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Empathy and Altruism as a Mediator in the Relationship between Mindfulness and Social Behavior for the Sultan Qaboos University Students during COVID-19

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Abstract

The present study aimed to build a theoretical model proposed for the causal relationship between the four variables of the study, and then validate the proposed model by examining the direct and indirect effect of Mindfulness to Social Behavior, and whether Empathy and Altruism mediate the relationship between Mindfulness and Social Behavior. The sample of the study consisted of 270 college students (144 females,126 male), to achieve the study goals researcher used three validated scales (Johnson, Burke, Brinkman& Wade, 2016; Steele et al. 2008; Allison, Baron-Cohen & Wheelwright, 2011). The results of path analysis showed that Empathy and Altruism are a mediator variable between the relationship of national Mindfulness and Social Behavior, this mediation was partial.

Keywords
mindfulness; empathy; altruism; social behavior; COVID-19

I. Introduction

The novel coronavirus disease COVID-19, which first appeared in Wuhan, China, in November-December 2019 has affected a large proportion of the world's population, and by March 2020, it rapidly spread across the globe affecting 114 countries (World Health Organization, 2020a). The reason for this is the huge rate of COVID-19 infection due to the high reproduction rate (R0), which represents the number of secondary infections caused by an infected individual, which leads to an increase in the spread of the disease (Liu et al., 2020a). COVID-19 affects people living with the virus, their families and healthcare workers, as well as the impact of mitigation measures such as quarantine, social distancing, and self-isolation on the rest of the population into a global mental health pandemic (Fiorillo and Gorwood,2020).

Regardless of the factors (biological, environmental, etc.) related to the virus, scientists are of the view that measures taken by governments alone will not be of much benefit in the long run; If human psychological factors and individuals' positive social behaviors are not activated alongside vaccinations (Delamater et al., 2019). Moreover, exploring human psychological factors that could augment physical distancing behavior among Mindful path to the COVID- 19 pandemic individuals leading to the success of the physical distance policy and mitigate the spread of this global pandemic is warranted (Pennycook et al., 2020). In light of these views, the current study addressed some positive psychological factors that contribute to reducing the impact of this virus in the context of the Arabian Gulf, by exploring the relationship between human psychological factors such as vigilance, meditation, empathy and altruism, and their role in the behavior of dealing with infected people (as a type of positive social behavior) in the context of COVID-19 among members of

the study sample represented by Sultan Qaboos University students, in line with the results of previous research on these psychological factors and their contribution to alleviating many psychological disorders in individuals.

II. Review of Literature

2.1 Concept of Mindfulness

Mindfulness has its roots in Buddhist philosophy 25 centuries ago, when Buddha defined it as attention in a special way: intentionally, in the present and non-judgmental. Moreover, the cultivation of mindfulness is thought to leads to the cultivation of self and "others oriented" intentions and attitudes such as benevolence, concern for others and generosity (Grossman, 2015).

Mental alertness has origins in the heavenly religions as well, and this is shown through the contemplative practices and spiritual teachings of those religions (Hyena and Mahmoud, 2021). For example, mindfulness is considered the essence of Islamic teachings, which came with concepts of contemplation in the subconscious stage of information. Two states of awareness are manifested: Mindfulness and Mindlessness.

While Trousselard et al (2014) believed that "The universal human capacity embodied in promoting clear thinking, and openness that does not require a particular religious or cultural belief" (p.475), which helps individuals avoid an epidemic COVID19.

There are many theories and therapeutic interventions that mental alertness is integrated with its theoretical frameworks most of the training and treatment programs that researched the topic of mental alertness under the umbrella of cognitive-behavioral theory.

2.2 Concept of the Empathy-Altruism Hypothesis

The empathy-altruism hypothesis states that feelings of empathy are motive force behind altruistic motivation (Batson, Lishner and Stocks, 2015). The empathy is defined as "the capacity to (a) be affected by, and share the emotional state of another, (b) assess the reasons for the other's state, and (c) identify with the other person by adopting his or her perspective" (De Waal, 2018, p.281). Empathy has two sides: cognitive and affective. Affective empathy is viewed as participating others in feelings, but cognitive empathy is viewed as perceiving beliefs and knowledge that contribute to understanding others' feelings (Perssona and Kajonius, 2015). Empathy "socio-emotional process of human development" empathy involves an individual's ability to take notice of other perspectives (Richaud et al., 2017). Additionally, empathetic individuals can connect with the emotions of others irrespective of the nature of the feelings (Hafenbrack et al., 2019).

2.3 The relationship between Mindfulness, Empathy, and Altruism

The relationship between empathy and other-directed behavior can be explained from two sides, first based on the 'empathy and altruism hypothesis' which states the role of empathy in enhancing the well-being of others (for details on the 'empathy and altruism hypothesis', please refer to (Bateson, 2010). Second, according to Schwartz's core values theory, which states that the values of self-transcendence (such as benevolence values) are associated with the interest and well-being of others (Schwartz, 2012), it also states that those values are associated with high levels of empathy (Pohling et al., 2016).

Also, for knowledge, the relation between Mindfulness and both positive behavior and empathy, it can be consulted from studies in Mindfulness Theory (Ridderinkhof et al., 2017) and other empirical publications (Lim et al. 2015) which revolves around the role of mindfulness in increasing others-directed behaviors, the results of which showed a positive

role of mindfulness and empathy in promoting other-directed behaviors. In addition, across a series of studies, including trials, a positive association between the overlapping role of empathy and mindfulness with awareness of prosocial behavior has been observed (Perry et al., 2018).

In addition, the results of the studies also showed that practicing mindfulness helps activate the regions of the brain which are known to get activated during empathy (Ridderinkhof et al., 2017). Additionally, individuals reporting high on mindfulness were also observed to have reported an increased level of empathy (Anna et al., 2017).

2.4 International Efforts to Mitigate the Negative Psychological Effects of the Corona Pandemic

As soon as the World Health Organization declared an emergency, the movement of one-third of world's population (~2.6 billion people) has been restricted and controlled by their respective governments (Kaplan, et al.,2020), to prevent further spread and to minimize the risk of COVID-19 infection. As an example, the China government enforced a nationwide, that means 1.3 billion citizens are banned from leaving their homes under the coronavirus lockdown, 60 million in Italy, 165 million in Bangladesh, and 142 million in Russia were forced to undergo lockdown due to the pandemic (as of April 9, 2020). The United States is no exception, as it has become an epicenter now in terms of COVID-19 confirmed and death cases (Van Hoof,2020).

Much research has been conducted on mental health during the pandemic, all over the world. Relatively high rates of anxiety symptoms (6-51%), depression (15-48%), post-traumatic stress disorder (7-54%), and nonspecific psychological distress (34-38%) were reported in the general population in China, Denmark, Iran, Italy, Nepal, Spain, Turkey, and the United States of America (WHO, 2021).

There are international efforts made by various countries to confront the negative psychological effects of the Corona pandemic, for example, medical institutions and universities around the world have opened online platforms to provide psychological counseling services to people infected with the Corona virus and their families (Liu, et al.,2020b).

Most of the reviewed studies confirmed negative psychological impact, such as post-traumatic stress symptoms, confusion, and anger. Note that limited to psychological impacts, psychosocial impacts prominently exist (De Oliveira, et al.,2013). Before COVID-19, a new Lancet Commission report on mental health stated that mental illness/disorder will cost the world $16 trillion by 2030 (The Carter Center,2018).

2.5 Strategies of Governments and Individuals to Confront the Corona Pandemic and Its Different Coping Patterns

In order to leave the shock stage, and live with the Corona virus, it is necessary to take into account the reasons and devote efforts and preventive and curative measures, and the continuous evaluation and follow-up after the end of the traumatic event is part of the preventive measures to correct errors and eliminate some of the foci that we did not account for in providing preventive services, and quarantine Long-term cases of the most targeted cases of infection with all immunodeficiency diseases, especially the elderly, and the intensification of health and psychological services, and the formation of rapid intervention teams for such matters by the ministries of health of these countries.

In addition to the impact of the COVID-19 on people's emotions, people's coping strategies will also change as a result. Coping is the thoughts and actions that individuals use to deal with stressful events, people have identified two general coping strategies: one is a problem-focused coping, the purpose is to solve the problem or take action to change the status quo; the other is an emotion-focused coping, which aims to reduce the emotional distress associated with stressful situations (Huang, Wong &Liu,2020).

One of the strategies to counter the impact of COVID-19 is physical distancing; where physical distancing reduces interpersonal transmission risks (Anderson et al., 2021). Government policies that mandate physical distancing slow the spread of COVID-19 (Hsiang et al., 2020). Local noncompliance with these sheltering- place orders create public health risks and may cause regional spread (Lewnard and Lo, 2020). Understanding which local-level factors impact compliance is a first order public policy concern (Briscese et al., 2020) and informs evidence-based policy interventions to flatten the infection curve.

One of the models that are used to reduce the risks to which individuals are exposed is the model (Dovjak and Kukec,2019), in which it attempts to explain the mechanism through which vigilance leads to positive changes.

Based on the description above, question proposed in this study are: Can Empathy and Altruism be a mediating variable in the relationship between Mindfulness and Social Behavior for the Sultan Qaboos University students during COVID-19?

III. Research Method

This study is a quantitative study with primary data obtained from questionnaires.

3.1 Empathy Behavior Scale

The empathy quotient scale (EQ) was used to assess empathy behavior (Allison, et al., 2011). This scale consisted of 60 items in its original version. The items were responded according to four-point scale as follows: strongly agree=3, slightly agree =2, slightly disagree=1, and strongly disagree = 0 for every question, so the minimum score of scale =0 and the maximum score =48. The EQ has high test-retest reliability ($r = 0.97$, $p < 0.001$) and good construct validity, that is, it correlated positively with social cognition scale (the 'Eyes' task; $r =0.294$, $p < 0.05$). It also has high internal consistency (Cronbach's alpha = 0.92). Currently the most comprehensive assessment of the dimensionality of the EQ using a Rasch and confirmatory factor analysis suggested that the EQ is a one-dimensional measure (Allison, et al., 2011).

3.2 Altruistic Behavior Scale

The self-report altruism (SRA) scale was used to assess altruistic behavior or helpfulness. Rushton, et al., (1981), 28 items originally developed to quantify the level of helping or altruistic personality traits based on the frequency of self-reported helping behaviors. Huang, et al. (2018) used in their study in 2 South China universities. Respondents were asked to answer the items according to a five-point scale as follows: never (1) to very often (5), so the minimum score of scale is 13 and the maximum score is 65. The SRA has good construct validity. The face validity of the scale was evaluated by a panel of professionals in psychology, mental health, and psychological counseling. The goal was to determine the extent to which items measure what they were designed to measure. Construct validity was assessed by factor analysis using the principal components approach (Hoteling). After that, items were rotated orthogonally with Kaiser normalization to identify the factor structure of the scale. The limits of acceptable loadings were statistically set at ≤ 0.30 Based on the rotated component matrix, the 28 items loaded on two factors. One item was dropped due to low item loadings of less than 0.30. In this study alpha was found to be 0.88.

3.3 Mindfulness Scale

To achieve the objectives of the study, use the mental vigilance scale "Kentucky Inventory of Mindfulness", which was used in various samples as a study (Gackenbach and Bown, 2011). 38 items, respondents were asked to record their responses for the five items on a five-point Likert response scale (1 = never; 5 = always). The analysis was done by

reversing the responses so that the respondents high on mindfulness scores reflect greater mindfulness. The results of the scale's total reliability efficient ranged between 0.85 - 0.87, extant studies reported high Cronbach and the current sample also confirmed good internal consistency (an alpha of 0.76). on a sample of 25 students. For the current study, the scale was translated into Arabic, and it was ensured that the translation matched the original scale to reach the same meaning.

3.4 Scale of Social Behavior during the Pandemic COVID-19

This tool was prepared by taking advantage of the studies that have been in this field (such as the study of:(VAN Bavel, et al,2020; Alzamzami, and Saddik,2021; Cross, et al, 2021; Kumar, et al.,2020; Pfattheicher, et al.,2020). We asked students the Some people are going about their daily lives now as normal, while others have had their routines change dramatically as COVID-19 has spread. How would you say that each of your following behaviors have changed over the last week because of the coronavirus?

Handwashing: "Number of times you wash your hands every day".

Changed Travel: "Travel plans over the next month".

Working from Home: "Working from home / telecommuting".

Stockpiling Medicines: "Buying flu or cold medicine, or making sure to have enough prescription medicines to last three months"

Child and Elder Care: "Changing plans to account for caring for children, the elderly, or disabled family members whose typical daytime care, such as school and support programs, have closed".

Social Distancing: "Canceling existing social engagements or deciding against new social engagements you might otherwise have made, a practice known as social distancing"

Prevention of disease transmission: for example, wearing a mask and paws.

Commitment to urban: Staying at home and not violating the law.

Respondents were asked about each of these behaviors at a random order, and they could answer that their behavior "has changed dramatically", "has changed somewhat", "has only changed a little", "has not changed at all", or "not sure".

Please answer the following questions honestly and quickly. Please remember, there is no right or wrong answer. Cronbach's alpha was found .83, and the test-retest reliability on a sample size of 25 students with an interval of two weeks was .81.

3.5 Sample and Data Collection Procedure

An online data collection platform Survey Monkey was used to design and administer the survey questionnaire. The survey instrument consisted of 116 questions, including four demographic items, namely, gender, and college. Moreover, 38 items for individual mindfulness, along with 60 items for empathy, 28 items for Altruistic, and two items for physical distancing, and were included in the questionnaire. Additionally, one question related to "consent to participate". The survey was designed to encourage participants to willingly take-up the study with the required attention and could record their responses in around 40–60 min. The participants were requested to register their responses on a five-point Likert response scale ranging from "never" to refer Appendix "always". The survey was conducted, and the data was collected over six days (from 12th march to 5th April 2021). An online data collection technique was used as it offers quick and easy access to students.

IV. Discussion

302 respondents participated in the survey of 650 students were randomly chosen from all university students. A total of 270 responses has been dropped, either because the

respondents did not try all questions or because of incomplete responses, and then the final sample has become 270 and (42%) valid response, the analysis was conducted using IBM SPSS and AMOS 23 Statistical Software Package. To answer the previous questions, the researchers built a proposed causal model based on a theoretical basis, the researcher drew it from the literature and previous related studies, and then tested the validity of this model It is illustrated in Figure No. (1) where the direct influence of Mindfulness on Social behavior is demonstrated, and the indirect effect of it is demonstrated by adding Empathy and Altruism. as an intermediate variable to the regression equation in the model. To validate the proposed causal model, use the research is a path analysis method, which is a method used to identify the trends of influence between research variables through a causal model that regulates the relationship between independent variables and dependent variables. In this regard Kenny, & et.al indicates that for the mediation test, three equations must be tested (Judd and Westfall,2012):

1. The regression equation of the mediating variable on the independent variable (that is, the effect of the independent variable on the variable mediator and the degree of its contribution to it).
2. The equation for the regression of the dependent variable on the independent variable.
3. The equation for the regression of the dependent variable on both the independent variable and the median variable together (i.e., effect the independent and median variables are both included in the dependent variable.

Here, three statistical conditions must be met after using the path analysis method, which are:

A- That the independent variable must affect the mediating variable (first equation).
B- That the independent variable must influence the dependent variable (the second equation) (when isolated statistic for the median variable).
C- That the mediating variable must affect the dependent variable (the third equation) (when including the variable median in the regression equation).

4.1 Results for Question One

What is the size of the correlations and their level of statistical significance between mindfulness and each of the Social Behavior, Empathy and Altruism among university students? To answer this question, the correlation coefficient between these variables was used. Table (1) shows this.

Table 1. The Size of the Correlation Coefficients between the Four Study Variables and Their Statistical Significance

Variables	Mindfulness	Empathy	Altruism	Social behavior
Mindfulness	1			
Empathy	0.558	1		
Altruism	0.457	1	1	
Social behavior	0.553	0.611	0.599	1

** significant at (a)

Table (1) indicates that there is a positive correlation and a statistical function, meaning that a higher level of Mindfulness is accompanied by a rise in each empathy, altruism, and social behavior during the pandemic COVID-19. and a higher level of empathy and altruism as two intermediate variables leads to a rise in the level of leads to a higher level of social behavior during the pandemic COVID-19, Thus, empathy and altruism as mediating variables between mindfulness and social behavior during the COVID-19. This is the first condition for the occurrence of prediction and verification of the proposed causal model has been achieved,

which is the correlation of the independent variable with the dependent variables in a network of statistically significant relationships.

4.2 Results for Question Two

What is the contribution of Mindfulness in predicting the degree of Empathy, Altruism and Social Behavior among university students? To answer this question, the regression analysis method was used, and the table (2) shows that.

Table 2. The Contribution of Mindfulness to Empathy, Altruism, and Social Behavior

Independent variable	Dependent variable	Beta coefficient	Contribution ratio R2	R2 patched	Change in value (p)	Constant value	Slope of the regression line	Sig.
Mindfulness	Empathy	.498	.242	.239	84.108	1.653	.486	.00
	Altruism	.372	.142	.140	44.554	1.670	.412	.00
	Social behavior	.658	.396	.393	167.211	1.342	.597	.00

It is clear from the previous table that the mindfulness variable contributes to the prediction of altruism; Where the contribution rate was 24.2%, and the change in the value of (P) for the regression analysis was 84.11, which is statistically significant. The mindfulness variable also contributes to predicting the behavior of empathy, the contribution rate is 14.2%, and the change in the (p) value of the regression analysis was 44.554, which is statistically significant. While the mindfulness variable contributed to the prediction of social behavior by 39.6%, and the change in the value of (P) for the regression analysis was 167,211, which is statistically significant. From the above, we conclude that mindfulness as an independent variable has a statistically significant effect on the dependent variables (empathy, altruism, and social behavior); Which indicates the significance of the predictive equation, and the ability of mindfulness to predict social behavior is his ability to predict empathy, followed by his ability to predict altruism.

4.3 Results for Question Three

What is the contribution of Empathy and Altruism in predicting the degree of Social Behavior among university students? To answer this question, the regression analysis method was used, and the table (3) shows that.

Table 3. The Contribution of Empathy and Altruism to Social Behavior

Independent variable	Dependent variable	Beta coefficient	Contribution ratio R2	R2 patched	Change in value (p)	Constant value	Slope of the regression line	Sig.
Empathy	Social behavior	.597	.311	.310	110.334	1.221	.392	.00
Altruism		.518	.289	.288	107.769	1.046	.327	.00

It is evident from the table (3) that the Empathy variable contributed to the prediction of the social behavior variable during the COVID-19 by 31.1%, and the Altruism variable contributed by 28.9%. And the value of the change in the value (p) of the regression coefficient for both variables was a statistical function.

4.4 Results for Question Four

Is the direct influence of Mindfulness on Social Behavior different from the indirect influence of it when the Empathy and Altruism variable is included as a mediating variable in

the proposed causal model? (In other words, does the statistical isolation of the effect of the Empathy and Altruism scores from a regression analysis equation weaken the theoretical relationship between Mindfulness and Social Behavior?). To answer this question, the regression analysis method was used, and the table (4) shows that. Figure 1 shows the final form of the causal model.

Table 4. Testing the Mediating Role of Empathy and Altruism in the Relationship between Mindfulness and Social behavior

Independent variable	Dependent variable	Beta coefficient	Contribution ratio R2	R2 patched	Change in value (p)	Constant value	Slope of the regression line	Sig.
Mindfulness while isolating both (Empathy, Altruism)	Empathy Altruism	.611	.377	.375	.164.113	1.205	.424(c)	.00
Mindfulness while mediating both (Empathy, Altruism)	Empathy Altruism	.658	.396	.393	167.211	1.342	.597(C·)	.00

C: The direct effect of Mindfulness when isolating both (Empathy, Altruism).
C·: The direct effect of Mindfulness when mediated by both (Empathy, Altruism).
C-C·: The indirect effect of Mindfulness when mediated by both (Empathy, Altruism).

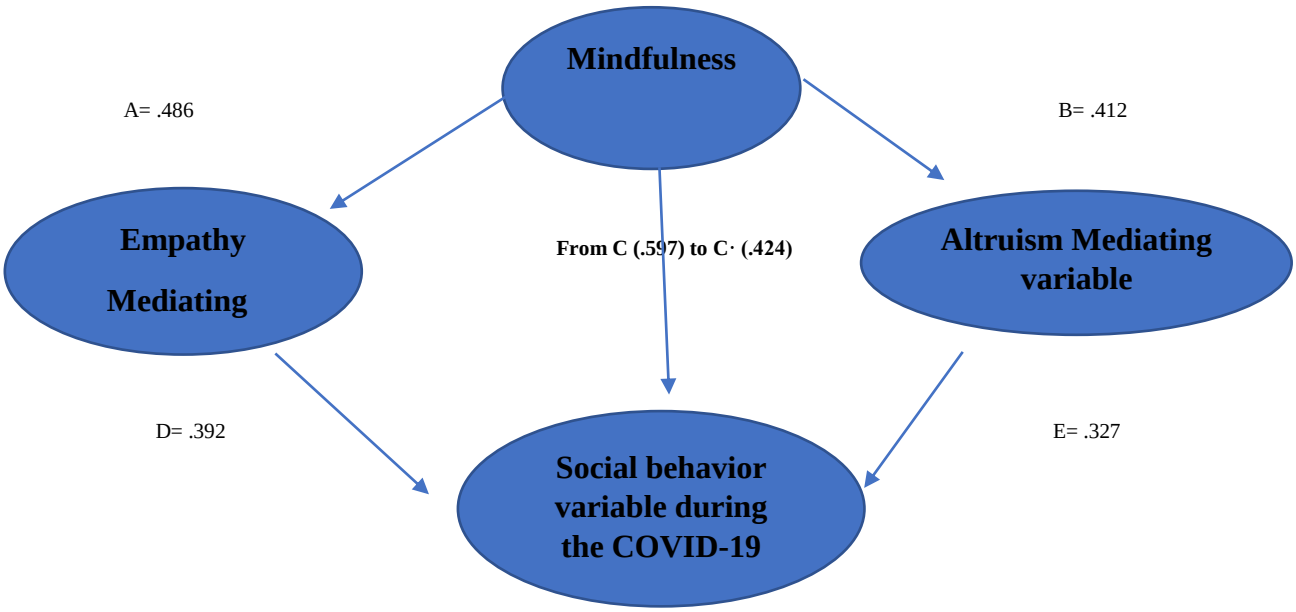

Figure 1. *The Final Form of the Hypothetically Assumed Causal Model*

It is clear from table (4) that the statistical isolation of the effect of the two variables (Empathy and Altruism) led to a decrease in the value of the correlation coefficient between mindfulness and social behavior during the COVID-19 pandemic from (0.597) to (0.424), but it remained statistically significant. Both Empathy and Altruism partially mediate the relationship between Mindfulness and Social behavior, that is, they strengthen the relationship between the predictive variable (Mindfulness) and the dependent variable (Social behavior during COVID-19).

As for the direct and indirect effects of Mindfulness on Social behavior during the COVID-19, they are as follows:

Direct effects: All the pathways from Mindfulness, Empathy and Altruism to Social behavior during the COVID-19 are statistically significant, meaning that all variables have a direct impact on the dependent variable social behavior during the COVID-19, and this is clear from the values of the pathways in Figure 1.

Indirect effects: The direct effect of the variable Mindfulness on Social behavior during the COVID-19, passing through the Empathy variable as an intermediate variable, which is calculated by multiplying the regression coefficients in these two paths (A, D), and thus the effect is (.486 * .392 = .19), which is a statistically significant value, and this indicates that There was an indirect effect of mindfulness through empathy on social behavior during the COVID-19 for the study sample. However, this mediation is partly because the value of Empathy was not absent and was statistically significant despite its decreasing value before statistical isolation. Regarding the Altruism variable, an intermediate variable between Mindfulness and Social behavior during the COVID-19, the effect was also calculated by (.412 * .327 = .135), which is a statistically significant value, and this indicates an indirect influence from Mindfulness through Altruism On social behavior during the COVID-19 for the study sample.

V. Conclusion

It is clear from Table (4) and Figure 1 that the results in general support the validity of the causal model proposed in the research, and that the direct effect of Mindfulness on social behavior during the pandemic COVID-19 differs from the indirect effect when both Empathy, and Altruism are included in the model equation, which suggests that Empathy, and Altruism mediate the relationship between mindfulness and social behavior during the COVID-19 pandemic and was mediated here partially rather than completely.

The results of the research can be explained in terms of the feeling of the members of the study sample, who are form the educated social stratum aware of the risks" A range of negative mental health consequences are likely during the pandemic (for example, due to fear of catching coronavirus infection, underlying health conditions, losing loved ones due to COVID-19, withdrawal of other healthcare and community services, or a consequence of quarantine measures) and for years to come after it is over (for example, trauma due to the experience of illness or bereavement, survival guilt, unemployment and financial losses (Galle, et al.,2020).

Prolonged quarantine duration instills infection fears, frustration, and boredom. Followed by inadequate supplies, in this situation of adversity, yoga, meditation, and video chat with relatives and friends induce mental relaxation, to some extent. In contrast, self-isolation gives us opportunities to connect with our passions and inner identity. During the “me-time,” committing to hobbies could be a positive mental intervention for people experiencing high levels of stress (Zawadzki,2015).

Among the studies that were conducted to know the effects of Mindfulness on several variables, including Altruism, which found a positive impact, is a study (Advait, 2012).

As defined in social phycology, altruism refer to an “other- oriented" motivational state or behavior with primary goal of increasing of benefitting another’s well-being (Baston, et al.,2105).

A study (Matiz, et al., 2020) concludes that mindfulness-based training can effectively mitigate the psychological negative consequences of the Covid-19, and that Empathy is directly correlated with mindfulness in the research sample during the COVID-19. Many psychological benefits in meditators, such as Empathy (Juneau, et al.,2020), improved

concentration and mental clarity (Guillaume, et al.,2020) and psychological flexibility (Accoto, et al.,2021).

As it was noted from a study (Kumer, et al. 2020), that mindfulness was positively related with empathy, and enhanced physical distancing behavior, and mediation and the overlapping role of empathy helps the positive connection between mediation and physical distancing behavior.

Finally, the researcher believes that the reason for these positive results is due to the Interest in mental alertness has increased over the past twenty years, especially after it has been included in all aspects of life, such as physical mental health, self-control, and emotional intelligence, and has managed to occupy a niche among psychologists, has attracted attention to both researchers and behavioral therapists, recording it as a psychological concept ; Where researchers have conducted studies on meditation and mental alertness and their role in therapeutic practices for many diseases and psychological stress, such as (stress, alleviating the suffering of patients, treating disability and depression disorders, obsessive-compulsive disorder, aggressive behavior and addiction, and psychological treatment for people with cancer and psoriasis, in addition to the importance of aspects of life Personal, professional, social, and academic (Davis & Hayes, 2011).

It also due to the interest of Sultan Qaboos University represented by the psychology counseling center, and the deanship of student affairs in educating students through the lectures that were presented during this critical period and what preceded it.

Limitation

In this study, we used measure of empathy, altruism and mindfulness had been developed some time ago in this study, Thus, such instruments should be expanded, updated, and gain additional validation to ensure they reflect current scientific knowledge.

Another limitation in this study relates to the undergraduate student sample population and its relationship to other populations, such as individuals working in health care, teachers, and employees. Moreover, the association between empathy, altruism, mindfulness, and social behavior during the COVID-19 is likely to vary by individual and group characteristics, Nonetheless, research should be replicated among other groups of Omani society to achieve increased validity and clinical.

A limitation in this study was the use of self-report instruments. However, it would provide a means for assessing the students' current level of empathy, altruism, mindfulness, and their tendencies for helping behavior, as well as how the curriculum may be planned to meet individual and/or group needs. Moreover, health care organizations may utilize self-report instruments with medical providers as a tool to evaluate current effectiveness.

References

Accoto, A.; Chiarella, S.G.; Raffone, A.; Montano, A.; de Marco, A.; Mainiero, F.; Rubbino, R.; Valzania, A.and Conversi, D. (2021). Effects of Mindfulness-Based Stress Reduction Training on the Well-Being of a Female Sample during the First Total Lockdown Due to COVID-19 Pandemic in Italy. Int. J. Environ. Res. Public Health, 18, 5512.doi.org/ 10.3390/ ijerph18115512.

Advait, A. (2012). Effect of mindfulness awareness meditation on quality of life (Master thesis). Available from ProQuest Dissertations and Theses database. (UMI No. 1517568).

Allison, C., Baron-Cohen, S., Wheelwright, S.J., Stone, M.H. & Muncer, S.J. (2011). Psychometric analysis of the empathy quotient (EQ). Personality and Individual Differences, 51, 829–835.

Alzamzami, F and Saddik, A. E. (2021). Monitoring Cyber Sanitate Social Behavior During COVID-19 Pandemic in North America. IEEE Access, 9, 91184-91208, doi: 10.1109 /ACCESS. 2021.3088410.

Anderson, E., Brigden, A., Davies, A., Shepherd, E. and Ingram, J., (2021). Pregnant women's experiences of social distancing behavioral guidelines during the Covid-19 pandemic 'lockdown' in the UK, a qualitative interview study, BMC Public Health ,21:1202, https://doi.org/10.1186/s 12889-021-11202-z.

Anna Ridderinkhof, Esther I. de Bruin, Eddie Brummelman & Susan M. Bögels (2017) Does mindfulness meditation increases empathy. An experiment, Self, and Identity, 16:3, 251- 269, DOI: 10.1080/15298868.2016.1269667.

Batson, C.D. (2010), "Empathy-induced altruistic motivation", in Mikulincerand, M. and Shaver, P.R. (Eds), Prosocial Motives, Emotions, and Behavior: The Better Angels of Our Nature, American Psychological Association, Washington, DC, pp. 15-34.

Batson, C. D., Lishner, D. A., & Stocks, E. L. (2015). The empathy-altruism hypothesis. In D. A. Schroder & W. G. Graziano (Eds.). The Oxford handbook of pro social behavior (259–281). NY: Oxford University Press.

Briscese, Guglielmo, Nicola Lacetera, Mario Macis, and Mirco Tonin (2020). "Compliance withcovid-19 social-distancing measures in Italy: the role of expectations and duration". https://ftp.iza.org/dp13411.pdf.

Cross TJ, Isautier JMJ, Morris SJ, Johnson BD, Wheatley-Guy CM, Taylor BJ.(2020). The

Influence of Social Distancing Behaviors and Psychosocial Factors on Physical Activity During the COVID-19 Pandemic: Cross-sectional Survey Study, JMIR Public Health Surveil ,7(9): 31278. doi: 10.2196/31278. https://preprints.jmir.org/preprint/31278.

David, D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? Psychotherapy, 48(2), 198-208.

Delamater, P.L., Street, E.J., Leslie, T.F., Yang, Y.T. and Jacobsen, K.H. (2019), "Complexity of the basic reproduction number (R0)", Emerging Infectious Diseases, 25 (1), 1-4.

De Oliveira. A. M., . Buchain. P. C., Vizzotto, A. D. B., Elkis.H., and Cordeiro, Q. (2013). Psychosocial impact. In Encyclopedia of Behavioral Medicine. M. D. Gellman and J. R. Turner (Eds.). Springer, New York, NY.

Dovjak M., Kukec A. (2019) Identification of Health Risk Factors and Their Parameters. In: Creating Healthy and Sustainable Buildings. Springer, Cham. https: // doi.org/10.1007/978-3-030-19412-3_3

Gackenbach, J., & Bown, J. (2011). Mindfulness and video game play: A preliminary inquiry. Mindfulness, 2(2), 114-122.

Galli F, Pozzi G, Ruggiero F, Mameli F, Cavicchioli M, Barbieri S, et al. (2020). Systematic review and provisional metanalysis on psychopathologic burden on health care workers of coronavirus outbreaks. Front Psychiatry,11:568664. Doi: 10.3389/ fpsyt.2020.

Grossman, P. (2015), "Mindfulness: awareness informed by an embodied ethic", Mindfulness, 6 (1), 17-22.

Guillaume, N.; Jean, M.; Marcaurelle, R.; Dupuis, G. (2020). Mindfulness meditation versus training in tranquil abiding: Theoretical comparison and relevance for developing concentration. Psychol. Conscious. 7, 151–172.

Hafenbrack, C., Cameron, L.D., Spreitzer, G.M., Zhang, C., Noval,. J. and Shaffakat, S. (2019), "Helping people by being in the present: mindfulness increases prosocial behavior", Organizational Behavior and Human Decision Processes, 159, 21-38

Hayes, A.F. (2017). Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach, Guilford publications, New York, NY.

Hsiang, S., Allen, D., Annan-Phan, S. et al. (2020). The effect of large-scale anti-contagion policies on the COVID-19 pandemic., 584, 262–267. https://doi.org/10.1038/s41586-020-2404-8.

Huang, Jiatao; Shi, Hongbo; Liu, Wei (2018). Emotional Intelligence and Subjective Well-Being: Altruistic Behavior as a Mediator. Social Behavior and Personality: an international journal, 46(5), 749-758.

Huang, T. Mariani, S. and Redline, S. (2020). Sleep irregularity and risk of cardiovascular events: Themulti-ethnic study of atherosclerosis. Journal of the American College of Cardiology 75(9), 991–999

Huang, C, Wang, Y, Li, X, et al. (2019). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China, The Lancet, 395 (10223), 497-506.

Judd, C.M. and Westfall, Jacob (2013). Treating Stimuli as a Random Factor in Social Psychology: A New and Comprehensive Solution to a Pervasive but Largely Ignored Problem. Journal of Personality and Social Psychology American Psychological Association, 103 (1), 54 – 69.

Juneau, C.; Shankland, R.; Dambrun, M. (2020). Trait and state equanimity: The effect of mindfulness-based meditation practice. Mindfulness, 11, 1802–1812.

Kaplan, L., Frias, L. And McFall-Johnson. L (2020). Our ongoing list of how countries are reopening, and which ones remain under lockdown. Business Insider. Retrieved April 16, 2020, from https://www.businessinsider.com/countries-on-lockdown-coronavirusitaly- 2020-3?r=DE&IR=T.

Kumar, S; Panda, T,; Behl, A & Kumar,A.(2020). A mindful path to the COVID-19 pandemic: an approach to promote physical distancing behavior. International Journal of Organizational Analysis, DOI 10.1108/IJOA-08-2020-2358, https://www.emerald.com/insight/1934-8835.htm.

Kumar, S., Panda, T., Behl, A., Kumar, A. (2020). A mindful path to the COVID-19 pandemic: An approach to promote physical distancing behavior. International Journal of Organizational Analysis, Vol. ahead-of-print No. ahead-of-printhttps://doi.org/10.1108/IJOA-08-2020-2358.

Lewnard JA, Lo NC. (2020). Scientific and ethical basis for social-distancing interventions against COVID-19. Lancet Infect Dis. 20(6):631–3. https://doi.org/10.1016/S1473-3099(20)30190-0.

Lim, D., Condon, P. and DeSteno, D. (2015), "Mindfulness and compassion: an examination of mechanism and scalability", PloS One, 10 (2), 0118221.

Liu, Y., Gayle, A.A., Wilder-Smith, A. and Rocklov, J. (2020), "The reproductive number of COVID-19 is higher compared to SARS coronavirus", Journal of Travel Medicine, 27 (2). 1-4.

Liu, Bao Y. P., Huang X. L., Shi J., Lu L. (2020a). Mental health considerations for children quarantined because of COVID-19. Lancet Child & Adolescent Health, 4(5), 347–349. Doi:10.1016/S2352-4642(20)30096-1

Matiz A, Fabbro F, Paschetto A, Cantone D, Paolone AR, Crescentini C., (2020). Positive Impact of Mindfulness Meditation on Mental Health of Female Teachers during the COVID-19 Outbreak in Italy. International Journal Environ Res Public Health17(18),6450,

Pfattheicher, S., Nockur, L., Böhm, R., Sassenrath, C., and Petersen, M. B. (2020). The emotional path to action: empathy promotes physical distancing and wearing of face masks during the COVID-19 pandemic. Psychol. Sci. 31, 1363–1373. doi: 10.1177/0956797620964422.

Pennycook, G., McPhetres, J., Bago, B. and Rand, D. (2020), "Predictors of attitudes and misperceptions about COVID-19 in Canada, the UK, and the USA", Working paper, available at: https://osf.io/ 3a497.

Perssona, B. N. & Kajoniusa, P. J. (2015). Empathy and universal values explicated by the empathy-altruism hypothesis. The journal of social psychology. Available: http://dx.doi.org/10. 1080/00224545.2016.1152212.

Pohling, R., Bzdok, D., Eigenstetter, M., Stumpf, S. and Strobel, A. (2016), "What is ethical competence? The role of empathy, personal values, and the five-factor model of personality in ethical decision making", Journal of Business Ethics, 137(3), 449-474.

Psychiatric Times. Retrieved April 16, 2020, from https://www.psychiatrictimes.com/mental-health/mental-illness-will-cost-world-16-usd-trillion-2030.

Richaud, M.C., Lemos, V.N., Mesurado, B. and Oros, L. (2017), "Construct validity and reliability of a new Spanish empathy questionnaire for children and early adolescents", Frontiers in Psychology, 8, 979.

Ridderinkhof, A., de Bruin, E.I., Brummelman, E. and Bogels, S.M. (2017), "Does mindfulness meditation increase empathy. An experiment", Self and Identity, 16 (3), 251-269.

Rushton, J. P., Chrisjohn, R. D. Fekken, G. C. (1981). The altruistic personality and the self-report altruism scale, Personality and Individual Differences, 7, 293–302

Schwartz, S. H. (2012). An Overview of the Schwartz Theory of Basic Values. https://scholarworks.gvsu.edu/orpc/vol2/.

The Carter Center (2018). Mental illness will cost the world $16 USD trillion by 2030.

Trautwein, F.M., Naranjo, J.R. and Schmidt, S. (2014), "Meditation effects in the social domain: self-other connectedness as a general mechanism?", in Schmidt, S. and Walach, H. (Eds), Meditation – Neuroscientific Approaches and Philosophical Implications, Springer, Cham, pp. 175-198

Van Hoof, Elke (2020). Lockdown is the world's biggest psychological experiment—And we will pay the price. World Economic Forum. Retrieved April 16, 2020, from https://www.weforum.org/agenda/2020/04/this-is-the-psychological-side-of-the-covid-19-pandemicthat- were-ignoring/.

Van Bavel, J.J.V., Baicker, K., Boggio, P.S. et al. (2020). Using social and behavioral science to support COVID-19 pandemic response. Nat Hum Behavior, 4, 460–471. https://doi.org/10.1038/s41562-020-0884-z.

World Health Organization (2020), "Rolling updates on coronavirus disease (COVID-19)", available at: www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-print. https://doi.org/10.1108/IJOA-08-2020-2358 they-happen (accessed 22 May 2020).

World Health Organization (2021)." Mental health preparedness and response for the COVID-19 pandemic", available a https://apps.who.int/gb/ebwha/pdf_files/EB148/B148 (accessed 8 January 2021).