

Hesitancy to Return to the Pre-pandemic Routine

V. Holeva¹ · E. Parlapani¹ · V. A. Nikopoulou¹ · S. Kostikidou¹ · I. Diakogiannis¹

Accepted: 25 April 2021 / Published online: 4 May 2021 © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2021

Abstract

The goal of the present study was to explore COVID-19 related hesitancy, which represents the inability of people to return to previous levels of functioning after a major medical crisis like the current pandemic. A new questionnaire was developed to evaluate participants' hesitancy. The study was conducted online in November, 2020, using convenience sampling. A total of 538 individuals from the general Greek population participated in the study and completed the Hesitancy Questionnaire, the Generalized Anxiety Disorder 2-item (GAD-2), the Short Health Anxiety Inventory and a COVID-19-related worry question. The Hesitancy Questionnaire proved to have adequate psychometric properties. Correlation with anxiety as assessed by GAD-2 proved to be significant but low, indicating that the two scales are measuring two different concepts. The greatest hesitancy was observed in older adults for both genders (males, M = 40.86, SD = 15.24; females, M = 49.34, SD = 14.74). Women in general appeared more hesitant than men scoring higher (males, M=36.13, SD=15.25; females, M=42.63, SD=17.31) with a statistically significant difference [t(536) = -3.706, p = .001). This study provided a tool to informed understanding on how citizens perceive the new normality after the COVID-19 pandemic. If not appropriately addressed, hesitancy may increase stress levels and result in mental health or socialization problems.

V. Holeva vholeva@yahoo.gr

> E. Parlapani eparlapa@auth.gr

V. A. Nikopoulou v.a.nikopoulou@gmail.com

S. Kostikidou stuliani.kwstikidou@gmail.com

I. Diakogiannis idiakogiannis@auth.gr

¹ 1St Department of Psychiatry, School of Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, General Hospital "Papageorgiou", Ring Road Thessaloniki, N. Efkarpia, 54603 Thessaloniki, Greece

Keywords Hesitancy · Pandemic · COVID-19 · Anxiety · Greece

Introduction

Researchers all over the world are exploring the immediate aftermath of the COVID-19 pandemic on mental health. Fear, insomnia, anxiety, depression, and posttraumatic symptomatology are well investigated topics (Blekas et al., 2020; Skapinakis et al., 2020; Tsipropoulou et al., 2020; Voitsidis et al., 2020a). As new measures are introduced in several countries, the levels of loneliness (Parlapani et al., 2020a), harmful alcohol and drug use (Panagiotidis et al., 2020), and self-harm or suicidality (Hawton et al., 2020) are also expected to rise.

In Greece, two national lockdowns were imposed by the government, as the COVID-19 pandemic is still ongoing. The prolonged medical crisis affected both individually and collectively the citizens of Greece. At the first wave, adherence of young adults to the measures was satisfactory (Parlapani et al., 2020b; Sakka et al., 2020), whereas, after lifting the lockdown measures, just before the summer months, adherence was questionable. A significant amount of confirmed cases and deaths, resulting to a fatality rate of 1.9% in November, further increased fear and uncertainty. At a social level, polarization between those who were attentive and those who were careless started to grow, as continuous reminders of the magnitude of the health crisis were projected across the media span (Fountoulakis et al., 2020). In addition, worry about the financial aftermath was significant among professionals in the private sector, whereas the public sector had minimal or no pay cuts (Economides et al., 2020).

Studying the public health response and its consequences at the individual level (Blekas et al., 2020; Parlapani et al., 2020b; Voitsidis et al., 2020b), it became clear that prolonged precariousness during this pandemic made people doubtful about what is correct and what is not, as well as more hesitant to return to previous levels of carefreeness.

To hesitate means to express uncertainty and to hold back from doing or saying something in doubt (Merriam-Webster, n.d.). In that sense, hesitancy differs from fear and anxiety because it addresses decision making. Making decisions can be hard even during ordinary periods, more so when fear or emotions are involved. Under the pressure of the current pandemic, the fear of making the wrong decision jeopardizes the basic cognitive schema of safety. Uncertainties about the accuracy of available diagnostic tests, the natural history of the disease, the effects of treatment and the healthcare efficiency create an unstable environment where it is difficult to comprehend all the elements and reach a conclusion (Hunink et al., 2014).

This fragile logical structure, with missing or incomplete elements, leads to cognitive dissonance. Cognitive dissonance is the psychological discomfort people experience when holding two or more cognitions that are psychologically inconsistent (Festinger, 1957). People adopted new habits under the imposed lockdowns to retain their safety. They have learned that being isolated and distant from others may keep them safe and healthy. The cognitive dissonance is obvious: while the first goal is the desire to socialize and return to normality, the

second is the desire to stay healthy, leaving citizens hesitant to decide to snap back to work, go out, or travel. In the global COVID-19 literature, hesitancy was mainly studied to address the reluctance of some people to get vaccinated (vaccine hesitancy) (Dror et al., 2020; Dubé et al., 2013; Puri et al., 2020), but from clinical experience, it is apparent that it also influences other significant aspects of social life or decisions associated with seeking medical advice (e.g. people's avoidance of visiting health care facilities, despite having symptoms, due to fear of contracting the virus).

In that context, the goal of the present study was to explore COVID-19-related hesitancy, which represents the inability of people to return to previous levels of functioning after a major medical crisis like the current pandemic. To achieve the goal, a new tool was created, the "Hesitancy Questionnaire" (HeQ), a self-reported questionnaire that targets severity of hesitancy. Consequently, the following objectives were addressed: (a) to provide psychometric evidence for its internal structure; (b) to provide evidence for its internal consistency; (c) to evaluate the strength of evidence from the sample and (d) to provide evidence of concurrent validity.

Methods

Development of the HeQ

At the beginning of the questionnaire construction a thorough literature review was conducted by the first author, to check if a hesitancy questionnaire had already been published, resulting to papers mainly addressing vaccine hesitancy reporting on tools identifying vaccine hesitant persons (Cella et al., 2020; Shapiro et al., 2018) and one addressing social support seeking (Gontkovsky et al., 2021). Then, a brainstorming session was carried out with the rest of the authors, where the purpose was to discuss the impact of the lockdown measures and recommend as many questions as possible. Finally, in a focused group discussion, an expert panel of five members (two clinical psychologists, one health psychologist and two psychiatrists) evaluated all the questions proposed to be included in the questionnaire, with respect to face validity, content validity, and comprehensiveness. They rated the meaning and linguistic clarity towards instructions, items and response format. A dichotomous response choice (adequate-inadequate) was used by the raters to assess clarity and content. Items that received "inadequate" by three reviewers were excluded (5 items due to lack of linguistic clarity, and 10 items due to content vagueness). Items that received "inadequate" by one or two reviewers were reassessed before final decision of exclusion or inclusion (3 items excluded). Items with similar content were merged (from 16 to 8 items). Items with ambiguous wording were rephrased. Eligible items were selected by full agreement among the panel members. Recommended changes were applied to the final version by the research team. Out of the 40 original questions, 14 were selected and formed the questionnaire to be tested in the pilot study.

Pilot Study

A pilot study was performed resulting to data from 30 participants (16 females; 14 males; M_{age} =34.32 years, SD=7.53) who completed the questionnaire twice, three weeks apart. Respondents were asked to rank their hesitancy to return back to common activities on a sliding scale of 0–10. The domains covering the most common activities were: working, socializing, traveling, health, and planning the future.

Results from the pilot study analysis helped reform the structure of the questionnaire and highlighted its reproducibility, as a test-retest correlation of 0.89 was obtained. Items with high correlations were merged. Specifically, three items (i.e. "I hesitate to visit crowded shops"; "I hesitate to visit malls"; and "I hesitate to participate in social events") were merged to item 4 (i.e. "I hesitate to visit crowded shops, malls or social events"). Furthermore, two items (i.e. "I hesitate to travel abroad"; and "I hesitate to travel domestically" were merged to item 12 (i.e. "I hesitate to travel"). Two items that were not relevant to all participants (i.e. "I hesitate to send my children to school"; "I hesitate to visit a playground with my children") were removed. Thus, the second draft of the HeQ consisted of 9 items.

To facilitate the cross-cultural use of the HeQ it was decided to also adopt the questionnaire in the English language. In this direction, one Greek native psychiatrist living in London and one Greek native pathologist living in Boston, with an excellent command of English, who were informed by the authors about the background and objectives of the HeQ, independently carried out forward translation of the HeQ into English. Then, the two translators discussed via a Zoom meeting and integrated the two translated versions into one. Finally, another psychiatrist, fluent in English did a back translation to Greek. The back-translated version was checked and approved by the authors of the original version. After the final proofreading, construction of the HeQ-English version was completed ("Appendix").

Main Study

The study was conducted online in November, 2020, using convenience sampling. A total of 538 individuals from the general Greek population completed the study. All participants were at least 18 years old and fluent in Greek according to the inclusion criteria. Only the participants who provided complete values on the self-report measures were included in the analysis; missing values on the demographic characteristics were not considered an exclusion criterion. All participants were asked to complete the questionnaires taking into account the COVID-19 health crisis. Ethical approval was granted from the Papageorgiou General Hospital Scientific Board (563/2020).

Measures

A set of questions was used to obtain socio-demographic characteristics including age, gender, educational level, region, and residential area. In addition, the study included the following scales:

Generalized Anxiety Disorder 2-Item (GAD-2; Kroenke et al., 2007; Skapinakis, 2007): GAD-2 is a very brief self-report scale for assessing core anxiety symptoms during a specified period of time. The scale consists of two-items rated on a four-level Likert-like scale ("0=not at all to 3=nearly every day"). It is a widely used screening tool in both clinical practice and academic research. Probable cases of GAD are detected using a cutoff score of 3 or greater with good sensitivity and specificity (Plummer et al., 2016). In this study GAD-2 demonstrated an overall Cronbach's alpha of 0.80.

Short Health Anxiety Inventory (SHAI; Leonidou & Panayiotou, 2016; Salkovskis et al., 2002): SHAI is a self-rated questionnaire widely used to assess levels of health concern and is also applicable for the identification of severe health anxiety or hypochondriasis. It contains 14 multiple-choice items related to health worries and awareness of ordinary and unusual bodily sensations, as well as a treatment process measure of four additional items that were not applicable to the present study. Each item includes four possible choice statements coded from 0 to 3. Higher mean scores signify greater severity of health anxiety. In this study the 14 items of SHAI demonstrated an overall Cronbach's alpha of 0.86.

COVID-19-Related Worry was investigated using a single-item question i.e. "I worry a lot about coronavirus-19" scored on a 10-point Likert-type scale. The higher score was considered indicative of elevated worry toward COVID-19. Single item measures, beyond their simplicity and time-effectiveness, provide reliable and valid information and have been successfully used for assessing anxiety, depression (Turon et al., 2019), health status and overall quality of life (Bowling, 2005). The question selection was based on previous research evaluations regarding the perceived negativity during the pandemic (Blekas et al., 2020).

Data Analysis

Descriptive statistics were used to report the sample characteristics. Internal consistency was assessed by Cronbach alpha coefficients (α), inter-item correlations and corrected item-total correlations. Concurrent validity was assessed by comparing the Pearson correlations between the HeQ and GAD-2. Exploratory analysis was used to explore the factorial structure. Confirmatory Factor Analysis (CFA) with maximum-likelihood (ML) estimation was performed to further assess the goodness of fit of the factor structure. Model fit was assessed using the following indices: Satorra–Bentler scaled χ^2 (SB χ^2), robust versions of Comparative Fit Index (CFI), Bentler–Bonnett Non-Normed Fit Index (NNFI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR). Data were analyzed using IBM SPSS Statistics for Windows,

version 26.0 (IBM Corp., Armonk, N.Y., USA) and CFA was conducted by SPSS-AMOS v.23 (Arbuckle, 2014).

Participants' characteristics	Frequency	%
Gender		
Male	119	22.1
Female	419	77.9
Age		
18–30	130	24.2
31–45	186	34.6
46–60	184	34.2
61–75	38	7.1
Education		
High school	4	.8
Lyceum	52	9.7
2-year graduate school	65	12.1
University	208	38.7
MSc	160	29.7
PhD	49	9.1
Relationship status		
Married	285	53.0
Serious relationship	79	14.7
Single	119	22.1
Divorced/separated	45	8.4
Widower	10	1.9
Region		
Aegean Islands	15	2.8
Crete	117	21.7
Epirus	24	4.5
Ionian Islands	19	3.5
Central Macedonia	159	29.6
Outside Greece	19	3.5
Peloponnese	6	1.1
Sterea Ellada	121	22.5
Thessaly	34	6.3
Thrace	24	4.5
Residence area		
Urban area	476	88.5
Small city	30	5.6
Rural area	32	5.9

Table 1Demographiccharacteristics

Results

The total sample (n=538) consisted of 419 females (77.9%) and 119 females (22.1%). The age of the respondents ranged from 18 to 75 years (M=34.63, SD=4.20). More details on demographics are presented in Table 1.

Factor Analysis

Data were randomly split into two subsamples of equal size to explore the structure of HeQ. Item analysis was carried out to provide evidence of reliability estimates. Principal Component Analysis (PCA) was performed on the first subsample (validation sample, n=269) to identify the underlying factor structure of HeQ. Kaiser–Meyer–Olkin (KMO) and Bartlett's Sphericity (BTS) tests showed that data were suitable for factors analysis [KMO=0.935; BTS: χ^2 (91)=2209.13; p < 0.001]. All variables had at least one correlation coefficient greater than 0.30 and appeared suitable for factor analysis. The value of the determinant for the correlation matrix was 0.0066, indicating that there was no multicollinearity in the data. The participant to item ratio for this analysis was approximately 26 to 1, where sample size was 269 and the number of variables included was 10. This indicated that the given sample size was sufficient to produce reliable results. Based on the scree plot and the Kaiser criterion for determining the number of significant factors, a unifactorial model was selected.

PCA showed that only one factor had eigenvalue greater than 1.00. The extracted factor accounted for 59.39% of the total variance with an eigenvalue of 5.94. The analysis yielded strong factor loadings, ranging from 0.60 (item 18) to 0.84 (item 4). The final items along with item means, standard deviations, PCA and CFA loadings are presented in Table 2. The highest mean pointing to highest hesitancy were found in items 3 ("I hesitate to shake hands or hug people"), 10 ("I hesitate to participate in indoor events") and 13 ("I hesitate to travel").

Item	М	SD	h^2	r _{iF}	h^2	r _{iF}
1. I hesitate to go to work	3.60	2.78	0.55	0.67	0.47	0.73
2. I hesitate to shake hands or hug people	6.70	2.90	0.51	0.69	0.54	0.66
3. I hesitate to meet people who belong to vulnerable groups	6.61	2.96	0.58	0.65	0.62	0.69
4. I hesitate to visit crowded shops, malls or social events	5.06	3.10	0.69	0.84	0.61	0.79
10. I hesitate to participate in indoor events	6.20	3.23	0.71	0.73	0.64	0.76
12. I hesitate to travel	7.28	1.99	0.55	0.76	0.49	0.71
13. I hesitate to plan for future activities or social events (time off, doctor's visits, etc.)	5.48	3.00	0.49	0.72	0.51	0.69
17. I hesitate to participate in meetings with people I don't know	5.13	3.18	0.61	0.75	0.70	0.70
18. I hesitate to spend money	4.17	2.75	0.42	0.60	0.41	0.69

Table 2 Hesitancy questionnaire, descriptives, PCA and CFA loadings

M mean, *SD* standard deviation, h^2 explained variance, r_{iF} factor loadings, *PCA* principal component analysis, *CFA* confirmatory factor analysis

Confirmatory Factor Analysis

CFA was run to confirm whether the factor structure emerged from the PCA replicated on the second subsample (calibration sample, n=269). Although the results of the Chi-square goodness of fit test were significant, $\chi^2(20)=51.87$, p<0.001, the RMSEA index [RMSEA=0.07, 90% CI=(0.04, 0.09)], the CFI (CFI=0.97), the TLI (TLI=0.96), and the SRMR (SRMR=0.04), were all indicative of a good model fit. CFA loadings are presented in Table 2. Based on the results of PCA and CFA, a unifactorial model was elected for HeQ.

Cronbach's alpha coefficient of the scale was $\alpha = 0.89$, indicating good reliability. Results of item analysis are presented in Table 3. Inter-correlations of the scale ranged from r=0.290 to r=0.676, and were positive and statistically significant (p < 0.001).

Concurrent validity was supported by the significant correlation with GAD-2 (r=0.244, p<0.001). Significant correlations were also presented after the correlation with COVID-related worry (r=0.623, p<0.001) and SHAI (r=0.428, p<0.001). Discriminant validity was explored by examining the mean differences between participants with low anxiety and high anxiety. Participants with high anxiety and high health anxiety symptomatology had statistically significant higher scores in hesitancy than those who reported low anxiety or health anxiety (Table 4).

Finally, a general linear model was run to explore the associations between the basic variables. The significance values of the main effects, for the variables "gender" (Male, B = -3.589, p = 0.011), "COVID-19-related worry" (B = 3.465, p = 0.001) and "SHAI total score" (B = 0.426, p = 0.011), were less than 0.05, indicating that their effects contributed to the model, with partial η^2 indicating that the effect of "COVID-19-related worry" accounted for a greater amount of variation (Table 5).

The greatest hesitancy was observed in older adults for both genders (males, M = 40.86, SD = 15.24; females, M = 49.34, SD = 14.74). Women in general appeared more hesitant than men scoring higher (males, M = 36.13, SD = 15.25; females, M = 42.63, SD = 17.31) with a statistically significant difference [t(536) = -3.706, p = 0.001).

Discussion

The HeQ proved to have adequate psychometric properties. The final version contains 9 items and has a unifactorial structure in the current sample. Total scores are calculated by averaging the scores of all items; higher scores indicate greater hesitancy ("Appendix"). Correlation with anxiety as assessed by GAD-2 proved to be significant but low, implying that the two scales measure two different concepts. Significant correlations were also presented with COVID-19-related worry and SHAI, suggesting that hesitancy during the current period is influenced by health concerns and not general anxiety.

More hesitant participants proved to be females and older adults. In accordance with relevant research, women over-report symptoms during health crises (Mayor,

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total cor- relation	Cronbach's alpha if item deleted
1. I hesitate to go to work	43.55	315.980	.540	.87
2. I hesitate to shake hands or hug people	41.75	295.477	.675	.86
3. I hesitate to meet people who belong to vulnerable groups	40.51	310.878	.567	.87
4. I hesitate to visit crowded shops, malls or social events	42.26	291.105	.712	.85
10. I hesitate to participate in indoor events	41.49	295.430	.679	.86
12. I hesitate to travel	40.10	304.386	.610	.86
13. I hesitate to plan for future activities or social events (time off, doctor's visits, etc.)	41.89	297.667	.672	.86
17. I hesitate to participate in meetings with people I don't know	42.43	285.448	.781	.85
18. I hesitate to spend money	42.94	332.336	.568	.88

Table 3 Item-total statistics

	HeQ mean	SD	Statistic, p value
Low anxiety $(n=430)$	47.54	17.40	t(536) = 4.39, p = .001
High anxiety $(n = 108)$	69.60	16.64	
Low health anxiety $(n=516)$	40.68	16.85	t(536) = 3.43, p = .001
High health anxiety $(n=22)$	53.31	18.24	

Table 4 Hesitancy means and standard deviations among anxious and non-anxious participants

Table 5 General linear model for hesitancy

Source	Type III sum of squares	df	Mean Square	F	p value	Partial η^2	
Corrected model	66,565.419 ^a	13	5120.417	29.779	.000	.426	
Intercept	4768.245	1	4768.245	27.731	.000	.050	
Gender	1140.007	1	1140.007	6.630	.010	.013	
Age	474.132	3	158.044	.919	.431	.005	
Education	2019.962	6	336.660	1.958	.070	.022	
COVID-19-related worry	34,465.315	1	34,465.315	200.441	.000	.277	
GAD-2 total	50.435	1	50.435	.293	.588	.001	
SHAI total	3117.289	1	3117.289	18.129	.000	.034	
Error	89,756.579	522	171.947				
Total	1,068,277.000	536					
Corrected Total	156,321.998	535					

 ${}^{a}R^{2}$ = .426 (Adjusted R² = .412)

2015). In this particular health crisis, women are usually responsible for caring for the elderly and the children, something that increases their burden (Power, 2020). As expected, older adults were more hesitant, as greater age is associated with a higher prevalence of underlying risk factors for severe COVID-19 disease and increased mortality (Ioannidis et al, 2020; Parlapani et al., 2020a, 2020b).

This new tool could add to the COVID-19 research field as it is crucial to develop structured and validated instruments to address the psychosocial impact of the pandemic and to contribute to the assessment and management of hesitant citizens (Cortez et al., 2020; Das et al., 2020). Any identified concerns need more in-depth understanding of the nature of hesitancy as well as of the personality traits of those who are hesitating (Larson et al., 2015).

As a result of the current medical crisis, people formed new habits, adhering to several measures to protect themselves and their loved ones (Mertens et al., 2020). They also had to adapt to new working environments and new forms of communication. While this new reality could lead to resilience and post-crisis growth (Polizzi et al., 2020; Tamiolaki & Kalaitzaki, 2020), there are some people that appear to be stuck in their indecisiveness and hesitancy.

Indecision concerns the rational dialectic, whereas hesitation concerns the psychosocial dialectic. Cognitive dissonance -the basis of hesitancy- forces us to justify a choice and dismiss any alternative, as an effort to alleviate the tension caused by indecisiveness (Festinger, 1957). Internal factors like personality characteristics, e.g. risk-taker vs risk-averse (Doob, 1990; Lauriola et al., 2005), vulnerability of getting ill from SARS-CoV-2, and preexisting psychopathology, e.g. health anxiety, may contribute to increased hesitancy. External factors, such as the financial situation, or the impact of coronavirus on one's home region, could also have an effect on hesitancy.

The basis of decision making is the evaluation of data and information (Gold & Shadlen, 2007; Stansfield et al., 2006). During previous pandemics, daily life was not impacted as much as today, since information did not spread instantly and constantly. Misinformation complicates the decision-making process, as it has various sources such as rumors and fiction, politicians, and the media (Lewandowsky et al., 2012). Those are all factors that influence the way people perceive the likelihood and severity of a disease and affect their decision-making process towards their reactions, adherence to the measures and return to pre-pandemic activities.

Even more so, as trying to lessen the discomfort they feel by being hesitant, people tend to interpret any incoming information in a convenient way to support their decision (Garcia-Alamino, 2020), getting trapped in confirmation bias. In the absence of a vaccine and with pending questions hovering over herd immunity, the best way to avoid contracting the virus is by distancing themselves from other people as much as possible. Over-focusing on details about cases and deaths supports the belief that home is the absolute safe place, making it difficult to adapt to other environments. Overconfidence in a belief detracts from reasoning, because logical errors are intuitive and seem reasonable (Digdon, 2020). This underlying mechanism impacts on communication messages, triggering the propagation of misinformation that diffuses from one person to another, resulting either to lack of adherence or to the development of inconsistent theories.

If contributing factors lead to realistic thinking without cognitive distortions, it is easier to overcome hesitancy and develop new strategies to address any concerns, without avoiding behaviors. If this is not the case and contributing factors lead to distorted thinking, then prolonged hesitancy could lead to impaired mental health and anxiety symptoms (Fig. 1).

This study provided a tool to informed understanding of how citizens perceive the new normality after the COVID-19 pandemic. If not appropriately addressed, hesi-tancy may increase stress levels and result in mental health or socialization issues.

The HeQ could be of value in mental health screening as it could help identifying the underlying mechanisms of anxiety such as health, social, generalized and non-specific anxiety, conditions characterized by dysfunctional decision-making processes.

Similarly, the study rational could apply to several aspects of health care since hesitancy is intervening in health decision-making in a different manner. For instance, there are patients that are hesitant to disclose medical information (e.g. substance use), visit doctors despite developing symptoms (e.g. urine incontinence), receive a medical regimen or a vaccine, (e.g. COVID-19 vaccine), undertake a medical procedure (e.g. colonoscopy) or even return to normal habits after a medical event (e.g. bone fracture, or coronary artery bypass grafting).



Fig. 1 COVID-19 hesitancy

Altogether, the HeQ is an instrument that could be used in its current form as a screening tool considering that it can reveal a common psychological difficulty that may be affecting one's psychological well-being. Prospectively, disease specific versions could be developed to unveil similar underlying mechanisms impacting physical health. Such versions could contribute to early detection of hesitant individuals and to tailored communication strategies to understand their concerns and address their needs.

Therefore, more research is needed to explore hesitancy and to accordingly provide the means to overcome it, because even when the first vaccines and therapeutics become widely available, no one really knows how long it will be before resuming our social and work life without discomfort.

A basic limitation of the current study was the recruitment of a convenience sample from an online survey. An additional limitation is the study's cross-sectional design and lack of data on non-respondents. Lastly, women were overrepresented, something that may have influenced gender comparisons.

The results of this study highlighted the validity of HeQ, a short and simply scored self-administered questionnaire targeting hesitancy to return to normality. The questionnaire was developed in the COVID-19 era, but it could also be used in relation with other medical crises, both individual and social. Future research could compare the HeQ with COVID-19-related anxiety scales such as the COVID Stress Scales (CSS; Taylor et al., 2020) or the Obsessive–Compulsive Inventory-12 items (OCI-12; Abramovitch et al., 2021) to explore if increased hesitancy leads to increased COVID-19-related anxiety or health anxiety.

Appendix

The Hesitancy Questionnaire (HeQ)

Rate your hesitancy about resuming your normal daily activities amid the COVID-19 outbreak. Mark just ONE number for each statement using the 10-point scale below. Please rate each item in terms of how well it describes you.

-													
1.	I hesitate to go to work												
	Not at all	ο	0	о	ο	ο	о	0	ο	0	0	Extromoly	
	NULALAII	1	2	3	4	5	6	7	8	9	10	extremely	
2	l hesitate to	chako	hands	orhug	neonle								
2.	Theshate to	-	-	-	-	_	_	_	_	_	_		
	Not at all	0	0	0	0	0	0	0	0	0	0	Extremely	
		1	2	5	4	5	•	/	•	9	10		
3.	I hesitate to	meet	people	who be	elong t	o vuln	erable	groups					
	Not at all	0	0	0	0	0	0	0	0	0	0	Extremely	
	Not at an	1	2	3	4	5	6	7	8	9	10		
4.	. I hesitate to visit crowded shops, malls or social events												
		0	0	0	0	0	0	0	0	0	0		
	Not at all	1	2	3	4	5	6	7	8	9	10	Extremely	
-	l hasitata ta	nortici	noto in	indoo									
э.	i nesitate to	partici	patein	indooi	event	5							
	Not at all	0	0	0	0	0	0	0	0	0	0	Extremely	
		1	2	3	4	5	6	7	8	9	10		
6.	I hesitate to	travel											
	Not at all	0	0	0	0	0	0	0	0	0	0	Extromoly	
	Notatan	1	2	3	4	5	6	7	8	9	10	Extremely	
7.	I hesitate to	plan fo	or futu	re activ	ities or	social	events	s (time	off, do	ctor's v	visits, et	tc.)	
		0	0	0	0	0	0	0	0	0	0		
	Not at all	1	2	3	4	5	6	7	8	9	10	Extremely	
0	I hasitata ta	nortici	inata in	mosti				n'+ kno					
о.	Thesitate to	partici	ipate ir	meeu	ngs wit	n peop	Jie I do	πικησ	w				
	Not at all	0	0	0	0	0	0	0	0	0	0	Extremely	
		1	2	3	4	5	6	7	8	9	10		
9.	I hesitate to	spend	mone	/									
	Not at all	0	0	0	0	0	0	0	0	0	0	Extromoly	
	NOLALAII	1	2	3	4	5	6	7	8	9	10	catternery	

Funding This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations

Conflict of interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Statement Ethical approval was granted from the Papageorgiou General Hospital Review Board (563/2020). This study was prepared in accordance with the Helsinki Declaration.

Consent to Participate Participants provided informed consent.

References

- Abramovitch, A., Abramowitz, J. S., & McKay, D. (2021). The OCI-12: A syndromally valid modification of the obsessive-compulsive inventory-revised. *Psychiatry Research*, 298, 113808. https://doi. org/10.1016/j.psychres.2021.113808.
- Arbuckle, J. L. (2014). Amos 23.0 user's guide. IBM SPSS.
- Blekas, A., Voitsidis, P., Athanasiadou, M., Parlapani, E., Chatzigeorgiou, A. F., Skoupra, M., Syngelakis, M., Holeva, V., & Diakogiannis, I. (2020). COVID-19: PTSD symptoms in Greek health care professionals. *Psychological Trauma: Theory, Research, Practice, and Policy, 12*(7), 812–819. https://doi.org/10.1037/tra0000914.
- Bowling, A. (2005). Just one question: If one question works, why ask several? *Journal of Epidemiology* & Community Health, 59, 342–345. https://doi.org/10.1136/jech.2004.021204.
- Cella, P., Voglino, G., Barberis, I., Alagna, E., Alessandroni, C., Cuda, A., D'Aloisio, F., Dallagiacoma, G., De Nitto, S., Di Gaspare, F., Gallipoli, O., Gentile, L., Kundisov, L., Navaro, M., Provenzano, S., Santangelo, O. E., Stefanizzi, P., & Gianfredi, V. (2020). Resources for assessing parents' vaccine hesitancy: A systematic review of the literature. *Journal of Preventive Medicine and Hygiene*, *61*(3), E340–E373. https://doi.org/10.15167/2421-4248/jpmh2020.61.3.1448.
- Cortez, P. A., Joseph, S. J., Das, N., Bhandari, S. S., & Shoib, S. (2020). Tools to measure psychological impact of COVID-19 pandemic: What do we have in the platter? *Asian Journal of Psychiatry*. https://doi.org/10.1016/j.ajp.2020.102371.
- Das, N., Narnoli, S., Kaur, A., & Sarkar, S. (2020). Pandemic, panic, and psychiatrists-What should be done before, during, and after COVID-19? Asian Journal of Psychiatry. https://doi.org/10.1016/j. ajp.2020.102206.
- Digdon, N. (2020). The Little Albert controversy: Intuition, confirmation bias, and logic. *History of Psy*chology, 23(2), 122–131. https://doi.org/10.1037/hop0000055.
- Doob, L. W. (1990). Contributions in psychology, No. 15. Hesitation: Impulsivity and reflection. Greenwood Press.
- Dror, A. A., Eisenbach, N., Taiber, S., Morozov, N. G., Mizrachi, M., Zigron, A., Srouji, S., & Sela, E. (2020). Vaccine hesitancy: The next challenge in the fight against COVID-19. *European Journal of Epidemiology*, 35(8), 775–779. https://doi.org/10.1007/s10654-020-00671-y.
- Dubé, E., Laberge, C., Guay, M., Bramadat, P., Roy, R., & Bettinger, J. A. (2013). Vaccine hesitancy: An overview. *Human Vaccines & Immunotherapeutics*, 9(8), 1763–1773. https://doi.org/10.4161/ hv.24657.
- Economides, G., Papageorgiou, D., & Philippopoulos, A. (2020). Hellenic observatory discussion papers on Greece and Southeast Europe: Macroeconomic policy lessons for Greece (GreeSE Paper No. 152). The London School of Economics and Political Science: Hellenic Observatory European Institute. https://www.lse.ac.uk/Hellenic-Observatory/Assets/Documents/Publications/GreeSE-Papers/GreeSE-No152.pdf.
- Festinger, L. (1957). A theory of cognitive dissonance. Stanford University Press.
- Fountoulakis, K. N., Apostolidou, M. K., Atsiova, M. B., Filippidou, A. K., Florou, A. K., Gousiou, D. S., Katsara, A. R., Mantzari, S. N., Padouva-Markoulaki, M., Papatriantafyllou, E. I., Sacharidi, P. I., Tonia, A. I., Tsagalidou, E. G., Zymara, V. P., Prezerakos, P. E., Koupidis, S. A., Fountoulakis, N. K., & Chrousos, G. P. (2020). Self-reported changes in anxiety, depression and suicidality during the COVID-19 lockdown in Greece. *Journal of Affective Disorders*, 279, 624–629. https://doi.org/10.1016/j.jad.2020.10.06.
- Garcia-Alamino, J. M. (2020). Human biases and the SARS-CoV-2 pandemic. Intensive & Critical Care Nursing, 58, Article 102861. https://doi.org/10.1016/j.iccn.2020.102861.
- Gold, J. I., & Shadlen, M. N. (2007). The neural basis of decision making. Annual Review of Neuroscience, 30, 535–574. https://doi.org/10.1146/annurev.neuro.29.051605.113038.

- Gontkovsky, S. T., Kreiner, D. S., & Ryan, J. J. (2021). Principal components analysis of the Hesitation Scale: More than just social support seeking. *Clinical Psychology & Psychotherapy*, 28(1), 233– 238. https://doi.org/10.1002/cpp.2492.
- Hawton, K., Marzano, L., Fraser, L., Hawley, M., Harris-Skillman, E., & Lainez, Y. X. (2020). Reporting on suicidal behaviour and COVID-19—Need for caution. *The Lancet Psychiatry*. https://doi.org/10. 1016/S2215-0366(20)30484-3.
- Hunink, M., Weinstein, M., Wittenberg, E., Drummond, M., Pliskin, J., Wong, J., & Glasziou, P. (2014). Decision making in health and medicine: Integrating evidence and values (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9781139506779.
- Ioannidis, J. P., Axfors, C., & Contopoulos-Ioannidis, D. G. (2020). Population-level COVID-19 mortality risk for non-elderly individuals overall and for non-elderly individuals without underlying diseases in pandemic epicenters. *Environmental Research*, 188, Article 109890. https://doi.org/10. 1016/j.envres.2020.109890.
- Kroenke, K., Spitzer, R. L., Williams, J. B., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine*, 146(5), 317–325. https://doi.org/10.7326/0003-4819-146-5-200703060-00004.
- Larson, H. J., Jarrett, C., Schulz, W. S., Chaudhuri, M., Zhou, Y., Dube, E., Schuster, M., MacDonald, N. E., Wilson, R., & SAGE Working Group on Vaccine Hesitancy. (2015). Measuring vaccine hesitancy: The development of a survey tool. *Vaccine*, 33(34), 4165–4175. https://doi.org/10.1016/j. vaccine.2015.04.037.
- Lauriola, M., Russo, P. M., Lucidi, F., Violani, C., & Levin, I. P. (2005). The role of personality in positively and negatively framed risky health decisions. *Personality and Individual Differences*, 38(1), 45–59. https://doi.org/10.1016/j.paid.2004.03.020.
- Leonidou, C., & Panayiotou, G. (2016). Assessing health anxiety with the Greek SHAI: Psychometric properties and identification of correlates and predictors. *European Health Psychologist*, 18(S), 526.
- Lewandowsky, S., Ecker, U. K., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformation and its correction: Continued influence and successful debiasing. *Psychological Science in the Public Interest*, 13(3), 106–131. https://doi.org/10.1177/1529100612451018.
- Mayor, E. (2015). Gender roles and traits in stress and health. Frontiers in Psychology, 6, 779. https://doi. org/10.3389/fpsyg.2015.00779.
- Merriam-Webster. (n.d.) Hesitate. In *Merriam-Webster.com dictionary*. Retrieved November 27, 2020, from https://www.merriam-webster.com/dictionary/hesitate.
- Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders*, 74, Article 102258. https://doi.org/10.1016/j.janxdis.2020.102258.
- Panagiotidis, P., Rantis, K., Holeva, V., Parlapani, E., & Diakogiannis, I. (2020). Changes in alcohol use habits in the general population, during the COVID-19 lockdown in Greece. *Alcohol and Alcoholism*, 55(6), 702–704. https://doi.org/10.1093/alcalc/agaa092.
- Parlapani, E., Holeva, V., Nikopoulou, V. A., Sereslis, K., Athanasiadou, M., Godosidis, A., Stephanou, T., & Diakogiannis, I. (2020a). Intolerance of uncertainty and loneliness in older adults during the COVID-19 Pandemic. *Frontiers in Psychiatry*, 11, Article 842. https://doi.org/10.3389/fpsyt.2020. 00842.
- Parlapani, E., Holeva, V., Voitsidis, P., Blekas, A., Gliatas, I., Porfyri, G. N., Golemis, A., Papadopoulou, K., Dimitriadou, A., Chatzigeorgiou, A. F., Bairachtari, V., Patsiala, S., Skoupra, M., Papigkioti, K., Kafetzopoulou, C., & Diakogiannis, L. (2020b). Psychological and behavioral responses to the COVID-19 pandemic in Greece. *Frontiers in Psychiatry*, 11, Article 821. https://doi.org/10.3389/ fpsyt.2020.00821.
- Plummer, F., Manea, L., Trepel, D., & McMillan, D. (2016). Screening for anxiety disorders with the GAD-7 and GAD-2: A systematic review and diagnostic metaanalysis. *General Hospital Psychiatry*, 39, 24–31. https://doi.org/10.1016/j.genhosppsych.2015.11.005.
- Polizzi, C., Lynn, S. J., & Perry, A. (2020). Stress and coping in the time of covid-19: Pathways to resilience and recovery. *Clinical Neuropsychiatry*, 17(2), 59–62. https://doi.org/10.36131/CN20200204.
- Power, K. (2020). The COVID-19 pandemic has increased the care burden of women and families. Sustainability: Science, Practice and Policy, 16(1), 67–73. https://doi.org/10.1080/15487733.2020. 1776561.
- Puri, N., Coomes, E. A., Haghbayan, H., & Gunaratne, K. (2020). Social media and vaccine hesitancy: new updates for the era of COVID-19 and globalized infectious diseases. *Human Vaccines & Immunotherapeutics*. https://doi.org/10.1080/21645515.2020.1780846.

- Sakka, S., Nikopoulou, V., Bonti, E., Tatsiopoulou, P., Karamouzi, P., Giazkoulidou, A., Tsipropoulou, V., Parlapani, E., Holeva, V., & Diakogiannis, I. (2020). Assessing test anxiety and resilience among Greek adolescents during COVID-19 pandemic. *Journal of Mind and Medical Sciences*, 17(2), 173– 178. https://doi.org/10.22543/7674.72.P173178.
- Salkovskis, P. M., Rimes, K. A., Warwick, H. M. C., & Clark, D. M. (2002). The Health Anxiety Inventory: Development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine*, 32(5), 843–853. https://doi.org/10.1017/S0033291702005822.
- Shapiro, G. K., Tatar, O., Dube, E., Amsel, R., Knauper, B., Naz, A., Perez, S., & Rosberger, Z. (2018). The vaccine hesitancy scale: Psychometric properties and validation. *Vaccine*, 36(5), 660–667. https://doi.org/10.1016/j.vaccine.2017.12.043.
- Skapinakis, P. (2007). The 2-item Generalized Anxiety Disorder scale had high sensitivity and specificity for detecting GAD in primary care. *BMJ Evidence-Based Medicine*, 12(5), 149. https://doi.org/10. 1136/ebm.12.5.149.
- Skapinakis, P., Bellos, S., Oikonomou, A., Dimitriadis, G., Gkikas, P., Perdikari, E., & Mavreas, V. (2020). Depression and its relationship with coping strategies and illness perceptions during the COVID-19 lockdown in Greece: A cross-sectional survey of the population. *Depression Research* and Treatment, 2020, Article 3158954. https://doi.org/10.1155/2020/3158954.
- Stansfield, S. K., Walsh, J., Prata, N., & Evans, T. (2006). Information to improve decision making for health. In D.T Jamison, J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, D. B. Evans, P. Jha, A. Mills, & P. Musgrove (Eds.), *Disease control priorities in developing countries* (2nd ed., pp. 1017–1130). The World Bank and Oxford University Press.
- Tamiolaki, A., & Kalaitzaki, A. E. (2020). "That which does not kill us, makes us stronger": COVID-19 and Posttraumatic Growth. *Psychiatry Research*, 289, Article 113044. https://doi.org/10.1016/j. psychres.2020.113044.
- Taylor, S., Landry, C. A., Paluszek, M. M., Fergus, T. A., McKay, D., & Asmundson, G. J. (2020). Development and initial validation of the COVID Stress Scales. *Journal of Anxiety Disorders*, 72, 102232. https://doi.org/10.1016/j.janxdis.2020.102232.
- Tsipropoulou, V., Nikopoulou, V. A., Holeva, V., Nasika, Z., Diakogiannis, I., Sakka, S., Kostikidou, S., Varvara, C., Spyridopoulou, E., & Parlapani, E. (2020). Psychometric properties of the Greek version of FCV-19S. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/ s11469-020-00319-8.
- Turon, H., Carey, M., Boyes, A., Hobden, B., Dilworth, S., & Sanson-Fisher, R. (2019). Agreement between a single-item measure of anxiety and depression and the Hospital Anxiety and Depression Scale: A cross-sectional study. *PloS One*, 14(1), Article e0210111. https://doi.org/10.1371/journal. pone.0210111.
- Voitsidis, P., Gliatas, I., Bairachtari, V., Papadopoulou, K., Papageorgiou, G., Parlapani, E., Syngelakis, M., Holeva, V., & Diakogiannis, I. (2020a). Insomnia during the COVID-19 pandemic in a Greek population. *Psychiatry Research*, 289, Article 113076. https://doi.org/10.1016/j.psychres.2020. 113076.
- Voitsidis, P., Nikopoulou, V. A., Holeva, V., Parlapani, E., Sereslis, K., Tsipropoulou, V., Karamouzi, P., Giazkoulidou, A., Tsopaneli, N., & Diakogiannis, I. (2020b). *The mediating role of fear of COVID-*19 in the relationship between intolerance of uncertainty and depression. Psychology and Psychotherapy: Theory, Research and Practice. https://doi.org/10.1111/papt.12315.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.