Determining the relationship between death anxiety with depression, anxiety, and stress levels in women during the COVID-19 pandemic: A sample from Turkey

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ABSTRACT

INTRODUCTION During the pandemic, mental problems such as depression, anxiety, and stress may increase death anxiety. Thus, this study aims to examine women's levels of depression, anxiety, stress, and death anxiety, and to investigate the correlation between them, during the COVID-19 pandemic.

METHODS This descriptive-correlational study was conducted on 665 women using an online survey in Turkey. The research sample was determined by applying convenience sampling and snowball methods according to the principle of accessibility-availability.

RESULTS The mean Death Anxiety Scale score of the participants was 8.97±3.35, and the mean scores of depression, anxiety, stress and total Depression Anxiety Stress Scale (DASS) were 5.23±3.93, 3.47±2.93, 5.99±3.74 and 14.69±9.51, respectively. A significant relationship was found between the women's death anxiety and their depression, anxiety, and stress levels. These findings indicate that the women had moderate death anxiety, mild depression, everyday anxiety, and stress levels. With the pandemic, death anxiety increased in women, especially those with chronic diseases and a history of medical or psychiatric illnesses.

CONCLUSIONS The results of the study show that there was a significant positive correlation between the stress, depression, and anxiety levels of the women and their death anxiety. It is profoundly essential for the midwives and nurses charged with serving and caring for women to be conscious and aware of the issue.

INTRODUCTION

Epidemics have always posed a problem for humanity since they affect infected people and society in many ways. Use of modern transportation allows epidemics to spread much faster and become greater threats than in the past[1]. Today's epidemic, COVID-19, has spread worldwide in a short time. The first case in the world was identified in China in 2019[2]. On the other hand, Turkey encountered its first incident on 11 March 2020[3,4].

Throughout history, pandemics have affected the emotional health and prosperity of societies, whether the people were infected or not. People feared for themselves (if not already infected) and others. COVID-19 has also affected the physical and mental health of individuals who have not been infected[5]. Individuals may suffer mental harm due to nosophobia, uncertainty, the fear of becoming infected or worrying about loved ones, insecurity about where they live, and other similar emotional states[6]. In the literature on the effects of COVID-19 on mental health[7,8], participants were reported to have depression, anxiety, stress-related symptoms, loneliness, boredom, anger, increased worries about their physical health, impulsivity, and fear of infecting their families and loved ones. In particular, COVID-19 raises women's worries during pregnancy, intrapartum, and postpartum periods and causes mental problems such as stress, anxiety, and depression. For pregnant women, the questions of whether they will bring the fetus into the world healthy, whether their companions will be admitted to the delivery room, or whether or not the disease will infect their baby, affect them more[3,9].

People who tested positive for COVID-19 and those who came in contact, had the quarantine as a precaution. According to a report published by the Turkish Psychiatric Association to explain the mental effects of COVID-19, the quarantine may increase the risk of depression, anxiety, and some stress disorders[7]. Similarly, the results of a systematic review and meta-analysis carried out by Salari et al.[4] with prevalences of stress, anxiety, and depression during the COVID-19 pandemic, 29.6% of society had stress, 31.9% had anxiety, and 33.7% had depression4. The literature has reported that being a woman during the quarantine period is a risk factor for higher anxiety, stress, and depressive symptoms[10,11].

In general, uncertainty, fears of loneliness and losing one's relatives, worries about the others left, or fears of pain, cause death anxiety during the pandemic. While some studies show that mental problems such as depression, anxiety, and stress may increase death anxiety, others suggest the opposite[12,13]. Many people died or were taken to intensive care because of COVID-19, worldwide. Other people watched or followed the situation on television and social media. The number of deaths was constantly increasing[5,11], so individuals' levels of death anxiety due to COVID-19 were likely increased, and often increasing fear levels during the pandemic. According to Chalhoub et al.[12], death anxiety is the most significant predictor of fear related to the COVID-19 pandemic, and general anxiety is the other significant predictor of fear of COVID-19. Fear and anxiety caused by the risk of being infected by the disease, can impose a substantial and damaging psychological burden on people, leading to mental problems, weakening the immune system, and lowering the body's ability to fight the disease[12]. Since the view of death may change in different societies (e.g. Muslim and non-Muslim) and cultures, the relationship between death anxiety and other variables may change.

Thus, this study aimed to examine women's depression, anxiety, stress levels, and death anxiety and to investigate the correlation between them in the COVID-19 pandemic in the Muslim community. UNICEF emphasizes that planning psychosocial support work for the specified high-risk groups is essential for preventing mental health problems[14]. This study is significant for nurses and midwives who serve or care for women because it emphasises the importance of early recognition of the woman's psychological state, consultation in directing them to the appropriate units for support, and mental health prevention.

METHODS

Design and participants

The study was conducted as descriptive-correlational research. The research sample was determined by applying convenience sampling and snowball methods according to the principle of accessibility-availability. Due to the epidemic, data for the study were collected remotely using Google Forms online between 23 September and 23 November 2020. The researchers shared this link with women around them, and the participants were asked to send the link to other women in their surroundings. The purpose of the study was explained to the women who got access to the link, the principle of volunteering was emphasised, and they were asked to fill in the form online. Repetitive access using the same computer and mobile phone was prevented.

Measures and variables

The sociodemographic form

The researchers prepared this form according to the literature and consisted of 20 questions aimed at determining the women's sociodemographic characteristics.

Depression, Anxiety, Stress Scale (DASS-21)

Lovibond and Lovibond[15] first created this scale with 42 items, then a short form of it with 21 items was developed. The Turkish validity and reliability of this brief scale with 21 items were established by Sarıçam[16]. The scale consists of 3 subscales: depression, anxiety, and stress. Each subscale includes seven items. The Cronbach alpha internal consistency reliability parameter was found to be α=0.87 for depression, α=0.85 for anxiety, and α=0.81 for stress. In this study, Cronbach's alpha value was determined as 0.84, 0.76, and 0.81 for depression, anxiety, and stress subscales, respectively. In this Likert-type scale, the participants were asked about their symptoms of depression, anxiety, and stress for the last week and requested to mark the most suitable option for them from the answers stated as: 0 = very untrue of me; 1 = somewhat valid of me; 2 = usually accurate of me, and 3 = very true of me. The result obtained is evaluated based on the DASS-21 scores according to severity, presented in the Supplementary file Table 1.

Death Anxiety Scale

Templer developed this scale in 1970, and Şenol carried out its validity and reliability research in 1989. The scale consists of 15 items, including questions to be answered with yes/no responses, and measures the individual's anxiety and fear about his death and death risk. In the first nine items of the scale, each 'yes' is scored with 1 point, and each 'no' with a zero. In the other six items, each 'no' is scored with 1 point, and each 'yes' with a zero. The total points obtained from the scale indicate the death anxiety score. The maximum score on the scale is 15. The death anxiety level is evaluated as: mild for 0–4 points, moderate for 5–9 points, severe for 10–14 points, and panic for 15 points. The Cronbach alpha value of the scale was found to be 0.83[17]. In this study, Cronbach's alpha value was determined as 0.76.

Data analysis

The study's data were analysed using Excel and the SPSS 20.0 (Statistical Package for Social Sciences) package programs. The data's congruence with a normal distribution was examined with the Kolmogorov-Smirnov test. The Mann-

Table 1. The relationship between sociodemographic characteristics and depression, anxiety, stress, DASS, and death anxiety scale scores, Turkey 2020 (N=665)

Characteristics	Depression score Mean ± SD Median (range)	Anxiety score Mean ± SD Median (range)	Stress score Mean ± SD Median (range)	Total DASS score Mean ± SD Median (range)	Death anxiety score Mean ± SD Median (range)
Marital status					
Single	5.4 ± 4.2	3.5 ± 3.1	6.3 ± 4	15.2 ± 10.2	9.2 ± 3.3
	5 (0–19)	3 (0–19)	6 (0–21)	13 (0–54)	9 (0–21)
Married	5.1 ± 3.7	3.4 ± 2.8	5.7 ± 3.5	14.2 ± 8.8	8.8 ± 3.3
	5 (0–19)	3 (0–15)	6 (0–18)	13 (0–44)	9 (1–15)
Test statistic	U=53764	U=54305	U=52248.5	U=53812	U=51322.5
p	0.564	0.720	0.233	0.578	0.117
Family type					
Nuclear family	5.2 ± 3.9	3.5 ± 3	6 ± 3.8	14.6 ± 9.5	9 ± 3.4
	4.5 (0–19)	3 (0–19)	6 (0–21)	13 (0–54)	9 (1–21)
Extended family	5.6 ± 4.3	3.3 ± 2.7	6.1 ± 3.6	15.1 ± 9.5	8.6 ± 3.3
	5 (0–19)	3 (0–12)	6 (0–16)	15 (0–42)	9 (0–15)
Test statistic	U=27876.5	U=28685	U=28237	U=28245	U=26988.5
p	0.397	0.690	0.518	0.522	0.180
Income status					
Lowa	5.9 ± 4.4	4 ± 3.3	6.6 ± 3.9	16.5 ± 10.5	8.9 ± 3.5
	5 (0–19)	3 (0–19)[a]	6 (0–19)	15 (1–54)	9 (0–15)
Highb	5 ± 4	2.9 ± 2.6	5.7 ± 4.1	13.6 ± 9.4	9 ± 3.3
	4 (0–18)	3 (0–14)[b]	5 (0–19)	12 (0–49)	9 (2–15)
Middlec	5 ± 3.7	3.4 ± 2.8	5.8 ± 3.6	14.2 ± 9	9 ± 3.3
	4 (0–19)	3 (0–15)[ab]	6 (0–21)	13 (0–45)	9 (1–21)
Test statistic	=3.929	=7.535	=6.129	=6.323	=0.032
p	0.140	0.023	0.050	0.050	0.984
Having support for mental problems in the past					
Yes	6.8 ± 4.2	4.9 ± 3.6	7.8 ± 4.3	19.5 ± 11	9.3 ± 3.3
	7 (0–19)	5 (0–19)	7 (0–19)	19 (1–54)	9 (1–15)
No	4.9 ± 3.8	3.2 ± 2.7	5.6 ± 3.5	13.7 ± 8.9	8.9 ± 3.3
	4 (0–19)	3 (0–14)	5 (0–21)	12 (0–45)	9 (0–21)
Test statistic	U=22137.5	U=21323	U=21397.5	U=20622.5	U=28535
p	<0.001	<0.001	<0.001	<0.001	0.278
Need for psychological support during the pandemic					
Yes	7.4 ± 4.3	5.1 ± 3.5	8.2 ± 4.2	20.7 ± 10.6	10.2 ± 3.2
	7 (0–19)	5 (0–19)	7 (0–19)	20 (0–54)	11 (0–15)
No	4.3 ± 3.4	2.8 ± 2.3	5 ± 3.1	12.1 ± 7.6	8.4 ± 3.3
	4 (0–19)	2 (0–11)	5 (0–21)	11 (0–38)	8 (1–21)

Continued

Table 1. Continued

Characteristics	Depression score Mean ± SD Median (range)	Anxiety score Mean ± SD Median (range)	Stress score Mean ± SD Median (range)	Total DASS score Mean ± SD Median (range)	Death anxiety score Mean ± SD Median (range)
Test statistic	U=26483	U=27591	U=25516	U=23799	U=31732.5
p	<0.001	<0.001	<0.001	<0.001	<0.001
Having a chronic illness					
No	5.1 ± 3.9	3.4 ± 2.9	6 ± 3.7	14.5 ± 9.5	9 ± 3.4
	5 (0–19)	3 (0–19)	6 (0–21)	13 (0–54)	9 (0–21)
Yes	6.2 ± 4	4.3 ± 2.7	6.3 ± 3.8	16.8 ± 9.3	8.7 ± 3.2
	6 (0–14)	4 (0–12)	6 (0–16)	16 (2–42)	9 (2–15)
Test statistic	U=16493.5	U=15059.5	U=18648.5	U=16478.5	U=18296
p	0.027	0.001	0.448	0.026	0.319
Having regular medication					
Yes	5.9 ± 3.7	4.1 ± 3.2	6.6 ± 4	16.5 ± 9.6	8.5 ± 3.3
	6 (0–17)	4 (0–19)	6 (0–18)	16 (1–54)	8 (1–15)
No	5.1 ± 4	3.4 ± 2.9	5.9 ± 3.7	14.4 ± 9.5	9.1 ± 3.4
	4 (0–19)	3 (0–14)	6 (0–21)	13 (0–49)	9 (0–21)
Test statistics	U=24410	U=24155.5	U=26018.5	U=24239.5	U=25371
p	0.022	0.014	0.164	0.017	0.079
Watching or following the news about COVID-19 (hours/day)					
Never (n=14)a	4.5 ± 2.8	3.2 ± 2.9	5.0 ± 3.9	12.8 ± 8.7	8.6 ± 2.7
	4.5 (0–9)	2.5 (0–10)	5.0 (0–16)	11 (1–35)	8.5 (3–13)
1–2 (n=331)[b]	4.6 ± 3.7	2.9 ± 2.7	5.3 ± 3.4	12.8 ± 8.9	8.5 ± 3.3
	4.0 (0–19)	2.0 (0–19)	5.0 (0–18)	11 (0–54)	9.0 (0–21
≥3 (n=320)[c]	5.9 ± 4.0	4.0 ± 3.0	6.6 ± 3.8	16.6 ± 8.7	9.4 ± 3.2
	6.0 (0–19)	4.0 (0–15)	6.0 (0–21)	16 (0–48)	10 (1–15)
Test statistic	=18.864	=29.919	=21.192	=28.11	=11.800
p (c>b)	0.000	0.000	0.000	0.000	0.003

χ^2: Kruskal Wallis test statistics. U: Mann-Whitney U test statistics. a–b: The groups with the same letter have no difference. DASS: Depression Anxiety Stress Scale.

Whitney U test was used to compare the scores that did not follow a normal distribution for the pairs. The Kruskal-Wallis test was implemented to compare scores that did not follow a normal distribution for larger than pairs groups. Spearman's rho correlation parameter was used to analyse the relationship between the anxiety scores that did not follow a normal distribution and other scores. The linear regression analysis method was applied to investigate the effects of DASS subscale scores on death anxiety. The analysis results presented categorical data as frequency and percentage, while quantitative data were presented as mean and standard deviation, and median (range). The significance level was taken as $p<0.05$.

RESULTS

The average age of the women participating in this study was 28.5 ± 8.7 (range: 18–65); 82.9% of the participants were university graduates, 52.0% were married, and 27.2% had children. In addition, 9.9% of the participants stated they had chronic diseases. It was found that 44.8% of the women were working before COVID-19, 45.3% were still working during the epidemic period, and 54.7% were fired/left without

Table 2. Depression, anxiety, and stress levels among women, Turkey 2020 (N=665)

Level	Depression		Anxiety		Stress	
	n	%	n	%	n	%
Normal	323	48.5	381	57.3	472	71.0
Mild	111	16.7	136	20.4	84	12.6
Moderate	160	24.1	87	13.1	64	9.7
Severe	48	7.3	33	5.0	37	5.4
Quite severe	23	3.4	28	4.2	8	1.3

pay/had paid vacation. Their income of 59.5% was equal to their expenditures. While 16.5% of the women were getting support for their mental problems before the epidemic, 30.4% stated they needed psychological support during the pandemic but did not receive it. Additionally, it was found that 48.1% of participants followed the news about COVID-19 for ≥3 hours/day, compared to 49.8% who watch it for 1–2 hours/day. Watching the news about COVID-19 for ≥3 hours/day increased the depression, stress, anxiety, DASS, and death anxiety scale scores compared to watching for 1–2 hours/day ($p<0.05$) (Table 1).

Statistically, no significant relationship was determined between the women's marital status and the family type and the mean scale scores of depression, anxiety, stress, and death anxiety. The anxiety score was found to have changed statistically according to the income status ($p<0.05$). The average anxiety scores of those with lower income were higher than the others. In terms of statistics, the total depression, anxiety, stress, and DASS scores of the women who had previously received support for their mental problems were significantly higher than those who had not been supported ($p<0.001$). The total depression, anxiety, stress, and DASS scores and the death anxiety scale scores of women needing psychological support during the COVID-19 period were statistically higher than those feeling no need ($p<0.001$). The total anxiety, depression, and DASS scores of the women having chronic illnesses and receiving regular medication were found to be significantly higher than the others in terms of statistics ($p<0.05$) (Table 1).

The results of the descriptive analysis showed that 111 (16.7%) of the women had mild depressive symptoms, while 160 (24.1%) had moderate, 48 (7.3%) had severe, and 23 (3.4%) had quite severe depressive symptoms. In addition, the analysis indicated that 136 (20.4%) of the women had mild anxiety symptoms, 87 (13.1%) had moderate, 33 (5.0%) had severe, and 28 (4.2%) had quite severe anxiety symptoms. Further, 84 (12.6%) of the women had mild stress, while 64 (9.7%) had moderate, 37 (5.4%) had severe, and 8 (1.3%) had quite severe stress symptoms (Table 2).

The Death Anxiety Scale mean score of the participants was 8.97±3.35. The depression score was 5.23±3.93; the anxiety score was 3.47±2.93; the stress score was 5.99±3.74 on average, and the mean total DASS score was 14.69±9.51. The results suggest a positive, moderate, and significant correlation between the Death Anxiety Scale Score and anxiety ($r=0.433$; $p<0.001$) and the DASS score ($r=0.418$; $p<0.001$). There was a positive, moderate and significant correlation between the Death Anxiety Scale Score and the subscales of stress ($r=0.394$; $p<0.001$) and depression ($r=0.320$; $p<0.001$) (Table 3).

When the effect of the depression, anxiety, and stress subscales on death anxiety was examined with the multivariate linear analysis method, it was found that the stress and anxiety scores affect the death anxiety score. As the stress score increases, the death anxiety score rises as well. For example, an increase in stress score by one unit results in a rise of 0.167 in the death anxiety score. Moreover, one unit increase in anxiety score results in a rise of 0.361 in the death anxiety score. It was determined that depression score does not affect death anxiety ($p=0.300$) (Table 4).

Multiple linear regression was used to examine the effects of some variables on death anxiety. It was found that the need for psychological support during the pandemic and watching or following the news about COVID-19 were significantly related to death anxiety scores. There was no significant linear relationship between marital status, family type, having support for mental problems in the past, and death anxiety (Table 5).

Table 3. Correlation analysis between the Death Anxiety Scale score, and depression, anxiety, stress, and DASS scores, among women, Turkey 2020 (N=665)

	Death Anxiety Scale score	
	r	p
Depression score	0.320	<0.001
Anxiety score	0.433	<0.001
Stress score	0.394	<0.001
DASS total score	0.418	<0.001

r: Spearman's rho correlation parameter. DASS: Depression Anxiety Stress Scale.

Table 4. The effect of the subscales of stress, anxiety, and depression on death anxiety score among women, Turkey 2020 (N=665)

		SD		T	p	95% CI	
						Lower	Upper
Fixed	6.964	0.224		31.117	<0.001	6.524	7.403
Depression score	-0.048	0.046	-0.056	-1.036	0.300	-0.139	0.043
Anxiety score	0.361	0.059	0.316	6.127	<0.001	0.245	0.476
Stress score	0.167	0.051	0.187	3.262	0.001	0.067	0.268

F=49.049. p<0.001. R2=0.182. Corrected R2=0.178. : non-standardized beta parameter. : standardized beta parameter.

Table 5. The effect of sociodemographic and COVID related variables on the death anxiety score among women, Turkey 2020 (N=665)

Variables		SD		T	p	95% CI	
						Lower	Upper
Fixed	10.600	1.088		9.740	<0.001	8.463	12.737
Marital status	0.391	0.254	0.058	1.538	0.124	-0.108	0.890
Family type	-0.418	0.348	-0.046	-1.199	0.231	-1.102	0.266
Having support for mental problems in the past	-0.132	0.340	-0.015	-0.387	0.699	-0.799	0.536
Need for psychological support during the pandemic	-1.697	0.278	-0.233	-6.108	<0.001	-2.242	-1.151
Watching or following the news about COVID-19	0.565	0.235	0.091	2.409	0.016	0.104	1.026

F=11.010. p<0.001. R2=0.077. Corrected R2=0.070. : non-standardized beta parameter. : standardized beta parameter.

DISCUSSION

This study investigated the relationship between women's depression, anxiety, and stress levels and their death anxiety in Turkey. It was noted that COVID-19 might cause negative feelings such as despair, boredom, loneliness, depression, and fear of death in women more commonly than in men[4,7].

Some reports stated that women's housework loads, unemployment rates, exposure to violence, needs for support etc., have been commonly presented by the Ministry of Health and several women's associations[18]. In parallel with the literature, this study found that more than half of the working women (54.7%) were unable to continue working (dismissal, paid or unpaid vacation) because of the pandemic and increasingly felt the need for psychological support for their mental problems. Thus, psychosocial support lines were made available in 81 provinces of Turkey by the Ministry of Health to provide information and consultancy services and protect the mental health of the individuals in the country[19].

In the guidebook published by the Turkey Psychiatry Association explaining the mental effects of the COVID-19 pandemic, it was emphasised that the pandemic caused depression, anxiety, and stress disorders, which may bring about more negative consequences for those having had a mental illness before the quarantine[7]. In this study, similarly to others, the total depression, anxiety, stress, and DASS scores of women who have received support for their mental problems were significantly higher than those not supported. On the other hand, in parallel with the current studies, the total depression, anxiety, stress, and DASS scores and the death anxiety scale scores of women needing psychological support during the COVID-19 pandemic were reported to be higher than those feeling no need[20,21]. In the systematic review and meta-analysis study by Salari et al.[4], an association was determined between medical history and increased anxiety and depression caused by the COVID-19 spread. Similarly, in the systematic review conducted by Xiong et al.[22], it was found that people with chronic diseases and a history of medical or psychiatric illnesses, developed more symptoms of anxiety and stress. Likely, in this study, the total anxiety, depression, and DASS scores of the women who had chronic illnesses and were receiving regular medication were significantly higher in terms of statistics.

The study results were determined to be parallel with the literature. A systematic review and meta-analysis study carried out on three databases indicated that the pandemic had caused and increased the levels of depression, anxiety, and stress among the general populations[23]. The current study also showed that ≥3 hours/day spent viewing the news on COVID-19, elevated anxiety, stress, and depressive symptoms, as well as the DASS and death anxiety scale scores. The growing unreliability of fake news and mortality cases on television and social media may explain this result.

This is consistent with the findings of the Chalhoub et al.12 study.

Scientists recommend that people be mentally positive during the COVID-19 period. It has been explained that being positive leads to a decrease in death stress and an increase in happiness. In the studies carried out, it was reported that increased death anxiety is associated with several mental illnesses such as anxiety, stress, and eating disorders[12,13,24,25]. On the other hand, studies have revealed that death anxiety is a multidimensional concept, emphasising that fear, anxiety, stress, and loneliness are critical dimensions. In presenting the deaths caused by the COVID-19 pandemic as news, it is frequently noted that people with chronic illnesses, the elderly, pregnant or postpartum women, were in the risk group. Hearing news of death constantly and knowing that you are at risk is stressful, frightening, and anxiety-inducing[12]. When people feel at risk of mortality due to COVID-19 exposure or stress, death anxiety seems to arise as an unusual sensation. Due to the negative psychological impacts of stress, it is essential to reduce anxiety and increase people's mental health; it is necessary to inform people on how to cope with death anxiety and to put psychological treatments and counselling programs into place[26]. In this study, a significant positive relationship was also observed between death anxiety and stress and anxiety. In this sense, the Turkey Psychiatry Association has organised a campaign called 'Infect Solidarity Not Anxiety' by publishing guidebooks to protect society's mental health in general[7].

Limitations

Limitations of this study include the snowball sampling technique, which limits the generalizability of the results to other populations, as well as the potential for reporting bias.

CONCLUSIONS

A significant positive correlation was found between the women's stress, depression, and anxiety levels and their death anxiety. Therefore, providing the necessary support and education is vital to help them control the process effectively. The free phone counselling service of the Ministry of Health should assist in this regard. However, the support line may not be accessible to everyone so that this service may not be sufficient. Besides, the official authorities (the Ministry of National Education, the Council of Higher Education, etc.) should regularly keep people well informed to remove uncertainties during this challenging COVID-19 pandemic. In this sense, online telemedicine platforms and web-based programs can be beneficial by bringing health workers and women together.

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DATA AVAILABILITY
The data supporting this research are available from the authors on reasonable request.

AUTHORS' CONTRIBUTIONS
EK: conception and design of the study, data collection, writing and editing of manuscript. ŞB: statistical analysis, data collection, writing and editing of manuscript.

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