

Prayer and Depression: Women in Rural Pakistan

by

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Thesis submitted in partial fulfillment of  
the requirements for the degree of  
Master of Science in the Duke Global Health Institute  
in the Graduate School of Duke University

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ABSTRACT

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## **Abstract**

Background: Depression is a growing mental illness in Pakistan. Religion and depression have not been studied in Pakistan currently, specially within a subset of a rural population.

Methods: A secondary-data analysis was conducted using logistic regression. The setting was in rural Pakistan, near Rawalpindi, and the sample size data was collected from the SHARE (South Asian Hub for Advocacy, Research, and Education). The measures used were the Patient Health Questionnaire-9 scale for depression, prayer number (the number of prayers prayed), mother's education, mother's age, and if the mothers work.

Results: This study demonstrated that there was no association between prayer and depression in this cohort. The mean prayer number between depressed and non-depressed women was 1.22 and 1.42, respectively, and a Wilcoxon rank sum test indicated that this was not significant.

Conclusions: The primary finding indicates that increased frequency of prayer is not associated with a decreased rate of depression. This may be due to prayer number not being a significant enough measure. The implications of these findings demonstrate that religion may need to be measured with a more wholesome definition than simply the number of prayers one prays.

## Dedication

I dedicate this work to my mother, Dr. Shehla Ali Mirza, a physician who has been standing against the oppression of women in Pakistan, who taught me to confidently take ownership of my brown skin, and to be kind to others; my maternal grandfather, Dr. Ali Muhammad Chaudry, my ray of light, a Pakistani physician who has established small and accessible medical clinics for the marginalized populations of Hyderabad; my maternal grandmother, Dr. Sarwat Ali, who demonstrated, by example, that medicine was the art of understanding, empathy, and kindness to a fellow human in pain; my father, Dr. Humayun Mirza, who raised four daughters and taught them to become empowered and strong women; to my paternal grandmother, Qamar Jahan, who has upheld with grace and dignity the Mughal lineage and demonstrated the strength of Pakistani women through any task; to my paternal grandfather, Hasan Mirza, who has shown that intelligence coupled with humility leads to happiness and contentment; to my husband, Dr. Adeel Faruki, for supporting my work, providing me company during those long and stressful nights, loving me, and encouraging me to never give up; to my sisters, Hira, Ayesha, and Sarah, for providing laughs and guidance, for keeping me grounded, and for being beacons and examples of amazing Pakistani women; and lastly, to all the Pakistani women around the world who are reconciling between and searching for their identities, their womanhood, their brown skin, and their mental health.

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# 1. Introduction

Ranging from the time of Durkheim to present day, the relationship between religion and mental health has long been extensively studied and researched. (Sternthal, Williams, Musick, & Buck, 2010) Evidence-based research has connected religious practices and observances to certain mental health outcomes. In the Handbook of Religion and Health, Koenig et al., concisely review religion and mental health scholarly articles to provide the empirically grounded research that demonstrates that religious practices regularly are affiliated with better mental health outcomes, such as positivity, reduced anxiety, and reduced depression. (Koenig, King, & Carson, 2012) This further established a negative-relationship between religion and depression. (Koenig et al., 2012) However, this research was not inclusive of all populations; a variety of regions, peoples, and global areas, such as women in Pakistan, were left out due to lack of research and reliable findings.

Pakistan gained independence in 1947, a political move integrally rooted in gaining religious autonomy for the Indian Muslims following defeat from the British imperialist empire. (Hussain) Since then, Pakistan has experienced serious political, economic, and social problems that contribute to its state over time, with the role of Islam being a very core of many of these issues. The two largest sects in Pakistan are the Sunnis, the Islamic majority with about 85% of Pakistanis, and the Shias, the Islamic minority. The Sunnis sect largely follows the Hanafi school of law.

Islam has five pillars of faith, and of them prayer is one, consisting of five obligatory individual prayers throughout various times of the day. (Hussain) With religion being such a central part of Pakistani history as well as within the social and political movements of the country, it is imperative to understand its impact on mental health.

At present, there are no normative research findings of a religion and mental health association in South Asian women living in Pakistan. There is an imperative need for this because of the high rates of depression in Pakistani women. Northern Pakistan has prevalence rates of depression at 25% and 57.5%, for urban and rural areas, respectively. (Naqvi, 2007) Furthermore, post-partum depression in Pakistan is one of the highest in Asia, with ranges from 28-63 percent. (Gulamani, Shaikh, & Chagani, 2013) Another study in Pakistan demonstrated that 65% of married women in Pakistan from varied socioeconomic class were depressed (Zahidie & Jamali, 2013) Depression in Pakistan is often undiagnosed and untreated, leading to a substantive population bearing the burden of this mental outcome. (Aijaz & Ambareen, 2014) Currently, there is a large sum of literature and research highlighting the presence of depression in Pakistan, but there is no research exploring religion and depression within the Pakistani population.

Islam is the predominant religion in Pakistan, with various practices, including that of the five daily prayers. This study aims to explore if higher rates of religious

practice in Pakistani women are associated with a decreased rate of depression. This study will explore if there are certain mediators that influence the religion and depression relationship, such as education, age, and the number of prayers. It is a critical time to understand how religion is associated with mental health, especially in such a specified cohort (i.e., women in a rural demographic who practice Islam). It was hypothesized that women who pray more will have a lower odds ratio of depression, as this is congruous with many studies showing an association between prayer and mental health.

## **2. Methods**

### **Study Design**

This study is a secondary data analysis. The data obtained is from a cohort within the SHARE (South Asian Hub for Advocacy, Research, and Education) intervention in Pakistan. This intervention focuses on understanding intergenerational depression between a mother and child. This quantitative data is from a baseline questionnaire of the women in the SHARE intervention collected at Time 0.

### **2.1 Setting**

The setting of this study is in the rural areas in Rawalpindi, Pakistan. This is a low-resource setting where general care is limited and normative mother-child outcome data does not exist. Generally, these types of rural settings stricken with poverty and low access to care are home to a large population of depressed women and their children. The prevalence rate for maternal depression is 28% in Pakistan. (Husain et al., 2006) Additionally, 45-57% of children in this area are exposed to peri-natal depression within the first year of birth; therefore, by understanding maternal depression, an understanding of intergenerational risk can be uncovered, as this is a global health priority in this region. (A. Rahman, Lovel, Bunn, Iqbal, & Harrington, 2004)

Although maternal depression can range throughout various stages of the mother's life, it is important to realize that intervening at the perinatal stage during pregnancy and continuing through the first year post-pregnancy is an ideal time to

combat this issue before it escalates. (Patel, DeSouza, & Rodrigues, 2003) Currently, most RCTs regarding maternal depression worldwide occur much later after pregnancy and after children are older, whereas early interventions such as this one may be more effective in reducing maternal depression and corresponding negative outcomes. (Gavin et al., 2005)

## ***2.2 Participants and Sample***

Women in their last trimester of pregnancy were identified through a community surveillance program that is managed by community health workers (CHW). These CHWs provide maternal and child health services. Each community health worker in Pakistan provides for 100 households and is aware of any pregnancy within those households, therefore all pregnant women will become the sampling frame. The sampling unit will be the mother-child-dyad within each of the 40 clusters.

To be eligible for the study women must be between 16-40 years old, married, in their last trimester of pregnancy, and living within the study area of the SHARE intervention. Exclusion criteria for this study include women who are suicidal.

The sampling frame was already randomized and all participants within the inclusion criteria were recruited by the SHARE intervention researchers. Community health workers, in this case the Lady Health Workers (LHWs), are responsible for 100 households and are aware of which women are pregnant since they work with them. The LHWs accompanied the study team member who administered a depression health

screen for the pregnant women. The participants in the intervention and control arms, both, received a small token of appreciation such as a small toy or clothing for the infant.

## **2.3 Procedures**

### *Data collection procedures*

Pregnant women in the third trimester were recruited from the SHARE study. All depressed women were invited to participate in the study; a random sample of the non-depressed was taken so that, in the end, half the sample is depressed and half not. Half (50%) were allocated to the intervention group, and half (50%) women were within the control arm of the project. Both the control arm and the intervention arm screened the women for depression. Women who are depressed and are within the intervention received the SHARE intervention treatment. Women who are depressed and within the control arm will receive general enhanced care such as referral to a physician, direction regarding access to healthcare, and they will also be given advice about their diagnosis.

The baseline questionnaire was administered at time zero during the third trimester. Any outside source such as families of the mothers were asked to keep their depression and intervention status undisclosed.

Community Health Workers assisted in collecting data from the baseline questionnaires mentioned in the *Measures* section. They sought consent from the women enrolled in the study, and then screened both the intervention and control groups for depression using the phq scale (this will be discussed further in the *Measures* section).



Informed consent was obtained in the native language of Urdu, in order to allow the participants to be fully aware of the study and the intervention purpose. CHWs include Lady Health Workers and peer volunteers, both of which are trained through task-sharing initiatives implemented by the existing team on the ground. (Chopra et al., 2013)

Participants such as the community health workers and peer volunteers are given certification of merit for assisting with the project. In Pakistan, any sort of certification regarding education is highly coveted and valued, and therefore would be an appropriate compensation. All study procedures were approved by the ethical review boards at Duke University and the Human Development Research Foundation in Pakistan.

## **2.4 Measures**

The following measures were used to analyze the data, and can be found in Appendix A.

### **2.4.1 Outcome Variable – Depression (depcat)**

*Depression:* Depression was measured by using the PHQ scale – was a survey adapted to this. (Kroenke & Spitzer, 2002) This variable was dichotomized. Those who scored 10 or higher on the PHQ Scale were labeled as ‘depressed,’ and those who scored 9 and lower were labeled as ‘non-depressed.’

#### **2.4.2 Predictor Variable – Prayer Number (prayNum)**

Prayer was a continuous variable ranged between 0-5 prayers. The question from the baseline questionnaire that addressed this variable was, “How many times did you pray yesterday?”

#### **2.4.3 Predictor Variable – Mother’s Age (momAge)**

Mother’s age was a demographic variable that was included to tighten and adjust the model. This variable was a continuous count variable. For the purposes of demographic statistics, momAge was categorized into ‘young’ (25 years and younger), ‘middle’ (26- 30 years), and ‘old’ (35 years and older).

#### **2.4.4 Predictor Variable – Mother’s Education (wifeEducYr)**

Mother’s education was a demographic variable that was included to tighten and adjust the model. This variable was a continuous count variable. For the purposes of demographic statistics, wifeYrEduc was categorized into ‘no education,’ ‘1-5 years,’ ‘6-10 years,’ and ‘more than 10 years.’

#### **2.4.5 Predictor Variable – Do you work? (piq3)**

Piq3 was a demographic variable that was included to tighten and adjust the model. In the baseline questionnaire, the question that referred to piq3 asked, “Do you work?” This was a dichotomized variable with the answers of ‘yes’ or ‘no.’

## **2.5 Analysis**

The data to the baseline questionnaire were obtained, and a dataset including phq number, prayNum, piq3, wifeYrEduc, and momAge was added to STATA 13 for quantitative analysis. The dichotomized variable of phq9, 'depcat,' was created. For the purposes of demographic statistics, wifeYrEduc, husbYrEduc, and momAge were categorized. The percent (%n) in each category, the mean number of prayers, and the percent depressed in each category was determined using STATA 13. Ten missing values were determined to exist.

The data was then graphed and determined to be non-parametric, and as such, non-parametric tests were selected for the data. The Wilcoxon rank-sum test was used to determine significance between the medians of the depressed and non-depressed women's mean number of prayers. Logistic regressions were chosen to identify associations between number of prayers and depression. Two regression models were run. In Model 1, prayNum and depcat were regressed, and the p-value was recorded (p-value was set to be less than or equal to .05). Model 2 was the adjusted model with mother's age, mother's education, and whether the mother works or not.

### **3. Results**

#### *Description of Sample and Variable Statistics*

Table 1 presents the demographic information of the women within the sampled cohort, as well the demographic variables that were used to adjust the model. Within the variable of mother's age, there was not a statistically significant difference in the mean number of prayers between the young, middle, and old categories, with calculated means of 1.2, 1.35, and 1.52, respectively. The percentage of those who were depressed did not drastically change over the mother's age.

In analyzing the mother's education, it was seen that the mean number of prayers, again, did not show much significance. However, it was noted that the category of 1-5 years of completed education had the lowest mean number of prayers (1.11), and more than 10 years of education had the highest mean number of prayers (1.69). This indicated that there was not any trend seen in the number of prayers as the mother's education increased or decreased.

It is important to note that the sample was created in such a way so that 50% of women were depressed and 50% were non-depressed. Within the sample, the percent of women who were depressed decreased as the mother's education increased; at the "no education variable", 66.20% women were depressed from all those who did not received an education, while at the "10 or more years of education" category, depressed women were at a comparatively low 33.87%.

Similarly, there were no specific trends seen in the mean number of prayers across the husband's education variable either. The lowest mean number of prayer was 1.13 if the husband was not educated, and the highest mean number of prayer was 1.70 if the husband had completed more than 10 years of education. However, this seemingly increasing trend was disrupted by the decrease of the mean number of prayers (1.23) in the "6-10 years of completed education" category for the husband's education.

Similar to the mother's education variable, the percentage of depression decreased as the husband's education increased. Out of all the women whose husband's did not have any education, 63.53% were depressed, compared to 35.87% depressed women whose husbands' education was more than 10 years.

Prayer was categorized into three categories to observe trends. There was no significant trend seen in the rates of depression across the categories, indicating that more prayers did not necessarily decrease the rate of depression. Prayer was then dichotomized into "zero prayers" and "1-5 prayers" to observe any difference in the rates of depression. These rates were very similar between the two categories with rates of depression being 50.15% for zero prayers, and 46.37% for 1-5 prayers.

Lastly, the phq9 scale was dichotomized into depressed and non-depressed. Depressed were those who had a phq9 total score of 10 or more, and non-depressed were those who had a phq9 total score of 9 or less. This was done to note any difference

in mean number of prayer between the two categories. Depressed women had a mean number of prayer of 1.22, and nondepressed women had a mean number prayer as 1.41.

**Table 1: Cohort Demographics and Summary Statistics of Mean Numbers of Prayers**

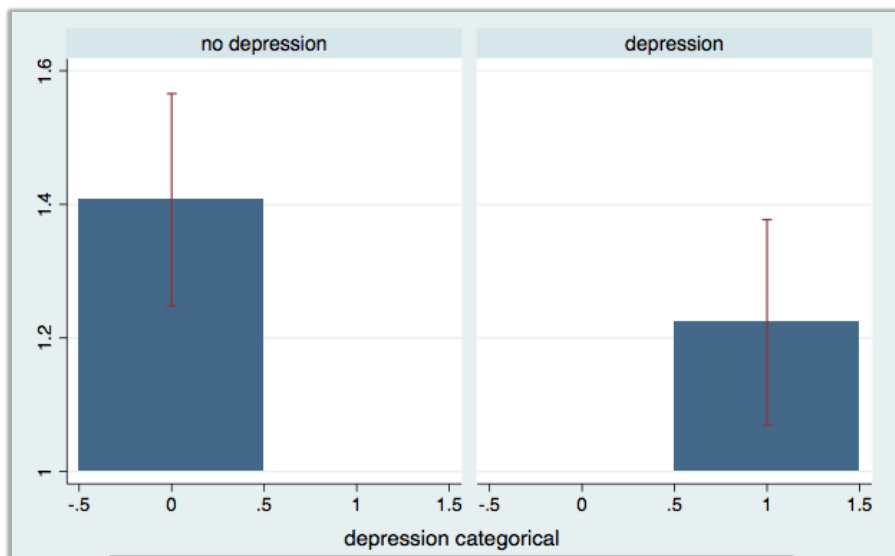
<b>Variables</b>	<b>% (n)</b>	<b>Mean Number of Prayers (SD)</b>	<b>% Depressed</b>
<b>Mother's Age</b>			
Young (< 25)	43.16% (486)	1.2 (1.82)	45.68
Middle (26-35)	39.25% (442)	1.35 (1.91)	49.1
Old (>35)	17.58% (198)	1.52 (1.93)	54.55
<b>Mother's Education</b>			
No education	14.56% (164)	1.34 (2.02)	62.2
1-5 years	19.63% (221)	1.11 (1.79)	61.99
6-10 years	43.78% (493)	1.22 (1.81)	45.44
More than 10 years	22.02% (248)	1.69 (1.97)	33.87
<b>Husband's Education</b>			
No education	7.55% (85)	1.13 (1.84)	63.53
1-5 years	9.86% (111)	1.32 (1.89)	59.46
6-10 years	66.25% (746)	1.23 (1.85)	48.39
More than 10 years	16.34% (184)	1.7 (2.01)	35.87
<b># of Prayers</b>			
0 prayers	58.96% (658)	0	50.15
1-4 prayers	27.06% (302)	2.28	47.35
5 prayers	13.98% (156)	5	46.79
<b># of Prayers - Dichotomized</b>			
0 prayers	58.44% (658)	0	50.15
1-5 prayers	41.56% (468)	3.21	47.01
<b>Depressed</b>	48.58% (547)	1.22 (1.83)	
<b>Non-depressed</b>	51.42% (579)	1.41 (1.93)	

\*10 missing values in overall population

### *Significance of Mean Number of Prayers in Depressed versus Non-depressed Women*

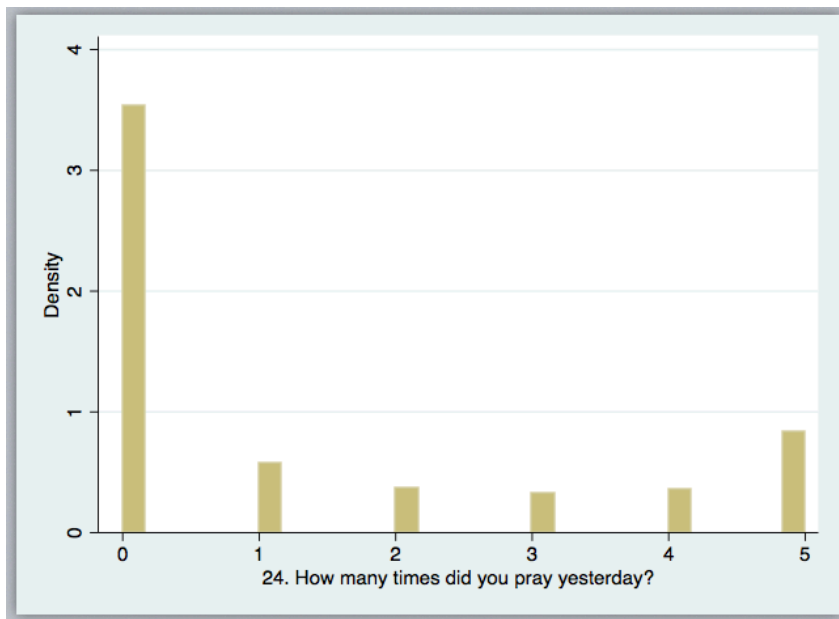
To observe any difference between the two means, the mean number of prayers between the two groups was graphed as a bar graph, as seen in Graph 1. In order to test the significance of the means (of the number of prayers) between the depressed and non-depressed women, 95% confidence interval error bars were constructed. The two confidence intervals overlap one another, as seen in the graph. The lower end of the 95% confidence interval in the non-depressed women bar graph overlaps with the higher end 95% confidence interval of the depressed women bar graph; this demonstrated that there is no statistical significance between the two means.

**Graph 1: Depressed and Non-depressed**



In order to further confirm that the two means were not significant in their difference, a two-sample Wilcoxon rank-sum test was done on STATA because the data distribution was non-parametric as seen in Graph 2.

**Graph 2: Non-parametric Distribution of Prayer Number**



*Two-sample, Wilcoxon Rank-Sum Test, unpaired*

The two-sample, unpaired data Wilcoxon rank-sum test is a rank sum-test for two independent samples, which shows the significance between the medians for a nonparametric distribution. This test revealed a p-value of 0.1864, indicating that the mean prayer number of the non-depressed women was not significantly more than the mean prayer number of the depressed women. This is shown in Figure 1.



**Table 2: Wilcoxon Rank-Sum Test**

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

depcat	obs	rank sum	expected
no depression	<b>570</b>	<b>324669.5</b>	<b>318345</b>
depression	<b>546</b>	<b>298616.5</b>	<b>304941</b>
combined	<b>1116</b>	<b>623286</b>	<b>623286</b>

unadjusted variance      **28969395**

adjustment for ties      **-6059702.8**

---

adjusted variance      **22909692**

Ho: prayNum(depcat==no depression) = prayNum(depcat==depression)

z = **1.321**

Prob > |z| = **0.1864**

A logistic regression model was run due to the outcome variable 'depcat' being a dichotomized with categories of 'depression' or 'no depression.' Table 3 below shows the unadjusted Model 1. No p-values were significant, other than at four number of prayers with a p-value of 0.003. The odds ratios were calculated with 95% confidence intervals. All odds ratios were closed to 1.00, with the exception of 4 number of prayers, which has an odds ratio of .432. There was no clear association seen between the number of prayers and the odds of depression.

**Table 3: Model 1**

<b>Model 1</b>				
<b># of Prayers</b>	<b>Beta (SE)</b>	<b>P-Value</b>	<b>OR (95% CI)</b>	<b>P-Value</b>
<b>0</b>			1.00	
<b>1</b>	0.163 (.209)	0.437	1.17 (.780, 1.77)	0.437
<b>2</b>	-0.242 (.256)	0.344	.784 (.474, 1.29)	0.344
<b>3</b>	0.291 (.270)	0.282	1.33 (.787, 2.27)	0.282
<b>4</b>	-.838 (.279)	0.003	.432 (.250, .746)	0.003
<b>5</b>	-0.134 (.178)	0.451	.874 (.616, 1.24)	0.451

Model 2, as shown in Table 4, is the adjusted model. This model adjusts for the mother’s age, mother’s education, husband’s education, and if the mother works. No p-values were significant for the number of prayers, other than for the four number of prayers, where the p-value was 0.014. The variables of mother’s age and mother’s education also had significant p-values of 0.035 and 0.000, respectively. For 1 number of prayer, the odds ratio increased from 1.17 in Model 1 to 1.19 in Model 2. For prayer 2-4, the odds ratio increased from Model 1 to Model 2. However, for five number of prayers the odds ratio decreased from 0.874 to 0.861. Again, these changes from Model 1 to Model 2 were not significant changes.

**Table 4: Model 2 – Adjusted Model**

<b>Model 2</b>				
<b># of Prayers</b>	<b>Beta (SE)</b>	<b>P-Value</b>	<b>OR (95% CI)</b>	<b>P-Value</b>
<b>0</b>			1.00	
<b>1</b>	.175 (.215)	0.413	1.19 (.782, 1.81)	0.413
<b>2</b>	-.136 (.263)	0.603	.872 (.521, 1.46)	0.603
<b>3</b>	.433 (.277)	0.117	1.54 (.897, 2.65)	0.117
<b>4</b>	-.698 (.285)	0.014	.497 (.284, .870)	0.014
<b>5</b>	-.148 (.184)	0.418	.861 (.600, 1.23)	0.418
Mother's Age (MomAge)	.029 (.014)	0.035	1.02 (1.00, 1.05)	0.035
Mother's Education (wifeEducYr)	-.091 (.014)	0.000	.912 (.887, .938)	0.000
piq3 (Do you normally work?)	.143 (.257)	0.578	1.15 (.696, 1.91)	0.578

## 4. Discussion

Many literature points to evidence that prayer significantly improves depression. (Boelens, Reeves, Replogle, & Koenig, 2009) Furthermore, most published papers identify that praying more or more frequency of prayer associates with better self-esteem and lower depression. (Masters & Spielmans, 2007) However, most of this literature does not include women in Pakistan, specifically in a rural settings. Despite a growing and strong interest in prayer and mental health, as well as a belief in the practice of prayer and its effect on mental health, empirical evidence inadequate. (Masters & Spielmans, 2007)

Contrary to the limited data available in literature, this study demonstrated that there was no effect of prayer and the frequency of prayer on depression in this closed cohort of women. Young, middle, and old aged women all had similar mean number of prayers and showed about the same percentage of depression across the three categories. This is contrary to most research that indicates that older adults and older age correlate to more frequency in prayer. (Levin & Taylor, 1997) A possible explanation for why the mean number of prayer was similar in all three categories may be that the distribution was not even, and there was not a substantial amount of older women to give a wide spread of data so that the mean would be more accurate.

The mean number of prayers and the mother's education did not show any significance or any trends. However, if the mother had more than ten years of education,

her mean number of prayer was high than the rest. Furthermore, women in that category also had the lowest percentage of depression; studies have already established that higher education is associated with lower rates of depression (Ross & Mirowsky, 2006) This was a similar case for the husband's education as well; if the husband was more educated, then their wives were at a lower percentage to have depression. It is important to note that in the following fully adjusted model, husband's education was omitted because husband's education variable correlates with the wife's education variable.

The mean number of prayer between the depressed and non-depressed women was not statistically significant. Model 1 demonstrated that, when depression categorical (the dichotomized variable) and the number of prayers was regressed, there was no association, as the odds ratios were all close to 1.00. It is important to note, however, that at four number of prayers, the odds ratio decreases to 0.432, but then increased again to 0.874. This may be because the prayer number variable was not a wholesome variable as it asked, "how many times did you pray yesterday?" instead of taking an average of how many time a woman is praying over a span of several days or weeks or months, to get a more accurate measure.

Another reason why more number of prayers, such as 5 prayers, has an odds ratio close to 1.00 may be because prayer is often used as a coping mechanism for

depressed women. Women who are depressed are more likely to pray frequently in order to cope with their depression. (Wachholtz & Sambamoorthi, 2011)

A fully adjusted model, Model 2, was ran with mother's age, mother's education, and whether or not the mother worked. Here, the prayer numbers were similar to those in Model 1. Mother's education and mother's age were as expected; both showed statistical significance but still had odds ratios close to 1.00. However, it was hypothesized that the variable of the mother working or not may have an association with depression, but again, it was statistically insignificant and had an odds ratio close to 1.00, indicating that it did not lower nor increase the rate of depression.

Empirical evidence has point to prayer often acting with a protective association for depression in literature (Boelens, Reeves, Replogle, & Koenig, 2012) This study demonstrates, however, that prayer and depression have no associations. There is a lack of literature on depression in South Asia making it difficult to refer to a common trend of prayer and depression in this area.

The lack of association may simply be due to this population having specific demographics such as being a closed cohort in rural Pakistan of pregnant women. It may also be due to the fact that prayer is interpreted differently for this subset of women. Islam is the predominant religion in this region, and prayers are all in Arabic. (Jejeebhoy & Sathar, 2001) However, Arabic is not the language of this region, and by

praying in Arabic, it is possible that women are not reaping the benefits of prayer and instead simply tending to it as a ritual, and robotic religious obligation.

#### ***4.1 Implications for policy and practice***

This study demonstrates the dire need for more empirical evidence-based interventions and studies to understand religion and mental health in Pakistan. Clinicians and psychologists have developed multi-method formative studies in Pakistan to understand depression, especially for pregnant women, but it is important to implement studies that go beyond such a small and specific demographic. (Atif Rahman, 2007)

#### ***4.2 Implications for further research***

More research exploring how religiosity and depression associate in this geographical region would be of interest, and this would also allow the addition of religion and depression studies revolving around Islam and South Asia, two topics that do not have substantial mental health research yet. A study was conducted that searched the relationship between religion, depression, and social support from religious institutions. This study was done in the United States and determined how churches influenced religious social support, and in turn how they influenced depression. (Petts & Jolliff, 2008) It would be interesting to note how involvement in mosques in Pakistan would influence social support and the decrease of depression, especially amongst women.

### **4.3 Study limitations**

A major limitation of this study is that the measure of religiosity and prayer was a simple question asking how many times each woman had prayed the day before. This question only takes into account one time-point in the women's lives, not giving an accurate depiction of the average number of prayers they may pray regularly. Secondly, the collected data was not distributed normally, and thus parametric tests were unable to be used.



## **5. Conclusion**

As discussed earlier, prayer number was defined as “how many times did you pray yesterday?” This may not be an accurate measure of prayers, especially if prayers are being used to determine an association with depression. Depression in Pakistan is a pressing issue and as such, should be dealt with empirical evidence and a dedication to combating it with a culturally competent intervention. (Aijaz & Ambareen, 2014)

In conclusion, no association was seen with prayers and depression, an enigma as the results were being analyzed. This may be due to the lack of understanding the Arabic prayer, since most of the population speaks Urdu. It may also be due to the fact that Islamic prayers in Arabic are not seen as spiritual exercises, but rather as a ritual that has been passed from generation to generation. Lastly, a slight association demonstrating that higher prayer number associated with higher depression may be due to prayer being a protective and coping mechanism for those who are already depressed.

## Appendix A

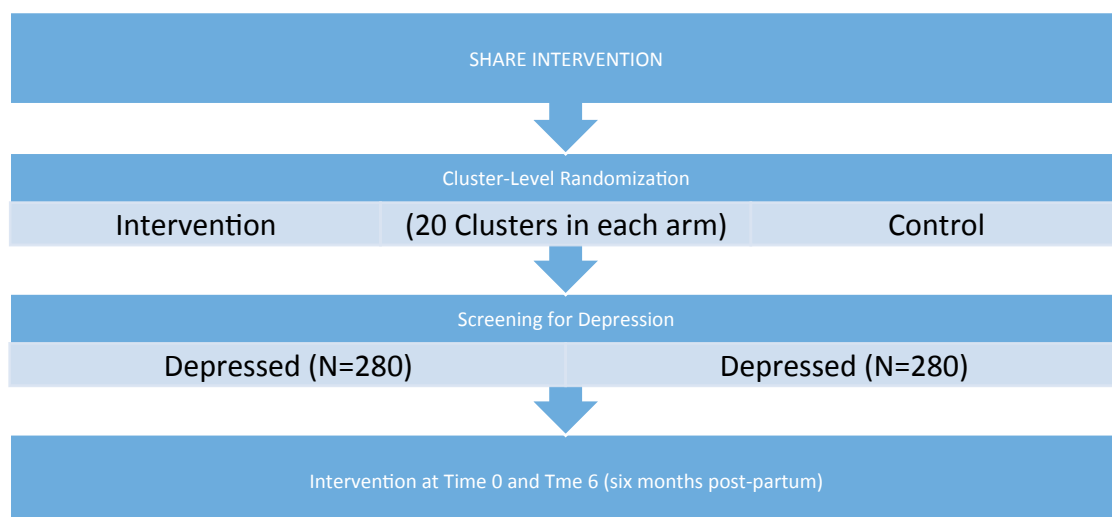
### *Description of the SHARE Intervention:*

The SHARE intervention is designed to decrease the presence of maternal depression in women in Rawalpindi, Pakistan. Geographic areas are divided into 40 clusters with approximately 20,000 people living in each cluster. The clusters are then randomized into whether they are intervention or control clusters. There are 20 intervention clusters and 20 control clusters. Researchers then go to these clusters and screen about 1000 pregnant women for depression. The Lady Health Workers assist in identifying women who are pregnant. All depressed women are invited to participate in the study; a random sample of the non-depressed is taken so that, in the end, half the sample is depressed and half not. Once screening is complete, 280 women are randomly selected and enrolled in the intervention arm of the study and 280 are similarly enrolled into the control arm. The intervention will be delivered at the birth of the child and compared to its effects six months after delivery of the child (Time 6).

The SHARE mental health intervention is conducted through cognitive behavioral therapy (CBT) and focuses on mother's personal health, mother-child interaction, and mother's interaction with others. A CBT is a type of psychotherapy that is a form of treatment, which focuses on observing and understanding the correlation between thoughts, feelings, and behavior. (NAMI, 2014) A total of 12 45-minute CBTs

will be conducted from the time of identification in the third trimester of pregnancy until 6 months postpartum. It is hoped that the CBTs within this intervention impact the remediation of maternal depression and anticipated secondary community benefits such as parenting skills and coping strategies.

The intervention will take place in the women’s home, where the Lady Health Workers (LHWs) and peer volunteers, women who were nominated by Lady Health Workers, will assist in conducting interviews. (Chopra et al., 2013) There will also be community meetings in a “health house,” which will be central to support groups that will meet once a month. These support groups are led by LHWs who conduct talks that are tied into the content of the individual session CBTs. These support groups are open to the public as well, and foster a forum-like environment to voice experiences that many women may be going through.



Participants will be allocated within either the control arm or the intervention arm. Within the intervention arm, there will be dyads will be placed into sub-categories of depressed and non-depressed. Similarly, the control arm will comprise of the same sub-categories.

It is important to conduct this study in Pakistan because mental illnesses still carry quite a heavy stigma in South Asia. Furthermore, unlike high-income countries, low- and middle-income countries like Pakistan do not have normative data that compares such an intervention with a control arm, specifically in low-resource settings.

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