

How to Cite:

Al-Qahtani, D. M. H., Katatbh, Y. M. S., & Al-Ahmed, A. S. N. (2022). Health practitioners' personality patterns as determinants of psychological immunity against the COVID-19 pandemic. *International Journal of Health Sciences*, 6(S5), 1157–1173. <https://doi.org/10.53730/ijhs.v6nS5.8832>

Health practitioners' personality patterns as determinants of psychological immunity against the COVID-19 pandemic

Dhafer Mohammed Hamad Al-Qahtani

Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia

Email: dalqahtani@imamu.edu.sa

Yahya Mubarak Suleiman Katatbh

Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia

Email: ymkatatbh@imamu.edu.sa

Ahmed Saad Nasser Al-Ahmed

Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia

Email: asalahmed@imamu.edu.sa

Abstract---The study aimed to investigate whether or not health practitioners' personality patterns act as determinants of immunity against the COVID-19 pandemic. The study drew on Ashton and Lee's (2009) Personality Patterns Scale and Natour's (2020) Psychological Immunity Scale. A sample of 240 respondents completed the two scales. The results of the study indicated that there were no differences in some dimensions of psychological immunity of the pandemic health practitioners during the COVID-19 among the community members depending on the gender, job position, and academic degree variable. Meanwhile, the study found that the job position, academic degree, age, and workplace variables were relate to differences in some personality patterns. The differences related to all dimensions were in favor of the health practitioners with the highest years of experience. Finally, a high correlation coefficient of 0.776 was also found between psychological immunity with its dimensions (hardness, sources, and optimism) and health practitioners' personality patterns during the COVID-19 pandemic. The value of the coefficient of determination ($0.603 = R^2$) indicates that psychological immunity accounts for 60.3% of the variation in personality patterns, and the existence of an effect of psychological immunity on health practitioners' personality patterns during the COVID-19 pandemic..

Keywords---Personality Patterns, Psychological Immunity, COVID-19 pandemic, Health Practitioners.

Introduction

While the world has grappled with the COVID-19, frontline health care workers have been liable to the most vulnerable to the pandemic infection and developing mental health problems. The many risks to the welfare of workers in health care are still poorly understood. The novel Coronavirus (COVID-19) that emerged in Wuhan, China, has led to an unprecedented pandemic. Little has been known about the implications for the mental health and well-being of health workers. Therefore, empirical evidence from studies during COVID-19 and similar previous epidemics can help report this, and the best way to deal with it.

Epidemiological studies have demonstrated that past infectious diseases have caused long-term and persistent psychopathological consequences among frontline health care workers. For example, during and after the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003, frontline healthcare professionals reported a lack of support in the workplace, and having acute psychological symptoms such as acute shortness. In 2015, during the outbreak of Middle East Respiratory Syndrome, medical staff had an increased long-term risk of developing post-traumatic stress disorder (PTSD), and this led to increased absenteeism at the beginning of the spread of the virus. In addition, hospitals had a limited number of personal protective equipment, and the guidelines or treatment were not well established. Consequently, many professionals and workers in the health care sector felt confused and unprepared for the appropriate treatment of patients infected with the new virus. They experienced feelings of uncertainty, helplessness, isolation, and difficulties in managing the workload, were vulnerable to loneliness and perception of stigma and strict expectations. Such symptoms can lead to many emotional and psychological consequences such as anger, anxiety, restlessness, and tension associated with the uncertainty of the outbreak (Giusti et al., 2020). The constant fear of infection or death, as well as seeing others die, are examples of the effects that epidemics have on mental health. Thus, infected people may be attacked and marginalized because they are seen as "contaminated" (Wang & Wang, 2020). Moreover, this vulnerability could also be related to the mental health issues of this group (El Hayek et al., 2020)

Since emergencies also affect cognitive evaluation, long-term exposure to such negative emotions reduces immune function and destroys the balance of normal physiological mechanisms. The deterioration of psychological immunity during COVID-19 is termed as "reduced psychological capital" and this applies to the deterioration related to an individual, an organization, or a community. The dynamic shifts in lifestyle have triggered the constant pursuit of excellence that led to the emergence of the concept of "psychological immunity" which is the ability to deal with negative issues and stressful situations and recover from them, as well as to overcome psychiatric problems and illnesses. Furthermore, the concept of psychological immunity is related to individuals' self-efficacy mechanism in maintaining their mental health and recovering from psychological problems, even in unpredictable situations. Literature indicates the role of psychological immunity in enhancing resilience to deal with unfavorable conditions (Ahuja, 2020).

The concept of the association between the brain and the peripheral organs (the body-mind system), especially between the endocrine system and the immune system, can be traced back to ancient times. The new field of neuroimmune modulation or psychoneuroimmunology has recently attracted increasing research interest (Alghamdi et al., 2021). The individual's personality traits may be the key observable factor associated with stress, loneliness, low level of psychological immunity, and its impact on the individual's ability to function during the COVID-19 pandemic (Taylor, 2015). One of the main classifications that have been used to categorize and activate personality traits is the five-factor (Big Five) model. This model describes personality as a system with neuroticism, extraversion, openness to experience, acceptability, and conscientiousness as the highest rank (Ikizer et al., 2020). Such traits can change in response to distress and treatment of distress, respectively. The outbreak of the Coronavirus and measures to control its spread have disrupted most aspects of life, including basic motivations (such as relationships and work) and daily activities that were central to working on adult personality development (Denissen et al., 2019).

Researching the impact of the pandemic and the relationship of this impact with personality patterns is important for three reasons. First, this helps in identifying groups at risk, and the psychological treatments needed even in the post-COVID period. Second, we will be able to understand how individuals with different personalities react to crises such as lockdown, and thus we could shed more light on the link between personality and mental health. Third, such research also helps in clarifying the unintended consequences of COVID-19 restrictions and guiding relevant decision-making.

The five-factor personality styles are openness, conscientiousness, extraversion, agreeableness, and neuroticism. It is important to study how personality influences self-well-being, psychological immunity and some personality characteristics and basic data, and how personality traits has affected the individual's mental health during the epidemic period (Proto & Zhang, 2021). The pandemic has provided a unique natural experiment to assess the impact of factors such as personality traits and lifestyle changes on the level of psychological immunity. For example, neuroticism refers to the tendency of an individual to experience a negative impact such as fear, sadness or anger. Individuals higher in neuroticism often show impulsivity, lower self-esteem, and poor coping skills. In contrast, extraversion relates to experiencing positive emotions. Individuals higher in extraversion often have a search for arousal, while conscientiousness is associated with the organization, planning, achievement, and restraint. Moreover, openness is associated with creativity, intellect, curiosity, and communication with inner feelings. Those who are higher incompatibility are often described as altruistic, empathetic, and reliable.

The present study sought to examine the personality patterns and psychological immunity levels of health practitioners working with patients during the COVID-19 pandemic in care centers, hospitals, and psychological service centers. In addition, the study is concerned with investigating the resulting repercussions on the mental abilities and general mental health of the individual, and how these relate to the nature of the individual and his daily practices. The intrinsic relationship between personality patterns and the five major factors in

them was observed through the psychological immunity of this category during the COVID-19 pandemic (Balling et al., 2021).

Previous Studies

Several previous studies have addressed the variables dealt with in the current study during the COVID-19 pandemic. For example, Ren et al. (2021) examined the psychological responses of 593 nurses who were working with patients during the COVID-19 pandemic in China. Their study indicated that these nurses suffered from depression and anxiety (31.2%, 18.3% compared to 13.8%, 5.9%)

Using a cross-sectional design, Kheirallah et al. (2021) studied the changes in 3000 female and male Jordanian medicine students' emotional reactions related to COVID- and to and examined the potential influence of social media utilization on their emotional distress. The results of the study indicated that a considerable proportion of the students reported "*increased negative emotional levels of anxiety (49.2%), worry (72.4%), depression (23.1%), panic (22.6%), and nervousness (38.2%) and decreased positive emotional levels of happiness (44.8%), joy (47.3%), and feelings of excitement (45.1%)*" (p.1). The study also found significant differences related to the students' gender and academic level.

Carvalho et al., (2020) examined how two extroversion and conscientiousness (personality traits) relate to engagement with social distancing and handwashing (two containment behaviours). Their study sample consisted of 715 Brazilian adults whose ages ranged from 18 to 78 years. Their study revealed that the respondents' higher extraversion scores correlated with lower means of their social distancing whereas higher the respondents' conscientiousness scores related to higher means in social distancing and handwashing measures. These results imply the importance of recognizing the influence of personal traits of extraversion and conscientiousness on one's engagement in COVID-19 containment measures.

On the other hand, Olashore et al. (2022) studied the psychosocial correlates of 355 health care workers' anxiety and depression in Botswana during the pandemic crisis. They conducted a cross-sectional study in five public-funded hospitals located in three regions in Botswana, and depended upon the 44-item neuroticism subscale in the Big Five Inventory. The study found that 14 % of the participants experienced anxiety, whereas 23% of experienced depression. The multiple regression analyses also indicated that neuroticism was a predictor of depression and anxiety, and that the lower educational status correlated with the health care workers' anxiety, whereas younger age predicted their depression. The results also showed that resilience had negative correlations with the health care workers' depression and anxiety disorders. This study emphasized the need for providing healthcare workers with interventions to help them overcome these psychological disorders during this pandemic.

Dolić et al. (2022) also conducted a study in which they investigate the pandemic-related experiences related to sickness absence taken by nurses who were working in COVID-19 and non-COVID-19 health care sections, and tried to identify the interaction between nurses' post-traumatic stress disorder symptoms

and their personality traits and coping strategies. The sample of this study consisted of 380 participants participated who completed coping strategies. The sample of this study consisted of 380 participants participated who completed four instruments measuring the factors covered by the study. The results of this study revealed that the nurses who were working in non-COVID-19 health care sections had more fear of infection and post-traumatic stress disorder symptoms, and were more socially distanced than their peers in COVID-19 health care sections. The study concludes that that is likely that the nurses used sickness absence as a coping strategy to avoid potential pandemic professional experiences, and this also seems to have correlated with their personality traits.

Finally, Suprpto, Linggi, and Arda (2022) looked at the relationships between nursing students' personality traits and their perceived stress awareness in clinical environments during the COVID-19 pandemic crisis. Their study sample were 215 nursing students who completed a demographic questionnaire, a personality trait inventory, and a stress scale. They found the nursing students had a high level of stress, and that their neuroticism personality traits correlated positively with their perceived stress. On the other hand, the students' extraversion and agreeableness personality traits were negatively associated with their perceived stress. The three authors conclude that hospital managements need to find ways for identifying nursing students who suffer from stress in order to support their psychological readiness in clinical environments during the pandemic crisis.

Problem of the Study

The research team members noted through the nature of their work that some psychological disorders health practitioners suffered from as a result of dealing with the pandemic, especially at its early waves. These symptoms include: panic attacks, infection fears, work pressures resulting from increased working hours, and fears of rapid spread. Some of these psychological disorders were also circulated and discussed in social media websites. Overall, the pandemic has negatively affected health practitioners in several different aspects, and the resulting symptoms have influenced their ability to deal positively and professionally with the crisis at their workplaces. These events had consequences upon health practitioners' psychological immunity, and affected their ability to confront the pandemic with high professionalism and different skills.

The present study is guided by the following three research questions:

1. To what extent does health practitioners' psychological immunity differ depending on the following demographic variables: job position, academic degree, years of experience, age, gender, and workplace?
2. To what extent do health practitioners' personality patterns differ depending on the following demographic variables: job position, academic degree, years of experience, age, gender, and workplace?
3. To what extent does personality patterns predict health practitioners' psychological immunity during the COVID-19 pandemic?

Instruments and Methods

Instruments

To fulfill the purpose of the study, the following scales were used:

The Personality Patterns Scale

This scale with its six factors of personality was developed by Ashton and Lee (2009). The study used the version translated into Arabic by Al-Qahtani (2021) to suit the local environment. The scale consists of the following six dimensions:

1. Honesty (10 items).
2. Emotionality (7 items).
3. Extraversion (9 items).
4. Acceptance (10 items).
5. Conscientiousness (9 items).
6. Openness to experience of (13 items).

The original version of the scale was piloted with a sample of adolescents and had Cronbach's alpha reliability coefficients that ranged from 0.60 to 0.68. It was also piloted with a sample of adults, and its Cronbach's alpha reliability coefficients ranged from 0.66 to 0.71. While the midterm system reliability of the adolescent sample version ranged from 0.77 to 0.88, while the reliability of the midterm segmentation of the adult sample version ranged from 0.81 to 0.90. Additionally, the scale had a suitable internal consistency and sincerity. In its final Arabic translated version, the scale includes 57 statements suitable for adolescents and adults in the Saudi environment. The factor analysis showed the saturation of the scale statements on six factors. In the current study, the internal consistency validity of the scale was calculated, and to determine the extent to which the items are related to each other. The final version of the scale was administered to a sample of 100 respondents. The statistical analyses of this piloting showed that reliability coefficients of items of the dimensions and the total score of the personality scale ranged from 0.258 to 0.752 **, where the range of the reliability coefficients of the dimensions items of the scale were as follows: (honesty dimension items: $t = 0.458^{**} - 0.865^{**}$; the relationship of the honesty dimension items to the scale as a whole: $R = 0.369^{**} - 0.896^{**}$), (emotionality dimension items: $R = 0.258^{*} - 0.961^{**}$; the relationship of the emotionality dimension items to the scale as a whole for the tool as a whole, (extraversion dimension items: $R = 0.522^{**} - 0.753^{**}$; the relationship of the extraversion dimension items to the scale as a whole: $t = 0.222^{**} - 0.782^{**}$) for the tool as a whole, and (acceptance dimension items: $R = 0.658^{**} - 0.863^{**}$; the relationship of the acceptance dimension items to the scale as a whole: $R = 0.418^{*} - 0.892^{**}$); (conscientiousness dimension items: $R = 0.417^{*} - 0.812^{**}$; $R = 0.389^{*} - 0.701^{**}$; the relationship of the conscientiousness dimension items to the scale as a whole; and (openness to experience dimension items $R = 0.422^{*} - 0.807^{**}$; the relationship of the openness to experience dimension items to the scale as a whole: $R = 0.418^{*} - 0.716^{**}$). These coefficients indicate that the personality pattern scale has appropriate reliability and reliability levels

The Psychological Immunity Scale

This scale was developed by Natour (2020). It adapted to and used in the Jordanian environment. The scale includes 24 items that were distributed over three dimensions as follows:

1. Hardness (9 items).
2. Sources (7 items).
3. Optimism (8 items).

The verify the construct validity and internal consistency of the scale, it was administered in its final form to a sample of 100 respondents. The correlation coefficients of the items and total score of the psychological immunity scale ranged from 0.325* to 0.702 **; where the range of the reliability coefficients of the dimensions items of the scale were as follows: (hardness dimension items: $R = 0.302^* - 0.628^{**}$; the relationship of the hardness dimension items to the scale as a whole = $0.258^{**} - 0.635^{**}$), (the sources dimension items: $R = 0.224^* - 0.886^{**}$; the relationship of the sources dimension items to the scale as a whole: $R = 0.302^{**} - 0.758^{**}$) and (the optimism items: $R = 0.308^{**} - 0.896^{**}$). These coefficients indicate that the psychological immunity scale has appropriate reliability and reliability levels

Method

Procedures and Method of the Study

To achieve the objectives of the study, the descriptive method was used in its two phases (the correlative, and comparative ones) to examine the correlation between health practitioners' personality patterns and their psychological immunity during the COVID (19) pandemic.

Population and Sample

The study population consisted of all nurses working in hospitals in Riyadh, the Kingdom of Saudi Arabia, during the period of the data collection which lasted from the beginning of the November 2021 to to the end of March 2022. As for the sample of the study, it consisted of 240 health practitioners working in hospitals in Riyadh, the Kingdom of Saudi Arabia. They were randomly selected for participation in the study. All the respondents met the requirements for participation in the current study, which were as follows:

1. Being a health practitioner and a worker in one of the hospitals and health centers providing health care services during the pandemic.
2. Working in the hospital or centre for more than three months.
3. Accepting to participate voluntarily in the study and complete its instruments.

The respondents who did not meet the requirements were excluded from the study. The instruments of the study were written on Google Forms and distributed electronically to the target sample. This was intended to access the largest possible number of participants. The total number of the participants who completed the instruments of the study were 240 respondents. Figure (1) summarizes the characteristics of the study participants.

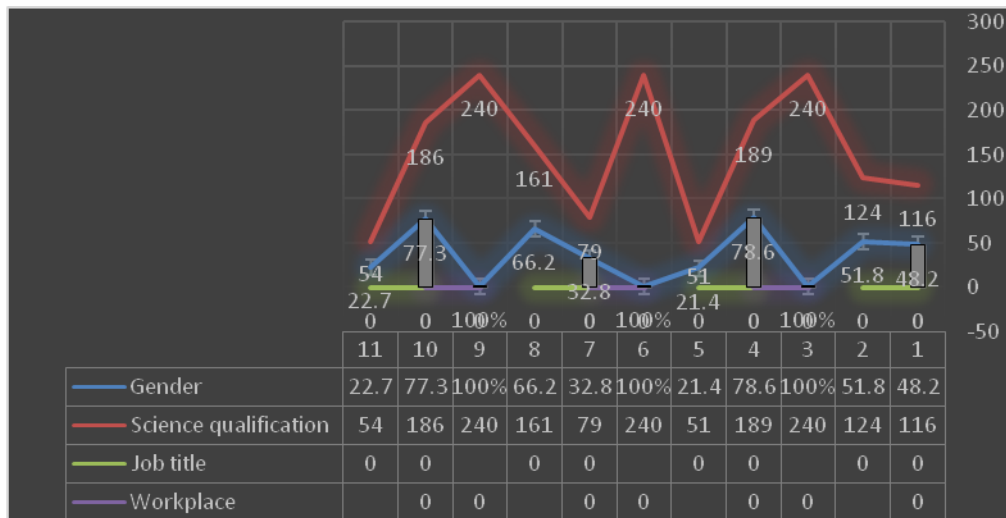


Figure (1): Characteristics of the study participants according to demographic variables (N= 240).

Procedures of the Study

The instruments used in the present study were selected based on reviewing previous relevant studies. These instruments were verified and then written electronically using Google Forms to be circulated to the sample. The responses of the study participants were sorted and the incomplete responses were excluded. The sorted out data were analyzed using the Statistical Package for Social Sciences (SPSS) program, and the needed statistical analyses were run.

Statistical Analyses

To verify the efficiency of the instruments of the study, The Pearson and Alpha Cronbach coefficients were used to test the research hypotheses, and the means and standard deviations of the responses were calculated. Additionally, the multivariate analysis of variance (MANCOVA) was used to inferentially test the differences in cognitive beliefs and health behavior according to some demographic variables. The the t-test, and multiple regression coefficient tests were also used.

Results and Discussions

Results related to the first research question

To answer the first question of the study, and to examine the differences related to heath practitioners' psychological immunity, t-test analyses were conducted for two independent samples (male and female) and multivariate analysis of variance was conducted for other variables. Tables (1) and (2) show the results of these analyses.

Table 1
Gender-related differences in health practitioners' psychological immunity during the COVID-19 pandemic (N= 240)

Dimensions	Gender	N	Mean	Std. Deviation	DF.	Sig.
First dimension: hardness	Male	147	3.94	0.9172	238	0.458
	Female	93	4.15	1.012		
Second dimension: the sources	Male	147	3.98	1.29	238	0.003
	Female	93	3.87	0.987		
Third dimension: optimism	Male	147	3.17	0.685	238	0.156
	Female	93	2.98	0.715		

** Statistically significant at level (0.01), ** (0.05).

Table (1) shows that there are no gender-related differences in the psychological immunity of health practitioners during the COVID-19 pandemic in the dimensions of hardness and optimism. As for the source dimension, the t-test results showed statistical significance at an indicative level ($p \leq 0.001$). Thus, there are differences that can be attributed to gender in terms of the dimension of the sources and males' interest as compared to females.

The above findings seems to be logical since the pandemic, experience and the nature of health services provided by health practitioners were equal and coupled by the quality and efficiency of the health practitioners' performance, the psychological, social, and health services they provided while working in treatment centers, hospitals, and health care centers. This in turn does not differ depending on the nature of the practitioner's tasks, while the difference and the interest of males are evident in the sources and this depends on the cognitive and personal characteristics and capacity of the target group of the study.

Table 2
Analysis of multiple variances of the psycho-immunity scale for some demographic variables (job title, academic degree, years of experience, age, workplace). (N = 240)

Independent variable	Dependent Variable	Type III Sum of Squares	F	Sig.
Job position	First dimension: hardness	245.211	3.122	0.012
	Second dimension: the sources	317.692	8.614	0.562
	Third dimension: optimism	9.132	10.895	0.000
Academic degree	First dimension: hardness	117.232	7.158	0.001
	Second dimension: the sources	77.652	8.012	0.013
	Third dimension: optimism	17.322	1.615	0.605
Years of Experience	First dimension: hardness	316.017	4.220	0.000
	Second dimension: the sources	119.263	4.692	0.014
	Third dimension: optimism	235.003	5.692	0.001
Age	First dimension: hardness	456.936	3.893	0.006
	Second dimension: the sources	9.235	1.616	0.532
	Third dimension: optimism	315.145	7.31	0.000
Workplace	First dimension: hardness	92.314	0.174	0.009

Second dimension: the sources	55.158	1.616	0.123
Third dimension: optimism	25.458	1.692	0.401

Table (2) shows the results of the multiple variances analyses of the psychological immunity scale for some demographic variables (job title, academic degree, years of experience, age, workplace). As the table shows, no job-position-related differences are found in the hardness and sources dimensions depending, and the differences attributable to the job position variable relates only to the optimism dimension. As for the differences between the responses of the sample members attributable to the academic degree, there are differences in the dimension of hardness, and there are no differences in the dimensions of the sources and optimism due to the academic degree variable.

Regarding the years of experience-related differences in the participants' responses, the results indicated that there are differences due to the years of experience on all dimensions. As for the age variable, the results of the study showed that there are differences in the dimensions of hardness and optimism, and there are no differences can be attributed to the age variable concerning the sources axis. Finally, with regard to the workplace-related differences, Table (2) shows that there are no differences related to it for the two dimensions of sources, and there are no differences concerning the hardness dimension of the dimensions of the psychological immunity scale due to the workplace variable.

The results of the current study are partially consistent with some of those of previous studies (Kheirallah et al., 2021; Labrague & De los Santos, 2020) which emphasized the role of psychological immunity and the differences and the influence of the educational level, years of experience, gender, specialization, among other variables, on its levels and. These results concur also partially with the overall framework of the studies reported by Ben Dale (2022) and Shaafal and Kishki (2022) whose results confirmed that there are differences depending on some variables among groups of nurses and health practitioners.

The lack of differences in the workplace can be interpreted by the nature of the tasks performed by the health practitioner during the COVID-19 pandemic in particular and on each day in general, and by the roles they exercise normally and daily. These experiences enhance their skills, abilities and cognitive and social potential that enable them to perform their roles. The differences in immunity depend on the academic degree of expertise, knowledge, and cognitive capacity of the higher level of knowledge and practicality of the health practitioners who took part in the study. This is positively reflected in their skills and cognitive abilities. The skills, knowledge, and field experience gained indicate that older individuals are more able to deal with emerging events and crises than their peers who are younger and less experienced. Moreover, the job position and training skills that the study participants receive according to their professional level, cognitive abilities, and the nature of their work are different. This is reflected in the optimism and hardness dimensions of psychological immunity, and it varies between the target group members.

Results related to the second research question

To answer the second question of the study and to examine the differences in psychological immunity, t-test was conducted for two independent samples (males and females), and the multivariate analysis of variance was also conducted for the other variables. Tables (3) and (4) show the results of these analyses.

Table 3
Gender-related differences in health practitioners' personality patterns during the COVID-19 pandemic (N = 240)

Dimensions	Gender	N	Mean	Std. Deviation	df	Sig. (2-tailed)
First dimension: honesty	Male	147	3.85	1.013	238	0.125
	Female	93	3.72	.9871		
Second dimension: emotionality	Male	147	4.32	0.864	238	0.006
	Female	93	4.17	0.874		
Third dimension: extraversion	Male	147	3.15	0.783	238	0.114
	Female	93	3.10	0.801		
Fourth dimension: acceptance	Male	147	4.05	1.019	238	0.015
	Female	93	4.06	0.970		
Fifth dimension: conscientiousness	Male	147	4.22	0.987	238	0.003
	Female	93	4.16	1.009		
Sixth dimension: openness to experience	Male	147	4.17	1.018	238	0.158
	Female	93	4.22	0.893		

** Statistically significant at level (0.01), ** (0.05).

It is clear from Table (3) that there are statistically significant gender-related differences at an indicative level ($p \leq 0.01$) in both the emotional and conscientiousness dimensions of the personality patterns scale. The other dimensions (honesty, extraversion, acceptance, openness to experience) have no differences in the participants' responses between males and females in the personality patterns.

Table 4
The multivariate analysis of variance for personality patterns scale for several demographic variables (job title, academic degree, years of experience, age, and workplace). (N = 240)

Independent variable	Dependent Variable	Type III Sum of Squares	F	Sig.
Job position	First dimension: honesty	212.174	4.155	0.000
	Second dimension: emotionality	315.685	10.748	0.000
	Third dimension: extraversion	325.116	9.132	0.000
	Fourth dimension: acceptance	75.253	5.122	0.045
	Fifth dimension: conscientiousness	215.458	6.325	0.147
	Sixth dimension: openness to experience	218.158	10.114	0.002
Academic	First dimension: honesty	98.152	5.145	0.145

degree	Second dimension: emotionality	259.471	11.189	0.000
	Third dimension: extraversion	125.239	9.119	0.000
	Fourth dimension: acceptance	178.236	7.122	0.003
	Fifth dimension: conscientiousness	248.693	10.135	0.114
	Sixth dimension: openness to experience	301.122	10.148	0.256
Years of Experience	First dimension: honesty	218.001	2.330	0.000
	Second dimension: emotionality	289.158	3.517	0.001
	Third dimension: extraversion	161.148	4.452	0.004
	Fourth dimension: acceptance	217.006	2.753	0.000
	Fifth dimension: conscientiousness	318.122	3.125	0.000
	Sixth dimension: openness to experience	116.148	4.785	0.000
Age	First dimension: honesty	198.015	3.925	0.003
	Second dimension: emotionality	171.235	0.423	0.714
	Third dimension: extraversion	253.919	10.148	0.000
	Fourth dimension: acceptance	116.015	11.412	0.369
	Fifth dimension: conscientiousness	259.235	1.558	0.050
	Sixth dimension: openness to experience	369.919	3.148	0.014
Workplace	First dimension: honesty	78.325	0.612	0.456
	Second dimension: emotionality	96.104	1.123	0.283
	Third dimension: extraversion	25.621	0.785	0.458
	Fourth dimension: acceptance	105.141	5.532	0.000
	Fifth dimension: conscientiousness	77.104	8.717	0.000
	Sixth dimension: openness to experience	36.015	6.129	0.000

Table (4) indicates that they are job position-related differences in the dimensions (emotional honesty, extroversion, openness to experience) but not in the acceptance and conscientiousness dimensions. As for the academic degree-related differences, there are differences in the emotion, extraversion, acceptance, and openness to experience dimensions, but no differences were found in the responses to the honesty, conscientiousness, and optimism dimensions. Concerning the years of experience, the results of the study showed that there were differences attributable to years of experience in the responses to the items of all the dimensions of the personality patterns scale. Regarding the age variable, the results showed that there are differences in the honesty and extraversion dimensions, but there are no age-related differences in the emotion, acceptance, conscientiousness, and openness to experience dimensions. Finally, concerning the workplace-related differences, Table (4) shows that there are differences in the acceptance, conscientiousness, openness to experience, and openness to experience dimensions, and there are no differences in the emotion, honesty, and openness to experience dimensions of personality patterns scale.

The results of the presents study partially concur with some previous research findings (Carvalho et al., 2020; Ceri & Cicek, 2021; Ikizer et al., 2020) which indicate that there are differences in the demographic factors and variables in some of them, and there are no differences in others. The personality pattern differences related to the above-mentioned variables are explained by the nature of the individual differences among the participants of the study and the different levels related to age, gender, educational level, cultural level, and other variables viewed which are reflected in the health practitioner's role. Besides, analytic theorists and personality theorists (such as Freud, Carl Young, Isnick, Cattell & Karen Horney, and others) advocate differences between individuals who have different tendencies resulting from the nature of interpersonal differences, personal changes and general characteristics.

Results related to the third research question

To answer the third question in this study, multiple regression analysis were used where the personality pattern is the dependent variable and psychological immunity is the independent variable with its dimensions (hardness, sources, and optimism). The results of multiple regression analysis are shown in Table (5).

Table 5
Results of multiple linear regression analysis of the independent variable psychological immunity (hardness, sources, and optimism) on the dependent variable (personality patterns)

dependent variable	Model Summary		Table Parameters						
	R	R ²	F - Calculated	F - Sig	independent variable psychological immunity	standard error	β	T-calculated	T-Sig
personality patterns	0.776	0.603	63.698	0.00*	hardness	0.072	0.188	2.689	0.008*
					Sources	0.090	0.364	4.390	0.00*
					optimism	0.086	0.158	1.934	0.055
					Calculated T value = (1.96)				

Table (5) indicates that a high correlation coefficient of 0.776, which means a strong relationship between psychological immunity with its dimensions (hardness, sources, and optimism) and personality patterns in health practitioners during the COVID- 19 pandemic. The value of the determining coefficient (0.603 = R²) indicates that the psychological immunity scale with its dimensions accounts for 60.3% of variability in personality patterns.

The above results can be interpreted by an influential correlation between study variables (psychological immunity and personality patterns) because it is a normal relationship between variables in the sense that the higher the value of psychological immunity, the more positively affected are the dimensions and variables of the personality, and vice versa. The results of this study are to some degree consistent with Ben Dale's (2022) study which emphasized the predictability of the level of psychological immunity through the overall degree of psychological empowerment and its sub-dimensions which represent importance of work and merit. These results also partially consistent with the results of the study reported by Shaafal and Kishki (2022) which showed a statistically significant relationship between psychological immunity and health practitioners' anxiety. These results are also congruent with Suprpto, et al.'s (2022) which showed a relationship between the personal traits of students and stressors in the clinical environment during the COVID-19 pandemic crisis, and a positive correlation between neuroticism and personality trait with noticeable stress, while extraverted personality traits and agreement correlated negatively with noticeable stress.

The effect of psychological immunity with its dimensions on health practitioners' personality patterns during the COVID-19 pandemic is observed by the value (F. Sig) which is equal to 0.00 and less than 0.05 and also by the calculated value (F) which is equal to 63.698) and greater than the tabular value (2.43). This represents the significance of the study model. The parameters table (5) of this hypothesis shows that the beta coefficient value of the hardness dimension has reached ($\beta=0.188$) and (T) value calculated (2.689) which is greater than the tabular value (1.96) which is significant at 0.008. The value of the beta coefficient for the source dimension came ($\beta=0.364$) and the (T) calculated was (4.390), which is significantly greater than its tabular value at 0.00. The value of the beta coefficient for the dimension of optimism ($\beta=0.158$) and the calculated value (T) was 1.934 which is lower than its tabular value at the 0.00 level. Thus, previous research findings indicate that psychological immunity with its dimensions (hardness, resources, and optimism) can predict health practitioners' personality patterns during the COVID-19 pandemic. Figure (2) shows this.

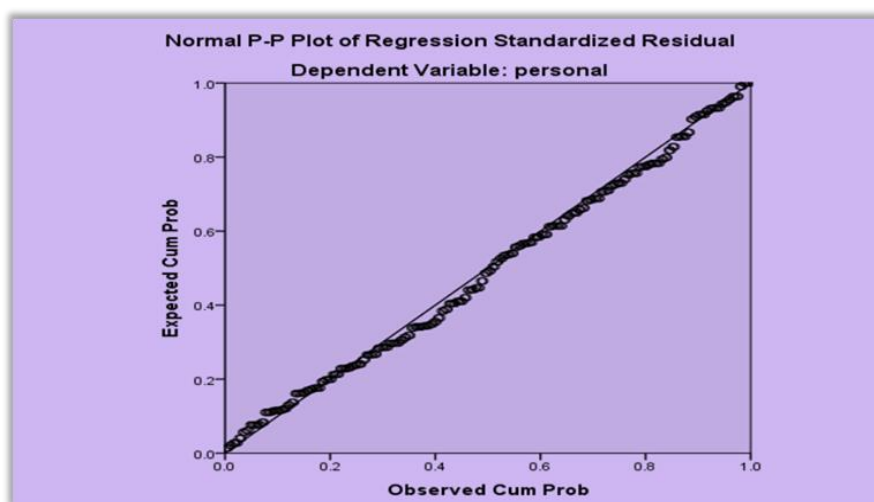


Figure 2

Conclusion

Based on the findings, the present study provides the following recommendations:

- Training health practitioners to deal with psychological stresses and helping them reach optimal levels of psychological and social compatibility and adaptation in their working environments.
- Conducting future applied relevant studies and experiments with health practitioners for developing their psychological immunity, reducing their psychological stress levels, and training them in dealing psychologically with medical crises.

The research team thanks the Deanship of Scientific Research at Imam University for its support. This research was supported by the Deanship of Scientific Research, Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia, Grant No.(21-13-18-083)

References

- Ben Dale, A. (2022). The relative contribution of psychological empowerment in predicting the psychological immunity of health practitioners in light of the pandemic of the outbreak of the new COVID-19 virus in hospitals in the city of Riyadh. *Psychological Guidance Journal*, 67, 75–120. <http://search.mandumah.com/Record/1220144>
- Ahuja, S. (2020). Role of psychological immunity amidst COVID-19 pandemic: Changing paradigm of teaching competencies towards blended learning. *Journal of Global Information and Business Strategy*, 12(1), 81–84. <https://doi.org/10.5958/2582-6115.2020.00010.7>
- Alghamdi, B. S., Alatawi, Y., Alshehri, F. S., Tayeb, H. O., & Tarazi, F. I. (2021). Relationship between public mental health and the immune status during the covid-19 pandemic: Cross-sectional data from Saudi Arabia. *Risk Management and Healthcare Policy*, 14, 1439–1447.

- <https://doi.org/10.2147/RMHP.S302144>
- Carvalho, L. de F., Pianowski, G., & Gonçalves, A. P. (2020). Personality differences and COVID-19: Are extroversion and conscientiousness personality traits associated with engagement with containment measures? *Trends in Psychiatry and Psychotherapy*, 42(2), 179–184. <https://doi.org/10.1590/2237-6089-2020-0029>
- Ceri, V., & Cicek, I. (2021). Psychological Well-Being, Depression, and Stress During COVID-19 Pandemic in Turkey: A Comparative Study of Healthcare Professionals and Non-Healthcare Professionals. *Psychology, Health, and Medicine*, 26(1), 85–97. <https://doi.org/10.1080/13548506.2020.1859566>
- Denissen, J., Luhmann, M., Chung, J., & Bleidorn, W. (2019). Transactions between life events and personality traits across the adult lifespan. *Journal of Personality and Social Psychology*, 4, 612–621.
- Dolić, M., Antičević, V., Dolić, K., & Pogorelić, Z. (2022). Difference in Pandemic-Related Experiences and Factors Associated with Sickness Absence among Nurses Working in COVID-19 and Non-COVID-19 Departments. *International Journal of Environmental Research and Public Health*, 19(3). <https://doi.org/10.3390/ijerph19031093>
- El Hayek, S., Cheaito, M. A., Nofal, M., Abdelrahman, D., Adra, A., Al Shamli, S., AlHarthi, M., AlNuaimi, N., Aroui, C., Bensid, L., Emberish, A. M., Larnaout, A., Radwan, A., Slaih, M., & Al Sinawi, H. (2020). Geriatric Mental Health and COVID-19: An Eye-Opener to the Situation of the Arab Countries in the Middle East and North Africa Region. *American Journal of Geriatric Psychiatry*, 28(10), 1058–1069. <https://doi.org/10.1016/j.jagp.2020.05.009>
- Giusti, E. M., Pedrolì, E., D'Aniello, G. E., Stramba Badiale, C., Pietrabissa, G., Manna, C., Stramba Badiale, M., Riva, G., Castelnuovo, G., & Molinari, E. (2020). The Psychological Impact of the COVID-19 Outbreak on Health Professionals: A Cross-Sectional Study. *Frontiers in Psychology*, 11(July), 1–9. <https://doi.org/10.3389/fpsyg.2020.01684>
- Ikizer, G., Kowal, M., Aldemir, İ. D., Jeftić, A., Memisoglu-Sanlı, A., Najmussaib, A., & Coll-Martín, T. (2020). *Since January 2020 Elsevier has created a COVID-19 resource center with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource center is hosted on Elsevier Connect, the company's public news and information. January.*
- Kheirallah, K., Saleh, T., Bloukh, S., Khasawneh, W., Alsulaiman, J., Khassawneh, A., Al-Mistarehi, A. H., Alqudah, M., Elsalem, L., Al Bashir, S., Awad, H. H., & Al-Shatanawi, T. (2021). Medical students' relative immunity, or lack thereof, against COVID-19 emotional distress and psychological challenges; a descriptive study from Jordan. *F1000Research*, 10, 1–18. <https://doi.org/10.12688/f1000research.52051.1>
- Labrague, L. J., & De los Santos, J. A. A. (2020). COVID-19 anxiety among front-line nurses: Predictive role of organizational support, personal resilience and social support. *Journal of Nursing Management*, 28(7), 1653–1661. <https://doi.org/10.1111/jonm.13121>
- Natour, A. (2020). Psychological immunity and its relationship to anxiety and depression in women undergoing mastectomy. *Unpublished Master's Thesis, Al-Ahliyya Amman University, Jordan.*
- Olashore, A., Molebatsi, K., Musindo, O., Bojosi, K., Obadia, I., Molefe-Baikai, O., & Opondo, P. (2022). Psychosocial predictors of anxiety and depression in a sample of healthcare workers in Botswana during the COVID-19 pandemic: A

- multicenter cross-sectional study. *SAGE Open Medicine*.
- Proto, E., & Zhang, A. (2021). COVID-19 and mental health of individuals with different personalities. *Proceedings of the National Academy of Sciences of the United States of America*, 118(37), 1–7. <https://doi.org/10.1073/pnas.2109282118>
- Ren, H., Luo, X., Wang, Y., Guo, X., Hou, H., Zhang, Y., Yang, P., Zhu, F., Hu, C., Wang, R., Sun, Y., Du, Y., Yin, Q., Xu, G., Zuo, H., Hu, Q., & Wang, Y. (2021). Psychological responses among nurses caring for patients with COVID-19: a comparative study in China. *Translational Psychiatry*, 11(1), 1–9. <https://doi.org/10.1038/s41398-020-00993-1>
- Shaafal, H., & Kishki, M. (2022). Psychological Immunity and its Relationship to Health Concern for a Sample of Health Practitioners and Non-Practicing Persons During the Corona Pandemic in the Kingdom of Saudi Arabia Pathways for Legal. *Linguistic and Human Studies*, 10, 227–270. <http://search.mandumah.com/Record/1202812>
- Suprpto, S., Linggi, E. B., & Arda, D. (2022). Personality Characteristics of Nursing Students with Stress Perception in Clinical Practice in the Era COVID-19 Pandemic. *Journal of Positive Psychology and Wellbeing*, 6(1), 534–538. <https://mail.journalppw.com/index.php/jppw/article/view/869>
- Taylor, M. (2015). Psychometric analysis of the ten-item perceived stress scale. *Psychological Assessment*, 1, 90–99.
- Wang, J., & Wang, Z. (2020). Strengths, weaknesses, opportunities, and threats (swot) analysis of china's prevention and control strategy for the COVID-19 epidemic. *International Journal of Environmental Research and Public Health*, 17(7). <https://doi.org/10.3390/ijerph17072235>