QATAR UNIVERSITY

COLLEGE OF HEALTH SCIENCES

CHILD DISCIPLINARY PRACTICES IN RELATION TO HOUSEHOLD HEAD EDUCATION AND BELIEFS IN FIVE MIDDLE EAST AND NORTH AFRICAN COUNTRIES: CROSS SECTIONAL STUDY-FURTHER ANALYSIS OF MULTIPLE INDICATOR CLUSTER SURVEY DATA.

BY

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ABSTRACT

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Title: Child Disciplinary Practices in Relation to Household Head Education and Beliefs in Five Middle East and North African Countries: A Cross-Sectional Study-Further Analysis of Multiple Indicator Cluster Survey Data.

Supervisor of Thesis: Manar Elhassan.

Introduction: Internationally, eight out of ten children are exposed to violent discipline by their caregivers. To reduce the prevalence of violent discipline against children, we should understand the social and economic factors that affect the choice of disciplinary methods. Despite the high prevalence of violent discipline in the Middle East and North African (MENA) region, only a few studies explored disciplinary methods in this region.

Aim: This study aims to determine the prevalence of positive and violent disciplinary practices in five selected MENA countries and assess their association with household head education and beliefs of physical punishment.

Methods: This is a cross-sectional study design based on available secondary data from the Multiple Indicator Cluster Survey on its fourth round (MICS-4). A child was selected randomly from the household, and the Parent-Child Conflict Scale (CTSPC) tool was used to report disciplinary methods the child encountered during the last month period preceding the survey. Univariate and multivariable logistic regression were used to investigate the association between disciplinary practices with household head education and respondent's beliefs of physical punishment. The analysis was conducted using pooled data from all selected surveys and also for individual countries.

Result: The overall prevalence of positive discipline was only 15% (95% CI: 14.4-15.8), in the five countries, while the prevalence of violent discipline was 80% (95% CI: 79.0 -80.5). The prevalence of positive discipline was highest in Qatar (40%; 95% CI: 35.0-44.4) and lowest in Tunisia (5%; 95% CI: 4.3-5.9) while the prevalence of violent discipline was highest in Tunisia (93%; 95% CI: 92.1-94.1), and lowest in Qatar (50%; 95% CI: 44.7-55.0). Overall, the household head education was not significantly associated with either positive or violent discipline after adjusting for covariates. However, respondents believe of disciplinary methods were significantly associated with both positive and violent discipline (OR=5.88; 95% CI: 4.97-6.96) and (OR=6.27; 95% CI: 5.40-7.28), respectively.

Conclusion: High rates of violent discipline in the MENA region might indicate an increase in mental, behavioral, and social problems and disorders in our future generation. Rapid action is needed to reduce the worsening of violent discipline, and it is consequences. There is a need for educational programs for caregivers to teach them alternative non-violent methods of discipline. Besides, these numbers should inform policymakers about the importance of the existence and the implementations of laws, policies, and regulations to protect children from all forms of violence to protect our future youths and ensure their health and wellbeing.

List of Abbreviations

UNICEF	United Nations Children Emergency Fund
PD	Positive Discipline
PA	Psychological Aggression
PP	Physical Punishment
VD	Violent Discipline
MENA	Middle East and North African
CRC	Convention of the Right of the Child
MICS	Multiple Indicator Cluster Survey
SDGs	Sustainable Development Goals
UN	United Nations
CTSPC	Parent-Child Conflict Scale

DEDICATION

For my parents Hamdan, Samira, my sisters and brothers, my dearest soul mates Asmaa Alattar, and Jenan Emad, I dedicate my work and my life.

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Chapter 1: Introduction

1.1 Background

Childhood period is considered the cornerstone of human life. In which the human builds the cognitive and socio-emotional domains of his life, in addition to the rapid physical growth (1). Parents consider this stage as the core for teaching children self-control, behavioral boundaries, and acceptable social behaviors. Child discipline is defined as any action taken by caregivers to teach children self-discipline and acceptable attitudes (2).

Our world has developed an enormous variety of methods for raising a child. It differs across communities and cultures (3). The United Nations Children Emergency Fund (UNICEF) classifies disciplinary practices into violent and non-violent methods(2). Non-violent discipline, or what is referred to as Positive Discipline (PD) methods, may include reinforcement, explaining the consequences of undesired behaviors, story-telling, taking privileges, and role-modeling (4).

UNICEF classifies Psychological Aggression (PA) and Physical Punishment (PP) as violent forms of discipline (5). As per UNICEF guidelines, any action taken by the caregiver to cause physical pain, emotional tension, or psychological stress as a way of behavior control is considered to be a Violent Discipline (VD) (5). Psychological aggression includes screaming, shouting, yelling, or using offensive names (5).

Nevertheless, according to UNICEF, physical punishment can be classified into either minor or severe physical punishment. Examples of minor forms of physical punishment include slapping, shaking and hitting the child on arm, hand, leg or bottom, whereas severe physical punishment includes hitting the child in the upper areas of the body like the; face, head, ears or hitting him strongly or repeatedly (5). Recently, UNICEF stopped differentiating between mild and severe forms of corporal punishment, to avoid implying that milder forms are acceptable than sever ones and to

emphasize that corporal punishment in any form is a violation of children's right to protection (2).

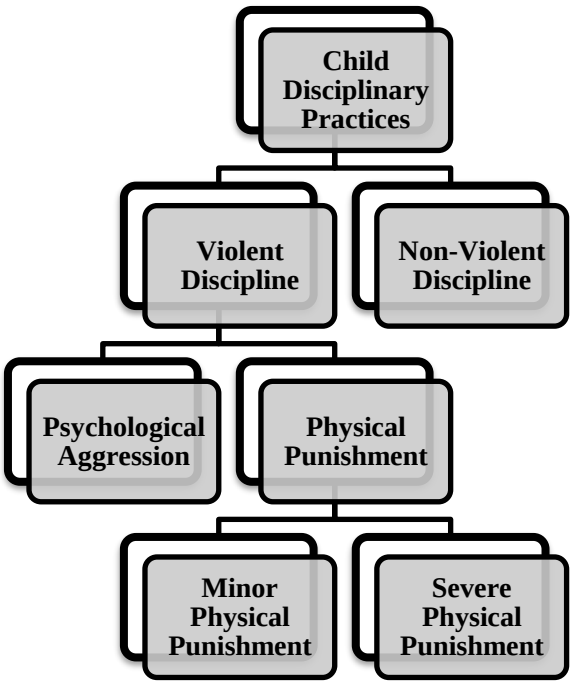

Figure 1: Child discipline classification according to (UNICEF)

1.2 Prevalence

Parents use a variety of methods to discipline their children. However, violent discipline is considered the most common type of violence that children face in their childhood (6). According to UNICEF, four out of five children between the age of 2-14 years are subjected to forms of violent discipline at their homes (7). Seven Middle East and North African (MENA) countries were ranked between the twenty highest countries in the prevalence rate of violent discipline (8). According to the last UNICEF report on the MENA region, out of 85 million children from 12 surveyed countries, 84% (71 million) of them experienced some forms of violent discipline, 80%

experienced psychological aggression, 70% experienced physical punishment (8). Despite the widespread prevalence of violent disciplinary methods, non-violent methods are more frequently used when viewed regardless of the use of different violent methods (9).

1.3 Factors Associated with Disciplinary Methods

The caregiver's choice of disciplinary methods might be affected by many factors. Evidence from literature found an association between disciplinary methods and child sex and age (10-12). Other studies found an association between parents' past exposure to violence discipline and their choice of disciplinary methods. Parents who were exposed to violent discipline in their childhood were more likely to use these methods with their children (13). Moreover, studies found that a high level of caregiver education was associated with less violent discipline practices (12, 14). Furthermore, Caregiver' beliefs about effective disciplinary methods were found to be an essential predictor for caregiver choice of disciplinary methods (15).

1.4 Effect of Disciplinary Methods

Undoubtedly, child discipline has a huge impact on child development. Many researchers found that children of authoritative parents who report using non-violent forms of discipline are usually less hostile and have higher self-esteem, independence, and greater academic success (16). On the other hand, evidence showed that violent discipline has a long-term negative impact on the mental and social aspects of child life, but more effective in the short term (2). Moreover, recent clinical studies in the child injuries field suggested that some child injuries are related to maltreatment that might be caused by harsh discipline by their caregivers (17) (18). Moreover, a study that was conducted with the aim of providing an overview of child abuse and neglect in 7 Arab countries suggested that some neglect and abuse cases were related to the acceptance

of physical punishment as a way of discipline in theses societies (19). Generally, all types of violence against children contradict the child's right to protection from any violence, including violent disciplinary forms that were set in the Convention on the Rights of the Child (2)

1.5 Convention on the Rights of the Child

In 1989, the United Nations General Assembly adopted the Convention on the Rights of the Child (CRC) (20). CRC is a human right treaty that regulates all aspects of children's rights, including political, health, social, economic, and cultural aspects. They define the child as “any human being below eighteen years of age except if the age of majority is attained earlier under national regulation or legislation of the country” (20). This convention is the most ratified, and accordingly, the state parties undertake the responsibility to respect the rights, aspirations, and needs of the world's children and the enactment of laws and legislation to provide an environment that preserves the rights of children in all circumstances (20). One of the basic principles of the convention emphasizes that the family is an environment for the growth and well-being of all members, especially children (20). Accordingly, the convention recognizes the fundamental role of the family in protecting the child physically and psychologically (20). Article five of the convention identifies and emphasizes the role and responsibility of parents or caregivers in protecting and appropriately guiding children in the child development period (20). Moreover, article 19 stated the right of child protection from all forms of neglect or verbal, physical, and sexual violence (20). It also included measures to protect children and prevent them from all types of abuse or neglect(20). These measures include sufficient reporting systems, investigation, follow up, and treatment of affected children (20).

Chapter 2: Objectives, and Research Questions

2.1 Research Question

1- What is the prevalence of different child disciplinary practices in the Middle East and North African countries?

2- Is there any association between disciplinary methods and household head education?

3- Is there any association between disciplinary methods and beliefs about child discipline methods?

2.2 Objectives

1. Estimate the prevalence of child disciplinary methods in five Middle East and North African Region for children between 2-14 years of age using MICS-4 data.
2. Compare the prevalence of child disciplinary methods between the five MENA countries.
3. Investigate the possible association between child disciplinary practices and household head education controlling for potential confounders.
4. Investigate the possible association between child disciplinary practices and caregiver beliefs controlling for potential confounders.

Chapter 3: Literature Review

The word discipline refers to the different ways used by parents or caregivers to raise children, teach them acceptable behaviors and attitudes, prevent them from committing undesired behaviors, and protect them from risks (21). Methods used by the caregivers might be affected by social, cultural, religious, and personal values (2). Even though the word discipline was linked for a long time with corporal punishment, the word is not limited to this method, and that is mainly attributed to the existence of multiple positive discipline practices for raising children (2). These positive methods might include reinforcement, modeling, and storytelling to encourage positive attitudes. Moreover, explaining consequences and privileges removal are also considered to be valid ways to eliminate unwanted attitudes (22).

On the other hand, violent discipline methods as described by UNICEF's definition "as the actions taken by a parent or caregiver that are intended to cause a child physical pain or emotional distress to correct behavior and act as a deterrent (5). Physical punishment and psychological aggression are two forms of violent discipline. Psychological aggression includes yelling, screaming, using offensive names, and shouting. While corporal punishment (physical punishment) includes actions proposed to cause physical discomfort or pain, but not injuries for the child as a way of controlling a child's behavior, minor corporal punishment includes slapping, shaking or hitting the child on the arm, hands, bottom and legs, while severe corporal punishment is reflected in hard or repetitive hitting on head, ears, and face (5).

3.1 Prevalence

There is a lack of literature that focuses on the prevalence of positive disciplinary methods. However, recently, two studies were published to estimate the prevalence of disciplinary practices in MENA countries. Both studies used positive discipline indicator regardless of the use of other disciplinary forms (9, 23). They found

that the prevalence of non-violent discipline was at least 76% in all countries included in their studies(9, 23). On the other hand, according to the World Health Organization (WHO), around one billion children between 2-17 years of age experienced physical, psychological, sexual, violent, or negligent in 2017 (24). Three out of 4 children between 2-4 years of age experienced violent discipline by their caregivers; this reflects around 300 million children around the globe, where approximately 80% of them reported experiencing physical punishments (6). Recently, a study was published by Cuartas et al. on children 2-4 years found that the overall estimate of psychological aggression (76%) and physical aggression (76%) in the MENA countries exceed the global estimates (65%) and (63%), respectively (9). While the prevalence of non-violent discipline was 90% in the overall sample of MENA countries. At a national level, the prevalence of positive discipline ranged between 76% and 97% in the six selected countries (9). The prevalence of psychological aggression was the highest in Tunisia (90%), and lowest in Iraq (54%), while for physical aggression, it ranged between 47% in Lebanon and 83% in Tunisia. A similar prevalence was reported in a study conducted by Beatriz and Salhi (23). Moreover, a study was conducted in Saudi Arabia found that almost half of the children were exposed to violent discipline at their homes (25). Another study that was conducted in Egypt on a sample of 298 mothers found that almost 97% of them reported using corporal punishment (26). Additionally, a study was conducted in 7 Arab countries including Saudi Arabia, Kuwait, Yemen, Oman, Bahrain, Qatar, and the United Arab Emirates by reviewing medical literature, concluded that child abuse and neglect are accepted, ignored, and underreported in these societies (19). This study highlighted the severe cases of physical, sexual, and Munchausen's syndrome by proxy cases that reached death in some of them (19). The author suggests that child abuse is underestimated and underreported. Only a few severe

cases were identified, and less severe cases go underreported (19). In most cases, no legal action was taken against the perpetrator, which might be the parent or another family member (19). The absence of strong legislation that prohibits corporal disciplinarily methods, led to the high prevalence of violent discipline in the region. Globally only 60 countries have adopted a legislative code that protects children from corporal punishment, leaving around 600 million children aged less than five years with no legal protection. From the MENA region, only Tunisia and Israel prohibited corporal punishment in all settings, while Qatar, Lebanon, Sudan, Iraq, Egypt, Djibouti, Syria, Iran, and Libya prohibited it in some settings only (27). Besides the previously noted fact, many caregiver's belief in the importance of physical punishment as a way to educate and raise the child plays a huge role in the increasing number of child violence cases. In the illustration of the fact, around 1.1 billion of the caregivers believed that physical punishment is a compelling way to raise children (6).

3.2 Distinguishing Corporal Punishment from Physical Abuse

Child abuse is a general term used to describe physical, sexual as well as emotional and psychological abuse, in addition to neglect and abandonment (28). Accordingly, it appears as if violent disciplinary methods are a subset of child abuse. However, in reality, violent disciplinary forms are not intended to cause physical injuries, while child abuse is intended to cause harm (29). Where physical abuse might cause severe pain or injuries, which include intentionally burning, starving, or tying a child; however, physical discipline is not supposed to cause such harm (29). Nonetheless, the distinction between corporal punishment and physical abuse is not easy for children, parents, and even child protection experts (30). In reality, there is no clear line that separates physical punishment from child physical abuse (31).

3.3 Factors Associated with Disciplinary Practices

3.3.1 Education

The finding of research found that maternal education is linked to harsh discipline practices that may exceed that to child abuse (32). Where it was found that mothers with lower education tend to use harsh physical punishments that might exceed to severe physical punishment compared to mothers with higher education (10, 33). According to Alyahri, low parental education was one of the factors that are independently associated with harsh physical punishment. Low parental education was associated with higher use of physical punishment (12). Also, the result of the study conducted in Vietnam found that the odds of violent discipline was higher among uneducated household heads compared to educated household heads (14). Moreover, evidence from MENA countries suggests that caregiver's education was inversely associated with violent discipline, where caregivers with lower educational status tend to use harsh discipline more frequent when compared to educated caregivers (4, 34, 35)). Moreover, a study that was conducted in Palestine found that the education of the caregiver was associated with the use of violent disciplinary methods (35). Another study comparing discipline methods used in Qatar and Palestine found an inverse association between educational attainment and the use of the violent discipline (34).

3.3.2 Child disciplinary beliefs

The way the parent's response to child behavior and attitude is usually influenced by their beliefs of the efficiency of disciplinary methods. These beliefs are characterized by cultural, religious, and social norms (36). A study that was conducted in the United States found differences in beliefs of the importance of using physical punishment between different ethnic groups (15). A study that was conducted in Kuwait found that 86% of parents find physical punishment is an acceptable mean of discipline (37). Two studies investigated the association between beliefs of physical punishment

and the choice of disciplinary methods. Both studies found that parents who believe in physical punishment were more likely to use violent forms of discipline (38, 39). A study result found that parental beliefs were a mediator between parental anxiety and their real disciplinary practices (40). However, research conducted by Cappa et al. found a contradiction between parents' beliefs of using physical punishment and their real attitude toward the discipline of their children (41). Kean suggested in his research that formal education might be sufficient for changing parent's beliefs and attitudes toward physical punishment by increasing the value of their children and explaining the consequences of both physical and psychologically violent (42).

3.3.3 Gender

Many studies linked the use of harsh punishment to child sex. However, gender effect might differ according to communities and societies, wherein China; males were more prone to this form of discipline compared to females; however, in India, it is the opposite (10, 43). These differences were explained by the parent expectation of child behaviors. Some societies impose some responsibilities on boys at a young age, which makes them more likely to be punished if they did not perform the tasks entrusted to them (3). The result of a study that was conducted in Yamen, which considered a low-income country, found that the male gender was associated with harsh discipline when compared to females (12).

3.3.4 Age of Child

As reported by Wolfe (1987), the type of discipline differs by the age of the child, wherein infancy and toddlerhood, neglect is the most commonly used strategy of discipline (44). Other studies have found that spanking and yelling were associated with ages from 9 months to 3 years, to guide child behavior and protect him from danger (11). However, in older ages, physical punishment becomes more frequent and in more severe forms, especially, between the age of 12-17, which can be attributed to parent-

teenager's conflicts (44).

3.3.5 Socioeconomic Status

A study result that was published recently comparing disciplinary practices in Qatar and Palestine found a significantly higher prevalence of harsh punishment in Palestine (4). That was linked to the higher socioeconomic status of the Qatari population, where, generally, Qataris have more advantages in terms of wealth and opportunities (4). A similar finding was found by Alyahri, where he reported that harsh discipline was higher in families with lower socioeconomic status (12).

3.3.6 Parents Disciplinary Experiences

Researches found that parents who experienced some violent discipline in their childhood are more likely to use the same methods with their children (13). A survey showed that 82.7% of the participant who already experienced a sort of violent discipline claimed that they would use the same methods with their children (45). According to Barkin and his colleagues, people tend to believe in the effectiveness of the disciplinary methods that were used to raise them, and they are more likely to use these methods with their children regardless of their type (11).

3.3.7 Spouse Abuse

Many research findings conclude that spouse abuse is one of the most important predictors for harsh discipline. A study conducted in India found that partner violence was a strong predictor for severe physical punishment (10), where severe, and harsh discipline was reported significantly higher in mothers who reported experiencing domestic violence with a relative risk of (RR=1.6) and 95%CI (1.09.2.38) compared to mothers without exposure to demotic violence (46).

3.3.8 Wars and Unstable Political Situation

The Middle East and North African region is considered a hot region with continuing conflicts. A study conducted in Iraq using a household questionnaire, and

geolocational conflict data found that parents living in conflict areas are more likely to use mild and severe punishment with their children (47). The study comparing disciplinary practices between Qatar and Palestine found significantly higher use of physical punishment in Palestinian mothers with (OR=1.7), which was explained by the unstable political and economic situation in Palestine, which might be mediated with higher stress and anxiety (4).

3.4 Consequences of Disciplinary Practices

3.4.1 Mental Health

Evidence from researches showed that children with anxiety, behavioral, or disruptive disorders have a higher probability of being exposed to harsh punishment in earlier stages (36). It also showed that corporal punishment was significantly associated with distress and depression in adolescents, even after controlling for different variables including gender, age, history of physical abuse, and socioeconomic status (48). Moreover, a meta-analysis found that spanking, which is considered a type of violent discipline, is associated with antisocial behavior, aggression, externalizing and internalizing problems, mental health issues, and negative child-parent relationship (49). To elaborate, spanking was associated with lower self-esteem, lower morale, and lower cognitive abilities.

3.4.2 Quality of the Parent-Child Relationship

Results of a meta-analysis showed a negative association between exposure to harsh discipline methods and the quality of the parent-child relationship (50). Corporal punishment results in anger, fear, and losing trust, which in turn makes children avoid their parents. This may cause more harm than the purpose for which the violence was used (50). Another recent meta-analysis also showed the same results, where spanking was associated with the negative parent-child relationship (49).

3.4.3 Increase in Antisocial Behaviors in Childhood

Out of thirteen studies included in a review, twelve studies found a significant association of corporal punishment with delinquent and antisocial behaviors. Corporal punishment had behavioral implications includes stealing, escape from school, lying bullying, and cheating. According to Straus, Sugarman, & Giles-Sims (1997), parents use corporal punishment to reduce hostile behavior, but in the long run, their effect is negative, where these behaviors increase with age and become an acquired behavior from parents (51). Graziano stated that children who experienced physical punishment in their childhood learn that violence is an acceptable way of solving interpersonal conflicts (52). This makes them more aggressive in their adolescents as well as in later stages in their lives with their children or wives (53, 54).

3.4.4 Attention-Deficit/Hyperactivity Disorder (ADHD)

ADHD is a neurodevelopmental disorder that has three main symptoms, including hyperactivity, inattention, and impulsivity, which affect behavioral and cognitive function in a different context, including family, social, and academic (55). The etiology of this disorder is involved, where many genes are hypothesized to contribute to this disability, but mainly it was associated with impairment in the dopaminergic and serotonergic system genes (56). However, a study found that 22% of the variation in ADHD symptoms is explained by environmental factors (51). A study found that ADHD symptoms and other mental disturbances were significantly higher among children who experienced violence, trauma, and maltreatment (57).

3.5 Gap in Research

The literature has many studies published around the world describing disciplinary practices and investigating their consequences. There are limited numbers of them in the MENA region, although the prevalence of harsh discipline is considered to be the highest in our region. From the literature, there are few studies published at

the national level in Yemen, Qatar, Egypt, and Palestine. Generally, there is little known about child discipline methods used by caregivers and its determinants, primarily, in the MENA region. Moreover, few studies investigated the association between disciplinary methods and household head education and beliefs of physical punishment. Furthermore, there is sparse literature about positive disciplinary methods where most research focuses on violent discipline. Hence, this study will be the first study to document in detail the prevalence of disciplinary practices and study the association between household head education and beliefs in relation to disciplinary practices in five MINA countries.

Chapter 4: Methods

4.1 Study Design

This study is a cross-sectional study, intending to estimate the prevalence of child disciplinary practices at national and regional levels. Moreover, it allows the investigation of a possible association between the household head education and beliefs of physical punishment and the positive discipline and any violent discipline at the same point in time.

4.2 Data Source

This paper is based on data obtained from the fourth round of the Multiple Indicator Cluster Surveys (MICS) conducted between 2010 and 2013 in five countries from the Middle East and North African Region (58). In 1995, UNICEF started the first round of the Multiple Indicator Cluster Survey (MICS) (59). The survey is conducted every five years. The MICS program began with its first round in 1995, and currently, it is reaching the sixth round, where the data collection already started (59). The survey is conducted by UNICEF with the collaboration of the local governments, to monitor the situation of children and women (59). MICS provide continuously updated data on the national and regional level, which create a base for designing effective intervention, programs, strategies, and policies (59). Moreover, the results of this survey were used as a tool for monitoring Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs), that were created by the United Nations, to achieve common goals in various social and economic issues of the world, including violence against children in all its forms (60). Nowadays, the survey is conducted in more than 100 countries around the globe (59). These national data will be used to monitor the SDGs; also, it can be as a base for many interventions and policies at a different level (51).

4.3 Selected Countries

MICS surveys were conducted around the world in different regions and countries. We used the most recent available data from the fourth round of MICS at the time of the study. The new rounds of MICS are still in the design phase. This study was designed to consider all available national data in the MENA region in its fourth round. Between 2010-2013, six countries in the Middle East and North African Region conducted the survey. Even though the data for Sudan was available in that round, the child discipline module was not administrated in Sudan. Thus Sudan was excluded from the research. Moreover, Palestinians in Lebanon survey was also excluded, since they focus on one segment of the population. However, our research focus on national-level data. This study is based on the analysis of five Middle East and North African Region countries that adopted the child discipline module: Qatar, Palestine, Tunisia, Algeria, and Iraq.

4.4 MICS Survey Design and Sample Sizes

MICS are cross-sectional surveys usually nationally representative, that are periodically conducted in a large number of countries (59). MICS used standardized study design in its fourth round. Two-stage stratified cluster sampling was used in the selection of the sample. Census enumeration areas were selected with the probability proportional to population size. After creating a list of households in each cluster, a sample of the household was chosen, and eligible women aged (15 and 49) or (caregiver or household member) were included in the survey (61). MICS provides estimates on social indicators mainly related to women and child health at different levels in the country. Covering rural and urban areas as well as provinces in the country (59).

4.5 Quality of Collected Data

The quality of MICS data is considered to be high, where usually, the response rates are not less than 90%. Response rates are calculated by dividing the number of

interviewed households by the number occupied selected households for the sample, multiplied by a hundred. Moreover, the data is collected by qualified and trained teams of interviewers and supervisors who provide the gaudiness, distribute the tasks, and communicate with local authorities. To check for the accuracy and completeness of data, trained editors review all questionnaires before entered into the computers (59).

4.6 Sample Sizes

Study samples were representative of each country. Table 1 presents the numbers of children between 2-14 years of age in each country, together with the corresponding populations.

Table 1: Summary of MICS Data Sets Included in the Analysis

	Qatar	Tunisia	Palestine	Iraq	Algeria
Year of Survey	2012	2010	2011	2011-2012	2012-2013
Households response rate (%)	99	98	92	99.6	98
Number of children 2-14 (unweighted)	2781	9515	3658	4091	16093
Total Number of Children 2-14 (weighted)	5750	7650	9496	80008	33828

For more details about sampling design in Qatar, please refer to Qatar Multiple Indicator cluster survey report, 2012 (62).

For more details about sampling design in Palestine, please refer to Palestine Multiple Indicator cluster survey report, 2013 (63)

For more details about sampling design in Iraq, please refer to Iraq Multiple Indicator cluster survey report, 2012 (64)

For more details about sampling design in Tunisia, please refer to Tunisia Multiple Indicator cluster survey report, 2013 (65)

For more details about sampling design in Algeria, please refer to Algeria Multiple Indicator cluster survey report, 2013 (66)

4.7 MICS Questionnaire

A standardized questionnaire is used in all countries to collect data about the health of women and children. Four model questionnaires were used to collect the data: 1) household questionnaire, 2) questionnaire for individual women, 3) questionnaire for individual men, and 4) under-five children questionnaire. Each questionnaire covers a variety of data related to mother/men and child health, in addition to demographical data about the participants (67). The data from the household questionnaire was used in this research.

4.7.1 Household Questionnaire

The household questionnaire collects data on household characteristics, household members, and education. It also provides data regarding several indicators, including salt iodization consumption, water, and sanitation, handwashing, insecticide traded nets, indoor residual sparing, child labour, and child discipline (68).

4.7.2 The Parent-Child Conflict Scale (CTSPC)

In the past decades, researchers had developed many instruments to measure child discipline. In 1979, the first version of the Conflict Tactics Scale (CTS1) was developed (2). In 1997 Straus [1,2] had modified the (CTS1) and produced one of the most used instruments measuring child discipline, i.e., the Parent-Child Conflict Scale (CTSPC) (68). This instrument was designed to facilitate the collection of valid and

reliable epidemiological data regarding child maltreatment. MICS applied this instrument on the child discipline module. However, during the phase of development and testing the child discipline module, some items were dropped for being inappropriate for cross-cultural context (2). Other items were also excluded due to their gravity of the described action. The last validated version used by MICS consists of 12 questions. The first 11 items cover the caregiver's behavior in all domains (physical discipline, psychological aggression, and non-violent discipline). The last question assesses the caregiver's believes regarding the necessity of using corporal punishment (physical punishment) for raising a child (2).

4.7.3 Child Selection

Before starting the question related to child discipline, a list of names, sex, and ages of all children between 2-14 is created (68). To select one child at random, the data collector is provided with a table with row and column numbers from 1-9. The last digit of the household number (provided on the cover page of each survey) is used to indicate the row number, and the total number of eligible children is used to indicate the column number (68). The cell where the chosen row and column number intersect indicates the rank number of the child to be chosen. In the case where only one child is living in the household, this child will be selected, and the child discipline module will be asked about him/ her. Before starting the questionnaire, the respondent of the household questionnaire will be asked whether he/ she or any other members of the household used any of the discipline methods on that selected child during the last month period (68).

4.8 MICS Child Discipline Indicators

The primary outcomes of this study are discipline methods, which were assessed using a standardized questionnaire by UNICEF *(Appendix H).* UNICEF classifies child discipline methods into:

4.8.1 Positive Discipline

If the caregiver reported using methods including taking privileges or forbid the child from something, he/she like, did not allow him/her to leave the house, explain why the behavior was wrong or give her or him another thing to do in the last month.

4.8.2 Psychological Aggression

If the responder reported shouting, yelling, screaming, or calling the child lazy, dumb, or any similar names in the past month.

4.8.3 Any Physical Punishment

If the caregiver reported any of these methods, including slapping, shaking, and hitting the child on the arm, hand, leg, or bottom, or hitting the child in the upper areas of the body like the; face, head, ears, or hitting him strongly or repeatedly.

Outcome Study Variables

4.9 Study Outcome Variables

For this study, the following variables will be considered:

4.9.1 Positive Discipline

This includes only non-violent methods (including taking privileges or forbid the child from something, he/she likes, did not allow him/her to leave the house, explain why the behavior was wrong or give her or him another thing to do in the last month). The answer to all of these questions was limited to yes or no. If the respondent report using non-violent methods and did not report any use of other disciplinary methods (violent discipline), the value will be given (1), and if otherwise, it would be 0 (binary outcome).

4.9.2 Any Violent Discipline

Any violent discipline reflects the combination of physiological aggression, as well as physical punishment in it, is two forms (severe and minor), as described above regardless of the use of non-violent disciplinary methods, the variable was binary (yes,

no). These two indicators summarize the parent practices in disciplining their children.

4.10 Explanatory Variables

This study aims to assess the association between disciplinary practices and two main exposure variables:

4.10.1 Household Head Education

Caregiver education was not available in the data set, so we used the head of the household education instead. Moreover, parents are not necessarily the caregivers for their children. So, the household head education was chosen based on the availability of data. In addition, the head of the household might be the person who sets the rules and determines the acceptable behavior at the household, including the choice of disciplinary methods used in the household. The data about household head education was collected using the household questionnaire. The variable consists of three main categories (None, primary, secondary or higher)

4.10.2 Beliefs of Disciplinary Methods

The last item in the child discipline module is used to assess the beliefs about disciplinary practices; it accurately assesses their beliefs regarding the use of physical punishment as a necessary way of raising children. The interviewer asks caregivers "Do you believe that in order to bring up, raise, or educate a child properly, the child needs to be physically punished?", with yes and no possible response (68)

4.11 Associated Factors

The selection of associated factors was guided by the literature and the availability of data for each country separately as well as the common variables between countries for the overall analysis. Associated factors include:

Sex of the child: Male, female

Area: Area of residence rural, urban areas in all countries, except Palestine that had an additional category, which is Camps.

Age group: In all countries, the age of the child was classified into three age groups (2- 4 years) (5-9 years) and (10-14 years).

Wealth index quantile: Wealth index quintiles was derived for all countries, except Qatar. This index is designed to capture long term wealth based on household assets. It was classified into (poorest, Second, Third, Fourth, and Richest).

Sex of household head: Male or female

Age of household head: which was categorized into less than 40, between 41 and 50, above 50 years of age.

The number of household members: household members refer to the usual resident of the house. It was categorized into three groups, less than five members, six or seven members, and eight or more members.

4.12 Population Definition

This study focused on studying the association between disciplinary methods and household head education and beliefs of physical punishment in children between 2-14 years of age. Children younger than two or older than 14 were excluded. The data about the use of disciplinary methods were obtained from one member of the household (not necessarily the parent or the caregiver).

Caregivers are defined as any person who takes care of the child regularly in the absence of their parents for any reason. Usually, parents are the caregivers for their child, but it could be otherwise (67). In many cases, other family members might be the caregiver of the child because of parents' death, divorce, travel, work, or any other reasons.

4.13 Data Analysis

This data can be generalized to the entire population of each country. Our analysis takes into consideration the complex stratified clustered sampling designed

adopted by MICS. All observations were given weights to control for a variation on selection probabilities and non-response proportions.

Proportion and percentages were used to summarize categorical variables. Both univariate and multivariable analyses were used. Binary logistic regression was used for each outcome to controls for potential confounders. The model was build using purposeful selection to include all important variables. Starting with univariate analysis, any variables with p-value <0.25 in the crude analysis were included in a multivariable model. In the following step, variables were excluded based on a cutoff of 0.05. Besides, (20%) cut off was used for confounder assessment, based on Hosmer and Lemeshow (70). The below figure summarizes the purposeful model building steps.

Stata version 15 was used for all analyses. *Svy* taylor linearization for the variance estimation was used to account for the complex survey design using child weight, primary samples unit and strata

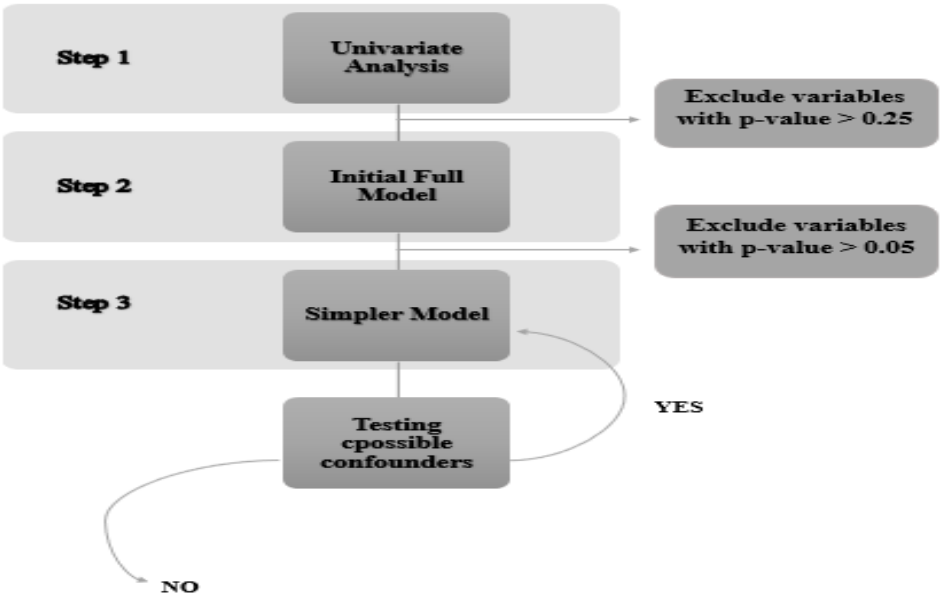

Figure 2: Steps of model building

Note: In the purposeful selection model, the inclusion of variables depends on the clinical significance and not only on statistical significance.

Data from five countries (Qatar, Palestine, Iraq, Tunisia, Algeria), were mutually pooled into an overall dataset. To be able to pool data from the five countries, while considering their complex survey design, we denormalized the standard child weight. To denormalized the weights, the survey child weight was divided by the child survey sampling fraction, obtained by dividing the total number of children 2-14 interviewed by the total number of children aged 2-14 in the country at the time of the survey, which was obtained from the United Nations population division (71).

4.14 Ethical Consideration

This study was based on secondary data that are publicly available on the UNICEF website. However, an exemption was obtained from the Institutional Board of Qatar University. The result will be shared with all stakeholders.

Chapter 5: Results

5.1 Overall Level

5.1.1 Basic Characteristics

A total of 136,732 children age 2-14 years from five selected countries were included in the analysis. Almost half of the participants were males (Table 2). Most children were in the middle age category 5-9 years (40%), compared to 36% in the early adolescent's age category 10-14 years. 66% of households were in urban areas (66%) and had more than eight members (47%). Males headed almost 94% of the household. Most heads were younger than 40 years (43%), followed by 34% between 41-50 years. It is important to be noted that wealth index data was not collected for Qatar. However, for other countries, the highest percentage of households were in the most deprived category (24%), compared to 16% in the wealthiest wealth index categories.

5.1.2 Prevalence of Household Head Education and Respondent's Beliefs

Almost 46% of the household heads were with secondary or higher education compared to 36% with primary education, and almost 18% of household heads were non-educated.

Three-quarters of respondents did not believe in the necessity of physical punishment to raise children.

Table 2: Households Characteristics in the Overall Sample (UNICEF 2010-213 Multiple Indicator Cluster Survey), N=136,732

	%
Household head education	
None	17.6
Primary	36.2
Secondary or higher	46.2
Child need to be physically punished to be brought up properly	
Yes	24.4
No	75.5
Child sex	
Male	51.1
Female	48.9
Child age category	
2-4 years	25.6
5-9 years	38.8
10-14 years	35.5
Area	
Urban	66.0
Rural	34.0
Camps	0.0
Number of household members	
1-5	22.3
6-7	30.9
8+	46.8
Sex of household head	
Male	94.3
Female	5.7
*Age category of the household head	
less than 40	42.7
41-50	33.7
51+	23.6
**Wealth Index quintiles	
Poorest	23.7
Second	21.9
Middle	20.1
Fourth	18.5
Richest	15.8

(*) < 2% missing observations
(**) Wealth index variable was not collected for Qatar

5.1.3 Prevalence of Disciplinary Methods

In the MENA Region, the prevalence of positive discipline (only non-violent discipline) was only 15%, while the prevalence of violent disciplinary methods was almost 80% (Figure 3).

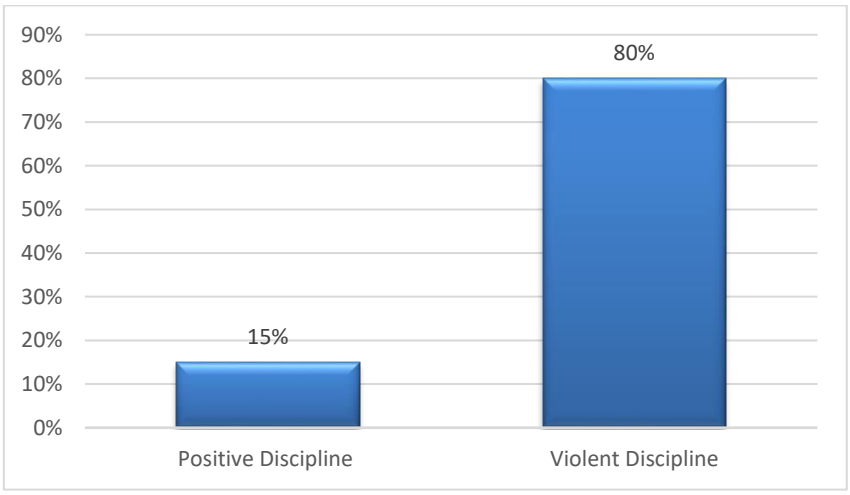

Figure 3: Prevalence of Disciplinary Practices in the overall Sample

5.1.4 Association between Disciplinary Methods and Household Head Education and Respondents Beliefs

5.1.4.1 Overall Positive Discipline

The prevalence of positive discipline was highest in non-educated household heads (17%), compared to 11% and 15% in primary and secondary or higher household heads, respectively (Table 3). Positive discipline was higher in households that did not believe in physical punishment (17%), compared to only (4%) in households that believe in it. On a country level, Qatar had the highest prevalence of positive discipline (40%), followed by almost 16% in Iraq, 9% in Algeria, 6% in Palestine, and 5% in Tunisia (Figure 4). Positive discipline was higher in females (15%) among early

adolescents aged 10-14 years (16%) and in urban areas (15%). It was also higher in households with the smallest number of members 1-5 (15%), female-headed households (15%), and older households heads (51+) (15%). Lastly, the highest prevalence of positive discipline was in the wealthiest category (17%).

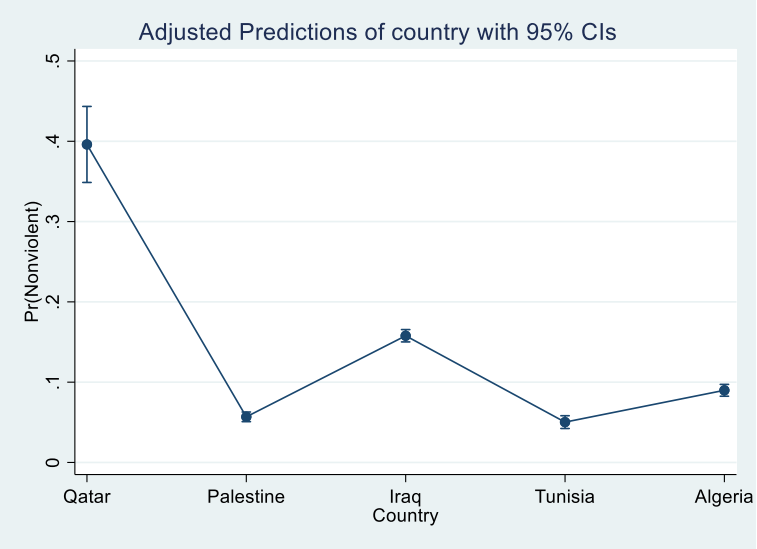

Figure 4:Proportion of positive discipline by country with 95% CI

The crude OR presented in Table 4 shows a significant association between household head education and positive discipline (p-value= 0.0015). The odds of positive discipline were 14% lower the household heads with primary education compared to uneducated heads; however, there was no difference in the odds of positive discipline between heads with secondary or higher education compared to non-educated heads (OR=1.01; 95% CI: 0.93-1.22). Positive discipline was six times in households that did not believe in physical punishment compared to those who believe in it. Compared to Qatar, all countries (Palestine, Iraq, Tunisia, and Algeria) had lower odds

of positive discipline. Females had higher odds of positive discipline compared to males (OR=1.30; 95% CI: 1.18-1.43). Moreover, the odds of positive discipline were 11% higher in children 10-14 years of age compared to 2-4 years. Compared to households with eight or more members, the odds of positive discipline were higher by 21% and 12% in households with less than five members and households with 6-7 members, respectively. Besides, the odds of positive discipline were 16% higher among older households' heads (above 51) compared to those in the younger categories. Also, the odds of positive discipline were 9% higher in female-headed households compared to male-head households; however, this association was not significant (p-value =0.3494). Furthermore, the highest odds of positive discipline was in the wealthiest group (OR=1.63; 95% CI: 1.73-1.94). Lastly, the odds of positive discipline were lower in rural areas compared to urban ones.

The variable wealth index was excluded from model building stages, because it was not collected for Qatar, and that would result in dropping Qatar from the analysis. In the initial phase of model building, all variables were included in the model building (education of household head, beliefs of physical punishment, country, child sex, child age, area, number of household members, the age category of household head), except household head sex (p-value > 0.25). In the second phase, the variable area was excluded using p-value > 0.05 cutoff. None of the excluded variables were found to be confounding the association.

As illustrated in the adjusted analysis Table 4, the association between positive discipline and household head education was not significant (p-value=0.2330). However, the odds of positive discipline were almost one (OR=0.90; 95% CI: 0.78-1.05), (OR=0.99; 95% CI: 0.85-1.15) for primary and secondary or higher education compared to non-educated household heads, respectively. However, the odds of

positive discipline were almost six times in those who did not believe in physical punishment compared to their peers who believe in it (OR=5.88; 95% CI: 4.97-6.96), holding all other variables in the model constant. All other predictors (country, child sex, child age, number of household members, the age category of household head) were significantly associated with the positive discipline (p-value < 0.05). Using the goodness of fit test, we found that our model fitted the data well (p-value=0.869).

5.1.4.2 Overall Violent Discipline

The highest prevalence of violent discipline was in household heads with primary education (85%), compared to almost 80% in household heads with secondary or higher education and non-educated household heads (Table 3). The prevalence of violent discipline was almost 95% in respondents who believe in physical punishment compared to their peers (77%). In both Palestine and Tunisia, the prevalence of violent discipline was almost 93% compared to 86%, 79%, and 50% in Algeria, Iraq, and Qatar, respectively (Figure 5). Violent discipline was higher in males, middle-age category 5-9 years, and camps areas. violent discipline was slightly higher in households with 6-7 and 8 or more members (82%), compared to households with less than five members. Also, the prevalence of violent discipline was higher in male-headed households, and younger ages (below 40). Lastly, violent discipline was lower in the wealthiest households compared to other wealth categories.

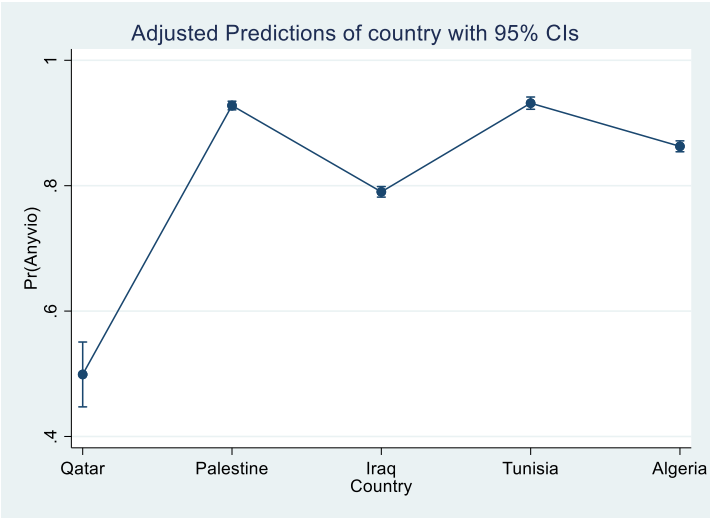

Figure 5: Proportion of violent discipline by country with 95%CI

The crude odds of violent discipline was 17% higher in household heads with primary education compared to uneducated household heads(Table 5). The odds of violent discipline were almost six times in those who believe in physical punishment compared to their peers who are not sharing the same beliefs. The odds of violent discipline were more than 13 times in both Palestine and Tunisia when compared to Qatar. Males children had higher odds of violent discipline compared to females. Moreover, the middle age group 5-9 years had almost 40% higher odds of violent discipline compared to children 2-4 years. The odds of violent discipline were 17% higher in households with more than eight members, compared to less than five members. Violent discipline was lower among older household's heads (41-50 years) and (above 51) when compared to households' heads less than 40 years. Violent discipline was slightly higher in male-headed households; however, it was not significant (p-value=0.335). The odds of violent discipline were 33% lower in the richest categories when compared to the poorest category.

The variable wealth index was excluded from model building stages, because it

was not collected for Qatar, and that would result in dropping Qatar from the analysis. In the initial phase of model building, all variables were included (education of household head, beliefs of physical punishment, country, child sex, child age, area, number of household members, the age category of household head), in the model building except household sex (p-value >0.25). In the second phase, the variable area was excluded using p-value > 0.05 cutoff. None of the excluded variables were found to be confounding the association.

From the adjusted analysis in table 5, the association between violent discipline and the household head was not significant (p-value= 0.2183). The adjusted odds of violent discipline were 13% higher in households with primary education compared to non-educated household heads(OR=1.13; 95% CI: 0.99-1.29), while for household heads with secondary or higher education, the odds were almost one (OR=1.06; 95% CI: 0.92-1.21). Furthermore, the adjusted odds of violent discipline were almost six times in those who believe in physical punishment compared to their peers who did not believe in it (OR=6.27; 95% CI: 5.40-7.28). The odds of violent discipline was much higher in Palestine and Tunisia (OR=11.75; 95% CI: 9.09-15.17), (OR=10.92; 95% CI: 8.22-14.52), respectively, when compared to Qatar. The adjusted odds of violent discipline was 27% higher in males compared to females. Compared to children 2-4 years of age, children in the middle category, 5-10, had 39% higher odds of violent discipline. Households with more than eight members had 29% higher odds of violent discipline when compared to households with less than five members. The adjusted odds of violent discipline was higher among younger household heads. Finally, our model fitted the data well, where the p-value of the goodness of fit test was 0.153.

Figure 6 illustrates the adjusted predicted probabilities from the final logistic

regression model for positive discipline by the education of the household head in each country. The highest prevalence of positive discipline was among uneducated household heads in all countries except Palestine and Iraq, wherein these countries the highest proportion of positive discipline was in secondary or higher educated household heads. Without any exception, positive discipline was the lowest in household heads with primary education.

In all countries, the Prevalence of violent discipline was the highest in household heads with primary education (Figure 7). However, the lowest violent discipline was in non-educated household heads in all countries except Palestine and Iraq. The confidence intervals were overlapping which indicates that these differences are not statically significant.

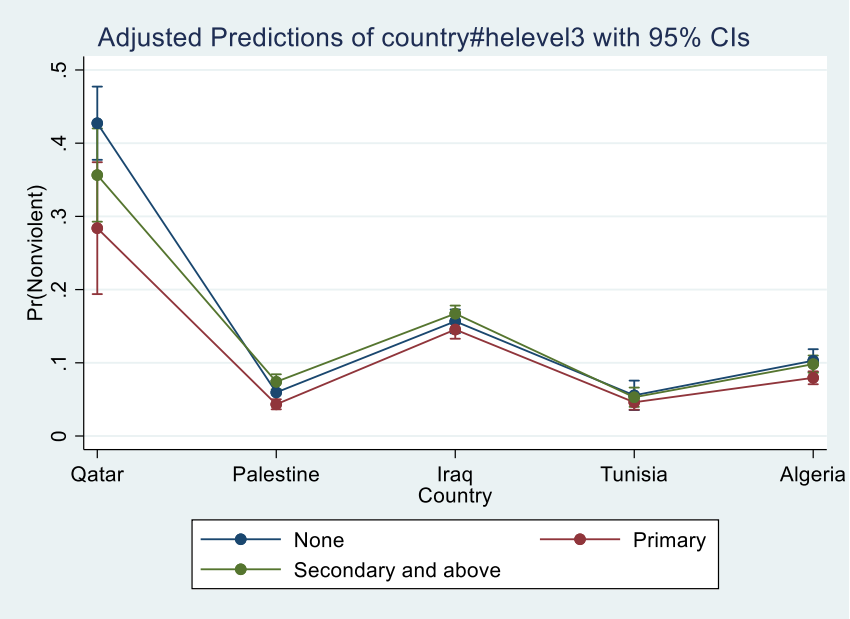

Figure 6:Positive discipline by country and household head education with 95% CI

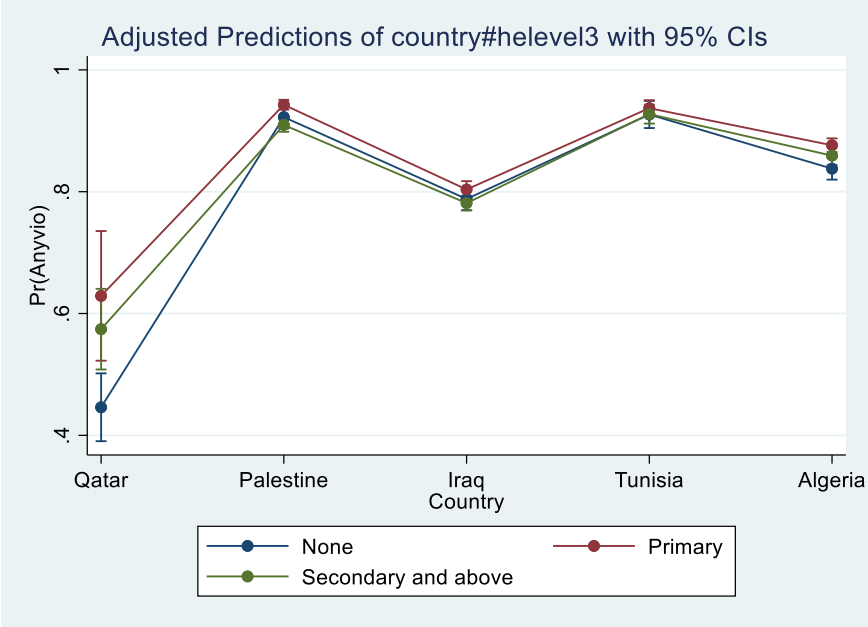

Figure 7: Violent discipline by country and household head education with 95% CI

Table 3: Prevalence of Disciplinary Methods by Predictors Variable in Overall Sample (UNICEF 2010-213 Multiple Indicator Cluster Survey)

	Positive Discipline		Violent Discipline	
	%	CI	%	CI
Education of household head				
None	16.8	[15.5,18.2]	76.9	[75.3,78.4]
Primary	11.0	[10.3,11.7]	84.7	[83.8,85.5]
Secondary and above	15.0	[14.2,15.9]	80.3	[79.3,81.2]
*Child needs to be physically punished to be brought up properly				
Yes	4.0	[3.5,4.6]	94.8	[94.1,95.4]
No	16.9	[16.2,17.6]	77.3	[76.5,78.1]
Country				
Qatar	39.6	[35.0,44.4]	49.9	[44.7,55.0]
Palestine	5.7	[5.1,6.3]	92.8	[92.1,93.5]
Iraq	15.8	[15.0,16.6]	79.0	[78.1,79.9]
Tunisia	5.0	[4.3,5.9]	93.2	[92.1,94.1]
Algeria	9.0	[8.3,9.8]	86.3	[85.4,87.1]
Child sex				
Male	12.3	[11.6,13.0]	83.2	[82.4,83.9]
Female	15.4	[14.6,16.2]	79.4	[78.5,80.2]
Child age category				
2-4 years	13.6	[12.7,14.6]	79.5	[78.3,80.6]
5-9 years	12.3	[11.6,13.2]	83.7	[82.8,84.6]
10-14 years	15.5	[14.7,16.4]	80.1	[79.1,81.0]
Area				
Urban	14.8	[14.0,15.5]	80.4	[79.5,81.2]
Rural	12.0	[11.1,12.9]	83.0	[82.1,83.9]
Camps	5.4	[3.9,7.6]	93.5	[91.2,95.3]
Number of household members				
1-5	14.7	[13.7,15.7]	80.4	[79.2,81.5]
6-7	13.6	[12.7,14.5]	81.7	[80.7,82.6]
8+	13.4	[12.6,14.2]	81.7	[80.8,82.6]

	Positive Discipline		Violent Discipline	
	%	CI	%	CI
Sex of household head				
Male	13.7	[13.2,14.3]	81.4	[80.7,82.1]
Female	14.9	[13.1,16.9]	79.7	[77.4,81.7]
*Age category of household head				
Less than 40	13.0	[12.2,13.8]	82.2	[81.3,83.1]
41-50	13.9	[13.1,14.8]	81.4	[80.4,82.4]
51+	15.0	[14.0,16.1]	79.6	[78.5,80.8]
**Wealth Index quintiles				
Poorest	11.9	[10.9,13.0]	83.4	[82.2,84.5]
Second	11.4	[10.5,12.4]	83.8	[82.6,84.9]
Middle	11.6	[10.6,12.7]	83.7	[82.4,84.8]
Fourth	12.4	[11.3,13.5]	83.1	[81.8,84.3]
Richest	16.9	[15.5,18.5]	78.9	[77.1,80.5]

(*) < 2% missing observations
CI: 95% Confidence Interval
(**) Wealth index variable was not collected for Qatar

Table 4: Crude and Adjusted OR for Positive Discipline by Predictor Variables in Overall Sample

	OR	CI	P-value	AOR	CI	P-value
Education of household head			**0.0015**			**0.2330**
None	*Ref.*			Ref.		
Primary	0.86	0.75-1.00	0.036	0.90	0.78-1.05	0.186
Secondary and above	1.01	0.93-1.22	0.335	0.99	0.85-1.15	0.923
*Child needs to be physically punished to be brought up properly			**< 0.001**			**< 0.001**
Yes	*Ref.*			Ref.		
No	6.01	5.14-7.18	< 0.001	5.88	4.97-6.96	< 0.001
Country			**< 0.001**			**< 0.001**
Qatar	*Ref.*			Ref.		
Palestine	0.09	0.07-0.12	< 0.001	0.11	0.082-0.14	< 0.001
Iraq	0.29	0.23-0.35	< 0.001	0.33	0.26-0.42	< 0.001
Tunisia	0.81	0.06-0.10	< 0.001	0.10	0.77-0.14	< 0.001
Algeria	0.15	0.12-0.19	< 0.001	0.15	0.12-0.19	< 0.001
Child sex			**< 0.001**			**< 0.001**
Male	*Ref.*			Ref.		
Female	1.30	1.18-1.43	< 0.001	1.28	1.15-1.41	< 0.001
Child age category			**< 0.001**			**< 0.001**
2-4 years	*Ref.*			Ref.		
5-9 years	0.81	0.71-0.92	0.001	0.82	0.72-0.93	0.003
10-14 years	1.11	0.98-1.27	0.107	1.11	0.97-1.28	0.121
Number of household members			**0.0038**			**< 0.001**
1-5	1.21	1.08-1.35	0.001	1.37	1.20-1.56	< 0.001
6-7	1.12	1.00-1.25	0.052	1.18	1.05-1.33	0.007
8+	*Ref.*			Ref.		
*Age category of household head			**0.0220**			**0.0016**
less than 40	Ref.			Ref.		
41-50	1.15	1.02-1.28	0.016	1.21	1.07-1.37	0.002
51+	1.16	1.02-1.32	0.027	1.28	1.09-1.49	0.002

	OR	CI	P-value	AOR	CI	P-value
Sex of household head			**0.3494**			
Male	*Ref.*					
Female	1.09	0.91-1.31	0.349			
*Wealth Index quintiles			**< 0.001**			
Poorest	Ref.					
Second	0.94	0.81-1.09	0.420			
Middle	0.98	0.83-1.16	0.833			
Fourth	1.06	0.90-1.24	0.512			
Richest	1.63	1.37-1.94	< 0.001			
Area			**< 0.001**			
Urban	*Ref.*					
Rural	0.86	0.76-0.96	0.007			
Camps	0.31	0.21-0.44	< 0.001			
Goodness of fit						**0.869**

OR: Odds Ratio
AOR: Adjusted Odds Ratios
CI: 95% Confidence Interval
*Wealth index variable was not collected for Qatar

Table 5: Crude and Adjusted OR for Violent Discipline by Predictor Variables in Overall Sample

	OR	CI	P-value	AOR	CI	P-value
Education of household head			**0.0012**			**0.2183**
None	Ref.			Ref.		
Primary	1.17	1.04-1.32	0.010	1.13	0.99-1.29	0.075
Secondary and above	0.98	0.87-1.11	0.746	1.06	0.92-1.21	0.440
*Child needs to be physically punished to be brought up properly			**< 0.001**			**< 0.001**
Yes	6.44	5.56-7.47	< 0.001	6.27	5.40-7.28	< 0.001
No	Ref.			Ref.		
Country			**< 0.001**			**< 0.001**
Qatar	*Ref.*			Ref.		
Palestine	12.92	10.25-16.28	< 0.001	11.75	9.09-15.17	< 0.001
Iraq	3.78	3.06-4.68	< 0.001	3.34	2.64-4.23	< 0.001
Tunisia	13.69	10.58-17.72	< 0.001	10.92	8.22-14.52	< 0.001
Algeria	6.32	5.07-7.87	< 0.001	7.00	5.50-8.92	< 0.001
Child sex			**< 0.001**			**< 0.001**
Male	1.30	1.19-1.41	< 0.001	1.27	1.17-1.39	< 0.001
Female						
Child age category			**< 0.001**			**< 0.001**
2-4 years	*Ref.*			Ref.		
5-9 years	1.40	1.26-1.56	0.001	1.39	1.24-1.56	< 0.001
10-14 years	1.06	0.95-1.19	0.107	1.08	0.95-1.22	0.233
Number of household members			**< 0.001**			**0.0001**
1-5	*Ref.*			Ref.		
6-7	1.07	0.96-1.19	0.210	1.11	0.99-1.25	0.071
8+	1.17	1.07-1.29	0.001	1.29	1.15-1.45	< 0.001
*Age category of household head			**0.0200**			**0.0005**
less than 40	*Ref.*			Ref.		
41-50	0.89	0.81-0.98	0.023	0.82	0.74-0.92	0.001
51+	0.87	0.78-0.97	0.016	0.80	0.69-0.92	0.001

	OR	CI	P-value	AOR	CI	P-value
Sex of household head			**0.3351**			
Male	1.08	0.92-1.28	0.335			
Female	*Ref.*					
*Wealth Index quintiles			**< 0.001**			
Poorest	*Ref.*					
Second	1.00	0.88-1.14	0.969			
Middle	0.99	0.86-1.15	0.928			
Fourth	0.94	0.81-1.08	0.384			
Richest	0.67	0.57-0.79	< 0.001			
Area			**< 0.001**			
Urban	0.26	0.19-0.37	< 0.001			
Rural	0.29	0.21-0.41	< 0.001			
Camps	*Ref.*					
Goodness of fit						**0.153**

OR: Odds Ratio
AOR: Adjusted Odds Ratios
CI: 95% Confidence Interval
*Wealth index variable was not collected for Qatar

5.2 Country Level

5.2.1 Basic Characteristics of Households

MICS surveys were conducted in five countries (Qatar, Palestine, Iraq, Tunisia, Algeria) between 2010 and 2013. Table 6 summarizes the characteristics of households that participated in the child discipline model in each country. Generally, in all countries, around half of the children were males. More than 37% of the children were in the middle age group, between 5-9 years. More than half of the participants were living in urban areas. Palestine and Iraq had the largest proportion of household members in the category (8 members or more) compared to Qatar, Tunisia, and Algeria. In all countries, the majority of household heads were males (90% or more), and they were mostly younger than 50 years. The wealth index was not collected for Qatar. As expected, in other countries, the wealth index was almost distributed equally among its five categories (poorest, second, middle, fourth, and richest).

5.2.2 Prevalence of Disciplinary Methods

The prevalence of positive discipline (only non-violent) method, lowest in Tunisia (5%), and highest in Qatar (40%) (Figure 8). While the prevalence of violent discipline was the highest in Tunisia with (93%) and the lowest in Qatar (50%).

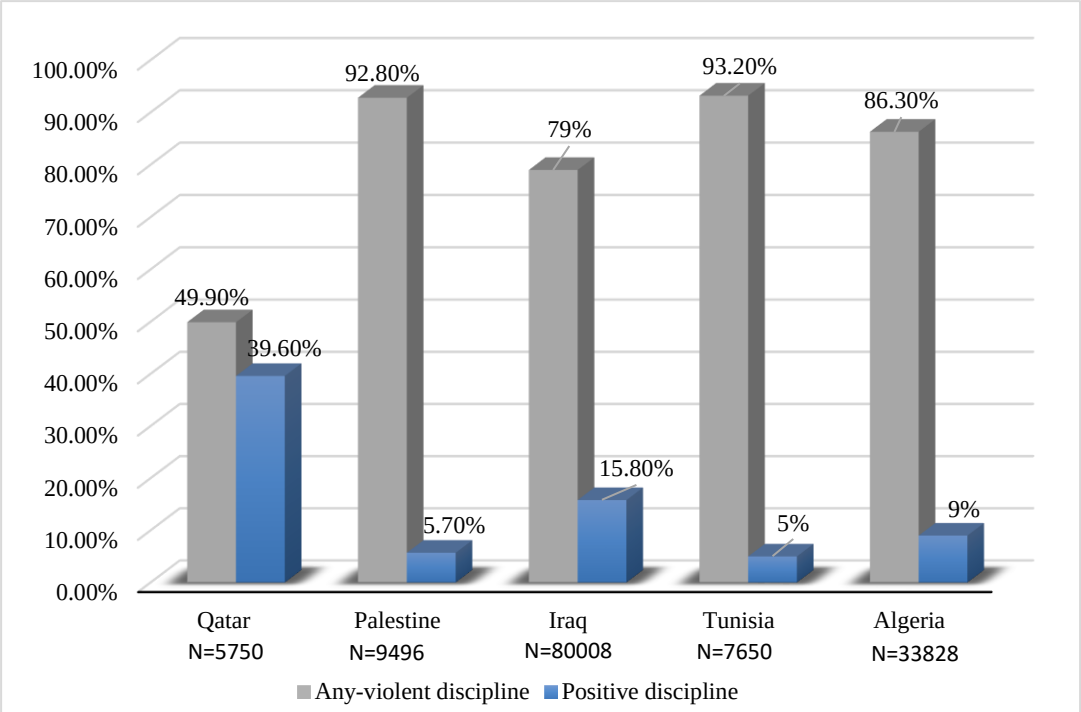

Figure 8: Prevalence of disciplinary practices by country

5.2.3 Household Heads Education and Respondent's Beliefs

Qatar has the highest percentage of the non-educated household heads with more than 60% compared to 11.6%, 17.1%, 12.4%, and 23.3% in Palestine, Iraq, Tunisia, and Algeria, respectively (Figure 9).

Less than a quarter of respondents believe in the necessity of using physical punishment as a way of raising children. This is observed in all five countries except Tunisia. In Tunisia, which has the highest prevalence of violent discipline, around 44% of respondents emphasized the importance of using physical punishment to raise children properly (Figure 10).

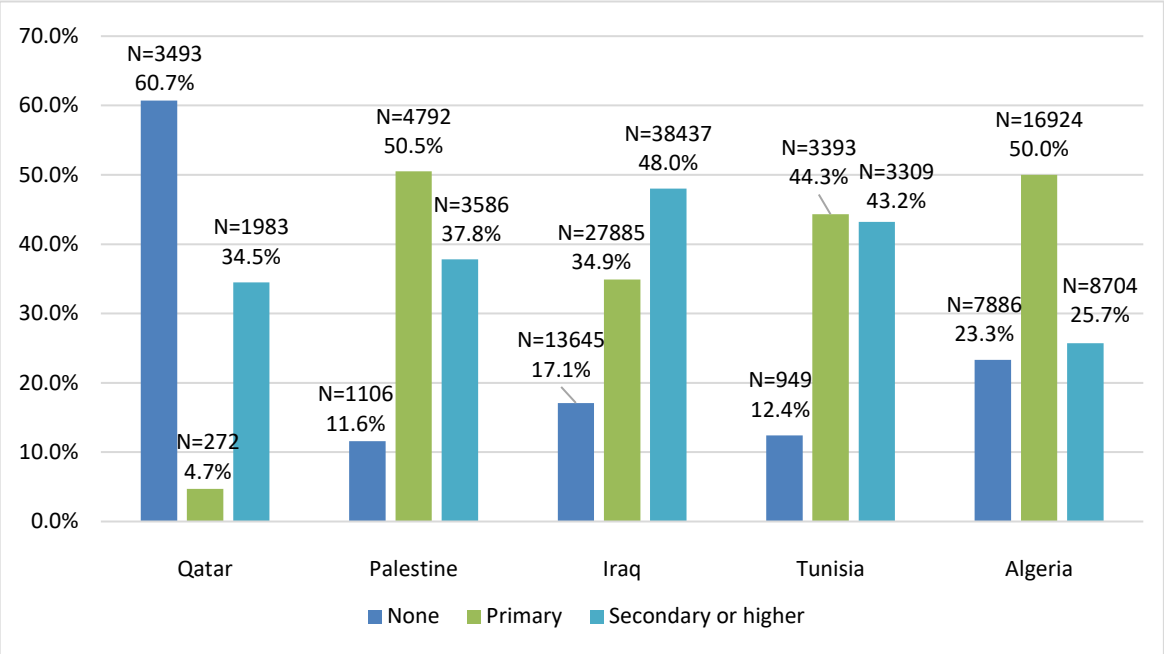

Figure 9: Distribution of households by the education of households head

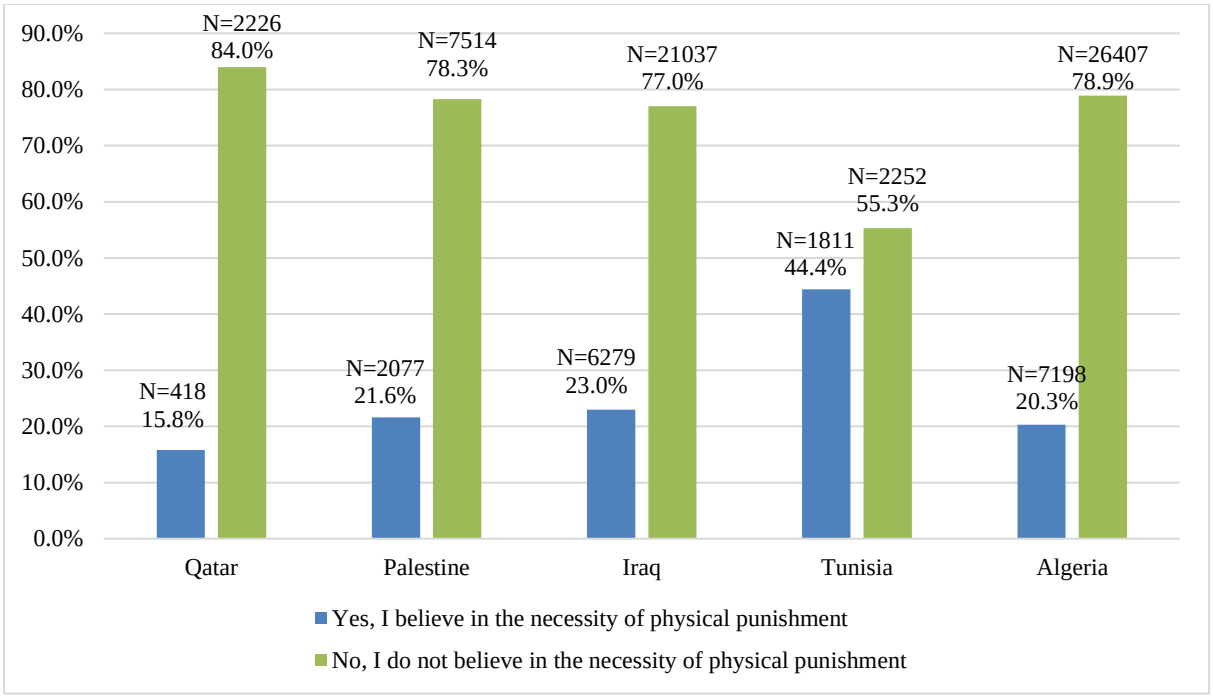

Figure 10: Distribution of households by beliefs

5.2.4 Association Between Positive Discipline and Violent Discipline with Household Head Education and Beliefs of Physical Punishment

This section summarizes the associations between the two study outcomes and the predictors. It also summarizes the steps of the model building described in the methods section. The results are presented for each country separately.

5.2.4.1 Qatar

5.2.4.1.1 Positive Discipline

Surprisingly, the highest prevalence of positive discipline was among the households with non-educated heads (42%), compared to 28% in families, where the heads were with primary education and 35% in heads with secondary or higher education (Table 7,). Almost 36% of those who do not believe the need for physical punishments reported using only positive or non-violent methods of discipline in their households. This leaves around 64% of the respondents sharing the same beliefs but behaving otherwise. However, 3.7% of those who believe in physical punishment as an essential way to raise children; they did not report using such methods. Positive discipline was reported more frequent in females (42%) compared to males (38%). Among age group categories, positive discipline was reported more for the middle age group 5-9 years (43%) followed by early adolescent group 10-14 years (38%) and lastly the early year's group 2-4 years (37%). Positive discipline increased by the decrease in the number of household members.

Similarly, positive discipline was reported higher in female-headed households (48%) compared to a household with a male head (39%). Lastly, there was no clear trend for positive discipline by the age of the household head. Positive discipline was highest in household head aged between 41-50 years (42%) compare to other age categories.

Table 8 summarizes the crude association between positive discipline and different predictor variables. Household head education was significantly associated with positive discipline (p-value=0.0063). Compared to no education, the odds ratios (ORs) were 0.53 and 0.74 in primary and secondary or higher, respectively. This indicates that houses whose heads had primary or secondary and higher education had lower odds of positive discipline compared to household heads with no education. Consistently, the association with beliefs of using physical punishment was also highly significant (p-value=0.0004). The odds of positive discipline among those who do not believe in physical punishment were almost three times (OR= 2.65) when compared to respondents who believe in it. Moreover, the odds of positive discipline were significantly higher in households with a smaller number of members compared to larger households. The odds ratio was 1.5 in houses with five or fewer members and 1.2 in homes with 6-7 members compared to a family with more than seven members. Finally, the child's sex and age and household head sex and age were not significantly associated with positive discipline.

From the univariate analysis, the variables sex and age of household head were excluded based on cutoff (p-value < 0.25) mentioned earlier on the methods. On the following step, child sex, child age category, and the number of household members were excluded using a (p-value <0.05) level of significance. However, child sex and child age returned into the model, based on Hosmer and Lemeshow 20% cutoff for confounder assessment (70, 72). Both variables were associated with outcome and exposure variables and are not in the causal pathway between them.

Table 9 summarizes the final adjusted model. In Qatar, the association between positive discipline and household education remains significant, adjusting for other variables in the model. However, the results showed that household heads with

secondary or higher education had 22% lower odds of positive discipline compared to those with no education controlling for all other variables in the model. While the odds of positive discipline were 43% lower in households' heads with primary education compared to uneducated heads. Beliefs of physical punishment were strongly associated with positive discipline (p-value<0.001). The odds of positive discipline were 2.5 times in respondents who reported that they do not believe in physical punishment compared to those who believed in it. Finally, Based on Archer and Lemeshow test (73), the final model fitted the data well (p-value=0.988).

5.2.4.1.2 Violent Discipline

Violent discipline was reported more frequently among household heads with primary education (63%), followed by those with secondary or higher education (57%) and lastly by those with no education (44.6%) (Table 10). Surprisingly, although more than 80% of the respondents did not agree on using physical force to raise children, as shown in Figure 10, in reality, 41% of these households already used some forms of violence on children. Violent discipline was reported on more than half males compared to females (46%). Add to that, violent discipline was more frequent in older children ages.

Violent discipline was reported more prevalent when the number of household members increased. Additionally, any-violent discipline method was more prevalent in households with male heads (50%) compared to those with female heads (43%). The percentages of reported violent discipline in the household increased as the age of the household head increased.

Results of the univariate analysis presented in Table 11 showed a significant association between violent discipline and household head education, beliefs of physical punishment, child sex, and the number of household members. The odds of

violent discipline were twice as much among those with household heads with the primary level compared to those who did not receive any education. Furthermore, the odds of violent discipline were significantly higher (OR= 3.57) among those who believe in the necessity of these methods to raise children. Finally, the odds of violent discipline increased as the number of household members increased.

In the first step of model building, the variable sex and age of household head were excluded, and the initial full model was generated. At this stage, child age, as well as the number of household members, were excluded from the model. However, child age was found to be an important confounder, where it was associated with violent discipline and household head education as well as beliefs of physical punishment and not in the causal pathway, so it was returned to the final model.

Table 12 presents the final adjusted model for violent discipline in Qatar. There was a significant association between household head education and violent discipline, where the odds of violent discipline were twice for the household were heads had primary education compared to those with no education controlling for other variables in the model (AOR=1.98; 95% CI: 1.23-3.19). Similarly, the odds of violent discipline were 1.56 times on those with secondary or higher education when compared to those with no education holding all other variables in the model constant (AOR=1.6; 95% CI: 1.20-2.02). Besides that, the odds of violent discipline were 3.3 times for respondents who believe in physical punishment compared to those who do not, holding all other variables in the model constant (AOR=3.3; 95% CI: 1.94-5.76). This model fitted the data well were the p-value of the goodness of fit test was 0.957.

5.2.4.2 Palestine

5.2.4.2.1 Positive discipline

In Palestine, the prevalence of positive discipline was the highest in household

heads with secondary or higher education (7%), compared to 4.3% in household heads with primary education and almost 6% in uneducated household heads(Table 7). Only 7% of respondents who did not believe in physical punishment reported using only positive disciplinary methods, which reflect that 93% of those sharing the same beliefs but using other disciplinary methods. However, 2% of those who believe in physical punishment did not report using only positive methods. Positive discipline was reported slightly higher in females compared to males. The highest percentage of positive discipline was reported in the early adolescents' group 10-14 years, followed by early years 2-4 years and lastly, middle years 5-9 years (7%) (5%) (4%), respectively. There was no apparent difference in the prevalence of positive methods between urban, rural, and camp areas. Positive discipline was slightly higher in the household with a smaller number of members.

The households with a female head reported a higher prevalence of positive discipline (7.7%) compared to 5.5% in the household with male heads. Moreover, positive discipline was reported more in older household head age categories. Finally, the highest prevalence of positive practices was among the richest group with almost (7%), and the least was among the second wealth index category (4.5%).

From the univariate analysis in (Table 8), household head education, respondent's beliefs, child sex, child age category, as well as the age of household head showed a significant association with positive disciplinary methods. The odds of the positive method were 1.27 times in household heads with secondary or higher education compared to uneducated household heads. However, the odds of positive discipline were 28% lower in those household heads who received primary education compared to uneducated ones. As shown from Table 8, beliefs of physical punishment were significantly associated with the positive discipline (p-vale < 0.001).The odds of

positive discipline was three times in people who did not believe in using corporal punishment as a way to discipline a child compared to people who agreed on using these methods. The odds of positive discipline was 41% higher in females compared to male's children. Also, the odds of positive discipline were 43% higher in the early adolescents' group 10-14 years, but 10% lower in the middle age group 5-9 years compared to the early year's group 2-4 years.

The crude analysis showed a significant association between positive discipline and household head age (Table 8). The odds of positive discipline were 57% and 86% higher in the household head between 41-50 and those above 50 years, respectively. However, the association between positive discipline and household head sex was not significant.

In the initial step of model building, the variables area and the number of the household member were excluded from the model. In the following step, at the cutoff of p-value > 0.05 level, the variable wealth index was excluded. The final adjusted model included the two main predictors as well as child sex and age category in addition to household head age variable.

As shown in Table 9, the odds of positive discipline were 30% higher in household heads with secondary or higher education (AOR=1.3; 95% CI: 0.95-1.79) compared to uneducated household heads. However, the odds of positive discipline was 20% lower in household heads with primary education compared to uneducated household heads holding other variables constant (AOR= 0.8; 95% CI: 0.54-1.07). Positive discipline was significantly associated with beliefs of physical punishment. The odds of positive discipline were three times in people who did not believe in physical punishment compared to their peers who disagreed with them controlling for all other variables in the model (AOR=3.1; 95% CI: 2.04-4.83). Using Archer and

Lemeshow test, we concluded that the model fitted the data well, where the p-value was 0.352.

5.2.4.2.2 Any Violent discipline

The prevalence of violent discipline was the highest in household heads with primary education (94%), followed by 92% in uneducated household heads and almost 91% in household heads with secondary or higher education (Table 10). Unexpectedly, among respondents who did not believe in physical punishment, more than 90% of them reported using violent methods in their households. Violent discipline was higher among males and in the middle age category 5-9 years. There was no apparent difference in the prevalence of violent discipline among area categories. The prevalence of violent discipline was increasing slightly with the increase in the number of household members.

Moreover, violent discipline was reported more in the household with male heads. Also, it was reported more frequently in households with younger heads. Households in the second wealth category reported violent discipline more frequent compared to other categories.

The crude association of violent discipline was significant with household head education, beliefs of physical punishment, child sex, child age category, household head sex as well as household head age category (Table 11). The odds of violent discipline was 14% lower in educated households' heads compared to uneducated ones (P-value=0.272). However, the odds of violent discipline was 41% higher in household heads with primary education compared to uneducated household heads (P-value=0.022). The odds of violent discipline was three times in those who believe in the necessity of physical punishment compared to their peers with different beliefs (P-value < 0.001).

From the first step of model building, area, and the number of household members, variables were excluded from the model. Moreover, the wealth index was also excluded at the (p-value > 0.05) level. None of the excluded variables were found to be confounding the association, so the final model included the main predictor and child sex and age as well as household head sex and age.

As presented in Table 12, the association between household head education and violent discipline was significant (p-value < 0.001). To illustrate, the odds of violent discipline was 20% lower in household heads with secondary or higher education compared to uneducated household heads, holding all other variables in the model constant (AOR= 0.8; 95% CI: 0.61-1.06). While the odds of violent discipline was 28% higher in household heads with primary education when compared to uneducated household heads, holding all other variables in the model constant (AOR= 1.3; 95% CI: 0.96-1.72). The odds of violent discipline were three times in people who believe in the necessity of physical punishment compared to their peers with different beliefs, holding all other variables in the model constant (AOR=3.0; 95% CI: 2.00-4.46). The p-value of the goodness of fit test was 0.1.28 which indicates that our model fits the data.

5.2.4.3 Iraq

5.2.4.3.1 Positive discipline

As presented in table 7, households heads with secondary or higher education had the highest prevalence of positive discipline (17%) compared to 15% in the household heads with primary education and 16% in uneducated household heads. The prevalence of positive discipline was higher among respondents who did not believe in physical punishment (20%) compared to 4 % in respondents who believe in it. Positive discipline was higher in females and early adolescents' group 10-14 years. The

prevalence of positive discipline was slightly higher in urban areas (16%) compared to rural areas (15%). Furthermore, the prevalence of positive discipline was decreasing by the increase in the number of household members.

Positive discipline was slightly more prevalent in female-headed households (17%), compared to male-headed households (16%). Moreover, the higher prevalence of positive discipline was reported in the middle age category of household head 41-50 years of age. Notably, the highest prevalence of positive discipline was in the wealthiest group compared to the other categories.

In Iraq, the univariate analysis showed a significant association between positive discipline and all predictors variables except household sex (Table 8). The odds of positive discipline were slightly higher in a household with educated heads, compared to illiterate heads (OR=1.08). However, the odds of positive discipline were lower by 8% in household heads with primary education compared to uneducated household heads. Additionally, the odds of positive discipline were almost six times in those who did not believe in physical punishment as a way to raise a child compared to their peers who did not believe in it.

In the initial phase of model building, only household head sex was excluded. In the following step, the variable area was excluded using p-value > 0.05 cut-off. In the confounder's assessment stage, none of the omitted variables were found to be confounding the association. The final model included the two main exposure variables (household head education, beliefs of physical punishment) in addition to child sex, child age category, wealth index quintiles, number of household members, and the age category of the household head.

As presented in Table 9, the association of positive discipline with household head education was not significant (p-value = 0.5158). The odds ratios were similar

across categories and very close to the null (AOR= 0.9; 95% CI: 0.77-1.07) and (AOR= 0.9; 95% CI: 0.78 -1.11), for primary and secondary or higher education, respectively. However, the association between positive discipline and beliefs of physical punishment remains significant, where the odds of positive discipline were almost six times in people who did not believe in physical punishment compared to those who believed in it, keeping all other variables in the model content (AOR=6; 95% CI: 4.81-6.95). Using goodness of fit test, we concluded that the model fitted the data well (p-value =0.854).

5.2.4.3.2 Any Violent discipline

Violent discipline was more prevalent in household heads with primary education (80%), followed by 79% in uneducated household heads and 78% in household heads with secondary or higher education (Table 10). Violent discipline was reported more in people who believe in physical punishment (95%), compared to 74% in people who do not believe in physical punishment. It was higher in males and the middle age category 5-9 years, rural areas, and households with a large number of members. The prevalence of violent discipline did not differ by the sex of the household head. Although violent discipline was higher in the younger household heads (less than 40 years), compared to other age categories. Besides, the prevalence of violent discipline was the lowest in the most privileged category "richest" compared to other less advantaged categories.

The association between violent discipline and household head education was marginally significant; the odds of violent discipline was 4% lower in household heads with secondary or higher education compared to illiterate household heads (Table 11). However, violent discipline was highly associated with beliefs (p-value < 0.001); the odds of violent discipline were six times in people who believe in physical punishment

compared to their peers who did not believe in it. There was a significant association between violent discipline and child sex, child age, area, number of household members, and the age of household head.

From the univariate analysis, only household sex was excluded using a p-value cutoff of < 0.25 cutoff; in the second stage, the variable area was also excluded. To check for confounders, the excluded variables were returned to the model, and none of these variables were found to be confounding the association.

As presented in Table 12, the association between violent discipline and household head education was not significant (p-value =0.3532). However, the association between violent discipline and beliefs of physical punishment was highly significant (p-value< 0.001), the odds of violent discipline were six times in those who believe in physical punishment compared to those who did not believe in it (AOR=6; 95% CI: 5.15-7.09). Finally, Using Archer and Lemeshow goodness of fit test, we found that the model fitted the data well (p-value=0.599).

5.2.4.4 Tunisia

5.2.4.4.1 Positive discipline

Surprisingly, the prevalence of positive discipline was higher in uneducated household heads (7%), followed by those with secondary or higher education (6%) (Table 7). Furthermore, positive discipline was higher in those who do not believe in physical punishment (8.5%) when compared to those who believe in it (2.9%). Also, the prevalence of positive discipline was higher in females and early adolescents' group 10-14 years. However, there was no difference in the prevalence of positive discipline between rural and urban areas. The difference in the prevalence of positive discipline was small between the categories of the number of household members, household sex and wealth index categories. Though positive discipline was higher in older household

heads for more than 50 years (10%) and 5% for those 41-50 years.

As illustrated in Table 8, the association between positive discipline and household head education was not significant (p-value= 0.6016). The odds were 0.82 and 0.95, respectively, for primary and secondary or higher education compared to non-educated household heads. Nevertheless, beliefs of using physical punishment were strongly associated with the positive discipline (p-value < 0.001); the odds of positive discipline were three times in those who did not believe in the importance of physical punishment to raise children compared to people who believe in *it* (AOR=3; 95% CI: 1.93-4.59). The association between positive discipline was significant with other predictors, including child sex, child age category, and household head age.

In the initial phase of the model building described in the methods section, the variables area, wealth index quintiles, the number of household members, as well as sex of household head were excluded from the model. In the second phase, the variable child sex was excluded; however, it was returned to the model after the confounder assessment phase, where it was associated with positive discipline and both household head education and respondent's beliefs, and not in the causal pathway between them.

As shown in Table 9, The odds of positive discipline were 8% higher in household heads with secondary or higher education, compared to uneducated household heads, holding all other variables in the model constant, while it was 8% lower in household heads with primary education compared to uneducated ones, holding all other variables constant, however this association was not significant (p-value= 0.6652). Nonetheless, the association between positive discipline and beliefs of using physical punishment was significant (p-value <0.001). The odds of positive discipline were three times in those who did not believe in the importance of physical punishment compared to those who believe in it, adjusting for household head

education, child sex, child age category and age of household head. Finally, using Archer and Lemeshow goodness of fit test, we found that the model fitted the data well (p-value = 0.299)**.**

5.*2*.4.4.2 Any Violent discipline

The prevalence of violent discipline was higher among household heads with primary education (93%) compared to other education categories (Table 10). Also, it was higher in people who believe in physical punishments as a way to raise children (97%). Besides, violent discipline was higher among males, and early years group 2-4 years. There was no apparent difference in the prevalence of violent discipline between areas. Violent discipline was slightly higher in households with more than seven members compared to households with less than five members. Violent discipline was higher households with male and younger heads. Unpredictably, 93% of the people in the wealthiest group reported using violent discipline, which is the highest among the wealth categories.

As shown in Table 11, the association between violent discipline and household head education was not significant (p-value= 0.562). However, the odds of violent discipline were three and a half times in people who believe in physical punishment compared to those who did not believe in it.

In the initial phase of model building, the wealth index, quintiles, and sex of the household head were excluded based on p-value > 0.25 cutoff. In the second phase, child sex, area, and the number of household members were excluded from the model; however, child sex was returned into the model as a confounder. Child sex was associated with violent discipline and both household head education and respondent's beliefs of physical punishment and not in the causal pathway between them.

In the final model (Table 12), the association between violent discipline and

household head education remains not significant (p-value =0.6776). The odds of violent discipline were 11% lower in household heads with secondary or higher education compared to uneducated ones, holding all other variables constant (AOR=0.9; 95% CI: 0.59-1.34). However, the odds of violent discipline were three times in people who believe in physical punishment compared to those who did not believe in it, keeping household head education, child sex, child age, and household age content (AOR=3; 95% CI: 2.12-4.96). The p-value of the goodness of fit was 0.914, which means that the model fitted the data well.

5.2.4.5 Algeria

5.2.4.5.1 Positive discipline

As shown in table 7, the prevalence of positive discipline was almost similar in household heads with secondary or higher education and non-educated household heads(10%) compared to household heads with primary educations (8%). Positive discipline was prevalent more in people who did not believe in physical punishment (11%) compared to their peers who did not share the same beliefs (4%). Positive discipline was higher in females, and early adolescents 10-14 years. There was no apparent difference in the prevalence of positive discipline by areas and the number of household members.

Positive discipline was higher in female-headed households (12%) compared to male-headed households (9%). Also, it was reported more in the older age category of households (50 years or more) and those in the richest category of wealth quintiles.

From the univariate regression result illustrated in Table 8, the odds of positive discipline were 5% less in the household heads with secondary or higher education compared to illiterate household heads. The odds of positive discipline were 25% lower in household heads with primary education compared to non-educated ones. Besides

that, the odds of positive discipline were three times in people who do not believe in physical punishment compared to those who believe in it. From the univariate analysis, all variables were significantly associated with positive discipline except area and number of the household member.

Initially, the variables area and number of household members were excluded from the model in the first phase. In the second phase, child sex, child age category, and household head sex were excluded; however, all these three variables were returned into the model in the confounder assessment phase, where they found to be associated with positive discipline and household head education as well as beliefs of physical punishment.

As presented in table 9, The association between positive discipline and household head education was significant in the final model(p-value= 0.0208) where the odds of positive discipline was less by 10% and 22% for people with secondary and higher education and primary education, respectively when compared to uneducated household heads, keeping beliefs, child sex, child age, wealth, household sex and age constant . On the other hand, the odds of positive discipline were three times in those who did not believe in physical punishment compared to those who believe in it, holding the variables beliefs, child sex, child age, wealth, household sex and age constant (AOR=3; 95% CI: 2.35-3.90). Using the goodness of fit model, we found that the final model fitted the data well (p-value=0.274).

5.2.4.5.2 Any Violent discipline

The prevalence of violent discipline was the highest in household heads with primary education (88%), followed by household heads with secondary or higher education (86%) and 84% in uneducated household heads (Table 10). Violent discipline was higher in those who believe in physical punishment (94%) compared to 85% in

those who did not believe in physical punishment. Moreover, it was higher in males and the middle age category 5-9 years as well as in households with a male head. The prevalence of violent discipline was slightly higher in urban areas compared to rural ones. Violent discipline was lower in households with a larger number of members (85%) compared to 87% in other categories. Violent discipline was slightly lower in older household heads and the wealthiest group category.

As illustrated in Table 11, the association between violent discipline and the household head education was significant. The odds of violent discipline were 18 % higher in household heads with secondary or higher education compared to illiterate household heads (AOR=1.4; 95% CI: 1.17-1.60). The odds of violent discipline were 37% higher in households' heads with primary education, compared to uneducated household heads (AOR=1.2; 95% CI: 0.99-1.42). Also, the odds of positive discipline were three times in people who believe in physical punishments compared to those who do not believe in it (AOR=3.0; 95% CI: 2.37-3.89).

In the initial phase, the variable number of household members was excluded from the model; in the second phase, the variable area and household sex were excluded. However, the variable household head sex was found to be a confounder, and it was returned to the model, where it was associated with violent discipline and predictors variable and not in the causal pathway between them.

As shown in Table 12, the association between household head education and violent discipline was significant (p-value= 0.0208). The odds of violent discipline were higher by 27% in the household head with primary education compared to uneducated household heads, holding all other variables in the model constant (AOR=1.3; 95% CI: 1.0 7-1.52). Also, the odds of violent discipline was 16% higher in household heads with secondary or higher education, compared to illiterate

household heads, holding all other variables in the model constant (AOR=1.5; 95% CI: 0.95-1.42). Besides, the odds of violent discipline were three times in people who believe in physical punishment compared to those who did not believe in it holding all other variables in the model constant (AOR=3.1; 95% CI: 2.38-3.91). Finally, using the goodness of fit test, we found that the model fit the data well (p-value=0.446).

5.2.5 Comparing the Prevalence of Disciplinary Practices by Household Head Education and Respondent's Belief of Physical Punishment

Figure 11 shows that the highest proportion of positive discipline was among household heads with secondary or higher education in Palestine and Iraq, but in the other countries, the highest prevalence was in uneducated household heads. The prevalence of positive discipline was higher in respondents who did not believe in physical punishment (Figure12).

Figure 13 shows that the highest violent discipline was in household heads with primary education. However, the lowest violent discipline was in non-educated household heads in all countries except Palestine and Iraq, wherein these countries, the lowest prevalence of violent discipline was in household heads with secondary or higher education.

Violent discipline was higher among people who believe in physical punishment, compared to their peers, who did not believe in it (Figure 14).

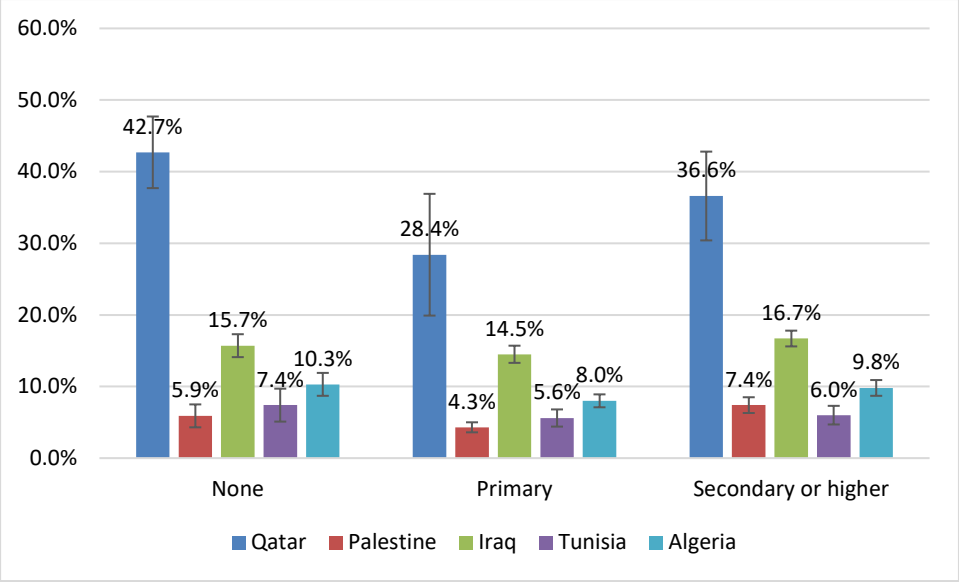

Figure 11: Positive discipline for each country by household head education categories

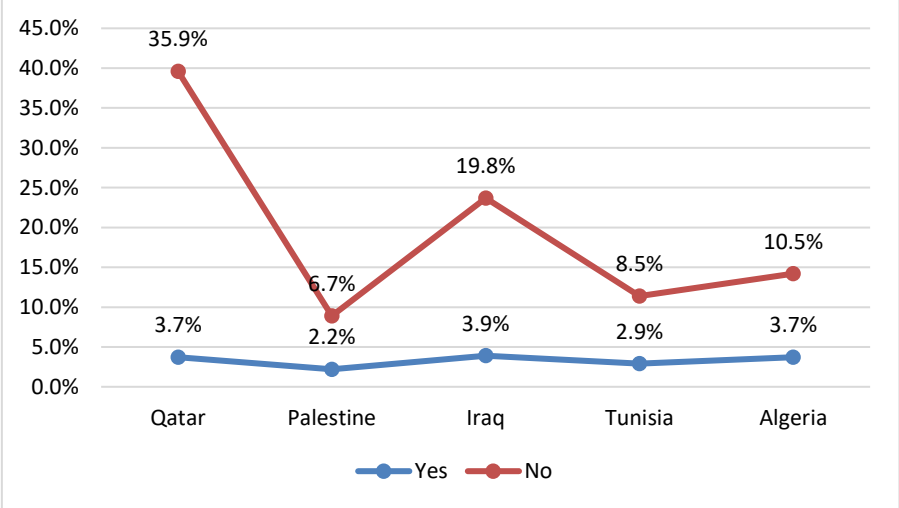

Figure 12: Prevalence of positive discipline by respondents beliefs of physical punishment

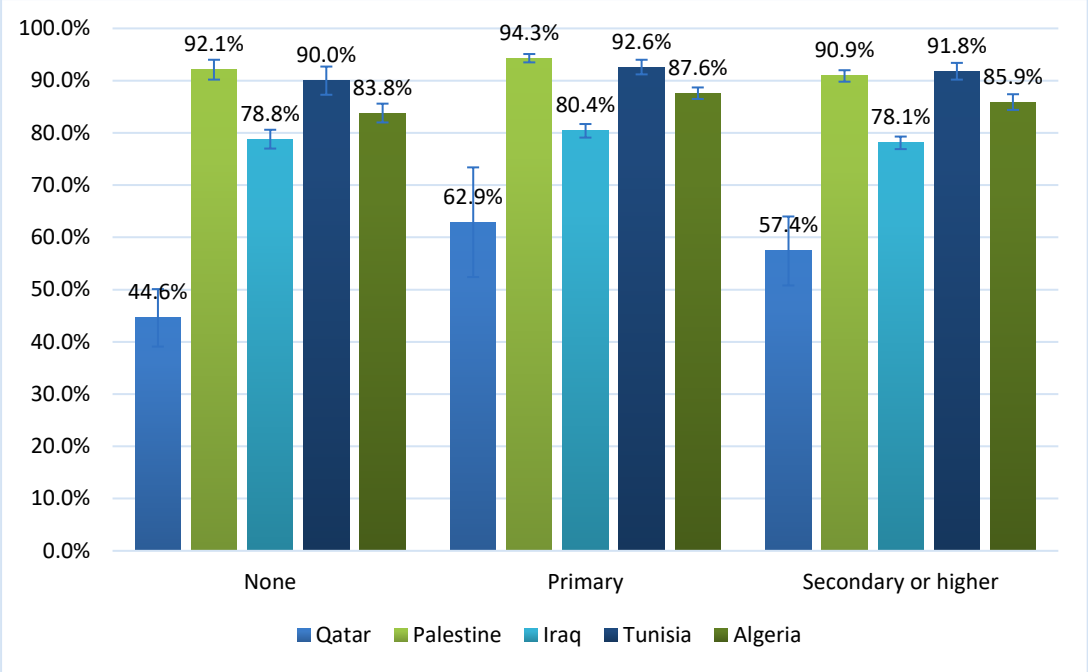

Figure 13: Prevalence of violent discipline by household head education

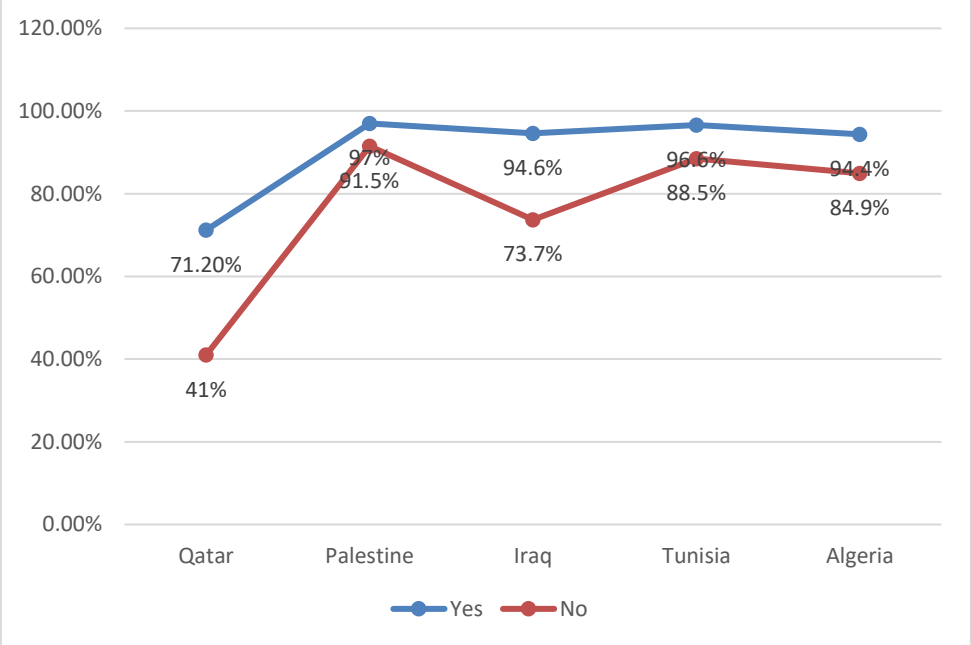

Figure 14: Prevalence of violent discipline by respondents beliefs of physical punishment

5.2.6 Comparing Final Models Across Countries

5.2.6.1 Positive Discipline

The association between positive discipline and household head education was significant in all countries except Iraq and Tunisia (Table 9). In most countries, when compared to uneducated households' heads, the odds of positive discipline were slightly lower in household heads with secondary or higher education. The exception was for Palestine and Tunisia were the odds ratio was slightly higher, but it was not significant (Figure 15).

On the other hand, positive discipline was significantly associated with beliefs of physical punishment (p-value < 0.001), where the odds ratios were almost 3 in all countries except Iraq, where the odds ratio was about 6 (Figure 16). This reflects that the odds of positive discipline were higher among people who did not believe in physical punishment compared to those who believe in it. Child sex and child age were found to be important variables in all countries. The odds of positive discipline among females was higher than males; It was also higher in older children aged 10-14 years compared to younger ones aged 2-4 years. Wealth was found to be an essential variable in Iraq and Algeria. In both countries, the odds of positive discipline were highest among the wealthiest households compared to the poorest. Also, the number of household members was found to be a significant predictor only in Iraq, where the odds of positive discipline were higher in households with a smaller number of members. Moreover, the sex of the household head was found to be an important predictor of positive discipline only in Algeria. Lastly, in all countries except Qatar, the age of the household head was included in the model as an essential predictor variable, where the households with older heads (more than 50 years) had higher odds of positive discipline when compared to younger heads (less than 40).

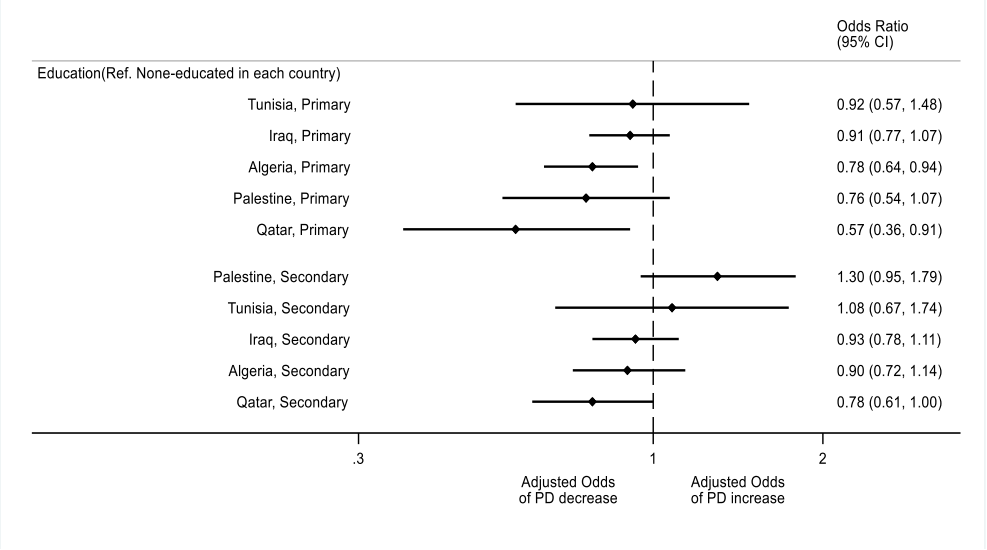

Figure 15: Forest plot for adjusted odds ratios of positive discipline by household head education

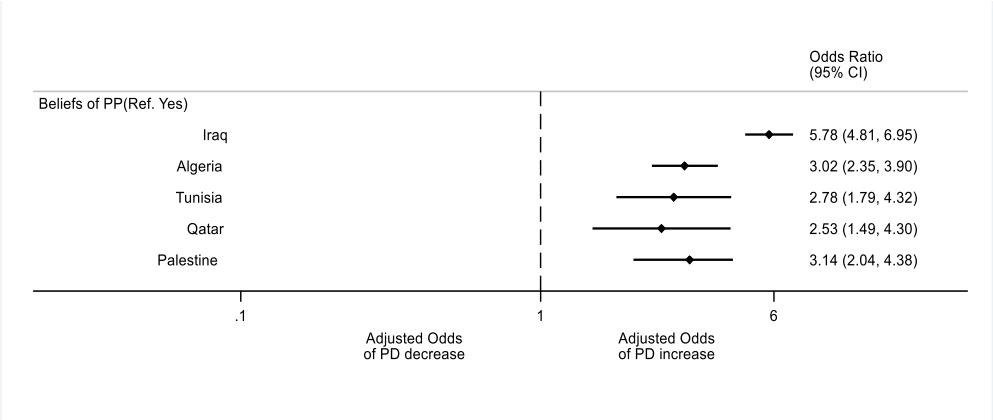

Figure 16: Forest plot for adjusted odds ratios of positive discipline by respondent's beliefs of physical punishment

5.2.6.2 Violent Discipline

Overall, the association between violent discipline and household head education was significant in Qatar, Palestine, and Algeria (Table 12). As shown in Figure 17, the highest odds of violent discipline were among household heads with primary education compared to those non-educated. Besides that, in Qatar and Algeria, household heads with secondary or higher education had higher odds of violent discipline compared to illiterate household heads. However, the odds of violent discipline were lower in household heads with secondary or higher education compared to uneducated heads, in Palestine, Iraq, and Tunisia, but none of these associations were statistically significant.

On the other side, the association between violent discipline in the household and respondent's beliefs of physical punishment was highly significant (p-value < 0.001), with different magnitude in all countries (Figure 18). The odds ratios ranged between almost three and six, indicating that the odds of violent discipline in households was higher for respondents who believe in physical punishment compared to those not sharing the same beliefs.

In all countries, the odds of violent discipline were higher by at least 23% in males when compared to females. In Qatar, the highest odds were among children aged 10-14 years, whereas in Palestine, Iraq, and Tunisia, the highest odds of violent discipline were in children aged 5-9 years. However, unlike other countries, in Tunisia, the highest odds of violent discipline was in children age 2-4 years. Algeria was the only country where the area was significantly associated with violent discipline. Surprisingly, in this country, the odds of violent discipline were 20% lower in rural areas compared to urban ones. In Iraq and Algeria where wealth came out significant, the lowest reported odds of violent discipline was among the "richest" group compared

to the poorest. In Iraq, the only country where violent discipline was associated with the number of household members, violent discipline was positively associated with the number of members. Sex of household head was a significant predictor in Palestine and Algeria, where the odds of violent discipline was higher among households with male heads compared to a female head. Lastly, the odds of violent discipline were lower in households with older heads aged 41-50 years or 50 or more years compared to younger ones in Palestine, Iraq, Tunisia, Algeria.

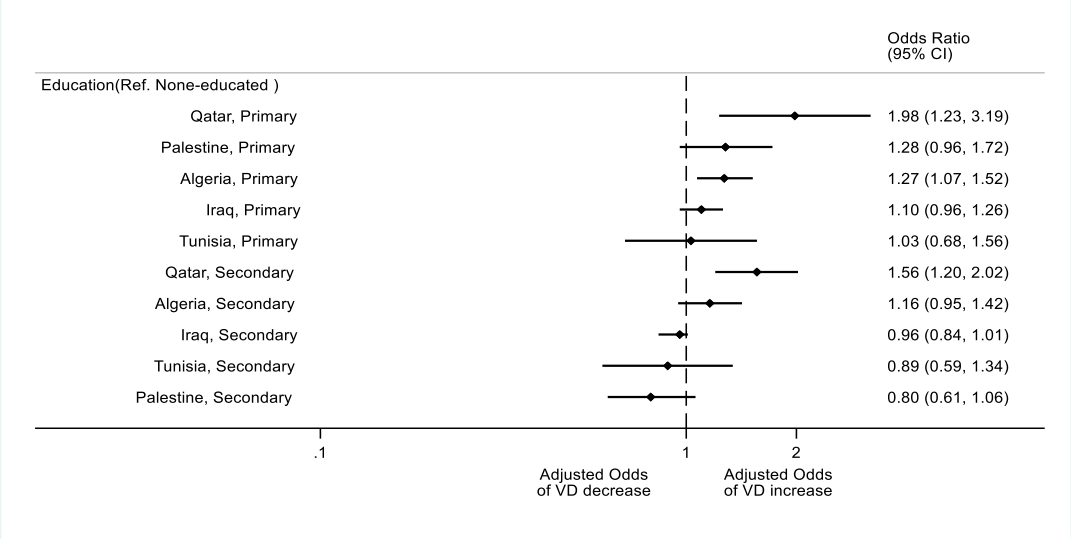

Figure 17: Forest plot for adjusted odds ratios of violent discipline by household head education

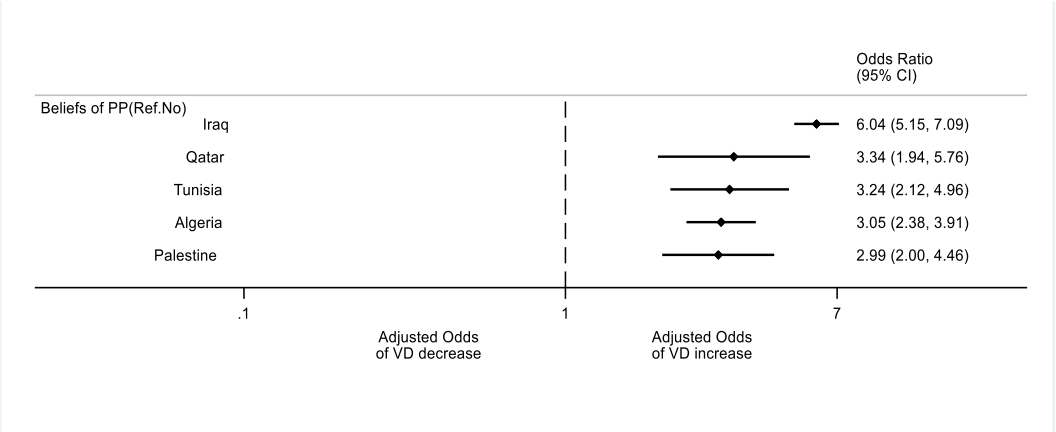

Figure 18: Forest plot for adjusted odds ratios of violent discipline by respondent's beliefs of physical punishment

Chapter 6: Discussion

Our children represent the world's future. To ensure a better future for our world, the physical, emotional, social wellbeing of our children needs to be ensured (22). In 1990 almost 13 million children below the age of 14 died compared to only around 6 million in 2017, a decrease in mortality by more than 50% (23). This considerable reduction in mortality was due to the epidemiological transition caused by socio-economic development that shifted most countries from infectious diseases to congenital and degenerative diseases (24). This shift decreased children's risks of death at an early age from infectious diseases, especially in the existing immunization program and improvement of sanitation and hygiene and the availability of advanced health facilities (74). However, this shift created a new focus on other health topics that might affect the children, including nutritional health, bullying or cyberbullying, violent, and mental and cognitive issues. In the developmental stage, children are exposed to different disciplinary methods either at home by parents or caregivers or by teachers in schools in order to rear children and control their behavior, some of these methods were classified as a violent discipline by UNICEF. Evidence from many studies linked violent discipline with psychological, and social problems (3, 49-51). Consequently, in the past decades, psychological studies focused on child disciplinary practices to understand the nature of these methods, their effectiveness, and consequences on child health (75). This study was conducted to identify the prevalence of disciplinary practices in the MENA region countries. Also, to study the possible association between positive discipline and violent discipline with both household head education and the beliefs of physical punishment.

6.1 Prevalence of Disciplinary Practices

Our results found that, in the selected five MENA countries, almost 80% of children between 2-14 years were subjected to violent discipline, while only 15%

experienced positive discipline methods. A recent study conducted by Cuartas et al. using MICS data from multiple rounds, estimated the prevalence of disciplinary methods on children 2-4 years, on national and regional and international bases (9). The authors included 6 MENA countries in their analysis: Lebanon, Sudan, Algeria, Iraq, Tunisia, and Palestine. Their regional estimates were 76 % for physical punishment and 82% for psychological aggression, which were exceeding the global estimates 63% and 65%, respectively (9). Even though this study used MICS data at a national and regional level, the authors considered different indicators of violent disciplinary methods (psychological aggression and physical aggression). Also, their analysis was based on children age 2-4 years only (9) rather than 2-14 as in or study. Nevertheless, their results were similar to ours, at least in the high prevalence of violent disciplinary methods in MENA. Furthermore, the same study reported the prevalence of non-violent discipline in the MENA region as 90%. This number is higher than the prevalence we found in our study (15%). Our indicator differs from theirs in that they did not measure positive discipline as an exclusive outcome (the use of only non-violent discipline in the last month), but they measure it based on reported non-violent discipline regardless of the use of other disciplinary methods.

On a national base, our results found that the prevalence of violent discipline was lowest in Qatar (50%), followed by 79% in Iraq and 86% in Algeria, and almost 93% in both Palestine and Tunisia. In his study, Cuartas reported the prevalence of psychological aggression at national levels, which ranged between 51% in Sudan and 91% in Tunisia. For physical aggression, the prevalence ranged between 48% in Lebanon and 83% in Tunisia (9). Another recent study was conducted on low-middle income countries including some MENA countries on children between 2-14 years, found that psychological aggression ranged between 61% in Iraq and 74% in

Palestine. As for physical punishment, the prevalence ranged between 72% in Iraq to 89% in Tunisia (23). Regardless of the differences in indicators, countries, and age of children, both studies reported that the highest prevalence of psychological and physical aggression, which are subsets of violent discipline, was in Tunisia. This was similar to our finding. Furthermore, two studies conducted in Qatar and Palestine using a national sample, compared disciplinary practices between the two countries. These studies found that violent disciplinary methods were significantly higher in Palestine when compared to Qatar (4, 34). These results were consistent with our findings (Figure 8). Authors of a pilot study in Saudi Arabia, a Gulf country that shares similar cultures, wealth, and religion with most Gulf countries, including Qatar (25), found that half of their sample reported experiencing violent at their homes in Al-Kharj city. This study aimed to estimate the prevalence of child abuse and neglect in homes for adolescences age (15-18 years). The results that they found were similar to our results for Qatar (25). Furthermore, a study carried out in Egypt interviewed 298 Egyptian mothers to identify the prevalence of corporal punishment found that 97% of the mothers reported using corporal punishment i their children (26). This prevalence was similar to our findings for Palestine and Tunisia, but higher than those in Qatar, Iraq, and Algeria. However, the sample in Egypt was small, and it was selected from primary health care centres, which might cause selection bias or affect the representation of the sample.

The prevalence of positive discipline (Only non-violent methods) in our study was the highest in Qatar 40%, followed by 16% in Iraq, 9% in Algeria, 6% in Palestine, and only 5% in Tunisia. From the literature, there were no studies that focused on positive discipline, except the two most recent studies published in 2019 by Cuartas et al. and Beatriz and Salhi cited above. These studies measuring positive

discipline in the last month, regardless of the use of other violent methods at the same time, reported a high prevalence of nonviolent discipline, more than 76% in all countries. These estimates were much higher than the prevalence in our study (9, 23)

The differences in the reported prevalence of disciplinary methods among MENA countries might be attributable to many reasons. The most important reason is the sub-region classifications of these countries. MENA region is classified into three sub-categories: (1) Gulf Corporation Council (GCC), which includes Qatar, Oman, Bahrain, Kuwait, the United Arab Emirates, and Saudi Arabia (76), (2) Levant countries, and these include Cyprus, Jordan, Lebanon, Palestine, Syria, and Turkey (76), and (3) North African countries that include Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, and Western Sahara (76). Countries are more homogeneous within each sub-region, but more heterogeneous between sub-regions in terms of the socio-economic and political context (76). Our sample consists of one GCC country (Qatar), and one Levant country (Palestine), two North African countries (Tunisia, and Algeria), in addition to Iraq. GCC countries are known to be more developed countries with a more advantageous position when compared to other sub-region countries. Data reported by the World Bank in 2018 on the Gross domestic product (GDP), a measure of average output per person in the country (77), revealed that the GDP was 6 9026.5, 5878, 42078, 3446.6, 3198.8 US dollars in Qatar, Iraq, Algeria, Tunisia, and Palestine, respectively (78). Interestingly, GDP shows an inverse association with violent discipline, with Qatar, the country with the highest GDP, having the lowest prevalence of violent discipline in our study. Palestine and Tunisia that reported the highest prevalence of violent discipline has the lowest GDP. Thus, the variation in the prevalence of disciplinary methods might be due to unmeasured economic and social factors.

Although all countries included in our analysis were Arab countries, with the majority of the Islamic population, in reality, there is some heterogeneity in the populations that we did not capture in our analysis. Also, each country might have a different culture that might affect the choice of disciplinary methods. Moreover, in some societies, some forms of violent discipline might be normalized, which might be due to cultural beliefs of the need for physical punishment to raise the child properly based on their experiences as the disciplinary methods are often passed on between generations, where parents often use the same methods used in raising them (11). Besides, the absence of steadfast rules and regulations that protect the child from violence, wherein the MENA countries only two countries have entirely prohibited violence against children in all settings (27). On the other side, the unstable political situation in Palestine and Iraq might be another valid reason that explains the high prevalence of violent discipline reported by our study in these countries. A study conducted in Iraq found that families living in high-conflict areas are more likely to use moderate and severe forms of violent disciplinary practice compared to their peers living in more stable areas, and that might be due to the stress and anxiety caused by instability (47).

Moreover, the rapid socio-economic development in the GCC region in the last decades attracted vast numbers of the workforce. These include large numbers of domestic workers, housemaids, and babysitters. In Qatar, many agencies work on hiring people from third world countries to work as housemaids who often have some responsibilities of taking care of children (79, 80). This situation may affect the validity of the collected data in our study, where the reported caregiver may not be the real caregiver in some situations (81).

6.2 Household Head Education

In our study, household head education was not significantly associated with disciplinary methods in the overall pooled five-country level. However, on a national level, the association between positive discipline and household head education was significant in Qatar, Palestine, and Algeria. We found that the odds of positive discipline were 30% and 8% higher in household heads with secondary or higher education compared to uneducated household heads in both Palestine and Tunisia, but the results were not significant. We also found that odds of violent discipline were 20% and 4% and 11% lower for household heads with secondary education or higher compared to non-educated household head in Palestine, Iraq, and Tunisia. However, the result was not significant. On country level bases, the results were consistent with the finding of a study conducted in Vietnam where the author found that household heads with secondary or higher education were less likely to report violent discipline compared to less educated household heads (14). Similarly, three other studies conducted in MENA countries found that parents or caregiver's education was inversely associated with violent disciplinary practices (4, 34, 35).

On the other hand, the association between household head education and positive discipline, as well as the violent discipline, was not consistent in all countries. In Qatar, Iraq, and Algeria, the odds of positive discipline was lower in educated household heads compared to non-educated household heads. Also, the odds of violent discipline were higher in household heads with secondary or higher education compared to non-educated household heads in Qatar and Algeria (Table 12); however, this association was not statistically significant for Algeria. Cappa et al., in their study, also found that the association between violent discipline and caregiver's education was not consistent in direction for all countries (41).

One explanation, for the unexpected result, might be due to the nature of Arabs

extended families, in these families the grandfather who is expected to be less educated than other members of the household is usually considered the head of the household. Moreover, employment status might affect the association between household head education and disciplinary practices. Our analysis did not control for employment status since it was available in our data. In many MENA countries, job opportunities are scarce. Based on the World Bank unemployment rate in the MENA region was 26% in 2018 (82). Based on the data reported by the World Bank, Palestine had the highest unemployment rate (30%), followed by Tunisia (16%), Algeria (12.1%), Iraq (7.9 %), and Qatar (0.1%) in 2018 (83). Notably, the unemployment rates are negatively associated with the reported positive discipline in results (Figure 8) but positively associated with violent discipline. A meta-analysis found that unemployed people half significantly higher reported symptoms of anxiety, depression, distress, and less self-esteem compared to their employed peers (84). Besides, another study found that among educated people, unemployment can play a moderate role in modifying the association between caregivers' psychological functions and the decision of disciplinary methods, where unemployed caregivers might suffer from depression and anxiety symptoms, that might affect their unconscious choice of disciplinary methods (45). In reality, current results showed different direction for the association between discipline methods and household head education reported in different regions of the world, that might be attributable to the differences in media, society, laws, regulation, employment levels between MENA countries and other regions. That might result in differences in the prevalence of disciplinary methods, as well as the association between disciplinary methods and main predictors (education and beliefs of physical punishment).

6.3 Beliefs of Physical Punishment

Our study found that, in all countries, positive discipline in the household was

significantly associated with the respondent's beliefs of not using physical punishments The odds of positive discipline in the household was higher for respondents who did not believe in the importance of physical punishment compared to their peers who believed in it. Similar to positive discipline results, our study found that the association between violent discipline and the beliefs of physical punishment was also significant for all countries. These findings were consistent with other research findings that reported a significant association between the beliefs of the necessity of physical punishment and the use of corporal punishments (38, 39, 41). However, Crouch, in his research, found an interaction between beliefs of physical punishments and parental stress on corporal punishment (39). On the other hand, Cappa, in his study conducted in 34 low and middle-income countries, found some contradiction between the reported beliefs of physical punishment and the real attitude toward it , that might be due to the caregiver's perception of the type and severity of physical punishment, some caregivers might accept a spanking for example and do not consider it as a physical punishment. in this study beliefs of physical punishment was assessed using only one question, which might not be sufficient for understanding the differences in the reported beliefs, where it would be better to use other scales with more options and different domain to allow better understanding or respondents beliefs about physical punishment (41).

6.4 Other Predictor variables

Our study results revealed that child sex was an essential predictor of disciplinary methods. The odds of positive discipline was higher among females; per contra, the odds of violent discipline was significantly higher among males. Our findings are consistent with other studies conducted in Egypt and Yemen, where they found that corporal punishment was more frequent among males (12, 85). Also, a study conducted in 28 developing countries concluded that the risk of corporal

punishment was higher in males compared to females (86). However, in India, harsh discipline was more common among females (10).

Age of the child was also found to be an essential predictor of disciplinary methods, as an overall positive discipline was higher in children 10-14 years; however, the results varied between the countries. The odds of positive discipline were higher in the early adolescent group (10-14 years) in all countries except Qatar, where the highest odds of positive discipline were in the middle age group (5-9 years). On the other side, the odds of violent discipline was higher among children (5-9 years); the same results were found in Palestine, Iraq, and Algeria. In Qatar, the odds of violent discipline were the highest children's age (10-14). Lastly, in Tunisia, the odds were the highest among young children (2-4 years). The literature also reported a variation in children's experiencing harsh discipline among child age categories. Wolf reported more frequent harsh discipline in older age categories, but Barkin found that spanking and yelling to be more common in the early years of child life (11, 44). Sex of the household head was not a vital predictor of disciplinary methods in all the overall pooled analysis for all countries. However, it was found to be an essential predictor for positive discipline only in Algeria and Palestine for violent discipline.

Our overall pooled analysis did not include wealth index because it was not collected for Qatar. On national levels, the wealth index was an essential indicator for disciplinary methods only in two countries (Algeria and Iraq). Wealthiest households had the highest odds of positive discipline and the lowest for violent discipline. These results were consistent with the literature showing poverty as an essential predictor of violent discipline. In these situations, the lack of resources can cause stress, which may lead to practicing harsh discipline on children (86-90). The lack of variations in the wealth index in some countries might not allow the comparison between

categories.

Number of household members was significantly associated with both positive and violent discipline in the overall pooled analysis, where the odds of positive discipline was higher in households with the smallest number of members, compared to larger ones, while the odds of violent discipline was higher in households with the highest number of members compared to the smallest ones. On the country level, the number of household members was found to be an important predictor only in Iraq. These results were consistent with other authors who found that harsh discipline was associated with a large number of household members (12, 86).

Area of the resident was not a significant predictor of positive and violent discipline in the overall pooled analysis, but it was important for predicting violent discipline only in Algeria. Unlike other studies, we found that the odds of violent discipline was lower among rural compared to urban areas (12).

6.5 Focus in Qatar

Qatar was the only Gulf country included in our analysis. Generally, Gulf countries are known to be more advantageous when compared to other regional countries. Qatar was the only country in our sample categorized by the World Bank as a high-income country, while other countries were classified as middle-income countries (90). Nowadays, Qatar is considered the home for diverse numbers of people from different nationalities, backgrounds, and cultures, because of the offered work opportunities. The heterogeneity of the population in Qatar was not captured in our analysis. In reality, the background and nationality of the respondent might be an essential factor that determinant the choice of disciplinary methods and beliefs of their effectiveness. Where, for example, disciplinary practices chosen by workers from East Asian countries would differ from those used by people from European countries, and that would be different from the methods used by Qatari citizens. These differences

might be due to cultural, religious, beliefs, and economic differences between respondents. Moreover, a large number of workers in Qatar are domestic workers, who might have some responsibilities for childcare (78, 79). Based on this fact, in some cases, respondents might not be aware of the methods of discipline used by the caregivers (babysitters or nannies). This might underestimate the prevalence of disciplinary practices and distort the association between disciplinary methods and explanatory variables (household head education and respondent's beliefs of physical punishment). Wherein this situation, the caregiver, would be a person with different characteristics of the other household members and does not share the same beliefs.

6.6 Implication for Qatar

More studies are needed to assess the prevalence of different discipline methods in Qatari society, taking into consideration the diversity in the population in Qatar. Moreover, there is a need to create and implement a reporting system to investigate any suspected cases of violence against children from the hospital and emergency units. Besides, there a need to develop laws that prevent violence in all settings, including homes, and hold perpetrators accountable. A study conducted by Al-Mahroos in 7 Arab countries, including Qatar concluded that abuse and neglect cases are under-reported in these countries, and legal measures are rarely taken to follow up with neglect and abuse cases (19). They also found that in many abuse and neglect cases, parents or other family members are responsible for child harm (19). Moreover, there is a need for rehabilitation programs for children subjected to violence and especially severe cases violent.

6.7 Study Strength and Limitation

The study is the first of their type that compiles and compares results from 5 MENA countries. Moreover, this study used a large sample size representing national levels. The conducted pooled analysis provided overall estimates of the problem in five

countries that might provide a clearer picture of the situation in the MENA countries. Despite the strengths of our study, it has several limitations: First, the prevalence of disciplinary practices might be overestimated or underestimated, since the data was collected based on self-report. Moreover, the respondents might not be aware of the disciplinary methods used by other household members. Also, respondents might not report the actual methods of disciplinary "social desirability bias", where people might answer the question in a way that might be favorable by others. Moreover, disciplinary practices were reported only for the last month period, and children might have experienced disciplinary before that month. Moreover, our study focused on child discipline at home only, where children might be exposed to other disciplinary practices at schools. Our analysis did not include respondent/ caregiver employment status or other characteristics of respondent/ caregivers, which might be essential to predict disciplinary methods. In addition, data about the nationality, ethnicity, background of respondents were not available, and we were not able to adjust for population heterogeneity. Moreover, respondents' beliefs of physical punishment were measured using only one question which might not be sufficient way for measuring this variable.

6.8 Recommendation

This study suggests the need for more research on this topic, especially in the MENA region, to investigate all possible causes of the high prevalence of violent discipline. We recommend future research to focus on factors not covered in the current study, such as (caregiver characteristics, employment status, mental health, history of violence, drug or alcohol abuse). Moreover, we suggest more studies investigating the association between disciplinary practices and maternal education, as mothers are usually the direct caregivers of children. This study suggests the need for parenting programs to teach parents or caregivers the appropriate method to raise children. Moreover, we suggest raising awareness about mental health and stress management

for the parents or caregivers to help them control their emotions. Besides, educational programs should be supported by policies and laws that protect children from all types of violence to ensure better health for the future generation.

Chapter 7: Conclusion

This study aimed to identify disciplinary methods used in the MENA region. Based on quantitative data from UNICEF (MICS-4). Despite extensive evidence that links disciplinary methods to child health outcomes. There is a lack of studies that focuses on exploring the factors associated with the choice of disciplinary methods and the consequences of disciplinary methods in the MENA region. This research revealed that in the MENA region, there is a lack of using positive discipline (only non-violent) disciplinary methods, and a high prevalence of violent discipline methods were used instead. Beliefs of physical punishment was highly associated with disciplinary methods. On country levels, positive discipline was significantly associated with household head education in Qatar, Palestine and Algeria. However, the association between positive discipline and beliefs of physical punishment was significant in all countries. Similarly, violent discipline was significantly associated with household head education in Qatar, Palestine, and Algeria only. In addition, those who believe in physical punishment had higher odds of using violent discipline when compared to those who do not believe in it in all countries. Based on our results, we recommend more research in this field to explore the factors and mechanisms that determinant caregiver disciplinary attitudes. Moreover, collaborative efforts are needed at national, regional, and international levels to follow the CRC principals and to achieve the SDGs goals of ending all forms of violence against children by 2030, and improve children's situation and protect them from all forms of violence.

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Appendix A: Table 6

Table 6: Characteristic of Households by Country

	Qatar		Palestine		Iraq		Tunisia		Algeria	
	n	%	n	%	n	%	n	%	n	%
Year of survey	**2012**		**2010**		**2011**		**2011-2012**		**2012-2013**	
Total number of children age 2-14	**5750**		**9496**		**80008**		**7650**		**33828**	
Child sex										
Male	3045	53.0	4850	51.1	40776	51.0	4100	53.6	17445	51.6
Female	2705	47.0	4645	48.9	39232	49.0	3550	46.4	16383	48.4
Child age category										
2-4 years	1116	19.4	2242	23.6	20454	25.6	1753	22.9	9408	27.8
5-9 years	2367	41.2	3712	39.1	31127	38.9	3048	39.8	12683	37.5
10-14 years	2268	39.4	3542	37.3	28428	35.5	2849	37.2	11737	34.7
Area										
Urban	5750	100.0	6927	73.0	52890	66.1	4879	63.8	21215	62.7
Rural	NA	NA	1632	17.2	27118	33.9	2771	36.2	12612	37.3
Camps	NA	NA	937	9.8	NA	NA	NA	NA	NA	NA
Number of household members										
1-5	2537	44.1	1607	16.9	15830	19.8	4661	60.9	13718	40.6
6-7	1412	24.6	3419	36.0	24463	30.6	2282	29.8	11996	35.5
8+	1801	31.3	4470	47.1	39715	49.6	707	9.2	8113	24.0

	Qatar		Palestine		Iraq		Tunisia		Algeria	
	n	%	n	%	n	%	n	%	n	%
Sex of household head										
Male	5650	98.3	9210	97.0	75315	94.1	7225	94.4	32267	95.4
Female	100	1.7	286	3.0	4693	5.9	425	5.6	1561	4.6
*Age of household head										
40 >	2138	37.2	4858	51.2	35366	44.2	2089	27.3	9429	27.9
41-50	2397	41.7	3401	35.8	25896	32.4	3911	51.1	15138	44.7
50 <	1202	20.9	1235	13.0	18743	23.4	1645	21.5	9248	27.3
Wealth index quintiles										
Poorest	NA	NA	2034	21.4	19163	24.0	1682	22	7325	21.7
Second	NA	NA	2009	21.2	17644	22.1	1518	19.8	7035	20.8
Middle	NA	NA	1896	20.0	16107	20.1	1452	19.0	6725	19.9
Fourth	NA	NA	1846	19.4	14745	18.4	1475	19.3	6579	19.4
Richest	NA	NA	1712	18.0	12348	15.4	1522	19.9	6163	18.2

(*) < 10% missing observations
NA (Not Applicable)

Appendix B: Table 7

Table 7: Prevalence of Positive Discipline by Predictor Variables

	Positive discipline									
	Qatar		Palestine		Iraq		Tunisia		Algeria	
	%	CI	%	CI	%	CI	%	CI	%	CI
Total number of children age 2-14	**5750**		**9496**		**80008**		**7650**		**33828**	
Prevalence	39.6%		5.7%		15.8%		5.0%		9.0%	
*Household head education										
None	42.7	[37.8,47.8]	5.9	[4.5,7.8]	15.7	[14.1,17.4]	7.4	[5.4,10.1]	10.3	[8.8,12.0]
Primary	28.4	[20.2,38.2]	4.3	[3.7,5.1]	14.5	[13.3,15.8]	5.6	[4.6,6.9]	8.0	[7.1,8.9]
Secondary +	35.6	[29.5,42.3]	7.4	[6.4,8.5]	16.7	[15.6,17.8]	6.0	[4.8,7.5]	9.8	[8.7,11.1]
*Beliefs of using physical punishment										
Yes	3.7	[2.3,6.0]	2.2	[1.5,3.3]	3.9	[3.3,4.7]	2.9	[2.1,4.1]	3.7	[2.9,4.7]
No	35.9	[31.3,40.7]	6.7	[6.0,7.5]	19.8	[18.8,20.7]	8.5	[7.3,10.0]	10.5	[9.7,11.4]
Child sex										
Male	37.9	[32.7,43.3]	4.8	[4.1,5.5]	14.1	[13.2,15.1]	5.1	[4.2,6.3]	7.6	[6.9,8.5]
Female	41.5	[36.4,46.7]	6.6	[5.7,7.6]	17.5	[16.5,18.6]	7.0	[5.8,8.5]	10.4	[9.4,11.4]

	Positive discipline									
	Qatar		Palestine		Iraq		Tunisia		Algeria	
	%	CI	%	CI	%	CI	%	CI	%	CI
Child age category										
2-4 years	36.5	[30.6,42.8]	5.1	[4.0,6.5]	16.5	[15.0,18.0]	3.8	[2.6,5.5]	8.8	[7.6,10.1]
5-9 years	42.5	[36.8,48.4]	4.6	[3.8,5.6]	13.5	[12.4,14.6]	4.9	[3.7,6.5]	8.1	[7.2,9.1]
10-14 years	38.1	[32.6,43.9]	7.1	[6.2,8.2]	17.8	[16.5,19.2]	8.4	[6.9,10.2]	10	[8.9,11.2]
Area										
Urban	39.6	[34.9,44.4]	5.8	[5.1,6.6]	16.4	[15.5,17.4]	6.0	[5.0,7.2]	9.0	[8.2,9.9]
Rural	NA	NA	5.3	[4.2,6.8]	14.5	[13.3,15.8]	6.0	[4.8,7.5]	8.8	[7.6,10.3]
Camps	NA	NA	5.4	[3.9,7.6]	NA	NA	NA	NA	NA	NA
Number of household members										
<5	44.2	[37.7,50.9]	6.0	[5.0,7.2]	18.4	[17.0,19.9]	6.0	[5.0,7.1]	9.1	[8.2,10.1]
6-7	38.1	[31.8,44.8]	5.9	[5.0,6.8]	16.4	[15.1,17.8]	6.6	[5.1,8.5]	8.6	[7.6,9.7]
> 7	34.2	[28.7,40.2]	5.4	[4.6,6.5]	14.3	[13.3,15.4]	4.0	[2.3,6.9]	9.3	[7.9,10.8]
Sex of household head										
Male	39.4	[34.8,44.3]	5.6	[5.0,6.2]	15.7	[14.9,16.5]	6.1	[5.2,7.1]	8.8	[8.1,9.6]
Female	47.6	[30.4,65.4]	7.7	[4.9,11.9]	16.7	[14.3,19.6]	5.0	[2.8,8.5]	11.5	[9.2,14.2]
*Age of household head										
40 >	38.5	[33.8,43.3]	4.4	[3.7,5.2]	14.5	[13.5,15.6]	3.9	[2.8,5.5]	7.8	[6.8,9.0]
41-50	41.6	[35.2,48.3]	6.7	[5.7,7.9]	17.0	[15.7,18.3]	5.1	[4.0,6.4]	8.2	[7.4,9.2]
50 <	37.7	[31.8,44.1]	7.9	[6.4,9.6]	16.5	[15.0,18.2]	9.6	[7.8,11.8]	11.2	[10.1,12.5]

	Positive discipline									
	Qatar		Palestine		Iraq		Tunisia		Algeria	
	%	CI	%	CI	%	CI	%	CI	%	CI
Wealth index quintiles										
Poorest	NA	NA	5.9	[4.6,7.5]	14.6	[13.3,16.1]	6.6	[5.0,8.8]	8.0	[6.5,9.7]
Second	NA	NA	4.5	[3.5,5.6]	13.8	[12.5,15.3]	6.4	[4.8,8.4]	8.6	[7.3,10.2]
Middle	NA	NA	5.6	[4.5,7.0]	14.5	[12.9,16.2]	6.8	[5.1,9.1]	7.6	[6.6,8.9]
Fourth	NA	NA	5.8	[4.7,7.2]	15.4	[13.8,17.2]	5.4	[3.8,7.7]	8.9	[7.7,10.2]
Richest	NA	NA	6.8	[5.6,8.1]	22.4	[20.1,24.9]	4.9	[3.4,7.2]	12	[10.4,13.7]

(*) < 10% missing observations
NA (Not Applicable)
CI: 95% Confidence Interval

Appendix C: Table 8

Table 8: Crude OR for Positive Discipline by Predictor Variables

	Positive discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Household head education			**0.0063**			**<0.001**			**0.0341**			**0.6016**			**0.0024**
None	Ref.			Ref.			Ref.			Ref.			Ref.		
Primary	0.53	0.33-0.85	0.009	0.72	0.51-1.00	0.050	0.92	0.79-1.07	0.258	0.82	0.53-1.28	0.387	0.75	0.62-0.91	0.003
Secondary +	0.74	0.58-0.95	0.019	1.27	0.93-1.72	0.132	1.08	0.93-1.25	0.303	0.95	0.61-1.48	0.824	0.95	0.77-1.17	0.619
Beliefs of using physical punishment			**0.0004**			**<0.001**			**<0.001**			**<0.001**			**<0.001**
Yes	Ref.			Ref.			Ref.			Ref.			Ref.		
No	2.65	1.55-4.52	<0.001	3.21	2.09-4.94	<0.001	6.01	5.00-7.23	<0.001	2.98	1.93-4.59	<0.001	3.08	2.39-3.97	<0.001
Child sex			**0.1189**			**0.0016**			**<0.001**			**0.0111**			**<0.001**
Male	Ref.			Ref.			Ref.			Ref.			Ref.		
Female	1.16	0.96-1.40	0.119	1.41	1.14-1.74	0.002	1.29	1.17-1.43	<0.001	1.50	1.10-2.05	0.011	1.40	1.23-1.59	<0.001
Child age category			**0.1341**			**0.0005**			**<0.001**			**0.0004**			**0.0173**
2-4 years	Ref.			Ref.			Ref.			Ref.			Ref.		
5-9 years	1.29	0.98-1.69	0.067	0.90	0.65-1.24	0.517	0.79	0.69-0.90	<0.001	1.30	0.81-2.09	0.282	0.92	0.77-1.09	0.328
10-14 years	1.07	0.81-1.41	0.622	1.43	1.06-1.92	0.018	1.10	0.96-1.26	0.184	2.36	1.48-3.74	<0.001	1.16	0.96-1.39	0.123

	Positive discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Area						**0.8146**			**0.0180**			**0.2800**			**0.8119**
Rural	NA	NA	NA	0.98	0.63-1.52	0.912	Ref.			Ref.			Ref.		
Urban	NA	NA	NA	1.07	0.72-1.58	0.746	1.16	1.02-1.31	0.018	1.20	0.86-1.66	0.280	1.02	0.84-1.25	0.812
Camps	NA	NA	NA	Ref.			NA	NA	NA	NA	NA	NA	NA	NA	NA
Wealth index quintiles						**0.0998**			**<0.001**			**0.8232**			**0.0002**
Poorest	NA	NA	NA	Ref.			Ref.			Ref.			Ref.		
Second	NA	NA	NA	0.75	0.53-1.06	0.103	0.94	0.80-1.09	0.404	0.98	0.64-1.51	0.942	1.09	0.84-1.41	0.508
Middle	NA	NA	NA	0.95	0.68-1.34	0.777	0.99	0.82-1.18	0.873	1.15	0.72-1.85	0.562	0.95	0.73-1.25	0.725
Fourth	NA	NA	NA	0.99	0.72-1.36	0.938	1.06	0.89-1.27	0.479	0.99	0.59-1.67	0.973	1.13	0.86-1.47	0.379
Richest	NA	NA	NA	1.16	0.85-1.59	0.350	1.68	1.40-2.02	<0.001	0.81	0.47-1.38	0.431	1.57	1.20-2.05	0.001
Number of household members			**0.0392**			**0.7087**			**<0.001**			**0.2466**			**0.6046**
> 7	Ref.			Ref.			Ref.			Ref.			Ref.		
6-7	1.2	0.9-1.6	0.253	1.1	0.8-1.4	0.521	0.17	1.04-1.33	0.010	1.64	0.82-3.28	0.160	0.92	0.80-1.09	0.391
<5	1.5	1.1-2.1	0.011	1.1	0.9-1.4	0.441	1.35	1.19-1.52	<0.001	1.77	0.91-3.44	0.094	0.98	0.76-1.12	0.831
Sex of household head			**0.3740**			**0.1709**			**0.4416**			**0.3828**			**0.0227**
Male	Ref.			Ref.			Ref.			Ref.			Ref.		
Female	1.40	0.67-2.92	0.374	1.40	0.86-2.27	0.172	1.08	0.89-1.31	0.442	0.76	0.40-1.42	0.383	1.34	1.04-1.73	0.023

	Positive discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Age of household head			**0.4558**			**<0.001**			**0.0055**			**0.0001**			**<0.001**
40 >	Ref.			Ref.			Ref.			Ref.			Ref.		
41-50	1.14	0.90-1.44	0.271	1.57	1.23-1.90	<0.001	1.20	1.07-1.36	0.002	1.14	0.71-1.82	0.592	1.06	0.89-1.25	0.532
50 <	0.97	0.74-1.26	0.818	1.86	1.41-2.47	<0.001	1.17	1.01-1.34	0.032	2.17	1.38-3.43	0.001	1.49	1.24-1.78	<0.001

NA (Not Applicable)
Significant on p-value < 0.05
CI: 95% Confidence Interval

Appendix D: Table 9

Table 9: Adjusted OR for Positive Discipline by Predictor Variables

	Positive discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Household head education			**0.0223**			**<0.001**			**0.5158**			**0.6652**			**0.0208**
None	Ref.			Ref.			Ref.			Ref.			Ref.		
Primary	0.57	0.36-0.91	0.019	0.76	0.54-1.07	0.113	0.91	0.77-1.07	0.246	0.92	0.57-1.48	0.720	0.78	0.64-0.94	0.011
Secondary +	0.78	0.61-1.00	0.054	1.30	0.95-1.79	0.101	0.93	0.78-1.11	0.408	1.08	0.67-1.74	0.756	0.90	0.72-1.14	0.383
Beliefs of using physical punishment			**0.0007**			**<0.001**			**<0.001**			**<0.001**			**<0.001**
Yes	Ref.			Ref.			Ref.			Ref			Ref.		
No	2.53	1.49-4.30	0.001	3.14	2.04-4.83	<0.001	5.78	4.81-6.95	<0.001	2.78	1.79-4.32	<0.001	3.02	2.35-3.90	<0.001
Child sex			**0.3371**			**0.0019**			**<0.001**			**0.0271**			**<0.001**
Male	Ref			Ref.			Ref.			Ref.			Ref.		
Female	1.01	0.91-1.33	0.337	1.41	1.13-1.74	0.002	1.27	1.14-1.41	<0.001	1.43	1.04-1.96	0.027	1.39	1.22-1.58	<0.001

	Positive discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Child age category			**0.1478**			**0.0190**			**<0.001**			**0.0137**			**0.0770**
2-4 years	Ref.			Ref.			Ref.			Ref.			Ref.		
5-9 years	1.29	0.99-1.69	0.058	0.85	0.62-1.18	0.333	0.80	0.70-0.92	0.002	1.30	0.81-2.09	0.275	0.90	0.76-1.08	0.263
10-14 years	1.2	0.86-1.47	0.396	1.24	0.92-1.69	0.159	1.09	0.94-1.27	0.236	2.05	1.25-3.39	0.005	1.10	0.90-1.33	0.365
Age of household head			**NA**			**0.0043**			**0.0238**			**0.0055**			**0.0073**
40 >	NA	NA	NA	Ref.			Ref.			Ref.			Ref.		
41-50	NA	NA	NA	1.39	1.08-1.79	0.009	1.19	1.05-1.36	0.009	0.86	0.52-1.43	0.553	0.90	0.76-1.08	0.263
50 <	NA	NA	NA	1.61	1.20-2.17	0.002	1.17	0.99-1.39	0.061	1.50	0.90-2.50	0.117	1.10	0.90-1.33	0.365
Wealth index quintiles			**NA**						**<0.001**						**0.0009**
Poorest	NA	NA	NA	NA	NA	NA	Ref.			NA	NA	NA	Ref.		
Second	NA	NA	NA	NA	NA	NA	0.85	0.72-1.00	0.047	NA	NA	NA	1.10	0.85-1.42	0.462
Middle	NA	NA	NA	NA	NA	NA	0.86	0.71-1.04	0.113	NA	NA	NA	0.93	0.71-1.22	0.605
Fourth	NA	NA	NA	NA	NA	NA	0.88	0.73-1.06	0.180	NA	NA	NA	1.11	0.85-1.45	0.445
Richest	NA	NA	NA	NA	NA	NA	1.33	1.08-1.63	0.006	NA	NA	NA	1.51	1.14-2.01	0.004

	Positive discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Number of household members			**NA**						**0.0003**			**NA**			**NA**
> 7	NA	NA	NA	NA	NA	NA	Ref.			NA	NA	NA	NA	NA	NA
6-7	NA	NA	NA	NA	NA	NA	1.16	1.02-1.32	0.024	NA	NA	NA	NA	NA	NA
<5	NA	NA	NA	NA	NA	NA	1.33	1.16-1.53	<0.001	NA	NA	NA	NA	NA	NA
Sex of household head			**NA**			**NA**			**NA**			**NA**			**0.2541**
Male	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Ref.		
Female	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.17	0.89-1.52	0.254
Goodness of fit			**0.988**			**0.352**			**0.854**			**0.299**			**0.274**

NA (Not Applicable)
CI: 95% Confidence Interval

Appendix E: Table 10

Table 10: Prevalence of Violent Discipline by Predictor Variables

	Any violent discipline									
	Qatar		Palestine		Iraq		Tunisia		Algeria	
	%	CI	%	CI	%	CI	%	CI	%	CI
Total number of children age 2-14	**5750**		**9496**		**80008**		**7650**		**33828**	
Prevalence	49.9%		92.8%		79.0%		93.2%		86.3%	
Household head education										
None	44.6	[39.1,50.2]	92.1	[90.0,93.8]	78.8	[76.9,80.6]	90	[86.9,92.4]	83.8	[81.9,85.5]
Primary	62.9	[51.7,72.8]	94.3	[93.4,95.0]	80.4	[79.0,81.7]	92.6	[91.1,93.9]	87.6	[86.5,88.7]
Secondary +	57.4	[50.7,63.9]	90.9	[89.8,92.0]	78.1	[76.9,79.3]	91.8	[90.0,93.3]	85.9	[84.3,87.4]
Beliefs of using physical punishment										
Yes	71.2	[58.9,81.0]	97	[95.6,98.0]	94.6	[93.8,95.3]	96.6	[95.3,97.5]	94.4	[93.0,95.6]
No	41.0	[35.4,46.8]	91.5	[90.7,92.3]	73.7	[72.7,74.8]	88.5	[86.7,90.1]	84.9	[83.8,85.8]
Child sex										
Male	53.1	[47.4,58.7]	93.7	[92.8,94.5]	81.1	[80.0,82.2]	92.8	[91.4,93.9]	87.7	[86.7,88.7]
Female	46.3	[40.6,52.1]	91.8	[90.7,92.8]	76.8	[75.6,78.0]	91	[89.4,92.3]	84.9	[83.7,86.0]

	Any violent discipline									
	Qatar		Palestine		Iraq		Tunisia		Algeria	
	%	CI	%	CI	%	CI	%	CI	%	CI
Child age category										
2-4 years	46.5	[39.6,53.5]	92.2	[90.6,93.6]	76.4	[74.7,78.0]	94.7	[92.6,96.2]	84.2	[82.5,85.8]
5-9 years	49	[42.6,55.4]	94.4	[93.3,95.3]	82	[80.8,83.2]	93.8	[92.0,95.2]	88.6	[87.4,89.7]
10-14 years	52.6	[46.7,58.3]	91.4	[90.3,92.4]	77.6	[76.1,79.0]	88.5	[86.5,90.3]	85.7	[84.2,87.0]
Area										
Urban	49.9	[44.7,55.1]	92.6	[91.7,93.4]	78.4	[77.3,79.5]	91.8	[90.3,93.1]	86.8	[85.8,87.8]
Rural	NA	NA	93.1	[91.4,94.4]	80.2	[78.9,81.4]	92.3	[90.6,93.7]	85.6	[83.9,87.1]
Camps	NA	NA	93.5	[91.2,95.3]	NA	NA	NA	NA	NA	NA
Number of household members										
<5	43.1	[36.1,50.3]	92	[90.6,93.2]	76	[74.4,77.6]	92.1	[90.7,93.3]	86.7	[85.5,87.8]
6-7	53.1	[46.4,59.7]	92.8	[91.7,93.7]	78.3	[76.9,79.8]	91.3	[89.1,93.0]	86.7	[85.4,88.0]
> 7	57	[50.3,63.5]	93.1	[91.9,94.1]	80.6	[79.5,81.7]	93.5	[90.0,95.8]	85.2	[83.4,86.9]
Sex of household head										
Male	50	[44.8,55.2]	92.9	[92.2,93.5]	79.1	[78.2,79.9]	92	[90.8,93.0]	86.6	[85.7,87.5]
Female	43.5	[27.2,61.4]	88.9	[83.8,92.6]	78	[74.9,80.9]	91.5	[86.7,94.7]	81.4	[78.1,84.4]
Age of household head										
40 >	48.1	[42.1,54.1]	94.2	[93.3,95.0]	80.4	[79.3,81.5]	95.1	[93.4,96.4]	87.8	[86.3,89.3]
41-50	49	[42.9,55.2]	91.5	[90.2,92.6]	77.7	[76.2,79.1]	92.9	[91.3,94.2]	87.5	[86.3,88.6]
50 <	54.7	[48.0,61.3]	90.6	[88.8,92.2]	78.1	[76.3,79.8]	87.2	[84.7,89.4]	82.9	[81.5,84.3]

	Any violent discipline									
	Qatar		Palestine		Iraq		Tunisia		Algeria	
	%	CI	%	CI	%	CI	%	CI	%	CI
Wealth index quintiles										
Poorest	NA	NA	92.3	[90.6,93.8]	80.5	[78.9,82.0]	91.7	[89.4,93.6]	86.1	[83.9,88.0]
Second	NA	NA	94	[92.7,95.1]	80.5	[78.7,82.1]	91.3	[88.6,93.4]	87.5	[85.6,89.1]
Middle	NA	NA	93	[91.6,94.3]	80.2	[78.3,82.0]	91.6	[89.2,93.5]	87.3	[85.6,88.8]
Fourth	NA	NA	92.7	[91.2,94.0]	79.2	[77.2,81.1]	91.6	[89.0,93.7]	86.8	[85.2,88.3]
Richest	NA	NA	91.6	[90.2,92.8]	72.8	[70.0,75.4]	93.3	[90.8,95.1]	83.8	[81.8,85.7]

(*) < 10% missing observations
NA (Not Applicable)
CI: 95% Confidence Interval

Appendix F: Table 11

Table 11: Crude OR for Violent Discipline by Predictor Variables by Country

	Any -violent discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Household head education			**0.0001**			**<0.001**			**0.0435**			**0.5616**			**0.0004**
None	Ref.			Ref.			Ref.			Ref.			Ref		
Primary	2.11	1.30-3.41	0.003	1.41	1.05-1.88	0.022	1.10	0.96-1.26	0.160	1.17	0.80-1.73	0.400	1.37	1.17-1.60	<0.001
Secondary +	1.68	1.29-2.17	<0.001	0.86	0.65-1.13	0.272	0.96	0.84-1.10	0.546	1.01	0.69-1.48	0.961	1.18	0.99-1.42	0.071
Beliefs of using physical punishment			**<0.001**			**<0.001**			**<0.001**			**<0.001**			**<0.001**
No	Ref.			Ref.			Ref			Ref.			Ref.		
Yes	3.57	2.06-6.21	<0.001	3.00	2.01-4.49	<0.001	6.24	5.33-7.32	<0.001	3.47	2.28-5.26	<0.001	3.03	2.37-3.89	<0.001
Child sex			**0.0086**			**0.0029**			**<0.001**			**0.0698**			**<0.001**
Female	Ref.			Ref.			Ref.			Ref.			Ref.		
Male	1.31	1.07-1.60	0.009	1.33	1.10-1.60	0.003	1.30	1.18-1.42	<0.001	1.29	0.98-1.69	0.070	1.27	1.14-1.42	<0.001
Child age category			**0.1888**			**0.0003**			**<0.001**			**0.0004**			**<0.001**
2-4 years	Ref.			Ref.			Ref.			Ref.			Ref		
5-9 years	1.11	0.85-1.44	0.441	1.42	1.07-1.87	0.014	1.41	1.26-1.59	<0.001	0.95	0.59-1.55	0.841	1.46	1.24-1.72	<0.001
10-14 years	1.28	0.98-1.66	0.071	0.90	0.70-1.15	0.379	1.07	0.95-1.21	0,259	0.51	0.32-0.80	0.004	1.12	0.96-1.31	0.153

	Any -violent discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Area						**0.6851**			**0.0357**			**0.1508**			**0.2138**
Urban	NA	NA	NA	0.87	0.60-1.25	0.443	Ref.			Ref.			Ref.		
Rural	NA	NA	NA	0.93	0.62-1.40	0.731	1.11	1.01-1.23	0.036	1.26	0.92-1.71	0.151	0.90	0.77-1.06	0.214
Camps	NA	NA	NA	Ref			NA	NA	NA	NA	NA	NA	NA	NA	NA
Wealth index quintiles						**0.1206**			**<0.001**			**0.8212**			**0.0369**
Poorest	NA	NA	NA	Ref.			Ref.			Ref.			Ref.		
Second	NA	NA	NA	1.30	0.97-1.76	0.081	1.00	0.86-1.15	0.950	0.87	0.57-1.32	0.511	1.13	0.91-1.39	0.265
Middle	NA	NA	NA	1.11	0.83-1.49	0.486	0.98	0.84-1.14	0.794	0.87	0.55-1.37	0.545	1.11	0.89-1.38	0.362
Fourth	NA	NA	NA	1.06	0.80-1.39	0.698	0.92	0.79-1.08	0.308	0.87	0.55-1.37	0.539	1.07	0.86-1.31	0.556
Richest	NA	NA	NA	0.91	0.69-1.19	0.486	0.65	0.54-0.77	<0.001	1.10	0.70-1.73	0.692	0.84	0.67-1.05	0.126
Number of household members			**0.0086**			**0.3723**			**<0.001**			**0.2357**			**0.2776**
<5	Ref.			Ref.			Ref.			Ref.			Ref		
6-7	1.50	1.06-2.11	0.021	1.12	0.90-1.40	0.309	1.14	1.01-1.29	0.036	0.97	0.69-1.35	0.848	1.01	0.88-1.15	0.921
> 7	1.75	1.22-2.51	0.002	1.17	0.92-1.48	0.189	1.31	1.17-1.46	<0.001	1.51	0.91-2.52	0.110	0.89	0.75-1.04	0.149
Sex of household head			**0.4688**			**0.0318**			**0.4993**			**0.9696**			**0.0005**
Female	Ref.			Ref.			Ref.			Ref.			Ref.		
Male	1.30	0.64-2.66	0.469	1.63	1.05-2.51	0.028	1.06	0.89-1.27	0.499	1.01	0.56-1.82	0.970	1.47	1.18-1.83	0.001

	Any -violent discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Age of household head			**0.1968**			**<0.001**			**0.0054**			**<0.001**			**<0.001**
40 >	Ref.			Ref.			Ref	-	-	Ref.			Ref.		
41-50	1.04	0.84-1.28	0.723	0.66	0.54-0.82	<0.001	0.85	0.76-0.94	0.003	0.72	0.48-1.08	0.110	0.97	0.82-1.14	0.709
50 <	1.31	0.97-1.76	0.080	0.60	0.47-0.76	<0.001	0.87	0.77-0.98	0.027	0.40	0.26-0.60	<0.001	0.67	0.57-0.80	<0.001

NA (Not Applicable)
Significant on p-value < 0.05
CI: 95% Confidence Interval

Appendix G: Table 12

Table 12: Adjusted OR for Violent Discipline by Predictor Variables by Country

	Violent discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Household head education			**0.0007**			**<0.001**			**0.3532**			**0.6776**			**0.0219**
None	Ref.			Ref.			Ref.			Ref.			Ref.		
Primary	1.98	1.23-3.19	0.005	1.28	0.96-1.72	0.097	1.10	0.96-1.26	0.160	1.03	0.68-1.56	0.907	1.27	1.07-1.52	0.006
Secondary +	1.56	1.20-2.02	0.001	0.80	0.61-1.06	0.121	0.96	0.84-1.01	0.546	0.89	0.59-1.34	0.583	1.16	0.95-1.42	0.156
Beliefs of using physical punishment			**<0.001**			**<0.001**			**<0.001**			**<0.001**			**<0.001**
No	Ref.			Ref.			Ref.			Ref.			Ref.		
Yes	3.34	1.94-5.76	<0.001	2.99	2.00-4.46	<0.001	6.04	5.15-7.09	<0.001	3.24	2.12-4.96	<0.001	3.05	2.38-3.91	<0.001
Child sex			**0.0394**			**0.0033**			**<0.001**			**0.1600**			**0.0001**
Female	Ref.			Ref.			Ref.			Ref.			Ref.		
Male	1.24	1.01-1.51	0.039	1.33	1.10-1.60	0.003	1.27	1.16-1.40	<0.001	1.23	0.92-1.64	0.160	1.26	1.11-1.41	<0.001
Child age category			**0.4146**			**0.0027**			**<0.001**			**0.0530**			**0.0001**
2-4 years	Ref.			Ref.			Ref.			Ref.			Ref.		
5-9 years	1.10	0.85-1.41	0.474	1.50	1.14-1.98	0.004	1.41	1.24-1.59	<0.001	0.98	0.59-1.64	0.940	1.45	1.23-1.72	<0.001
10-14 years	1.19	0.92-1.54	0.184	1.04	0.81-1.35	0.754	1.09	0.96-1.24	0.189	0.64	0.38-1.07	0.086	1.20	1.01-1.43	0.035

	Violent discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Age of household head			**NA**			**0.0022**			**0.0050**			**0.0007**			**0.0031**
40 >	NA	NA	NA	Ref.			Ref.			Ref.			Ref.		
41-50	NA	NA	NA	0.71	0.57-0.88	0.002	0.83	0.74-0.93	0.002	0.88	0.54-1.44	0.614	0.80	0.82-1.17	0.804
50 <	NA	NA	NA	0.68	0.52-0.87	0.003	0.84	073-0.98	0.026	0.51	0.32-0.82	0.006	0.78	0.64-0.94	0.008
Wealth index quintiles			**NA**			**NA**			**0.0034**			**NA**			**0.0067**
Poorest	NA	NA	NA	NA	NA	NA	Ref.			NA	NA	NA	Ref		
Second	NA	NA	NA	NA	NA	NA	1.10	0.95-1.27	0.215	NA	NA	NA	1.07	0.86-1.34	0.526
Middle	NA	NA	NA	NA	NA	NA	1.13	0.96-1.34	0.153	NA	NA	NA	1.00	0.79-1.26	0.975
Fourth	NA	NA	NA	NA	NA	NA	1.11	0.94-1.32	0.208	NA	NA	NA	0.97	0.77-1.22	0.768
Richest	NA	NA	NA	NA	NA	NA	0.81	0.67-0.98	0.030	NA	NA	NA	0.71	0.55-0.93	0.011
Number of household members			**NA**			**NA**			**0.0005**			**NA**			**NA**
<5	NA	NA	NA	NA	NA	NA	Ref.			NA	NA	NA	NA	NA	NA
6-7	NA	NA	NA	NA	NA	NA	1.12	0.98-1.27	0.091	NA	NA	NA	NA	NA	NA
> 7	NA	NA	NA	NA	NA	NA	1.28	1.12-1.44	<0.001	NA	NA	NA	NA	NA	NA
Sex of household head			**NA**			**0.0214**			**NA**			**NA**			**0.0305**
Female	NA	NA	NA	Ref.			NA	NA	NA	NA	NA	NA	Ref.		
Male	NA	NA	NA	1.71	1.08-2.67	0.021	NA	NA	NA	NA	NA	NA	1.30	1.02-1.64	0.031

	Violent discipline														
	Qatar			Palestine			Iraq			Tunisia			Algeria		
	OR	CI	p-value	OR	CI	P-value	OR	CI	p-value	OR	CI	p-value	OR	CI	p-value
Area			**NA**			**NA**			**NA**			**NA**			**0.0132**
Urban	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Ref.		
Rural	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.80	0.66-0.95	0.013
Camps	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Goodness of fit			**0.957**			**0.127**			**0.599**			**0.914**			**0.446**

NA (Not Applicable), variable is not included in the model
Significant on p-value < 0.05
CI: 95% Confidence Interval

Appendix H: Data Collection Tool

Question #	Question	Method of discipline	Coding
1 (CD11)	TOOK AWAY PRIVILEGES, FORBADE SOMETHING *(name)* LIKED OR DID NOT ALLOW HIM/HER TO LEAVE HOUSE.	Only non – violent discipline	Yes (1) No (2)
2 (CD12)	EXPLAINED WHY (*name*)'S BEHAVIOR WAS WRONG.	Only non - violent discipline	Yes (1) No (2)
3 (CD13)	SHOOK HIM/HER.	Physical Punishment (Any)	Yes (1) No (2)
4 (CD14)	SHOUTED, YELLED AT OR SCREAMED AT HIM/HER.	Phycological Agnation (Any)	Yes (1) No (2)
5 (CD15)	GAVE HIM/HER SOMETHING ELSE TO DO.	Only non - violent discipline	Yes (1) No (2)
6 (CD16)	SPANKED, HIT OR SLAPPED HIM/HER ON THE BOTTOM WITH BARE HAND.	Physical Punishment (Any)	Yes (1) No (2)
7 (CD17)	HIT HIM/HER ON THE BOTTOM OR ELSEWHERE ON THE BODY WITH SOMETHING LIKE A BELT, HAIRBRUSH, STICK OR OTHER HARD OBJECT.	Physical Punishment (Any)	Yes (1) No (2)
8 (CD18)	CALLED HIM/HER DUMB, LAZY, OR ANOTHER NAME LIKE THAT.	Phycological Agnation (Any)	Yes (1) No (2)
9 (CD19)	HIT OR SLAPPED HIM/HER ON THE FACE, HEAD OR EARS.	Physical Punishment (severe) (Any)	Yes (1) No (2)
10 (CD20)	HIT OR SLAPPED HIM/HER ON THE HAND, ARM, OR LEG.	Physical Punishment (Any)	Yes (1) No (2)
11 (CD21)	BEAT HIM/HER UP, THAT IS HIT HIM/HER OVER AND OVER AS HARD AS ONE COULD.	Physical Punishment (severe) (Any)	Yes (1) No (2)
12 (CD22)	DO YOU BELIEVE THAT IN ORDER TO BRING UP, RAISE, OR EDUCATE A CHILD PROPERLY, THE CHILD NEEDS TO BE PHYSICALLY PUNISHED?	Caregiver believes about child discipline methods.	Yes (1) No (2)
Any violent discipline methods: Q [3, 4,6,7,8,9,10,11]			