Islamic Guidance and Counseling Journal
https://journal.iaimnumetrolampung.ac.id/index.php/igcj

The Effect of Reverence ('Khushoo') in Muslim Prayer on Cardiovascular Responses

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Article Information:
Received 2024-02-16
Revised 2024-04-15
Published 2024-04-25

Keywords:
cardiovascular responses
Khushoo
Muslim
Prayer
reverence

Abstract

A Muslim usually prays 5 times a day, is obligatory for every Muslim. Prayer includes many movements and postures, and measure of reverence in Muslim prayer (MRMP) is an essential part of accepting this practice. This study aimed to explore the effectiveness of MRMP on some cardiovascular responses (CRs). The study sample consisted of 74 students (36 = males, 38= females) with ages ranging from 18 to 20 years (M = 19.44, SD = 0.74). The participants were from Jadara University (Jordan) and were selected according to the degree of their responses to both sides of MRMP. They were divided into two groups: a high MRMP group (N = 37), who obtained the highest scores on the MRMP scale, and a low MRMP group (N= 37), who had the lowest scores on MRMP. The high MRMP group was trained on the items of MRMP and reminded of them, while the low MRMP group did not receive any kind of training. The results showed that there was a decrease in the after measurements of pulse (F = 12.326, p = 0.001), systolic blood pressure (F = 30.331, p = 0.001) and diastolic blood pressure (F = 18.375, p = 0.001), while the results did not show an effect on the oxygen level. The results did not show an effect of sex, nor an interaction between group and sex. The results of this study supported the importance of MRMP and its positive impact on the health of the body, the circulatory system, and heart health as a result of mental health.

INTRODUCTION

Prayer in Islam is a spiritual oasis to which the Muslim goes to find a cure for his psychological, physical and spiritual problems and to give up the worries of life. It is a treatment for psychological emptiness, and it is Islam's radical and systematic treatment for what many educators and reformers criticize among the youth because it satisfies the heart's need for the love of God almighty and attachment to Him. Prayer brings the Muslim out of the heedlessness of his heart to the light of God and to attachment to him, who is greater than all worldly concerns and problems (Abu Al-Hajj, 2015).

The Jewish, Christian, and Islamic religions emphasize the importance of reverence to God, which is the fear of God, devotion to Him, and a sense of His greatness and existence (i.e., to feel love towards God as we see Him and not to feel disappointed because our wishes have not been fulfilled). All religions agree that reverence is the fear of God and the desire to obtain His approval and avoid his punishment (Aldahadha, 2023; Black et al., 2015; Carver, 1912; Lenfesty & Morgan, 2019).

Muslim prayer is one of the five pillars of Islam. As the most important pillar in the Islamic religion, it must be performed by all Muslims without interruption at five fixed times every day. It entails certain bodily movements, including standing, kneeling, prostrating,

How to cite: Aldahadha, B. (2024). The effect of reverence ('Khushoo') in Muslim prayer on cardiovascular responses. *Islamic Guidance and Counseling Journal, 7*(2). https://doi.org/10.25217/0020247453600
E-ISSN: 2614-1566
Published by: Institut Agama Islam Ma'arif NU (IAIMNU) Metro Lampung

sitting, turning to the right and then left regularly and following specific and recognized instructions, the most important of which is reverence is linked to mindfulness, meditation, mental health and wellbeing (Aldahadha, 203; Wu & Lo, 2008). What is more, prayer includes a few different physical positions, which are called standing, kneeling, prostrating, and sitting. These practices and movements are compulsory, and Muslims must perform them five times every day. It contains a depth of focus, contemplation, reflection, and foresight, ignoring everything that could affect the Muslim's reverence and meditation on the Qur'an (Aldahadha, 2023; Doufesh et al., 2016).

Muslim prayer is usually delivered in Arabic, and it is a form of meditation that is obligatory for every sane adult Muslim to do. It includes reading Surah Al-Fatihah and what is available from the Qur'an and remembering God and praising him during the various movements and situations (Doufesh et al., 2012). Religious ideas generally contribute to reducing and alleviating mental disorders and solving problems related to anxiety, depression, antisocial behaviors, and suicide (Lafmejani, 2021). Prayer is the most important alternative therapeutic method for dealing with many psychological, physical and social problems (South & McDowell, 2018). Prayer contributes to controlling and managing pain and improving the quality of life, ultimately helping to relieve pain as an alternative treatment modality (Breivik et al., 2006).

There has been a clear increase in the use of prayer as an alternative treatment for many mental and physical disorders and social problems, and there is new research concerned with understanding the role of prayer and spiritual life in dealing with the difficulties of life in general. Most of these studies have confirmed that prayer is an important and effective mechanism to manage and control pain and reduce psychological problems, bearing in mind that there are many types and forms of prayer, according to the multiplicity of religions and religious people (Laird et al., 2004; Najem et al., 2023).

Religious meditation during prayer is an important method for reducing psychological stress and anxiety and promoting a sense of relaxation. It also achieves a healthy balance between the mind and body (Lee et al., 2007; Reibel et al., 2001). Banquet (1973) found that regular rhythmic meditation religious increases beta and alpha radiation. While the results of a study of Christian, Jewish, and Muslim worshipers showed that getting closer to God mediates the relationship between prayer and mental health in the Christian and Muslim samples, the same was not found in the Jewish sample, and prayer was frequently associated with mental health among the three samples (Jeppsen et al., 2022).

Several studies have been conducted on the physical, psychological and social benefits of prayer. For example, it helped treat erectile dysfunction in a sample of worshipers (Claes & Baert, 1993; Ibrahim et al., 2013; Van Kampen et al., 2003). During prayer, parasympathetic brain activity increases and sympathetic brain activity decreases, which means an increased sense of relaxation, a decrease in anxiety, and thus a reduction in the risks of circulatory system and heart disease (Doufesh et al., 2014; Doufesh et al., 2016). Additionally, Yusni et al. (2023) founded that Tahajjud may have a potential role in promoting cardiovascular health.

Some authors have studied electroencephalogram (EEG) results during different prayer positions to evaluate the electrical activity in the brain, which can help detect potential problems with brain cell communication. (Sobhani et al., 2021), while others have been concerned with the responses of the heart and blood vessels during different prayer positions. The results showed that there was a significant decrease in systolic and diastolic blood pressure during prayer, and heart rate increased in kneeling positions vs. more resting positions, while the results did not show any statistically significant changes in arterial pressure values (Rufa'i et al., 2013).

Albatnuni and Koszycki (2020) found that Muslim prayer mediates the relationship between social support and wellness and that meditation is frequently associated with wellness.

Their study concluded that optimism and spiritual experiences are very important and complementary in explaining the positive effects of prayer and wellness among Muslims. In a study on the impact of prayer as exercise on the cognitive functions of a sample of elderly Muslims, the results showed that the exercise included in Muslim prayer is an alternative form of exercise that benefits elderly Muslim worshipers, especially those who cannot do normal exercise (Bai et al., 2012). Recently, Jarego et al. (2023) found that the prayer of a Muslim contributes significantly to reducing pain and, in turn, leads to an increase in the ability to tolerate pain.

In a study on Muslim prayer as therapeutic exercise, Osama and Malik (2019) found that prayer improved balance in healthy people as well as in patients who have suffered strokes. Prayers also contribute to reducing the likelihood of developing knee roughness and provide the body with energy and other benefits that are reflected in the circulatory system and in heart health. In another study of the effect of regular Muslim prayer on balance, the sample members were distributed equally into two groups: high MRMP and low MRMP. The high MRMP group prayed regularly, while the low MRMP group prayed inconsistently or not at all, and the level of dynamic balance was measured among the members of the two groups. The results showed that the regularly praying group outperformed the inconsistent group in the level of balance.

The results of that study support the hypothesis that meditation and regular prayer support the physiological functions of humans, especially in improving bodily balance (Alabdulwahab et al., 2013). Many studies have been conducted to explore CR during different conditions and activities of the body, including the positions of Muslim prayer. Prostrating during prayer for a relatively long period of time reduces heart rate, increases ejection duration, and increases oxygen in the blood (Naylor et al., 2005). On the other hand, the results of other studies showed that inversion or tilting in the opposite direction, that is, backward, will increase blood pressure and reduce the oxygen level, which supports the correctness of the movements and positions of Muslim prayer (facing and kneeling forward) (Deklunder et al., 1993; Jansen, 1995).

Prayer is an effective remedy for calamities and afflictions spiritual, physical and psychological. The physical movements of prayer are a treatment for those suffering from depression and grief and those who feel frustrated by practicing simple muscular exercises if they cannot run, for example. Prayer contributes to increasing blood movement and facilitating its access to the brain. With more blood reaching the brain, the chemical composition of the brain changes, which also means an increase in the oxygen level in the brain, helping improve mood (Bahij, 2013). The importance of this last study lies in building on earlier studies that emphasized the importance of reverence in prayer as a pivotal factor and a major reason for health among Muslims (Aldahadha, 2023). The purposes of prayer are great and many, and reverence is the essence and heart of a Muslim's prayer. Reverence is achieved at an advanced level, as prayer is a therapeutic and preventive "medicine" that a Muslim takes five times a day at specific times.

In 1968, Benson (1985) at Harvard University decided to test the benefits of meditation to determine the extent of its effect on controlling the symptoms of psychological pressure. What he found was that his heart rate and breathing rate reached a minimum, his blood oxygen was 20% higher than normal, and the lactic acid in his blood fell. He noted that lactic acid is high in situations of psychological stress or fatigue, as is the resistance of the skin to electric shock, so his findings indicated a state four times as relaxed as his normal state. The results of brain imaging (EEG) showed an increase in the activity of alpha rays, additional evidence of relaxation. Benson has continued to demonstrate the effectiveness of meditation in amplifying these physiological changes (Davis et al., 2008).

Because prayer is a form of meditation and mindfulness, despite the difference in its contents between peoples and religions (Knabb, 2010), the idea of our research was to explore

the effect of reverence in Muslim prayer as a therapeutic method the cardiovascular system, which includes the performance of vessel and heart functions. respiratory system. By reviewing the literature, we found that most studies have taken into account the bodies and positions of prayer, which are standing, kneeling, prostrating, sitting, and finally saluting. What distinguishes this study from its predecessors is that it focuses on the variable of reverence in prayer and its impact on CRs, given that the real prayer required of a Muslim is assumed to have an element of reverence, which is the most important part of Muslim prayer. Thus, the studies that looked only at different movements and positions without adjusting for the variable of reverence may have missed that their results were due to the religious and spiritual aspect of the prayer and the divine contemplation commanded by the Islamic religion.

This study aimed to investigate the effect of reverence in Muslim prayer and the different positions of worshipers on CRs in the nation of Jordan. We hypothesized that there would be significant differences in CRs during the period of sitting according to group (high MRMP vs. low MRMP), sex, and the interaction between them.

METHODS

Participants and procedures

A total of 143 first-year students at Jadara University (Jordan) applied to participate in this study. They were recruited through the advertisement that was sent to all students of the first year, their ages ranged from 18 to 20 years (M = 19.44, SD = 0.74). All students who suffered from chronic diseases, chronic headaches and high blood pressure, as well as those who suffered from difficulties in breathing or any disease related to the circulatory system or heart and all smokers, were excluded (N=12). In a later step, an MRMP scale was applied (Aldahadha, 2023). According to the correction of the scale, which requires a quadruple gradient from zero to 3, individuals who had scores within the upper category who exhibited high MRMP (79-117, N=37) and the lower category who exhibited low MRMP (0-39, N=37) were selected. Individuals who scored within the middle category (40-78, N=57) of the MRMP were excluded. Thus, the individuals who obtained the highest scores on MRMP were distributed within the experimental group. They all declared that they committed to performing the prayers regularly, on time, and without interruption. Those who obtained low scores became the low MRMP group. They admitted that they do not adhere to performing the prayers on time, are not regular with them, and perform them only from time to time.

Interventions

The study sample members were divided equally into two groups according to their scores on the MRMP, a high MRMP group and a low MRMP group, regardless of sex. Thus, the final number of participants was 38 students in each group. Consent was obtained from all participants before starting the study procedures in accordance with the instructions of the Helsinki Declaration. Figure 1 represents the filtering procedures of the study sample from start to finish. Because the study included medical aspects, four nurses were hired to help carry out the procedures of this study. They were all practicum training students at Jordan University of Science and Technology, which is the closest university to Jadara University. They agreed to carry out this task after agreeing with their supervisor that this work would count toward their graduation requirements. A sum of $100 was paid to each of them. As part of the study protocol for controlling extraneous factors, all members of the study sample were advised not to consume beverages containing caffeine or any form of stimulant, cola, or energy drinks at least 12 hours before the any study procedures. Additionally, to control the testing time so that it was uniform for both the groups, all measurements were performed while conducting Muslim praying (*Salat Aduher*) in both groups.

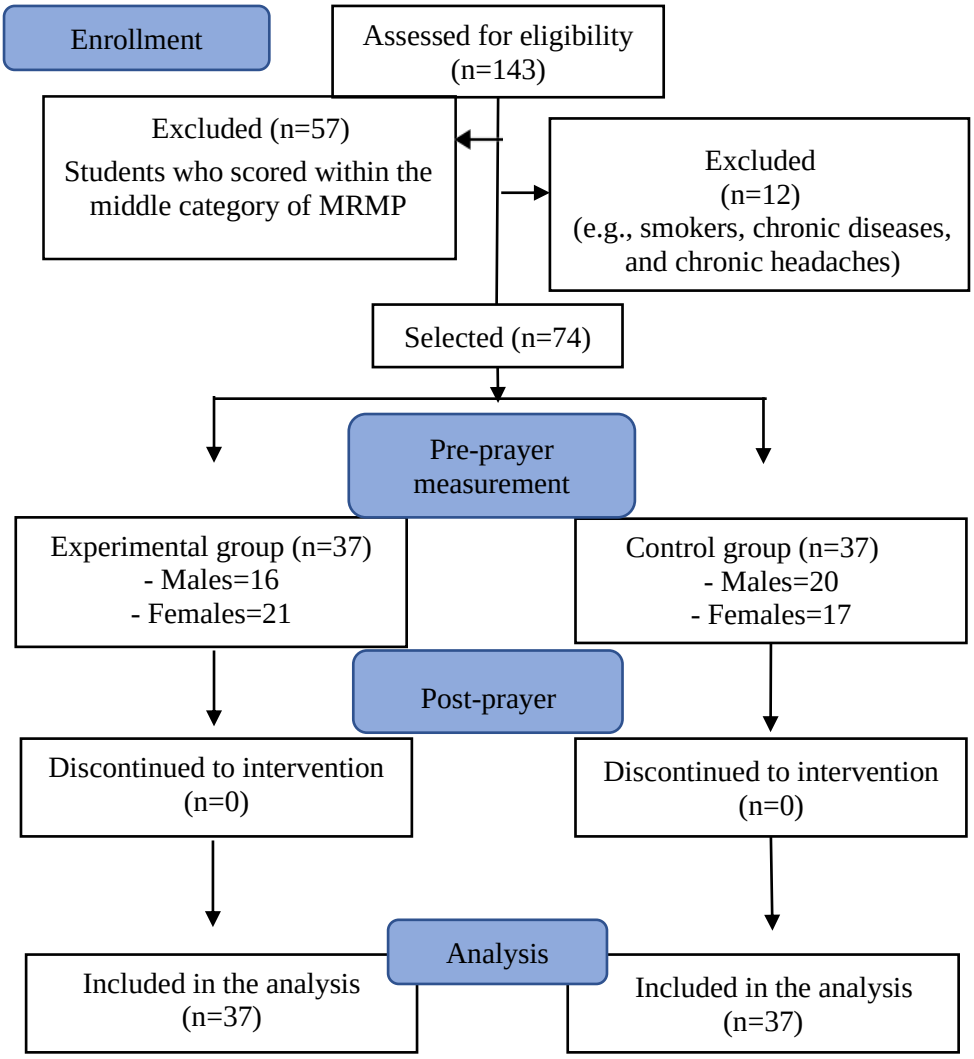

Figure 1. The filtering procedures of the study sample from start to the finish

Two halls of the department of physical education were chosen to be equipped for this purpose. The first was allocated to the high MRMP group members, they reverence an attitude that one has internally when one prays or is in a set of thoughts, behaviors, and feelings that differ from the low MRMP group, dependent on their scores of MRMP, while the second was allocated to the low MRMP group members. Two nurses (one male and one female nurse) were appointed to follow up with the high MRMP group members and take different measurements by conducting Muslim praying (*Salat Aduher*) for one hour in each session, and the same was done for the low MRMP group members. When the members of the two groups arrived at the designated hall, they were explained the study protocol, and their ages, weights, and heights were measured using a stadiometer and bathroom scale. The premeasurements were taken before prayer, and 5 minutes after completing the prayer, the post measurements were taken: oxygen percentage, systolic blood pressure, diastolic blood pressure, and pulse.

The participants were instructed that the period of prostration and bowing should be between 15 and 20 seconds only, while the period of sitting should not exceed 2 minutes. Before and after measurements were taken in all members of the study sample, and averages were calculated over the five days of the high MRMP versus low MRMP. Thus, the variables of group and sex were independent variables, while the measurements of oxygen percentage, systolic blood pressure, diastolic blood pressure, and pulse after 5-8 minutes of sitting were considered dependent variables. The approval of the Scientific Research Committee, Jadara

University, was obtained before the study began.

Instruments

Digital Electronic Devices

These were instruments used to measure blood pressure, pulse, and oxygen percentage (Beurer D-89077 Germany), in addition to a stadiometer, a bathroom scale, a stopwatch, a form for documenting data, and pens.

Measure of reverence in Muslim prayer (MRMP)

This measure is developed by Aldahadha (2023). This scale consists of 39 items divided into four domains: which are answered on a four-quadrant scale from 0 to 3. The score ranges from 0 to 117, a higher score indicating a higher degree of reverence. These factors have been named as follows: Factor 1, groveling (6 items), refers to feeling the greatness of God and submission to him (i.e., Invoke the greatness of God before praying, I am willing to submit to God, and Conjure standing before God); factor 2, focused attention (10 items), points to ignoring all external and internal stimuli and meditating on God's words only (i.e., I feel that God is close to me and hears me, Empty my mind of the needs of the world, and Ignore all life's concerns and problems); factor 3, contemplating (8 items), means thinking about the words of God and imagining the greatness of God (i.e., I am aware that reverence is the spirit of prayer, I think about the verses of the Qur'an, and I think about the meanings, movements, and verses of prayer); factor 4, praying behavior control (8 items), is defined as not making any random voluntary movement that violates the conditions of prayer (i.e., I stay still and do not move or turn around, I perform the prayer on time, and I just look at the place of prostration).

The scale has good psychometric properties, as shown by exploratory factor analysis and confirmatory factor analysis. The results showed that the four domains of the scale predicted 67.27% of the variance percentage. The results also showed that the value of Cronbach's alpha for the four factors ranged from 0.85 to 0.77, while the scale as a whole had a Cronbach's alpha of 0.92. Finally, the results of the scale were statistically significant across its four domains. The original study recommended the importance of using this scale to enhance mental health factors among Muslim worshipers because it is statistically associated with wellness, mindfulness, mental health and happiness.

Data analysis

Data were analyzed using SPSS version 23. The means and standard deviations of the participants were calculated, and measurements and physical characteristics were tabulated. The t test was used for independent samples to determine the differences between the high MRMP and low MRMP group members according to some demographic variables, and then the analysis of covariance (ANCOVA) and Levine's test were used to determine the significance of the differences in CR according to group, sex, and the interaction between group and sex.

RESULTS AND DISCUSSION

Results

To verify the equivalence of the high MRMP and low MRMP groups, a t test was performed on the before measurements according to the variables of age, weight, height, and body mass. The results showed that there were no statistically significant differences at baseline between the high MRMP and low MRMP groups in the variables of age ($t = .312$, $p = 0.867$), weight ($t = -.020$, $p = 0.801$), height ($t = .990$, $p = 0.933$) and body mass index ($t =$

-.168, 0.520). As shown in Table 1, we controlled for demographic variables, especially those related to physical factors (weight, height, age, and body mass), which may affect internal validity.

To investigate the effect of MRMP on the CRs of pulse, oxygenation, diastolic blood pressure and systolic blood pressure, the analysis of covariance (ANCOVA) was performed. From the same test, averages and standard deviations were extracted, and Levine's test was run for equivalence of groups. Table 2 shows that the high MRMP and low MRMP groups were equivalent in the variables of pulse (Levene = 2.614, p = 0.058), oxygenation (Levene = .359, p = 0.783) systolic blood pressure (Levene = 3, p = 0.269), and diastolic blood pressure (Levene = 1.330, p = 0.272), which means that the distribution of the study sample was within normal limits, so the conditions for using the analysis of covariance (ANCOVA)were met.

Table 3 shows the means and standard deviations of the high MRMP and low MRMP groups and sex on CRs. It is clear from the table that there was a difference in the averages. To test the significance of these differences, analysis of covariance (ANCOVA) was performed as shown in Table 4. The effects of group, sex and their interaction on CR were tested. The results showed that group only affected the variables of pulse (F = 12.326, p = 0.001), systolic blood pressure (F = 30.331, p = 0.001) and diastolic blood pressure (F = 18.375, p = 0.001), while the results did not show any differences attributed to oxygen, sex, or to the interaction between group and sex. There was a clear superiority of the high MRMP group over the low MRMP group in the variables of pulse, systolic pressure, and diastolic pressure.

Table 1. Physical characteristics of participants by group (df=72, N= 37 for each group)

Variable	High MRMP group (Mean; SD)	Low MRMP group (Mean; SD)	t	P value
Age	19.46(.730)	19.41(.762)	.312	0.867
Heigh	169.08(11.96)	169.13(11.86)	-.020	0.801
Weight	71.32(11.51)	68.56(12.42)	.990	0.933
BMI	22.24(6.42)	22.48 (6.05)	-.168	0.510
MRMP pre-measurement	109.35(11.51)	14.26(16.22)	13.47	0.001

Note: MRMP= Measure of reverence in Muslim prayer

Table 2. Levene's test of equality of error variances based on mean.

Variable	Levene Statistic	df1	df2	Sig.
Pulse	2.614	3	70	0.058
Oxygen	.359	3	70	0.783
Systolic blood pressure	3	70	.848	0.269
Diastolic blood pressure	1.330	3	70	0.272

Table 3. Means and standard deviations of CR by group and sex.

Variable	High MRMP group (N=37)						High MRMP group (N=37)					
	Male (N=16)		Female (N=21)		Total		Male (N=20)		Female (N=17)		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Oxygen	97.19	1.91	96.52	1.66	96.81	1.78	96.25	1.58	96.88	1.65	96.54	1.63
Pulse	67.18	5.11	66.76	4.53	66.94	4.73	74.15	17.25	76.53	7.40	75.24	13.52
SBP	112.31	9.69	111.52	7.73	111.89	8.51	123.75	8.97	121.94	7.35	122.92	8.21
DBP	74.56	3.33	75.05	16.31	74.84	12.34	84.45	4.87	84.23	4.94	84.35	4.84

Discussion

This study aimed to explore the effect of reverence in Muslim prayer on some CRs among a sample of male and female university students. It has been assumed that a Muslim's prayer, which includes a high degree of reverence, will have an effect on some CRs, including the level of oxygen in the blood. The study participants were divided into two high MRMP and low MRMP groups, and the results showed that there was a statistically significant effect

of reverence in prayer, which is quantified in the form of several behavioral, cognitive, and effectiveness responses in the reverence in Muslim prayer scale (Aldahadha, 2023).

Table 4. Effect of reverence in Muslim prayer on CRs due to sex, group, and the interaction between them

Variable	Source	df	Mean Square	F	Sig.	Eta Squared
	Sex	1	17.734	.169	0.682	0.002
Pulse	Group	1	1291.262	12.326*	0.001	0.150
	Group * sex	1	35.937	.343	0.560	0.005
Oxygen	Sex	1	.003	.001	0.976	0.001
	Group	1	1.348	.469	0.496	0.007
	Group * sex	1	7.672	2.669	0.107	0.037
Systolic blood pressure	Sex	1	32.456	.455	0.502	0.006
	Group	1	2165.482	30.331*	0.001	0.302
	Group * sex	1	4.189	.059	0.809	0.001
Diastolic blood pressure	Sex	1	.324	.004	0.952	0.001
	Group	1	1659.806	18.375*	.000	0.208
	Group * sex	1	2.237	.025	.875	0.001

Note: *=significant difference at $p<0.01$

To verify the internal validity of the MRMP scale, the members of the group participating in this study were chosen according to their desires, as this study was announced and a number of students responded and were filtered according to the conditions of the study procedures and high MRMP low MRMP factors, the most important of which were consistency and similarity in demographic and physical characteristics, age, weight, height, body mass and nonsmoking. There were no chronic diseases, and the participants did not suffer from any diseases of the blood vessels or the heart. All the participants were first-year students, so they were close in age. The MRMP scale was applied to all participants who met the conditions, so they were filtered into two groups: a group that prayed with a high degree of reverence and another group that declared it engaged in little to noreverence during prayer and that was not committed to prayer from the start. The first group was considered in the high MRMP group, which was trained and reminded of the items of the reverence scale in prayer, while the second group was considered the low MRMP group, which was not interfered with, being required only to pray.

The results showed that there was a clear decrease in the average values of pulse, systolic pressure, and diastolic pressure between the high MRMP and low MRMP groups, which differences are in favor of the high MRMP group, while the results did not show any differences between the high MRMP and low MRMP groups, between males and females, or by the interaction between group and sex in terms of the percentage of oxygen in the blood. The results of this study agree with the results of a number of other studies, the most important of which is the study of White and Mawdsley (1983), which found that there was a clear decrease in systolic and diastolic blood pressure when prostrating. The results of this study also agreed with the study of Rufa'i et al. (2013), which found that Muslim prayer in the kneeling and prostrating position has the effect of reducing systolic and diastolic blood pressure. Likewise, Osama and Malik (2019) found that prayer improved balance in healthy people and provided the body with energy and benefits that were reflected in the circulatory system and heart.

Our findings also agree with those of Benson (1985), which focused on the fact that meditation has many benefits, the most important of which are a decrease in the pulse rate, an increase in the percentage of oxygen in the blood, a decrease in blood pressure, the body's resistance to electric current, and other benefits. Note that meditation is a major and essential

part of the elements of Muslim prayer, and the results of this study agree with the study of LeMarr et al. (1983), which found that there was a decrease in systolic blood pressure during the first three minutes of prostration, and they agree with the results of Klatz et al. (1983) and Ballantyne (1986), which all showed that there was a decrease in systolic blood pressure during the kneeling or prostrating position. These results can be explained by the fact that psychological factors directly affect the functions of the circulatory system and affect the body in general.

Through a review of the results of previous studies, we find that there is an effect of prayer posture on the CRs and vascular functions in one way or another, and if there are differences, these differences are due to the time spent by the worshiper in prostration, kneeling, or sitting or the methods by which the researchers took dimensional measurements. Therefore, this study sought to take after measurements in the sitting position, in which the worshiper is supposed to have fulfilled the conditions of meditation, mindfulness, mental health, and stress reduction (Alabdulwahab et al., 2013; Aldahadha, 2023), which are conditions that are mainly related to the factors of reverence in prayer. It is also asserted that the more deeply a person prays with reverence and meditation, ignores all the external influences around him, abandons his negative thoughts, and focuses on his relationship with God, all of this will have a positive impact on health in general.

The results of this study showed that there were no differences in the CR attributable to sex or the percentage of oxygen, and the explanation for this result is that sex is not an individual or personal factor that can affect the differences in CRs that are attributable to the degree of reverence in prayer. The results of many studies have found that there are no differences in the average CR values attributed to sex or to the different positions and movements during Muslim prayer (Rufa'I et al., 2013; Waldstein et al., 1998).

As an important limitation, most prominent determinant of this study, which must be kept in mind when interpreting its results, is the low coefficient of external validity. It was low because the participants in this study were chosen according to their scores on the reverence scale in Muslim prayer, and they were the ones who had the highest scores and the lowest scores on the scale. Thus, they were purposefully distributed into the high MRMP and low MRMP groups. This study was limited to first-year students only. The study was conducted at the end of the second semester, and it was difficult to control the temperatures, as there are no air conditioners to adjust the temperature of the halls, and the schedule of measurements and meetings with the participants was predetermined.

Implications on Physiotherapy Practice

Despite the existence of these limitations, this study can benefit people through its results that can be used to support the health of the body in general and the circulatory system in particular. The results of this study showed that there is a statistically significant decrease in the post- prayer systolic blood pressure, diastolic blood pressure and pulse rate of the high MRMP group members, who performed the Muslim prayer in deep and complete reverence as stipulated in the Islamic religion and compatible with the reverence measure in prayer, measured after the end of the prayer process (while sitting), compared to the values measured in the low MRMP group, which did not have these components.

These results indicate that praying with reverence positively affects the health of the body and the circulatory system, especially the systolic and diastolic blood pressure and the pulse rate. The positions that a Muslim takes during prayer are safe and have a good effect of reducing blood pressure measures in the long run.

CONCLUSION

The results of this study showed that there is a statistically significant decrease in the

post-prayer systolic blood pressure, diastolic blood pressure and pulse rate of the experimental group members, who performed the Muslim prayer in deep and complete reverence as stipulated in the Islamic religion and compatible with the reverence measure in prayer, measured after the end of the prayer process (while sitting), compared to the values measured in the control group, which did not have these components. These results indicate that praying with reverence positively affects the health of the body and the circulatory system, especially the systolic and diastolic blood pressure and the pulse rate. The positions that a Muslim takes during prayer are safe and have a good effect of reducing blood pressure measures in the long run.

ACKNOWLEDGMENTS

The author would like to express his deepest gratitude to all those who have contributed to this research on the followers of Jadra University students and administrators. The research leading to these results received funding from Mutah University through the central budget of the Deanship of Scientific Research.

AUTHOR CONTRIBUTIONS STATEMENT

BA led the research from the early stage to the end of the research and was responsible for designing and writing the overall manuscript, initiated the study, conducted the literature search, analyzed and interpreted the data, and approved the submitted version.

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