

Contribution of psychological immunity dimensions in predicting psychological flow during coronavirus crisis among health workers in Kuwait

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Abstract

This study was conducted to evaluate the contribution of Psychological Immunity dimensions in predicting Psychological Flow, and the impact of two demographic factors among health workers in Kuwait. This study was performed on random sample consisted of 90 doctor and nurses were chosen from three coronavirus quarries in Kuwait. Psychological Immunity, and Psychological Flow scales were developed, validated and used current study. Psychological Immunity and psychological Flow are found to be at high levels. Furthermore, all Psychological Immunity dimensions are found to be predictors of Psychological Flow, especially optimism, and self-confidence which were found as the most important predictors. None of the demographic factors was found to be a significant predictor of the Psychological Immunity and Psychological Flow among health workers. The study suggests to stimulate awareness in health sector associations about the importance of optimism and self-confidence in protecting mental health during difficult situations.

psychological immunity; psychological flow; coronavirus; health workers

INTRODUCTION

Health workers are the front line soldiers against coronavirus crisis [1]. More than a third of healthcare workers in China during the Corona crisis suffered from insomnia symptoms [2], and high rates of depression and anxiety [3], many reasons may be behind these disorders such as physical distance between health workers and their families in order to protect them from possible infection, in addition to the strict quarantine procedures make health worker in perma-

nent alertness, and the efforts that exerted to update their ways dealing with the crises globally. All these burdens may result in health workers' poor effectiveness and potential energy level [1].

Coronavirus as an unexpected stress event makes Health workers vulnerable not only to mental illnesses like anxiety and depression, but also to psychological distresses such as moral injury; when negative thoughts about the effectiveness of saving lives or any other negative thoughts occurred causing feelings of shame, guilt, and disgust [4]. Negative thoughts also related to Psychological Immunity, which interact with physical immunity facing psychosocial stresses [5].

Psychological Immunity is one of the modern concepts in positive psychology, which helps the

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individual to maintain happiness, psychological security and accepting the self and others in parallel with self-control during difficult circumstances, which may be resulted in achieving the goals [6]. It serves as a protective shield for the individual against the challenges and crises that ones' may face, these crises pass with a low level of anxiety, and a high possibility of turning out in life with optimism and passion throw-out focusing on the internal resources [7].

This study examines two positive psychology concepts: Psychological Immunity which consists of six dimensions: self-efficiency, which means the belief that the individual has the abilities and advantages that qualifying to accomplish tasks and motivate for perseverance in work, second dimension is positive thinking: which means the tendency to accept new information, simplify complex issues, and benefits from life challenges. Third dimension is the ability to solve problems: by identify the problem, use existent skills and information to generate alternatives to have the most appropriate solution for the unusual problems may occur, and to assess its effectiveness [8]. The fourth dimension is self-control, which includes controlling negative emotions in situations that may provoke anger, to endure frustrating situations and to postpone meeting current desires [9]. The fifth dimension is self-confidence, which means self-awareness of the individuals' potential and abilities, believing in ones' actions and judgments, and to respond logically to criticism. The sixth dimension is optimism, which includes the expectation of good in the immediate and distant future [10].

The second positive concept is Psychological Flow which is a state of deep concentration occurs when people are integrated into tasks that require intense concentration, perseverance, sustainability and effort, this optimal situation is also achieved when the level of individuals' abilities and skills is in a complete balance with the level of challenge or difficulty associated with the task, especially tasks that provide immediate feedback [11]. Although individuals may extremely involve in performance, they do not know how they are involving in, because of the pleasure they have [12]. Mihali Chizentmihai links the flow situation with what he calls optimal experience as it gives the individual a sense

of benefit from abilities and skills to encounter challenging tasks, by focusing on task automatically without paying any other stimuli attention [13]. This study aims to explore the level of this concentration among health workers as it can be good indicator of achievement and success in work. Despite the fact that both Psychological Immunity and Psychosocial Flow are positive psychology concepts, the impact of Psychological Immunity dimensions on Psychological Flow among health workers, is still not clear, which is one of the main goals of current study.

STUDY PROBLEM

Corona pandemic is taking a heavy toll on healthcare workers around the world who are struggling to deal with it humanly and psychologically as thousands of health care professionals are infected. Therefore, health care is the most serious and challenging sector during times of pandemics that can cause long-term traumatic symptoms; in Chinese study [14] conducted in Wuhan among health workers, 36.9% of participant are on the threshold of developing psychiatric disorders, 34.4% have mild disorders, 22.4% have moderate disorder, and 6.2% have severe disorder during the first period of the outbreak of the pandemic. Health workers during coronavirus crises had to work continuously for 2-3 weeks, with intensity of focus and wearing bulky layers of clothing [15], some of hospitals provided online psychological support during the crises [16].

Limited number of studies have investigated the levels of Psychological Immunity and Psychological Flow among teachers, students and employees. However, none of them shed the light on the predictive potential of Psychological Immunity dimensions in Psychological Flow among health workers.

STUDY QUESTIONS

The study sought to answer the following questions:

1. What are the levels of Psychological Immunity and Psychological Flow among health workers in Kuwait?

2. What is the contribution of Psychological Immunity dimensions in predicting Psychological Flow among health workers in Kuwait?
3. Are there statistically significant differences ($\alpha = 0.05$) in health workers' Psychological Immunity and Psychological Flow levels related to gender, and years of experience?

STUDY OBJECTIVES

- To explore the levels of Psychological Immunity, and Psychological Flow among health workers in Kuwait.
- To explore the contribution of Psychological Immunity dimensions in predicting Psychological Flow among health workers in Kuwait.

STUDY SIGNIFICANCE

The importance of this study can be illustrated through the following two aspects:

THEORETICAL SIGNIFICANCE

The current study is an addition to the scientific knowledge regarding the Psychological Immunity and Psychological Flow among health workers, and solidifying our perception about their psychological state at similar times.

APPLIED SIGNIFICANCE

This study can help psychological practitioners developing preventive and therapeutic programs to develop and maintain Psychological Immunity and Psychological Flow, it also enables health workers to be creative using new techniques with probability of encountering similar crises in future.

CONCEPTUAL AND OPERATIONAL DEFINITIONS

Psychological Immunity is a system consisting of integrated of cognitive, behavioral, emotional and environmental dimensions, qualifies the in-

dividual to cope and endure psychological and physical pressures to maintain positive mental health [9] For the purpose of this study, Psychological Immunity is defined as the score that each participant obtained on the developed Psychological Immunity scale.

Psychological Flow is a state of deep focus occurs when people are integrated into tasks that require intense focus, perseverance, continuing and making efforts [11]. For the purpose of this study, Psychological Flow is defined as a score that each participant obtained on the developed psychological Flow scale.

PREVIOUS STUDIES

Many studies have been studied Psychological Immunity and Psychological Flow related several mental health variables among teachers, students and workers; following is a brief description of these studies.

Al-Shawi [17] conducted a study identifying the impact of Psychological Immunity in predicting self-efficacy of students in Saudi Arabia, the results indicated an effect of the dimensions of positive thinking, self-control, psychological rigidity, self-efficiency and flexibility on the level of self-competence among students, while it did not indicate an impact for problem solving, perseverance and optimism on self – efficiency. Almuammariya and Taha [18] explored the relationship between Psychological Immunity and job satisfaction, years of experience and students' disability type predicting Psychological Immunity among special education teachers in Oman Sultanate. The result showed that the Psychological Immunity is related positively to job satisfaction, it also showed that years of experience and disability type didn't affect Psychological Immunity. In Kuwait, Al-Masma, Abdalla and Ajaja [19] assessed the relationship between motivation for academic achievement and Psychological Flow, and predictability of the motivation of academic achievement according to the Psychological Flow among secondary students. Results showed positive relationship between the motivation of academic achievement and Psychological Flow in the sense of time, where academic achievement can be predicted through Psychological Flow. Mosing and col-

leagues [20] explored the relationship between work-related depressive symptoms and the Psychological Flow, and identified these symptoms reflection on Psychological Flow, among workers in Sweden. Results showed strong negative relationship between work-related depressive symptoms and Psychological Flow of workers, and showed that the symptoms of work depression have a negative impact on Psychological Flow. In Egypt Mahmoud [21] identified the relationship between Psychological Flow and level of ambition among university students, as well as explored the impact of gender and academic specialization (scientific-literary). Results showed positive correlation between Psychological Flow and all ambitions' dimensions except the "desire to change for the better" dimension. Study revealed that no impact for gender and specialization on the Psychological Flow. The study of Abdul Majid, Abdul Baki and Lachin [22] explored the level of Psychological Flow among university students in Egypt. Study revealed high level of Psychological Flow.

METHODOLOGY

Study design

This study adopts descriptive cross sectional design and predictive approach to evaluate the contribution of Psychological Immunity dimensions in predicting Psychological Flow among health workers in Kuwait.

SAMPLE

The study population consisted of all doctors and nurses in health quarries of the Ministry of Health in Kuwait dealing with coronavirus cases as following: Mishrif quarry 60, the quarry of Kuwait 90, and the quarry of Jaber Stadium 276, with total of 426 workers.

The sample of the study consisted of (n=90) doctors and nurses, who made up 20% of workers in each quarry. They were randomly selected by the quarry management, then has been received the link of the study tools in congruence with protective procedures which imply reducing physical closeness, sterilization and hygiene by not exchanging tools in paper. During the pe-

riod from 12 to 30th of June 2020. Table 1 identifies the distribution of the study's sample in accordance with gender, work, years of experience and age.

Table 1. The distribution of the study's sample in accordance with gender, years of experience.

Variable	Variables Levels	Frequency	Percentage %
Gender	Male	63	70%
	Female	27	30%
Years of Experience	1-10 years	51	56.7%
	More than 10 years	39	43.3%
Work	Doctor	73	81.1%
	nurse	17	18.9%
Age	Less than 40 years	71	78.9%
	More than 40	19	21.1%
	Total	90	100%

RESEARCH TOOLS

All scales of current study have been described separately as follows:

Psychological Immunity scale. Psychological Immunity scale was developed for the purpose of this study to measure Psychological Immunity among health workers in Kuwait according to previous studies [18, 10]. the scale consisted of 20 items distributed to 6 core dimensions, Self – deficiency, consisted of 5 items. Positive thinking, consisted of 3 items. Problem solving, consisted of 3 items. Self-control, consisted of 3 items. Self – confidence, consisted of 4 items. Optimism, consisted of 2 items. Each of 20 items were assessed on 4-point Likert scale as follows: 1 'Never', 2 'Rarely', 3 'Sometimes', 4 'Always' for positive items, and reverse the scores for negative items. In order to assess content validity, the Psychological Immunity scale was presented to 7 arbitrators in counseling psychology and measurement in Kuwait and Jordan, and modified upon their suggestions in terms of its linguistic appropriateness, and its association with the dimension of Psychological Immunity it was assigned to. Acceptance rate for dimension association and local suitability was at least 80%

for all items in the proposed scale and hence, none of the items was removed. However, linguistic paraphrasing was applied to some items based on arbitrators' suggestions. Structure validity (internal consistency) were evaluated by applied the scale to 30 health workers outside the study sample. The correlation coefficients between the item and the dimension score belonging to the Psychological Immunity scale ranged from (0.322 to 0.944), and between the item and the overall score ranged from (0.399 to 0.849), which are high and appropriate value that indicate the structure validity of the scale.

To verify the reliability of Psychological Immunity scale was applied to 30 health workers of the study population from outside the sample. Cronbach alpha was found at 0.93. A split half method gave a correlation value of (.84).

Psychological Flow scale. Psychological Flow scale was developed for the purpose of this study according to previous studies [11,21,23]. The scale consisted of 27 items distributed on nine dimensions, three items for each dimension as follows: Challenge-Skill balance, Action-Awareness Merging, Clear Goals, clear Feedback, Concentration, and Sense of control, loss of self-consciousness, Time transformation, and Autotelic experiences.

Content validity: some of the items has been modified by linguistic paraphrasing based on a survey of 7 specialists in counseling psychology and measurement in Jordan and Kuwait. Structure validity (internal consistency) were evaluated by applied the scale to 30 health workers outside the study sample. The correlation coefficients between item and the overall score of the dimension belongs to Psychological Flow total score ranged from (0.382 to 0.838), and between the item and the total score of the Psychological Flow ranged from (0.309 to 0.775), which are high, appropriate values and indicate the construction of the scale.

To verify the reliability of Psychological Flow scale was applied to 30 health workers of the study population from outside the sample. Cronbach alpha was found at 0.84. A split half method gave a correlation value of (.83).

ETHICAL APPROVAL

Approval for the research was obtained from the Kuwaiti Ministry of Health on June 11, 2020.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS version 22) was used for analysis the study results. Descriptive statistics were used in order to evaluate the levels of Psychological Immunity, Psychological Flow, multiple linear regression analysis (stepwise regression) was performed on Psychological Immunity dimensions, to find if any of these dimensions can serve as predictor of Psychological Flow. To evaluate the association of each demographic factor with the Psychological Flow, t-test was used for factors comprising two variables (i.e., gender) whereas one-way ANOVA test was used for factors comprising more than two variables (i.e., years of experience).

RESULTS AND DISCUSSION

The main aim of this study is to evaluate the contribution of Psychological Immunity dimensions in predicting Psychological Flow among health workers in Kuwait. Two demographic factors: gender and years of experience, were included in this study to evaluate their potential association with Psychological Immunity and Psychological Flow. The results will be shown and discussed based on study questions.

Question One: What are the levels of Psychological Immunity and Psychological Flow?

As shown in Table 4, the mean score of Psychological Immunity among health workers (3.08 ± 0.390) with a high level. The dimensions of "optimism" and "positive thinking" ranked first with mean score [3.35], [3.31] and high level, on the other hand the dimension of "self-control" ranked last with mean score [2.83] and moderate level. This result can be explained by the financial support that health workers received during coronavirus crises, and psychologically through the appreciation by social media, news

channels and the families of health workers who appreciated their efforts in Kuwait and most of the world countries. Which described them as “heroes”. In addition, they kept communicate with their families by video call applications to reduce the pressure of the physical distancing which increased their optimism and positive thinking [15] that may reduce the feeling of loneliness. Another possible explanation that the study have been conducted after three months of the crises beginning; therefore, they may use to the procedures, which can reduce the pressure they faced. This is partly in line with the Shawi study [17] which evaluated the impact of positive thinking on self-efficiency on a sample of university students.

As illustrated in Table 4, the mean score of Psychological Flow among health workers ($3.16 \pm .272$) with a high level. These results means that health workers reached the optimal experience [13], which can be explained by the passion of work among most of them; so they enjoy their work, which allowing them focusing on tasks enjoyably to achieve their clear goals. This attribution is logically, because the two dimensions mentioned had the highest means in Psychological Flow dimensions mean average. Furthermore, the high level of Psychological Flow could also attributed by the balance that workers reach between the challenging situation (coronavirus), and their own professional skills. This is in contrast to Kang, Ma & Chen study [14] in Wuhan city, which revealed a high probability of mental illness among health workers, possibly because Arab world has been educated about the virus one month before china, while Chinese people were surprisingly dealt with the crises. Majid, Abdul Baki and Lachin [22] study is in agreement with current study by showing high Psychological Flow levels.

Table 2. Mean, standard deviation, and overall level for Psychological Immunity dimensions

Variables	Mean	Standard Deviation	Level
Psychological Immunity	3.08	.390	High
Psychological Flow	3.16	.272	High.

Question two: What is the contribution of Psychological Immunity dimensions in predicting Psychological Flow among health workers in Kuwait?

Multiple linear regression analysis (i.e., step-wise regression) was performed to find the contribution of Psychological Immunity in predicting Psychological Flow among health workers in Kuwait. Results of this analysis are summarized in Table 3.

The results presented in Table 3 show that all Psychological Immunity dimensions (self-efficiency, optimism, positive thinking, problem solving, self-confidence, self-control and balance) are collectively explained (33.4%) of the variance in Psychological Flow among health workers and this explanation statistically significance at the level (0.05), the table shows that the values of the specific regression coefficients were positive and statistically functioning related to optimism ($\beta = 0.575$; $t = 5.213$; $p = 0.000$); Negative and statistically significant related to self-confidence ($\beta = -.272$; $t = -2.031$; $p = .046$). based on these results, dimensions of (optimism and self-confidence) are the most affected dimension of Psychological Immunity in predicting Psychological Flow among health workers. Researchers considered this result in light of the high level of optimism (ranked first) and self-confidence (ranked third) as logically. this finding is in agreement with previous study [10] which showed that optimism protect individual against stressors, hence, it explains how health workers become Psychologically Flow during stressful times, which can strengthening awareness of their abilities, potential and acceptance of criticism related to strict procedures with high commitment during coronavirus crises. On the other hand, self – confidence generated by the balance between challenges and skills emphasized Psychological Flow occurrence [11]. Both optimism and self-confidence are cognitive, which make the influence of cognitive factors on behavioral variables like Psychological Flow logically; Psychological Immunity facilitates behaving in a healthy way in all problematic situations. Similar to this finding, previous studies have also showed that Psychological Immunity is linked to job satisfaction [18], as well as partly similar to the study of the Musamma, Hish-

am and Ajaj [19] which showed an association of Psychological Flow with motivation, and the Psychological Flow potential in predicting academic achievement.

Table 3. Results of multiple linear regression analysis (stepwise regression) for Psychological Flow predictors

Model	Unstandardized coefficient		Standardized coefficient β	T value	Sig.	R	R ²	F value	Change sig. in correlation
	Regression coefficient	Std. error							
constant	2.840	.224		12.672	.000	.578	.334	6.930	.000*
Self-efficiency	-.037	.083	-.050	-.451	.653				
Optimism	.237	.045	.575	5.213	.000*				
Positive thinking	.090	.058	.179	1.556	.124				
Problem solving	-.077	.048	-.192	-1.594	.115				
self-confidence	-.144	.071	-.272	-2.031	.046*				
Self-control	.007	.051	.015	.136	.892				

* Statistically Significant at (α≤0.05) level.

Question Three: Are there statistically significant differences (α =0.05) in Psychological Immunity and Psychological Flow related to gender, and years of experience among health workers?

deviations of Psychological Immunity among health workers were extracted according to gender and years of experience, and the following table shows these averages:

To answer this question regarding Psychological Immunity, the mean averages and standard

PSYCHOLOGICAL IMMUNITY

Table 4. Mean averages and standard deviations of Psychological Immunity among health workers depending on gender and years of experience.

Std.	Mean	frequency	Years of experience	Gender
.396	3.13	37	1-10 years	Male
.410	2.99	26	More than 10 years	
.404	3.07	63	Total	
.294	2.89	14	1-10 years	Female
.327	3.28	13	More than 10 years	
.364	3.08	27	total	
.383	3.06	51	1-10 years	Total
.404	3.09	39	More than 10 years	
.390	3.08	90	total	

Table 4. Shows apparent differences in the mean averages and standard deviations of Psy-

chological Immunity among health workers depending on gender and years of experience.

Bilateral contrast analysis was carried out to explore the significance of the differences in

the mean averages, and table 5 shows these results:

Table 5. Analysis of the bilateral variation of Psychological Immunity among depending on gender and years of experience

Sig.	F value	Mean square	D f	Sum of squares	Source of variance
.754	.099	.014	1	.014	Gender
.144	2.180	.310	1	.310	Years of experience
		.142	86	12.246	Error
			89	13.556	Total

* Statistically Significant at ($\alpha \leq 0.05$) level.

Table 5. Shows the value of the “f “ of the Psychological Immunity among health workers according to gender was (0.099), and (2.180) according to years of experience, both values are not statistically significant at the statistical significance Level ($\alpha \leq 0.05$) which means there are no statistically significant differences in Psychological Immunity based on gender, Nor on years of experience. This result is in agreement with Almuammariya and Taha [18] study which

showed that years of experience didn’t affect with Psychological Immunity.

PSYCHOLOGICAL FLOW

To answer this question regarding Psychological Flow, the mean averages and standard deviations of Psychological Flow among health workers were calculated according to gender and years of experience, and the following table shows these averages

Table 6. Mean averages and standard deviation of Psychological Immunity among health workers According to gender and years of experience

Std.	Mean	frequency	Years of experience	Gender
.293	3.25	37	1-10 years	Male
.280	3.13	26	More than 10 years	
.292	3.20	63	Total	
.183	3.02	14	1-10 years	Female
.206	3.15	13	More than 10 years	
.203	3.08	27	total	
.285	3.18	51	1-10 years	Total
.255	3.14	39	More than 10 years	
.272	3.16	90	total	

Table 6. Shows apparent differences in the mean averages and standard deviations of Psychological Flow among health workers according to gender and years of experience. Bilateral

contrast analysis was calculated to explore the significance of the differences in the mean averages, as shown in table7.

Table 7. Analysis of the bilateral variation of Psychological Flow among health workers according to gender and years of experience.

Sig.	F value	Mean square	D f	Sum of squares	Source of variance
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.095	2.845	.199	1	.199	Gender
.862	.031	.002	1	.002	Years of experience
		.070	86	6.008	Error
			89	6.598	Total

*Statistically Significant at ($\alpha \leq 0.05$) level.

Table 7. Shows the value of the “f” of the Psychological Flow among health workers according to gender was (2.845), and (0.031) of Psychological Flow according to years of experience, both are not statistically significant at the statistical significance Level of ($\alpha \leq 0.05$) which means there are no statistically significant differences in Psychological Flow among health workers based on gender, Nor on years of experience. This can be attributed to the fact that all health worker, regardless of their gender and experience, face similar circumstances, therefore, vocational and psychological reaction throughout crises such as coronavirus is being the same. This results conform the finding of Mahmoud study [21] which showed that psychological Flow was not affected by gender.

CONCLUSION AND RECOMMENDATION

This study showed that Psychological Immunity and Psychological Flow among health workers are all found to be at high levels, self-confidence and optimism are found to be the most important predictors of Psychological Immunity. Furthermore, none of the demographic factors investigated in this study seems to be a predictor of Psychological Immunity and Psychosocial Flow.

The findings of the current study should be considered in light of several limitations. First, the current study sample included mostly male participants which limits generalizability. Second, some of study participants were from foreign nationalities that may limit the generalization of the conclusion related to common thoughts and principles for Kuwaiti community. Third, research focused on self-report measures, which may increase bias.

Despite these limitations, this study is among the first to explore the contribution of Psychological Immunity on Psychological Flow during coronavirus pandemic. And whether gen-

der and years of experience affect Psychological Immunity and Psychological Flow. The current study extends previous literature that only examined Psychological Immunity and Psychological Flow among students [17, 18, 21]. Finally, another strength of the current study is that we measured the Psychological Immunity and Psychological Flow inclusively. This allowed measurement of latter variables using multiple indicators of both stress management and tolerance. Stress management plays a significant role in helping workers adapt to this global crises.

According to current study results, research recommend managers of hospitals, and associated authorities to provide an organized preventive psychological programs to preserve the high mental health indicators as shown in this study. To stimulate awareness in health sector associations about the importance of optimism and self-Confidence in protecting mental health during difficult situations. In addition to encourage health workers sharing their successful experience during coronavirus crises by participating in qualitative studies, to have deeper and specified illustration about the mental, psychological, and spiritual factors at the pandemic, to pass future crises without mental illnesses.

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