scores of scales, and standard deviation were calculated to describe the characteristics of the variables. Confirmatory factor analysis carried out to test measurement model and the hypothesized model that the study tested between the variables conducted through path analysis using the maximum likelihood estimation. Assumption of normality assessed skewness and kurtosis indices based on the rule of thumb of ± 2. In the path analysis, three hypotheses were examined with estimates (β) and *p* value.

SPSS 20 (Statistical Package for the Social Sciences for Windows) and SPSS AMOS 22 package program were used to analyze the data. There was no missing data in the data set which consisting 384 participants. Descriptive statistics such as percentages of variables, frequency of variables, mean scores of scales, and standard deviation were used to analyze the data. Additionally, CFA, correlation analysis, and path analysis were used. It was determined that a correlation coefficient of 0.30 or lower indicates a low-level correlation, a value between 0.30 and 0.70 indicates a moderate correlation and a value of 0.70 or higher indicates a high-level correlation.[18] The confidence interval was assumed to be 95% at a significance level of <0.05. The indirect effects, mediation, or moderating effects of FCV-19 on WTF were not examined because the effect of FCV-19h on WTF was not statistically significant.

Ethical Considerations

The study received ethical approval from Okan University with 10.11.2021/144 date and number. Written permission was also obtained from the hospital where the study was conducted. Participants were

thoroughly informed about the study, and their consent was obtained from those who chose to participate. Furthermore, necessary permission gathered from Türkiye Ministry of Health to conduct study.

RESULTS

The research was carried out with 384 nurses. Of the nurses 53.10% were above 39 years old, 77.60% were women (Median age was 39). While 13.50% of the participants live alone, majority of the participants were living with a partner and child/children (45.30%). While 34.60% of the participants have been working in the same institution for 1-5 years, 26.60% have been working in their institution for 16 years or more. Only 27.90% of the participants stated that they are not WTW during COVID-19 (Table 1).

The CAS level of the participants was 1.62±0.79, FCV-19 level of the participants was 2.43±0.88 and WTW during COVID-19 level of the participants was found to be 3.51±0.77. Cronbach's Alpha values of the scales used in the research were 0.90, 0.87, and 0.88 respectively which suggest that the scales are reliable (Table 2).

Based on the Pearson Correlation Analysis results (Table 3), a statistically significant and positive relationship was detected between CAS and FCV-19 (r=0.54, p<0.01). The relationship between CAS, FCV-19 and WTW during COVID-19 was significant and negative (r=-0.16, 0.20; p<0.01 respectively). In this context, due to the positive relationship between CAS and FCV-19, as CAS level of nurses' increases, FCV-19 of nurses also increases, and vice versa. Additionally, when the CAS and FCV-19 level of nurses increases, WTW during COVID-19 of nurses decreases.

The measurement model was first tested to investigate whether the model adequately fit the data using confirmatory factor analysis. In the measurement model, there were three interrelated latent variables including FCV-19, CAS, and WTW. FCV-19 was represented by its seven items, while CAS was represented by its five observed variables. WTW was represented by its ten items. The standardized factor loadings for all observed variables demonstrated significant loading on their respective latent variables, suggest that the latent variables had been correctly measured. The results of the CFA analysis showed that the measurement model was a good fit to the data: Chi-Square divided by degrees of freedom (x^2/df): 1.85; Goodness-of-fit index (GFI): 0.950; Normed fit index (NFI): 0.953; Tucker-Lewis index (TLI): 0.972; Comparative fit index (CFI): 0.977; Root mean square error of approximation (RMSEA): 0.048.

Table 4. Model fit of measurement model

x^2/df	GFI	NFI	TLI	CFI	RMSEA
1.854	0.950	0.953	0.972	0.977	0.048

x^2/df: CMIN/df (Chi-Square divided by degrees of freedom), **GFI:** goodness-of-fit index, **NFI:** Normed fit index, **TLI:** Tucker-Lewis index, **CFI:** comparative fit index, **RMSEA:** root mean square error of approximation.

Table 5. Results of path analysis

Hypothesis	Independent Variable	Dependent Variable	β	Direct Effect		
				CR	CR	Information
H_1	CAS	WTW during COVID-19	-0.16	-2.21	0.02*	Supported
H_2	FCV-19	WTW during COVID-19	-0.12	-1.73	0.08	Not Supported
H_3	FCV-19	CAS	0.42	8.00	0.00**	Supported

*: p<0.05, **: p <0.001, β: beta; **CR:** composite reliability, **CAS:** COVID-19 anxiety, **FCV-19:** fear of COVID-19, **WTW:** willingness to work

Path analysis was carried out after confirmatory factor analysis. According to the path analysis results, the model-data goodness of fit values (x^2/df: 1.85; GFI: 0.950; NFI: 0.953; TLI: 0.972; CFI: 0.977; RMSEA: 0.048) were at an excellent level (Table 4). The results obtained from the data show that the data fit with the model was good.[19,20] According to the path analysis results, CAS has significant and negative effect on WTW during COVID-19 (β=-0.16, p<0.05). Change in the WTW during COVID-19 could be explained 16% by CAS. Therefore, hypothesis H_1 was accepted. The rise in nurses' anxiety levels attributable to COVID-19 leads to a decrease in nurses' WTW during the COVID-19 pandemic.

Second hypothesis of the research examines whether FCV-19 will affect nurses' WTW during COVID-19. According to the regression analysis result there is no significant effect was found (β=-0.12, p>0.05). The reason why the H_2 hypothesis cannot be accepted.

The third hypothesis examined the effect of FCV-19 on CAS. According to the results, FCV-19 was an important predictor of CAS (β=0.42, p<0.05). Based on the results, the H_3 hypothesis was accepted. As FCV-19 increases, anxiety of COVID-19 increases, too. Path analysis results were presented in Table 5.

DISCUSSION

The impact of CAS and FCV-19 on nurses' WTW during the COVID-19 pandemic has not been previously evaluated. Two major new results were obtained with the present study. First, CAS has a negative and significant effect on WTW during COVID-19. Second, there was no significant effect of FCV-19 on WTW during the pandemic. Additionally, the results indicated that FCV-19 had a predictor of CAS.

According to the findings, CAS level in nurses was found 1.62±0.79. The fact that time has passed since COVID-19 showed up and it is more well-known disease anymore. In a study carried out in Jordan, FCV-19 was 23.64±6.85 which indicated an elevated level FCV-19. Of the 60% participants also had severe anxiety.[21] Uncertainty and the absence of clear understandings of COVID-19 were increased anxiety.[5] During the initial stage of the COVID-19, researchers in China stated 28.8% of general population reported moderate to severe anxiety symptoms.[22] In another study conducted with 1250 HCWs in China, 44.6% of the participants reported anxiety.[23] In a meta-analysis conducted by Batra, Singh, Sharma, Batra and Schvaneveldt[24] found that prevalence of anxiety was 34.4%. In a study carried out in Saudi Arabia, 737 HCWs had a 10.7% mild, 73.5% moderate, and 15.7% severe degree of fear and anxiety respectively. Results indicated that two-thirds of the HCWs had a moderate risk of fear and anxiety.[8]

In this study, FCV-19 level was 2.43±0.88. Usually, the FCV-19 among nurses was high ($\bar{X}$=3.14) compared to general public. Additionally, COVID-19 fear could be degreased by introducing leadership support among nurses.[2] In a study carried out by Kumar *et al.* they stated that the most important factors associated with fear were the risk of infection (84.8%), quarantine (69.6%), lack of medical treatment (62%), death (56.8%) and transmitting the virus to family members (94%).[25]

The findings carried out among nurses by Kee, *et al.* stated that %96.8 of the participants, mentioned their WTW, and a few expressed their unwillingness.[11] Gan, Shi, Chair, Cao and Wang's findings also indicated that 83.4% of the nurses were willing to volunteer to practice in Hubei during the pandemic.[26] In the present study, WTW during COVID-19 level was also found high ($\bar{X}$=3.51±0.77) in line with other studies.

In the study, a statistically significant (p<0.05) and positive relationship was detected between CAS and FCV-19. Rodríguez-Hidalgo, *et al.* found a significant and positive relationship between FCV-19 and anxiety.[27] Belen's findings also indicated that a positive correlation was found between COVID-19 fear and CAS. CAS and FCV-19 are related variables.[28]

The relationship between CAS, FCV-19 and WTW during COVID-19 was significant and negative. A weak level of correlation was found between CAS and WTW during COVID-19 and again a weak level of correlation was found between FCV-19 and WTW during COVID-19.

Mailani *et al.*'s findings on nurses about WTW during COVID-19 stated that the factors correlated with WTW were the experience of isolation, the presence of beds used for COVID-19, and supply of protection equipment.[29] In the present study 45.04% of participants were living with their family and children. However, since COVID-19 is now a more well-known pandemic, willingness mean score was determined to be high in the study.

Path analysis carried out to reveal the effect of CAS on WTW during COVID-19, effects of FCV-19 on WTW during COVID-19 and effect of COVID-19 fear on CAS in nurses. Results indicated that CAS had significant and negative effect on WTW during COVID-19 outbreak. Change in the WTW during COVID-19 could be explained 16% by CAS.

Another hypothesis of the research examines whether FCV-19 will affect nurses' WTW during COVID-19. According to the regression analysis result there is no significant effect was found. Although a statistically significant difference was not found, results close to the level of significance were obtained. COVID-19 has now become a part of life and the FCV-19 has decreased. On the other hand, it has become a common practice for nurses to treat patients diagnosed with COVID-19. It suggests that this situation has an effect on this situation. Nurses and midwives may hesitate to provide health care or minimize their hours of service for fear of contracting the virus. Studies have been conducted on previous flu outbreaks among nurses there was a marked increase in absenteeism.[30] Moreover, in a study it was stated that anxiety of primary health care workers who took an active role during the pandemic were high in parallel with the present research.[31]

According to the results FCV-19 is an important predictor of CAS. COVID-19 fear positive and significant effect on CAS. Mertens *et al.* found similar results in their study and concluded that FCV-19 has a significant effect on anxiety (β=0.14, p<0.05).[32]

CONCLUSION

In conclusion, the following results were derived from this study: Firstly, CAS significantly affects nurses' willingness to work during the COVID-19 outbreak. CAS negatively affected WTW during the pandemic, and a significant negative correlation was found between these variables. Second, there was no significant effect of FCV-19 on WTW during COVID-19 but there was a negative a significant correlation was detected. When FCV-19 increases, nurses' WTW decreases. Third, FCV-19 was an important predictor of CAS and there was positive and significant relationship between them. Finally, the effect of anxiety on nurses' work willingness is significant, however, there is no significant effect of fear.

Limitation

The research has several limitations as in other studies. First, the study designed as a cross-sectional study. Therefore, to generalize to whole population it needed to be conducted in other studies. Second, since the convenience sampling method was used as the sampling technique to save cost and time. Therefore, the ability of sampling group to represent the population is limited. Third, direct relations between FCV-19, CAS, and WTW were examined in this study. The effect of FCV-19 was not significant on WTW. Since the impact of FCV-19 on WTF was not significant, indirect effects could not be examined. Further studies are needed to examine indirect relationships between CAS and WTW through FCV-19.

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