

Predictors of Parenting Stress among Mothers Raising Children with Autism Spectrum Disorder  
(ASD) in the Sultanate of Oman: A Cross-sectional Study

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**Abstract**

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**Background:** Autism Spectrum Disorder (ASD) has been one of the most significant public health challenges in the last fifty years (Elsabbagh et al., 2012). ASD is associated with comorbid medical and neurological conditions that affect the mental health status and Quality of Life (QOL) of those with the condition, as well as their families and caregivers (Yaacob et al., 2021). Several studies among parents of children afflicted with ASD reported higher levels of parenting stress compared to parents of other children with intellectual disabilities (ID) or typically developing (TD) children (Miranda et al., 2019). Also, Omani literature postulates that Omani parents of children with ASD endure a higher parental burden, clinically significant stress levels, anxiety, depression, and an increased public stigma compared to parents of TD children.

However, relatively little is known about parental stress constructs in the Omani literature.

**Research Design:** A cross-sectional design was used to test a predictive model of parental stress in mothers raising children diagnosed with ASD in the Sultanate of Oman. **Aims:** This study examined mental health, parental burden, and affiliate stigma as predictors of parenting stress. It also examined the mediating role of self-compassion and the moderating role of coping strategies and social support between these potential predictors and parenting stress. **Results:** Results showed that affiliate stigma and parental burden were significant predictors of parenting stress. Self-compassion partially moderated the relationship between mental health, parental burden, and parenting stress. Implications are discussed in light of supporting programs and interventions to help these mothers cope and ultimately improve the quality of life in families of children with ASD. **Conclusion:** The findings highlight the importance of addressing parental burden and stigma in supporting parents and promoting family well-being.

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## **Chapter 1: Introduction**

## **1.1 What are autism spectrum disorders?**

### **1.1.1 ASD definition and history: An Evolution of a Controversial Condition**

“*Table Talk*” by Martin Luther was a story about a twelve-year-old boy who was, according to Martin, “a soulless mass of flesh possessed by the devil.” He depicts a twelve-year-old boy with limited social interaction and imagination. In the present day, Luther would likely categorize the young man as having autism spectrum disorder. The concept of ASD did not specifically exist prior to the 1940s (Bertelli, 2019; Hodges et al., 2020). The definition and use of the term ‘autism’ has considerably evolved over the last century to the current definition found in DSM 5 criteria (Diagnostic and Statistical Manual, 5<sup>th</sup> version) (Grzadzinski et al., 2013; Valkanova et al., 2013). These changes, in turn, have affected the diagnosis and management of this condition.

Initially, ASD was defined as a psychiatric condition (a form of schizophrenia) in the seminal psychiatry text of the Australian psychiatrist, Leo Kanner, who wrote about eleven children with “extreme autistic aloneness”, “delayed echolalia”, and an “anxiously obsessive desire for the maintenance of sameness” (Bertelli, 2019; Thurm et al., 2019). He also claimed that its cause was cold parenting, and used the term “refrigerator mother” (Bertelli, 2019; Greenspan, 2018; Lauritsen, 2013). In the light of this perspective, the second edition of the DSM, the DSM-II, published in 1952, defined ASD as a psychiatric condition—a form of childhood schizophrenia marked by a detachment from reality (Greenspan, 2018; Grzadzinski et al., 2013; Hodges et al., 2020; Valkanova et al., 2013). In the 1970s, the understanding of ASD

evolved beyond the “refrigerator mother” as a growing body of literature about ASD showed that it had a biological underpinning, affecting the brain and children’s development. Hence, The DSM-III redefined ASD as a condition distinct from childhood schizophrenia and categorized it as a separate diagnosis as “pervasive developmental disorder (PDD)” (Bertelli, 2019; Grzadzinski et al., 2013; Martos-Perez et al., 2018; Ripamonti, 2016). It defined three essential features of autism: a lack of interest in people, severe impairments in communication, and bizarre responses to the environment (Faroy et al, 2019, p.191-195).

In 2013, with advancement in ASD treatment, a growing body of research, and the genome project, DSM 5 defined ASD as a spectrum, and the term ASD was introduced. Each word of the term ASD describes core criteria in the condition. The word ‘autism’ comes from the Greek word ‘autos’ (meaning self), and indicates a person who tends to be alone (Bertelli, 2019). The term ‘spectrum’ is used because the symptoms vary in their nature and degree from one person to another (Greenspan, 2018). Finally, the condition is considered a ‘disorder’ rather than a disease (Brentani et al., 2013). ASD, therefore, is characterized by two groups of features: persistent impairment in reciprocal social communication and social interaction, and restricted, repetitive patterns of behavior, both present in early childhood. While debate exists regarding the precise definition of ASD, the stance adopted in this dissertation is the American Psychiatric Association (APA) definition of ASD.

Accordingly, ASD is defined as a “pervasive neurodevelopmental disorder characterized by impairments in social communication and restricted, repetitive patterns of behavior, interests or activities” (American Psychiatric Association [APA], 2013). ASD also is described by the federal definition in the United States legal code, “Individuals with Disabilities Education Act” as follows: “A child is classified as having ASD when the child has a developmental disability

that significantly affects verbal and nonverbal communication and social interaction, that is generally evident before age three, and that adversely affects educational performance.” (Code of Federal Regulations 1308/1308, 15).

In light of today's conceptualization of autism, there is an understanding that a variety of conditions and symptoms define the spectrum that an individual with ASD can experience and may vary according to social, educational, or another context ( Brentani et al., 2013; Martos-Perez et al., 2018). The evolution in the criteria, in turn, suggests that there may be cultural variations in the expression of ASD (Bernier 2010). Studies from populations outside of North America and Western Europe have indicated that some of the core symptoms of ASD do not mimic the ASD symptoms linked to African populations (Ouhtit et al. 2015). ASD rates vary widely across different populations worldwide, suggesting that both social and environmental factors contribute to shaping the features of ASD. In another words, there are complex interactions between nature and nurture factors that influences representation according to existing research. Thus, the current direction of research in the ASD field aims to gain a deeper understanding of populations with ASD and their families within their own cultural context and social structures.

### **1.1.2 ASD Characteristics**

ASD cannot be attributed to a single cause. Genetic and environmental theories have been proposed, but no definite cause has been identified. It is a severe, complex, life-long developmental disorder characterized by social deficits, impaired communication, and restrictive and repetitive patterns of behavior (APA, 2013). Raising children with ASD can be an overwhelming experience for parents and families due to the complex nature of symptoms that characterize ASD. A child with ASD may require life-long care (Chu et al., 2018; DePape &

Lindsay, 2015; Gomes et al., 2015; Gona et al., 2016; ten Hoopen et al., 2020), support, and services to improve the child's capacity to socialize and function at home, school, or the community (Hsiao et al., 2017; Kałużna-Czaplińska et al., 2018; Lai et al., 2015; Picardi et al., 2018).

### **1.1.3 Prevalence of ASD: Differences between developing and developed countries**

In recent years, ASD prevalence have risen. This trend of rising ASD cases, which dates back to the early 1990s, is a global occurrence and is not confined to one country. Prevailing theories suggest that the rise is largely due to increased awareness and diagnosis of ASD rather than a massive increase in overall occurrences of autism. ASD prevalence varies considerably from one study to another due to various factors, including socioeconomic, geographic, and cultural/ethnic factors (Elsabbagh et al., 2012). A systematic review of epidemiological surveys of ASD and PDDs was undertaken by Elsabbagh et al. (2012). The median prevalence estimate of ASDs was found to be 62/10000 (Elsabbagh et al., 2012).

In Asia, Europe, and North America, numerous studies found that ASD prevalence is approximately 1% (Fombonne, 1999). ASD prevalence was recently estimated in South Korea at 2.64% in the general population (Kim et al, 2011). In the USA, an estimated 1 out of 88 children have an ASD, affecting about 1 out of 54 males and 1 out of 252 females (Nicholas et al, 2012). A later study found that ASD affects about 1 in 42 boys and 1 in 189 girls in the USA, with the prevalence rate at about 1 in 68 children over 8 years of age (CDC, 2014). Recently, The ASD and Developmental Disabilities Monitoring (ADDM) Network estimates that 1 in 44 (or 2.3%) of US children will be diagnosed with ASD by 2022. The rate of ASD in the U.S. went from 1 in 150 in 2000 to 1 in 100 in 2022. In a report published by the Global Health Data Exchange, which compiles ASD rates for people of all ages worldwide, the lowest ASD rates were found in

developed countries in Europe. France had the lowest ASD rate of 69.3 per 10,000 people or 1 in 144 children; Portugal followed with 70.5 per 10,000 or 1 in 142.

Arab countries manifest a high rate of ASD (AL-Batti et al. 2022). These countries have shared geographical locations, ethnic backgrounds, and lifestyles. Moreover, genetic exposures such as consanguinity, which is the marriage between two blood-related individuals who are second cousins or closer (Islam 2017), and multiparity are common in these countries. Epidemiological research into ASD in the Gulf Cooperation Countries (GCC), which includes Saudi Arabia, Oman, Kuwait, Bahrain, Emirates and Qatar, is relatively new, and rates of ASD in this part of the world is still unclear. A more recent systematic review showed that the prevalence of ASD in Arabian Gulf countries, including Saudi Arabia, ranged from 1.4 to 29 per 10,000 population, lower than the prevalence rate measured by studies conducted in developed countries (39–77 per 10,000). This does not necessarily mean that ASD is less prevalent in Oman or Saudi Arabia, because the discrepancy could be explained by methodological flaws, the limited capacity to diagnose ASD, and the lower level of awareness of ASD among parents, which reduces the likelihood of recognizing symptoms and consequent attempts to access care. For instance, Dubai ASD Centre estimates an ASD prevalence of 1 in 146 births (0.68%). In Saudi Arabia, Al Batti and colleagues (2022) state that the prevalence of ASD is estimated to be 2.51% (1:40, 25 per 1000), with a male-to-female ratio of 3:1. The prevalence of ASD disorder was also estimated in Bahrain to be 4.3 per 10 000 population (Al-Ansari & Ahmed, 2013). In Qatar, ASD is prevalent in 1.14% of children or one in 87, which is the highest rate in the world.

## **1.2 Prevalence of ASD in Oman**

### **1.2.1. ASD in Oman**

There has been a recent increase in interest ASD in different world regions (Baxter et al., 2015; Kim et al., 2011; Qoronfleh et al., 2019; Rauen et al., 2019; Shailesh et al., 2016). Oman, officially, the Sultanate of Oman, is a country on the southeastern coast of the Arabian Peninsula in Western Asia. It covers an area of 309,500 km<sup>2</sup>, making it slightly smaller than Poland, or about twice the size of the US state of Georgia. It is the oldest independent state in the Arab world, Oman was the most influential power in the region during the 19th century; it controlled Zanzibar and other territories. Now, Oman is a cornerstone country in The Cooperation Council for the Arab States of the Gulf, also known as the Gulf Cooperation Council (GCC), which is a regional, intergovernmental, political, and economic union comprising Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the Emirates. Despite Oman's internationally respected health care systems, it focuses primarily on environmentally related and infectious diseases. Like neighboring countries, the systems addressing children with impairment, disability, including ASD, are rudimentary (Alakhzami & Huang, 2020; Qoronfleh et al., 2019).

In Oman, the growing interest in ASD has created a platform for academic, governmental, and organizations initiatives -in both private and public sectors- to enhance diagnostic and rehabilitation services, increase community awareness, and encourage research endeavors in ASD. In 2012, the first Pediatric Developmental Clinic was established in Sultan Qaboos University Hospital (SQUH). Two years later, the legal Royal Decree #22/2014, known as the Children's Act, was issued by his majesty Sultan Qaboos bin Said (Alakhzami & Huang, 2020, AL-Mamari et al. 2017). This Decree highlights the aspect of early detection and intervention for

children with disabilities, including children with ASD. In 2017, A national screening program was established. This national program (using the Arabic version of the revised Modified Checklist for ASD in Toddlers) detects cases with developmental disabilities among toddlers. The national Omani screening program is already integrated into the existing Extended Program of Immunization (EPI) services provided at all primary healthcare centers in Oman. Besides, a charitable society based in Muscat, established on February (2014) by the Ministerial Decree No. 29/2014, helps raise awareness and understanding of ASD in the Omani society (Alakhzami & Huang, 2020). It aims at raising awareness in the community, training the parents, volunteer, and support group caring for a child with ASD. It also volunteers to provide support for the centers that give services for these children.

Parallel to this movement in the health care system, Omani researchers conducted studies to advance the infrastructure for ASD rehabilitation services and treatment, clinical management, community services in Oman, and improve the understanding of ASD etiology. However, the Omani researchers were challenged with limited community resources, the absence of national statistics to reveal ASD prevalence, limited health and society services to detect cases, and the absence of knowledge about ASD in the Omani context. In brief, there was little known about ASD in Oman.

### **1.2.2 prevalence of ASD in Oman**

In 2011, the prevalence of ASD in Oman was estimated to be 1.4 per 10,000 children. However, researchers in Oman presume this was an underestimation due to underdiagnosis and under-reporting of ASD cases (Al-Farsi et al., 2011). In 2018, the overall estimate of the prevalence of ASD in Oman was 20.35 per 10,000 children (15- fold more than the estimate in 2011), which means that 0.2 percent of children in Oman are on the ASD spectrum (Al-Mamari

et al., 2019). Many scholars still argue that this prevalence underestimates ASD cases in Oman. The studies which were conducted to estimate the prevalence of ASD in Oman (Al-Farsi, 2011) were based on retrospective data that was obtained from Sultan Qaboos University Hospital (SQUH) records. In contrast in Saudi Arabia (Yazbak 2004), the estimated prevalence was based on population-data. Fombonne (2009) confirmed that the higher estimate of ASD was obtained from population-based screening while the lower estimate was from studies that depended on administrative records. Second, there are only three child psychiatry clinics to diagnose ASD children in Oman, a country with an estimated population of 4 million distributed in an area of 310,000 km<sup>2</sup> (Al-Farsi, 2011). Ouhtit et al (2015) also claim that the low prevalence in Oman may also be due to the unreliability of diagnostic instruments and a shortage of health services provided for children with ASD.

### **1.3 Parenting a child with ASD**

ASD describes a broad range of childhood-onset and lifelong neurodevelopmental conditions with an enduring impact on multiple domains of functioning (APA, 2013). Despite the extensive research lasting more than sixty years, there is no cure for ASD, and its causes are still unknown. Raising a child with ASD can be an overwhelming experience for parents and families. Ample evidence suggests that parents of children diagnosed with ASD report a high level of parenting stress that exceeds those of parents of TD children as well as parents of children with other developmental disorders, such as Intellectual Disability (ID) (DesChamps et al., 2020; Estes et al., 2013a; Fecteau et al., 2017; Gallagher & Whiteley, 2013; Karst & Van Hecke, 2012; Keenan et al., 2016; Leadbitter et al., 2018; Riany et al., 2017). While parenting TD children or children with ID seems stressful and demanding, caring for children with ASD is pervasive, exceptionally stressful, and multifaceted because of its complex

nature, controversial, and complex definition. Its core characteristics are such that they exacerbate parental stress and burden, as well as increase the daunting challenges experienced by parents as a consequence for this parenting role.

### **1.3 Statement of the Problem**

ASD is one of the most significant public health challenges in the last fifty years (Elsabbagh et al., 2012). ASD describes a broad range of childhood-onset and lifelong neurodevelopmental conditions with an enduring impact on multiple domains of functioning (APA, 2013). According to The American Psychiatric Association (2013), Despite over sixty years of extensive research, there is no cure for ASD, and its causes are still unknown. Concurrently, the prevalence of ASD is on a **substantial rise worldwide** (WHO, 2019). This global trend of gradual increment in ASD prevalence has made it a crucial public health concern worldwide. Subsequently, researchers declare that ASD is one of the world's twenty most disabling childhood conditions (Picardi et al., 2018). For instance, the most recent statistics indicated that one in 54 children in the **US** is diagnosed with ASD (Baio et al., 2018; Stahmer et al., 2019), with annual cost of services estimated at \$268 billion, which is projected to rise to \$461 billion by 2025 (Stahmer et al., 2019). The overall prevalence in Asia, Europe, and North America combined comes to 1% to 2% (Centers for Disease Control and Prevention, 2013). The global prevalence of ASD is estimated to be 7.6 cases of ASD per 100 (1 in 132) (Baxter et al., 2015). In contrast, the estimated prevalence of ASD in developing countries, such as **Oman**, is 1 in 7143 (Al-Farsi et al., 2011); however, in 2017, ASD diagnoses have **dramatically increased fifteen-fold** compared to the estimate in 2011 (Al-Mamari et al., 2019). Currently, 0.2% (1.4 per 10,000) of children in Sultanate of Oman aged from 0-14 years are on the ASD. However, Omani researchers argue that this is likely a severe underestimation given that international

prevalence estimation of ASD far exceeds the Omani prevalence of ASD (Y. M. Al-Farsi et al., 2011; Al-Mamri et al., 2019; Ouhtit et al., 2015).

ASD is associated with comorbid medical and neurological conditions that affect mental health status and Quality of Life (QOL) of those with the conditions, **as well as their families and caregivers** (Yaacob et al., 2021). Those with ASD often require daily care, follow-up, and adjustment, which adds to parental stress (Hartley et al., 2016). Literature in this field provides further evidence that parents of children with ASD experienced high levels of parenting stress, with 56% reaching clinically significant levels of stress (Li et al., 2018). Additionally, several studies among parents of children afflicted with ASD reported **higher levels of parenting stress** compared to parents of other children with ID or TD children (Miranda et al., 2019).

Furthermore, parenting stress among families with children with ASD exceeds, with large effect size, the stress of parents with children with other neurodevelopmental disorders, such as specific learning disorders, intellectual disabilities, Down syndrome, cerebral palsy, externalizing behaviors, or attention deficit hyperactivity disorder (Gupta, 2007; Hayes and Watson, 2013; Watson et al., 2013; Craig et al., 2016; Barroso et al., 2018). Scholars also presented several parental factors associated with parental stress such as **parental burden, anxiety, stress, depression, coping strategies, and perceived social support**. For instance, parents of children with ASD exhibit high to moderate levels of **parental burden** (Barroso et al., 2018; Bozkurt et al., 2019; Picardi et al., 2018), which in turn may increase parenting stress among parents rearing children with ASD.

The complexity of parenting stress in families of children with ASD requires a comprehensive approach to examine the possible influence of multiple variables simultaneously. Many researchers have investigated the predictors of stress in parents of children with autism, linking

crucial children-related factors- such as symptom severity and the child's behavioral problems- and parental factors such as social support, and parents' coping strategies (Brei et al., 2015, 2015; Deater-Deckard, 1998; Perez Algorta et al., 2018). Child factors are by the far the most extensively studied. Parent factors, on the other hand, have received relatively little attention. Several studies found that **mothers** of children with ASD reported significant stress and at higher levels than fathers (Hastings & Brown, 2002, Yamada et al, 2007; Tehee et al, 2009; Dabrowska & Pisula, 2010; Mungo et al, 2007). To date, **few studies** have comprehensively investigated the predictors, mediators, and moderators of parental stress in mothers raising children afflicted with ASD focusing only on the parental factors.

In parallel to the Western literature, Omani literature postulates that Omani parents of children with ASD endure a **higher parental burden, clinically significant stress levels, anxiety, depression, and a lower quality of life** (O. A. Al-Farsi et al., 2016, 2021; Y. M. Al-Farsi et al., 2013; Alshekaili, Al-Balushi, Mohammed Al-Alawi, et al., 2019; Maskari et al., 2018) Omani parents raising children with ASD have a higher risk of depression and stress by 1.8 and 1.6 times, respectively, compared to parents raising TD children. Research on ASD is relatively limited in developing countries, including Oman, and thus most of the current clinical practices in Oman are based on conclusions from studies conducted in Western developed countries. Although a marked growth in local research started to emerge in 2008, there is much that still has to be investigated. For instance, parenting stress resulted from raising children with ASD in Oman has not yet been deeply explored. Hence, Arab researchers at the first Gulf Corporation Countries (GCC) conference for ASD in Oman in January 2020 highlighted the need to develop strategies for coping with parental stress and improving parental QOL through training [e.g., parenting support, psychoeducation sessions, and Parent-Mediated

Interventions(PMI)] (University, 2020). However, relatively little is known about parental stress construct in the Omani literature. The vast majority of the work in this area has focused on ASD screening, diagnosis, treatment modalities, families' QoL, families' depression and anxiety, and nutrition-based therapy. **No known study in Oman** has explicitly focused on examining parental stress and its predictors among parents of children affected with ASD.

Omani literature has also examined the parents' experiences of shame, guilt, and stigmatization, and findings indicate that the internalization of stigma interferes with effective adaptation (O. A. Al-Farsi et al., 2016; Maskari et al., 2018). These results are congruent with the international findings of stigma among parents having a child with ASD (A. Ali et al., 2012; Cardon & Marshall, 2021; Lodder et al., 2019; Mitter et al., 2019; Tilahun et al., 2016). Nevertheless, **no study in Oman** has sought to understand stigma in terms of its association with parental stress. To elaborate, a number of studies have shown that Omanis share the worldwide tendency to harbor stigmatizing attitudes towards children diagnosed with ASD and their families(Maskari et al., 2018; Alshekaili, Al-Balushi, Al-Alawi, et al., 2019). However, important questions regarding whether there is a relationship between public stigmatization and parental stress remain unanswered. Moreover, we know of no research to date that has examined the relationship between parental burden, anxiety and depression, stigma, and parenting stress using self-compassion as a possible mediator in this relationship. This proposed study addresses a critical gap in the Omani and international literature related to parenting in ASD by examining the predictors of parental stress, the moderators (perceived social support and coping strategies) and the mediator (parental self-compassion) between parental stress and its potential predictors. Results from the proposed study have the potential to inform the development of an intervention that may reduce parental stress. This study contributes to the burgeoning interest in

understanding the predictors, mediators, and moderators of parenting stress in ASD field. It will provide essential data to encourage future efforts to provide supportive interventions for parents of children with ASD.

#### **1.4 Significance of the study**

This study correlates with the Omani Ten-Year ASD Strategy, which was developed with the aim of providing a national action plan that guides the efforts to achieve the purpose and objective of the Convention on the Rights of Persons with Disabilities in Oman (*Ten-Year ASD Strategy .Pdf*, n.d.). This strategy [strategy priority (4)] emphasizes developing knowledge and understanding of ASD through acknowledging families with ASD and exploring their experiences to provide the appropriate training and support. It is also congruent with the Oman Vision 2040 (*Oman Vision 2040 - Preliminary Vision Document .Pdf*, n.d.). One of the important pillars of Vision 2040 is people and society that aims to enhance family and community health and well-being. Under this umbrella, The Sultanate of Oman Vision 2040 assures better living standards, guarantees advanced amenities, and inclusive society for people with disabilities, including ASD. To achieve these goals, the vision 2040 stipulates to foster and encourage any research endeavors that strive to understand all the challenges encountered by persons with disabilities, including ASD and their families in order to provide them with the proper services and support they need.

Furthermore, there are compelling practical and theoretical reasons for conducting this study. Theoretically, this study will greatly contribute to a large gap in the existing parental stress, stigma, and ASD literature. To date, many gaps are left unresolved in the arena of parental stress, parental burden, social support, and coping behaviors adopted by fathers and mothers of children diagnosed with ASD. It is not well understood how these contributing factors are

empirically linked to parental stress. Available literature includes an investigation for the concepts of stress, coping, and parental burden through bivariate relationships. However, relationships among these variables are often considered more complex than simple bivariate relationships with the presence of potential effects of other variables that may work as mediators (self-compassion) or moderators (social support, coping skills) in the existing relationships (Baron & Kenny, 1986; Bennett, 2000). Investigating the role of such variables not only verifies researchers' substantive theories around parental stress among parents having children with ASD as a phenomenon, but also answers practical questions about whether an intervention or treatment program has the expected effect (Wu & Zumbo, 2008). This proposed study is one of few studies attempting to understand parental stress, focusing on parental factors that may contribute to parental stress. In contrast to child-related factors such as symptoms severity, parental factors may represent promising avenues for improvement, modification, and training.

Parents play a key role in caring for children with ASD. However, the focus of the Omani health care system is on providing services and support for children with ASD, with little or no focus on supporting families. Therefore, Omani researchers have advocated for studies to explore including families in the treatment of their children as well as supporting them through their journey as parents raising children with ASD. Exploring the area of parenting stress and its contributing factors, social support, and coping, therefore, will shed the light on the unique needs and demands of such parents and how competently stakeholders, health planners, health professionals, and community could help them adapt to this adversity. It also will address the gap in the Omani literature that overlooks parenting stress and its contributing factors in the Omani context. Hence, this proposed study will be the first in Oman to focus on studying parenting stress and its contributing factors among parents raising children with ASD. It is also the first to

introduce the concept of self-compassion as a contributing factor to parental stress of parents of children with ASD within the Omani context. The data yielded from this proposed study should have a positive impact on the parent-child interaction, families and their children's Quality of Life (QoL), and the family as a whole.

Lastly, this study provides critical data to inform a future intervention, such as one designed to address stigma or reduce parental stress. The rich data generated from this study will be utilized as a roadmap to adapt these interventions to the Omani context.

### **1.5 Purpose of the study, questions, and Hypothesis**

The **primary aim** of the study was to test whether anxiety, stress, depression, parental burden and affiliate stigma predict parental stress among Omani parents caring for children with ASD. The **secondary** aims were **a)** to determine the levels of parental stress, parental burden, anxiety, stress, depression, affiliate stigma, perceived social support and self-compassion among Omani mothers raising children with ASD; **b)** to test whether parental self-compassion mediates the relationship between the predictive variables ( anxiety, stress, depression, parental burden, affiliate stigma) and parenting stress; and **c)** to test whether perceived social support and coping strategies moderate the relationship between parental stress and its potential predictors.

#### **Specific Aims**

**Aim 1:** To describe the levels of parental stress, anxiety, stress, depression, parental burden, affiliate stigma, self-compassion, coping and perceived social support among Omani mothers raising children with ASD.

**Hypothesis:**

**1.1.** Omani mothers raising children with ASD will report significantly higher levels of parenting stress, parental burden, anxiety, stress, depression, affiliate stigma and lower levels of adaptive coping, perceived social support and self-compassion.

**Aim 2:** To test whether anxiety, stress, depression, parental burden, affiliate stigma predicts parental stress level among Omani mothers raising children with ASD, when controlling for parental characteristics (level of education, age, marital status, employment status).

**Hypothesis:**

**2.1.** Anxiety, stress, depression, parental burden and affiliate stigma will significantly predict parental stress levels in Omani mothers raising children with ASD.

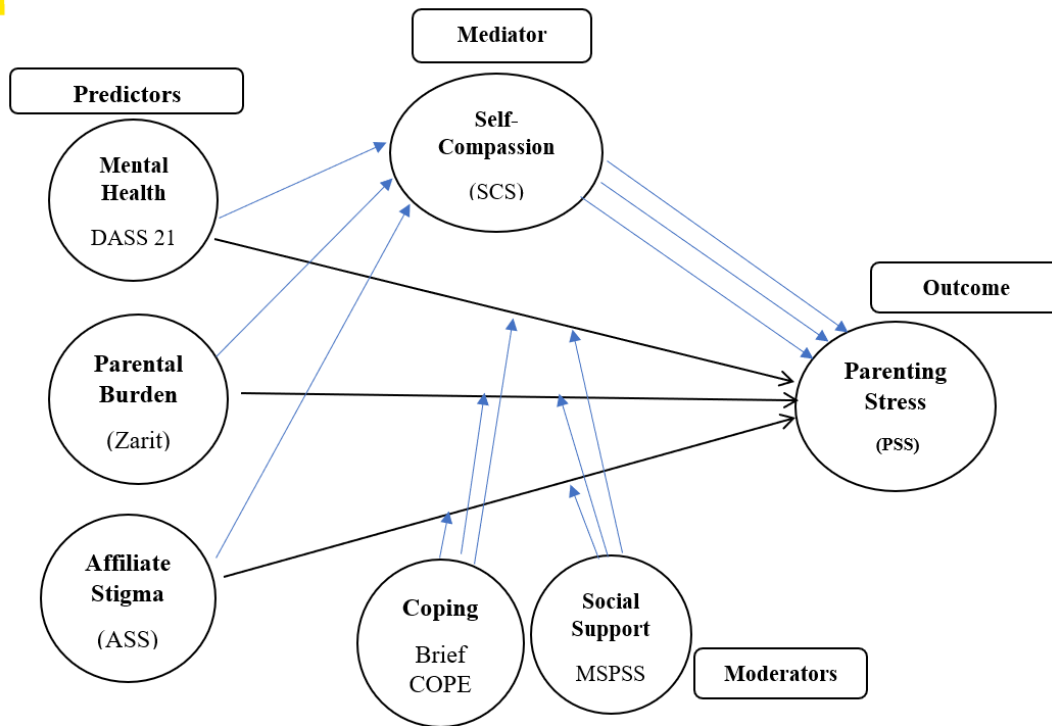
**Aim 3:** To test whether parental self-compassion mediates the relationship between the predictive variables (mothers' anxiety, stress, depression, parental burden, affiliate stigma) and parental stress in a sample of Omani mothers raising children with ASD.

**Hypothesis:**

**3.1.** Parental self-compassion will mediate the relationship between predictive factors and parenting stress among Omani mothers raising children with ASD.

**Aim 4:** To examine the moderating effects of perceived social support and maladaptive coping strategies on the relationship between parental anxiety, stress, depression, parental burden, affiliate stigma and parenting stress in Omani mothers raising children with ASD.

**4.1. Hypothesis:** coping and perceived social support will moderate the relationship between predictive factors and parental stress in a sample of Omani mothers raising a child with ASD.



**Figure 1.1: The Theoretical Framework Predicting Parenting Stress**

The framework guiding this study is depicted in Figure 1, focusing on parental factors associated with parenting stress among parents of children with ASD: Mental health (anxiety, stress, depression), parental burden, affiliate stigma, coping, and perceived social support. The framework hypothesizes that parental anxiety and depression, parental burden, and stigma predict parenting stress. It also proposes that self-compassion mediates the relationships between the predictors (anxiety, depression, parental burden, and stigma) and parenting stress. In addition, coping and perceived social support are hypothesized to moderate the relationship

between the predictive factors and parenting stress. Chapter 2 of this dissertation will elaborate each of these factors and their hypothesized interrelationships, including moderators.

### **1.7 Innovation of the study**

The study shifts the current parenting stress paradigm in parents raising children with ASD by testing factors that can predict, mediate and moderate parenting stress in this population. The study's methodology goes beyond testing the direct associations between parental stress and its contributing factors to instead, test its complex relationships with moderators and mediators which can potentially impact parental stress. In testing parenting stress within a complex theoretical model, the study goes beyond seminal studies (Abidin, 1990,1992, 1995; Belsky, 1984; Berry & Jones, 1995; Brannan et al. 1997; Crnic & Greenberg, 1990;

The study is innovative in a second way: it examines parenting stress and its contributing factors in a context different than the Western context. A great deal of knowledge on parenting stress and its contributing factors was predominately generated in a Western context. Study results will enable us to discuss consistencies and inconsistencies between the Western and Omani context on factors contributing to parenting stress among parents raising children with ASD symptoms. This is of great importance when planning to adopt and adapt interventions to reduce Omani parents' stress that has been developed in a western context. Finally, integrating mediators and moderators' variables using various analytic approaches such as path analysis will aid in providing rigorous data that portray the picture of parenting stress and its contributing factors similar to the real world.

## **Chapter Two: Literature Review**

ASD is a complex childhood developmental condition whose effects usually continue throughout life. There is agreement among researchers that parents of children with ASD face numerous challenges (Aroian et al., 2017; Bekhet, 2014; Drogomyretska et al., 2020; Hsiao et

al., 2017; Schiltz et al., 2018; Thullen & Bonsall, 2017; Zeng et al., 2020). One of the most significant challenges is parental stress (O. A. Al-Farsi et al., 2016; Cabrera & Mitchell, 2009; Estrela et al., 2018; Han & Lee, 2018; Miller et al., n.d.; Soltis et al., 2015). Numerous factors are associated with parental stress, including child factors (e.g., challenging behaviors, the severity of diagnosis, sleeping pattern, and dietary habits) and parent factors such as parental burden, coping strategies, social support, mental health status, and stigma. The personal characteristics of parents (parental factors) can influence how they approach stressful life events and potentially help them cope with some of the deleterious effects associated with extreme stress (Cabrera & Mitchell, 2009; Han & Lee, 2018; Miller et al., n.d.). Thus, this proposed study will focus specifically on parents' factors that predict parenting stress (mental health status, , parental burden, affiliate stigma) in parents rearing a child diagnosed with ASD.

## **2.1 Parenting Stress**

Parenthood and stress are distinct concepts; however, they are deeply connected given that parenting is often one of the most demanding roles in adult life. However, parenting stress is a unique and distinct domain of stress (role-specific) and it is separable, through careful measurement, from the general measures of stress identified in the general theory of stress reaction (Abidin, 1992; Belsky, 1984; Webster-Stratton, 1990). This study adopted the Abidin (1990) and Deater-Deckard (2008) definitions of parenting stress, as both are succinct, inclusive, and the most used and cited in the scientific literature. Abidin (1990) defined parenting stress as “a relationship between the parent and the environment in which the parent appraises the demands of being a parent as exceeding one’s resources, leaving the parent to feel she or he has difficulty filling the role of parent.” Deater-Deckard defined parenting stress as “as a set of processes that lead to an aversive psychological and physiological reaction that arises from the

attempt to adapt to the demands of parenting.” (Deater-Deckard, 2008, P.6). Parenting Stress is operationalized using tools such as Parenting Stress Index (PSI) and Parenting Stress Scale (PSS).

Parents vary substantially in their ability to successfully respond to the challenges of having a child with ASD. Some parents experience significant mental health problems, while others may have relatively few difficulties (Ashworth et al., 2019). Parental stress related to caring for children and youth with ASD is the focus of literature in the last ten years (Bozkurt et al., 2019; Dardas & Ahmad, 2014, 2015; Dardas & Ahmad, 2014; Dyches et al., 2016; Hall & Graff, 2011, 2012; Ji, Zhao, et al., 2014; Kronenberg et al., 2015; Li et al., 2018a; Rayan & Ahmad, 2018). A large and growing body of literature has investigated parental stress and how it influences parents' overall physical and psychological health and well-being (Cabrera & Mitchell, 2009; Huang et al., 2014; Schiltz et al., 2018; Tirgari et al., 2020). Numerous studies in the field of ASD have shown that caring for a child with ASD is a well-documented risk factor for parenting stress (Hayes & Watson, 2013; Trevor, 2012). Literature, therefore, indicates that parental stress is common among parents having a child with ASD and its effects on their overall QoL is detrimental (Bekhet et al., 2012; Bozkurt et al., 2019; Hall & Graff, 2012, 2011; Li et al., 2018). For Instance, Li et al. (2018) found that caregivers of children with ASD experienced high levels of parenting stress, with 56% of them reaching clinically significant levels. Empirical evidence also confirms that increased parenting stress contributes to poor physical and mental health outcomes for parents and their children (Lange et al., 2019; Neece et al., 2012). For example, Tomeny (2016) examined 111 mothers of children with ASD for their child's symptoms, their own stress related to parenting, and any psychopathology symptoms they were

experiencing. He found that parenting stress mediated the relation between ASD symptom severity and maternal psychopathology symptoms.

Literature provides further evidence that parents of children diagnosed with ASD report high levels of parenting stress which exceeds that of parents of children with typical development or parents of children with other developmental disorders (Coccia et al., 2012; Giallo et al., 2013; Richardson et al., 2020; Soltis et al., 2015). For example, Li et al., 2018 conducted a study to compare caregivers of children with ASD and caregivers of TD children on their perceived stress related to the parenting role, and functional health and wellbeing. Results revealed that parents with ASD experience a higher level of parental stress than a caregiver of TD. Likewise, Likhewerawong et al. 2020 examined 124 caregivers of children with and without ASD. Parents of children with ASD reported significantly greater parental stress scores than caregivers of children without ASD. However, findings from a study conducted by Dyches et al. (2016) disagreed with these findings. In their study, single mothers nurturing a child with ASD and respite care showed that as the amount of respite care increased (decreased caregiver burden), parent stress levels did not decrease. They explained their results with what they called the "saturation effect:" single mothers endured more chronic stress and depression than married mothers due to the lack of consistent parenting support from a spouse, which possibly might increase their resilience more than married mothers.

Many studies have attempted to identify factors associated with parental stress among families having children with ASD (Bekhet et al., 2012; Bozkurt et al., 2019; Hall and Graff, 2012, 2011; Rayan & Ahmed, 2012). An analysis of these published studies suggests that mental health, parental burden, affiliate stigma, coping, social support and self-compassion may contribute to

parenting stress among parents raising children diagnosed with ASD. Each of these factors will be described next.

## **2.2 Parental Burden**

Parental burden symbolizes the psychological, physical, and financial challenges encountered by parents having a child with ASD. The parental burden is extensively studied in the literature pertaining to parenting children with ASD (Akram et al., 2019; Barroso et al., 2018; Baykal et al., 2019; Bozkurt et al., 2019; Picardi et al., 2018; Singh et al., 2017; Söderqvist et al., 2017). Burden refers to the personal suffering of parents as a consequence of the illness of a family member (Schene 1990). It is operationalized employing a self-report questionnaire, such as the Zarit Burden Scale (Zarit et al. 1980). Researchers distinguish between subjective and objective burdens. The objective burden comprises those tasks (activities of daily livings ADLs) which are required to care for the client (Marsack-Topolewski & Church, 2019) whereas subjective burden refers to the parents' or caregivers' psychological reaction to caregiving tasks (Picardi et al., 2018).

Several studies indicate that parents of children with ASD exhibit high levels of caregiver burden (Barroso et al., 2018; Bozkurt et al., 2019; Picardi et al., 2018); in contrast, others show that parents report a moderate level of caregiver burden (Singh et al., 2017). This discrepancy may be attributed to the characteristics of the recruited sample in these studies, including child and family characteristics and the amount of social support received. It is also a consequence of the inconsistent and ambiguous description of parental burden in the literature. Generally, the literature shows a significant level of parental burden among parents of children with ASD, ranging from moderate to severe.

Studies have demonstrated that parents of children with ASD spend more time meeting their child's care demands, constantly supervising the child and doing household chores, leaving less time in leisure and self-care activities (Marsack-Topolewski & Church, 2019; Smith et al., 2010). They also restructure and change their routine to meet with the high care demands of their children (child-centered life), which requires an enormous amount of time, effort and patience. This child-centered life often leads to sleep disruption and physical and psychological exhaustion, reflecting parental burden (Barroso et al., 2018; Baykal et al. 2019; Bozkurt et al., 2019; Cardon & Marshall, 2021; Picardi et al., 2018; Shattnawi et al., 2020; Singh et al., 2017).

The parents of children with ASD are at increased risk for mental health concerns (Aroian et al., 2017; Barroso et al., 2018; Bluth et al., 2013; Bozkurt et al., 2019; Hayes & Watson, 2013; Soltanifar et al., 2015) compared to parents of TD and children with ID (Craig et al., 2016; Fairthorne et al., 2016; Gallagher & Whiteley, 2013; Schieve et al., 2015). Several studies found that parental burden significantly predicts depression among mothers and fathers raising children with ASD (Baykal et al., 2019; Picardi et al., 2018; Singh et al., 2017). In a cross-sectional study of 356 mothers, Akram et al. (2019) investigated the correlation between suicidal ideation and the parental burden of parents raising a child with ASD. The result yields a positive relationship between the burden of care and suicidal ideation. Likewise, Bekhet et al. (2012), examined the effects of caregiver burden (risk factor) and positive cognitions (protective factors) in 95 caregivers of persons with ASD, which shows a significant level of burden experienced by those caregivers. Likewise, Bozkurt et al. (2019), examined the caregiver burden, stress, and coping styles of parents of children with ASD. Their findings show that a higher level of caregiver burden is associated with higher scores of parental stresses.

Parental burden appears to be an individual experience that may vary depending on the interplay between the child characteristics, parental characteristics, coping styles, and social support (Akram et al., 2019; Baykal et al., 2019; Bozkurt et al., 2019; Lai et al., 2015; Picardi et al., 2018; Schiltz et al., 2018). Several child variables, including age, the severity of ASD symptoms, adaptive behavior, and intellectual disability, have been associated with the parental burden. Apart from the child characteristics, parents' characteristics, such as level of education, depressive symptoms, coping styles, and coping resources, may also contribute to parental burden. Predominantly, ASD symptoms severity and parents' depressive symptoms are the principal factors giving rise to the parental burden (Baykal et al., 2019).

In addition to the subjective and the objective burden, parents are challenged with the financial burden of caring for children with ASD. The cost of supporting an individual with ASD without ID is approximately \$1.4 million in the United States and £0.92 million (the US \$1.4 million) in the United Kingdom (Buescher et al., 2014). Nineteen percent of families with children with ASD reported that childcare problems had greatly affected their employment decisions, compared with nine percent of families with TD children. Additionally, researchers have found that ASD is associated with severe employment and financial burdens that exceed those of families with children with ID (Ou et al., 2015). Families of children with ASD are more often from relatively lower-income households while having costly educational expenses (Gobrial, 2018; Ou et al., 2015). They may be forced to seek less skilled, more accessible, and financially feasible care (Zaslofsky et al., 2014). In Oman, Al-Farsi et al. (2014) found that low-income caregivers suffer a disproportionate burden because of monthly out-of-pocket expenses, time spent in informal care, and income loss due to lost employment opportunities. Shattnawi et al. (2020) reported that Jordanian mothers attributed the financial costs to transportation, hospital

admission, special diet, and fees for specialized care centers that exceeded their financial ability. Parents often quit their jobs to care for their children with ASD, which adds to the families' burdens (Shattnawi et al., 2020).

### **2.3 Parental Characteristics**

Several studies indicate that parental characteristics, such as marital status, age, education level, gender, occupation, number and order of children, and monthly income are associated with higher levels of stress. Studies examining the role of parental characteristics in parenting stress among parents raising children with ASD has generated inconsistent and conflicting results. For example, some studies (Phetrasuwan and Miles, 2009; Ricci & Hodapp, 2003) found that stress was more common among mothers with low educational levels, whereas Dabrowska and Pisula (2010) found that stress was more common among parents who were more educated than other parents. Dabrowska and Pisula (2010) reported that mothers who had more children experienced more stress, while Fong (1991) reported that mothers who had fewer children experienced more stress. Phetrasuwan and Miles (2009) found that families with lower incomes experienced higher levels of stress. Some studies have found that older mothers (34-45 years of age) experienced more stress than younger mothers (Fong, 1991; Duarte et al., 2005; Rezendes & Scarpa, 2011) while Falk et al. (2014) reported that the parental age is negatively associated with parental stress.

The degree of parental stress depends on many factors, including social and psychological support from other families and communities, coping strategies, and severity of ASD (Al-Sharbati & Al-Jabri, 2006). Duarte et al. (2005) conducted a case-control study to investigate the possible causes of maternal stress in mothers of children with ASD aged 3 to 12 years. The results suggest that maternal stress was primarily related to having a child with ASD. However,

some specific characteristics and demographic factors are also related to higher maternal stress, including having low interest in people, being an older mother and having a young child with ASD.

## **2.4 Coping**

Coping is a process or strategy that a person uses to manage stress (An, 1995; Bozkurt et al., 2019b; Dardas & Ahmad, 2015; Haakonsen Smith et al., 2018; Hall & Graff, 2012; Lai et al., 2015; Nolcheva & Trajkovski, 2015; Rousey et al., 1992). It is defined as the cognitive and behavioral efforts that are constantly changing to master, reduce or tolerate a specific stressor appraised as exceeding one's available resources and abilities (Dardas & Ahmad, 2015, p. 5). Lazarus' model of coping proposes that coping strategies consist of both behaviors and cognitions that are directed at managing the situation and the attendant negative emotions (Lazarus & Folkman, 1984). They are flexible and responsive to situational demands. Thus, new strategies can be learned and old ones modified to deal with changing situations. Therefore, coping is considered to be of critical importance in determining whether a stressful event results in adaptive or maladaptive outcomes (Hall & Graff, 2011). Scholars also propose that these strategies are not mutually exclusive, but can be used sequentially in any given situation (Chin et al., 2017; Gomes et al., 2015; Lai et al., 2015). The coping process is recursive – the individual is thought to examine the effects of the coping strategies on their related outcomes and modify coping as appropriate. For example, people may try a variety of strategies until they find one that “works” – that is, achieves the desired goal. In the literature, coping is operationalized using different tools that measure coping styles in caregivers of individuals with ASD such as The Revised Ways of Coping instrument (Bozkurt et al., 2019; Dardas & Ahmad, 2014, 2015), Coping Strategies Index, Coping Strategies Questionnaire, and Brief COPE Questionnaire.

There are many different conceptualizations of coping strategies, but researchers have often grouped coping methods into two general types, problem-based coping (strategies aimed at solving the problem or doing something to change the source of stress) and emotion-based coping (strategies aimed at reducing or managing feelings of distress associated with the stressor)(Benson, 2010). In stress research, the distinction between problem-focused and emotion-focused coping has served a vital heuristic purpose, but evidence suggests it oversimplifies how people deal with adversity (Carver, Schneier, & Weintraub,1989; Lazarus, 1996; Skinner, Edge, Altman, & Sherwood, 2003). Several important coping methods, such as social support, cannot be classified as either problem- or emotion-focused. Furthermore, many coping strategies serve both instrumental and affective purposes(Dardas & Ahmad, 2015; Shepherd et al., 2018). A direct response to a source of stress, for instance, may not only reduce the stressor's negative aspects, such as anxiety but may also reduce the negative emotions associated with it (Skinner et al.,2003; Folkman & Moskowitz, 2004). Accordingly, studies examining the coping construct use coping scales to identify multiple dimensions of coping skills (e.g., Aldwin & Revenson, 1987; Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992; Folkman & Lazarus, 1985). As another example, Carver et al. (1989) modeled their theoretically derived COPE inventory around 14 conceptually distinct types of coping. Several of the coping strategies identified by Carver et al. (1989) can be classified as either problem-focused or emotional-focused (e.g., active coping, planning), while others cannot be categorized into either category. This proposal will focus on the coping strategies proposed by Carver et al. (1989) (see figure 2.1).

Developed to assess	Scale	Typified by
Problem-focused	Active-coping	Taking steps to eliminate the problem
	Planning	Thinking about dealing with the problem
	Suppression of Competing Activities	Focusing only on the problem
	Restraint-coping	Waiting for the right moment to act
	Instrumental Social Support	Seeking advice from others
Emotion-focused	Positive reinterpretation	Reframing the stressor in positive terms
	Acceptance	Learning to accept the problem
	Denial	Refusing to believe the problem is real
	Turning to Religion	Using faith for support
	Emotional social support	Seeking sympathy from others
"Less useful"	Focus on & venting emotions	Wanting to express feelings
	Behavioral disengagement	Giving up trying to deal with the problem
	Mental disengagement	Distracting self from thinking about the problem
Recently developed	Substance use	Using alcohol or drugs to reduce distress
	Humor	Making light of the problem

**Figure 2.1: Carver et al. (1989) suggested coping strategies**

Several studies in the field of ASD confirm the positive impact of coping strategies on reducing parents' burden, parental stress and improving their quality of life (Barak-Levy & Atzaba-Poria, 2013; Dabrowska & Pisula, 2010). In support of this, Dardas and Ahmed (2014) found that parents who use diverse problem-solving strategies, tended to report lower parental distress, parent-child dysfunctional interaction scores, and a higher Quality of Life (QOL) score. Bozkurt and colleagues (2019) found that scores of coping approach types such as seeking social support was significant predictor of parental burden. Benson (2010) indicated that maternal use of avoidant coping (distraction and disengagement) was found to be associated with increased levels of maternal depression and anger, while use of cognitive reframing was associated with higher levels of maternal well-being. Further, they maintain that there was a significant statistical correlation between the coping approaches utilized (Acceptance, planning, denial) and caregiver burden. Lyons et al. (2010) found that distraction and emotion-oriented coping styles moderated

the relationship between parents' stress and ASD symptoms. Congruent with Lyons, Benson (2014) in a longitudinal study of 113 mothers of children with ASD found that the use of different coping strategies such as disengagement moderated the effects of child behavior on maternal adjustment. Also, Willis et al. (2016) indicated that active and avoidant coping strategies mediated the association between optimism and depressive symptoms of mothers. Finally, results by Dardas & Ahmad (2015) showed that only seeking social support and denial are moderator strategies in the relationship between stress and QoL among parents of children with ASD.

However, not all studies have consistent findings related to coping and parenting stress.

In contrast to Lyons and Benson's result, Davis & Kiang (2020) measured forty-seven mothers raising a child with ASD, assessing parental stress, psychological well-being, social support, positive religious coping, and spirituality. Results showed that stress significantly predicted parent well-being, but coping did not demonstrate any significant main or interactive effects. Also, Seymour et al. (2013) argued that maternal fatigue but not maladaptive coping mediated the relationship between problematic child behaviors and maternal stress. One explanation for this discrepancy is that coping strategies and coping is a context-based process. That is, coping largely depends on the individual's beliefs, values, and context, which ultimately helps them to achieve their desires and goals. Culture, also, may be a crucial factor that contributes to such conflicting and inconsistent results. For instance, A growing body of research has begun to identify the influence of culture and context as influencing the relationship between coping and mental health outcomes. Culture and context may be contributing to the inconsistent results among researchers (Birukou et al., 2013; Locke et al., 2020). To illustrate, many studies have associated emotion-focused or avoidance strategies with higher levels of psychological distress

(Karlsen, Oftedal, & Bru, 2012). However, these findings tend to occur more often in Western countries, whereas emotion-focused strategies, such as taking time out and spiritual interventions, are positively associated with well-being in studies of Asian populations (Lambert, Lambert, & Ito, 2004; Lambert, Lambert, Petrini, Li, & Zhang, 2007).

The existing literature on coping of parents of children with ASD is limited and leaves many key issues unresolved. Very few studies of families of children with ASD have examined how different coping methods are associated with maternal stress, and, in particular, whether the effects of different maternal factors such as depression on parenting stress are moderated by coping strategies. While coping has been shown to buffer emotional stress in some studies of parents having children with ASD (Benson, 2010, 2010; Bozkurt et al., 2019a), other studies have not confirmed this finding (Davis III & Kiang, 2020; Seymour et al., 2013). It is clear that further research is needed to explore the relative implications of coping on maternal stress by considering its moderating role between maternal factors (depression, burden, and stigma) and parenting stress. This area is not adequately examined in the Omani literature and remains a critical gap that deserves exploration.

## **2.5 Perceived Social Support**

Social support is defined as the provision of physical, emotional, informational, and instrumental assistance that an individual perceives from their social networks (Lu et al. 2015). Social support encompasses a multitude of social interactions with one's partner, extended family, friends, and others. There are two main sources of support: formal and informal. Social support from professional organizations and agencies is considered formal, whereas informal support refers to resources within the family (Boyd 2002). These resources should be well-mobilized when faced with stressful events, such as raising a child with ASD, in order to

maintain well-being and improve their quality of life (QoL). It is operationalized using various tools such as the Modified Medical Outcome Study (MOS) social support survey and Multidimensional Scale of Perceived Social Support.

Social support is an important protective factor against parental stress when raising children with ASD (Halstead et al. 2018; Handley and Chassin 2008; Onyedibe et al. 2018; Sharpley et al. 1997; Ullrich et al. 2015). Social support is also a strong predictor of adjustment for parents of children with ASD (Benson 2010; Boyd 2002). Several studies (e.g., Boyd 2002; Gouin et al. 2016; Herman and Thompson 1995) have demonstrated that informal social support (i.e., from family, friends, etc.) may be more effective than formal professional support in protecting against elevated levels of parental stress. In addition, literature shows that subjective, rather than objective, evaluations of social support (i.e., perceived social support versus actual social support) may exhibit superior validity with regard to predicting mental health status and overall parents' well-being (Barrera 1981; Brandt and Weinert 1981; Ke et al. 2010; Sarason et al. 1985; Siedlecki et al. 2014; Solomon et al. 1987; Wilcox 1981). Moreover, Lovell et al. (2019) found that the relationship between greater stigma and increased perceived stress occurred indirectly via lower perceived support from family, but not from friends or significant others. Their findings underscore the importance of increasing caregivers' perceived family support for parents having children with ASD.

Social support and parental stress are often negatively correlated (Hall & Graff, 2012). For example, Hui-Lu et al. (2018) conducted a study with 479 Chinese parents of children with ASD (aged 3–18 years) to assess parenting stress, social support, and life satisfaction. Results demonstrate that social support both mediated and moderated the influence of parenting stress on life satisfaction. It also reveals that caregivers choose their spouse or partner and family as their

most helpful support system, not only for support but also to provide respite care, and that using professional services like family support networks is not beneficial. Likewise, Al kandri et al. (2017) demonstrate that 62.4% of their study sample (mothers having a child with ASD) reported decreased ability to perform social duties. They also found that there is an association between the mothers' ability to enjoy life and receiving support from the family and support groups.

However, previous studies have found that parents of children with ASD in developing countries- such as Oman- are under more pressure than those in developed countries, partly due to the lack of a social support system (Xiong et al. 2010). Arab/Islamic culture such as those in Oman has been described part of "collective culture" where family is central to one's identity. Thus, these parents are more likely to experience a sense of social isolation and prejudice, and they may be more reliant on support from family and friends. Due to the role that perceived social support might exert in diminishing parental stress, the importance of further investigating the dynamics of this relationship in the Omani society, particularly for parents of children with ASD, cannot be understated. Therefore, one of the important gaps in the Omani literature is understanding social support and its potential influence on parental stress among parents rearing children with ASD.

## **2.5 Stigma**

Stigma signifies the social challenges confronted by parents raising a child with ASD. Stigma was borrowed from Latin *stigmat-*, *stigma*, meaning "mark, brand," and ultimately comes from Greek *stizein*, meaning "to tattoo." According to the Canadian sociologist Erving Goffman (1963), the term 'stigma' describes the 'situation of the individual who is disqualified from full social acceptance'. Link and Phelan (2001) describe stigma as involving the co-occurrence of

components of labeling, stereotyping, cognitive separation into “us” and “them” groups, status loss, social rejection, and discrimination, in the context of power differentials that allow one group to successfully devalue another. It is operationalized using various tools such as Internalized Stigma of Mental Illness (ISMI) scale, Stigma Scale, and Affiliate Stigma Scale. Stigma is prominent among parents caring for a child having ASD; up to 95% of parents reported experiencing some form of stigma (Kinnear et al., 2016; Lodder et al., 2019). Researchers consistently report higher levels of stigma in parents raising children with ASD compared to raising a child with any childhood psychiatric disorders (Zhou et al., 2018). Recent literature suggests that stigma negatively impacts parents’ well-being, increases parental stress and parental burden, and decreases mental health status (Ali et al., 2012; Chiu et al., 2015; Papadopoulos et al., 2019). Negative social interactions faced by parents include parent blame, ostracization, discrimination, vocal prejudice, and finding other people staring at the child (Cardon & Marshall, 2021; Mitter et al., 2019; Patra & Kumar Patro, 2019).

ASD is highly stigmatized in many cultures, including Western cultures (Broady et al., 2017; Byrne et al., 2018; Lodder et al., 2019; Mitter et al., 2019; Russell & Norwich, 2012; Zuckerman et al., 2015), middle eastern cultures (Dehnavi et al., 2011) and Asian cultures (Chan & Lam, 2018; Kwok et al., 2014; Patra & Kumar Patro, 2019). For instance, Omani parents report resistance to accepting ASD diagnosis due to social stigma around mental health concerns (O. A. Al-Farsi et al., 2016). In Korean culture, stigma may cause reluctance to seek help or follow up on a developmental evaluation (Stahmer et al., 2019). A study shows that some parents kept their child’s ASD diagnosis hidden or a secret from the child’s grandparents in Malaysia (Salleh et al., 2020). Also, some family members dismissed parents’ concerns in a sample of parents in Spain (Recio et al., 2020).

There is evidence of differential or hostile behavior toward children with ASD in some countries. Parents reported that their children with ASD were treated differently by society (Gobrial, 2018; Liao et al., 2019; Wang et al., 2020). Hostility has been reported and demonstrated by members of the public in the form of angry stares, name-calling, and targeted exclusion (WHO 2016). Such behavior often resulted in feelings of shame and rejection among individuals with ASD and their parents (World Health Organization, 2016). Since ASD is not a visible physical disability, most people condemn ‘odd’ behaviors and blame parents. They also attribute those behaviors to parenting style, ineffective or poor parenting, a need for discipline, or the parent's inability to control the child, not to a developmental concern. Parents feel “embarrassed”, “guilty”, “and in a continuous battle with public stares and judgments” (Ludlow et al., 2012, p.6-7). In the traditional Omani society, for example, preserving external harmony in a communal society is imperative. Therefore, Omani parents are likely to ground their children with ASD at home, so they may not “disturb” others (Y. M. Al-Farsi et al., 2013). Parents also maintain that they are not able to leave home and keep their children alone, which worsens loneliness, isolation, and social withdrawal (Shattnawi et al., 2020).

Although scholars agree that stigma is a strong risk factor for parental stress and Omani researchers substantiated that Omani parent of children with ASD are highly stigmatized by the public, stigma has not been adequately studied with its association with parental stress, social support, coping styles, and self -compassion.

## **2.6 Self-compassion**

In contemporary research on ASD, self-compassion is a novel and potentially modifiable predictor of parental stress. Recently, ample evidence reveals that self-compassion has been related to parental adaptation, parental stress, and quality of life both in parents of children with

ASD and in parents of typically developing children (Bohadana et al. 2019; Nef and Faso 2015; Torbet et al. 2019; Wong et al. 2016). The majority of researchers examining self-compassion in parents of children with ASD have used Neff's (2003) Self-compassion scale and conceptualization of self-compassion. This proposed study will adopt Neff's (2003) conceptual and operational definition of Self-compassion.

Neff (2003) conceptualized self-compassion as comprised of three interrelated components: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. Self-kindness refers to being understanding, caring, and gentle towards oneself during times of distress, or perceived inadequacies and failures, as opposed to being self-attacking and berating towards oneself. According to Neff, common humanity resonates with the ability to understand that everyone makes mistakes and experiences adversity during their lifetime. Lastly, mindfulness refers to the non-judgmental acceptance and awareness of negative thoughts and feelings (Neff 2003). Hence, self-compassion is defined as being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, nonjudgmental attitude toward one's inadequacies and failures, and recognizing that one's own experience is part of the common human experience (Neff, 2003). The Self Compassion Scale, developed and validated by Kristen Neff to operationalize self-compassion, is often used in studies involving individuals with ASD (Bohadana et al. 2019; Neff and Faso 2015; Torbet et al. 2019; Wong et al. 2016).

A recent line of research about ASD has focused on self-compassion and its association to parental stress. Specifically, studies have sought to describe how self-compassion impacts parental adaptation and coping with the challenges of raising a child diagnosed with ASD. Neff and Faso (2015) examined self-compassion in 51 parents (40 mothers and 11 fathers) of children

aged 4–12 years with an ASD diagnosis. Results showed that self-compassion moderated the relationship between ASD symptom severity in the child and parental stress. The higher the parent's self-compassion, the lower the correlation between their child's symptom severity and parental stress(Bohadana et al., 2021). Other variables correlated with self-compassion included greater life satisfaction, increased sense of hope, and reduced levels of depression and relationship dysfunction. Similarly, Wong et al. (2016) found that self-compassion was protective factor against the affiliate stigma (i.e., the internalization of external criticisms) experienced by 180 Chinese parents of children with ASD. They also found that self-compassion moderated the association between affiliate stigma and psychological distress. For parents with high-self compassion, the association between affiliate stigma and psychological distress was low (Galvin et al., 2021).

Torbet et al. (2019) investigated self-compassion as a protective factor against affiliate stigma in 257 Australian parents of children with ASD aged 18 years or younger using Neff's (2003) self-compassion scale. They found that affiliate stigma was no longer a significant predictor of parental subjective well-being once self-compassion was added to the model. Thus, self-compassion may be a protective factor against the challenges of adapting to a child's ASD symptoms (Neff and Faso 2015). Bögels et al. (2010) argued that increased self-compassion may be a key mechanism by which mindfulness-based interventions are effective for parents raising children with ASD. They posited those parents devote so much time and energy to caring for their child with ASD that self-compassion may create a healthier balance by helping parents to nourish and take emotional care of themselves. Similarly, Beer et al. (2013) examined a parenting model in parents with children with ASD using an adapted version of Duncan's (2007)

Mindful Parenting Scale, which includes items measuring compassion for oneself and one's child.

Expanding on previous quantitative research, Bohadana et al. (2020) explored the lived experience of 19 mothers of children with ASD, focusing on stress and self-compassion. Themes derived from the study included the impact and causes of stress, benefits of self-compassion, barriers to self-compassion, and aids to self-compassion. Bohadana et al. (2020) presented three important benefits to self-compassion which are positive coping, helpful thinking and perspective, and emotional validation. Mothers reported that self-compassion helped them, mainly, with coping by engaging in self-care activities without feeling guilt, improving their time management, and enhancing parenting confidence. Precisely, they stated being self-compassionate enabled them to be more self-reflective and open to the child's experience.

A growing body of research supports the hypothesis that parents with high self-compassion exhibit a low parental stress level but that literature has not yet explored self-compassion by investigating its mediation role between parental stress and its potential predictors (e.g., parental burden, stigma, and mental health status). The majority of studies about self-compassion examine its moderating role between stigma and parental stress or psychological well-being. This study attempts to fill this gap and examine whether self-compassion mediates the relationship between parental stress and its predictors to better understand the mechanism by which we could support families with individuals diagnosed with ASD and reduce parental stress.

## **2.7 Omani Literature and ASD**

The increasing interest in ASD has led to academic, governmental, and organizational initiatives - both private and public - aimed at improving diagnostic and rehabilitation services, raising community awareness, and encouraging ASD research. Several Omani studies have focused on improving the infrastructure for ASD rehabilitation and treatment, clinical management, community services, and understanding ASD etiology (Al-Mamari et al., 2017). In Oman, most studies about ASD focus on nutrition-based therapy, diagnosis, screening, etiology, and accessibility to health care. However, one of the fundamental contributions of Omani literature to the research about ASD is in the domain of parenting a child with ASD and its impact on parents and caregivers. For instance, Al-Shekaili et al. (2019) designed a study to determine the prevalence of depressive symptoms among Omani caregivers. Omani researchers found that the depression prevalence rate is 71%, which is a disquieting sign (Al-Shekaili et al., 2019). They named two critical factors leading to depression among Omani families: unemployment and being the sole care provider.

Al-Farsi and colleagues conducted two studies (2013, 2016) that investigate the impact of caregivers' burden on caregivers' mental health. They investigate whether caregiver's variations in socioeconomic status (SES) have a direct effect on challenges arising from available remedial and rehabilitation, utilization and perception of psychiatric services, and the constraints of nurturing children with ASD in Oman. Results indicate that raising a child with ASD in Oman is costly, particularly for low-income families that also bear a substantial financial burden and become a recipient of the welfare system, which adds to the overall state of stress and anxiety. In 2016, Al-Farsi and his team used the Depression, Anxiety, and Stress Scale to compare the indices of stress, anxiety, and depression among parents of children with ASD and parents of TD

children. They found higher anxiety and depression among Omani parents having a child with ASD compared to their counterparts. Also, Omani literature indicated that there is a significant relationship between sleep disturbance among children with ASD and their parents' distress such that the disrupted sleep of children with ASD will negatively impact the quality of sleep and the mental health of caregivers (O. Al-Farsi et al., 2018). AL-Farsi et al. (2020) undertook a study of 420 Omani caregivers having children with ASD, ID, and TD to measure QoL and health satisfaction. They found that compared to ID and TD, the caregivers having children with ASD scored lower on indices of QoL and endorsed poor health status.

There is a gap in the literature that examines the stress that is associated with parenting children with ASD in Omani society. To date, there is no study examining parental stress and its predictors in the Omani context. As mentioned before, (71%) of Omani parents of a child with ASD experience anxiety and depression, indicating a critical need for further research into parental stress and its impact on parents' overall health status. Additionally, unlike the international literature, no studies in Oman investigate the role of social support, coping strategies, and self-compassion on parental stress of parents having a child with ASD. Bearing in mind that the Omani society represents the more traditional values of larger families (including members of extended family) and collective orientation, Omani family as a system, social support, and its coping strategies are not yet deeply explored, particularly when encountered with the challenge of raising a child with ASD. Such studies may provide a foundation to justify the need for introducing interventions exclusively designed for parents of children with ASD into the Omani health care system. Hence, this study sought to address a critical gap in the Omani and the international literature by investigating parental stress predictors, mediators, and moderators

in the Omani context. Lastly, this study is the first study to investigate self-compassion and its mediation role among Omani parents having children with ASD.

In conclusion, the literature indicates that examining parental stress is crucial to improving the overall mental health status and well-being of parents raising children with ASD. Moreover, although a great deal of studies has investigated the relationship between parents' stress and other parenting factors such as coping, social support, and mental health status, these factors have generally been examined in isolation. Hence, this study addresses this gap by examining the interplay of parental stress, its predictors, moderators, and self-compassion as a mediator in the Omani context.

## **Chapter 3: Study Methods**

### **3.1 Design:**

A cross-sectional design was used to test a predictive model of parental stress in mothers raising children diagnosed with ASD in the Sultanate of Oman. The sample size for multiple linear regression analysis was estimated by the use of statistical power analysis software (G\*Power analysis) version 3.1 (considering the six independent variables). Based on G\*Power analysis, a sample of 100 mothers was required to detect an effect size of .15,  $p=.05$ , and .80 power (see the appendix: estimation of sample size by G\*Power).

### **3.2 Study Setting and Participants:**

The study was conducted in the Sultanate of Oman. The sultanate is located in the southeastern part of the Arabian Peninsula between Yemen and the United Arab Emirates. It borders Saudi Arabia in the west, bounded by the Arabian Sea, the Gulf of Oman, and the Persian Gulf. The country also shares maritime borders with Iran and Pakistan (see the appendix: Oman map). According to Royal Decree No. 114/2011, issued on 26th October 2011, Oman comprises eleven governorates: Muscat, Dhofar, Musandam, Buraymi, the Dakhiliyah, the North Batinah, the South Batinah, the South Sharqiyah, the North Sharqiyah, the Dhahirah, and the Wusta (see the appendix: Oman governorates map). **Six** regions (Muscat and South Sharqiyah, the Dakhiliyah, the North Batinah, the South Batinah, and the South Sharqiyah) were selected to recruit **100** Omani mothers raising children with ASD (see the appendix: the selected Omani administrative regions). These six regions have the highest rates of ASD cases in Oman (Al-Mamri et al., 2019). More than one-third (37.3%) of the ASD cases were recorded in the Muscat

governorate, followed by North Batinah (15.7%), Dakhiliyah (13.5%), Al-Batinah South (10.7%), and Al-Sharqiyah South (8.2%).

Participants were recruited using a convenience sampling approach from The Omani ASD Association and **twelve** ASD centers in these six regions (see the appendix: list of selected ASD centers). These centers (governmental or private centers) are both working under the umbrella of the Ministry of Social development (MoSD).

The Omani ASD Association is a charitable, civil society based in the Governorate of Muscat, established in 2014 under Ministerial Resolution No. 29/2014, concerned with ASD and its issues; it also helps spread awareness and correct understanding of ASD in Omani society. The social rehabilitation centers render care and social rehabilitation programs for children with disabilities, including autism, from the age of 4 to 14 years old. The programs are aimed at social care, psychiatric rehabilitation, and vital daily skills. They also provide educational and enlightenment programs to the families on how to help their disabled family members.

### **3.3 Inclusion and Exclusion Criteria:**

Eligibility criteria for the study include 1) women of Omani nationality, 2) raising children diagnosed with ASD from one of the three main ASD diagnostic centers in Oman: Sultan Qaboos University Hospital, Royal Hospital, and Al-Massarah Hospital, 3) child's age between 2-12 years, 3) mothers' age is 18 years and older, 4) WhatsApp accessibility and skills and 5) understand and speak Arabic. Exclusion criteria are 1) cognitive impairment, 2) inability to provide informed consent, and 3) do not understand or speak Arabic.

### **3.4 Recruitment and Enrollment Procedures**

### **3.4.1 Study Approval:**

First, the dissertation author attained the approval of the UW Institutional Review Board (**IRB**) Review Committee. Then, the research plan and procedure were submitted to the Research and Ethical Review and Approve Committee (**RERAC**) in the Ministry of Health (MoH), Sultanate of Oman, for approval. Lastly, the author contacted the Ministry of Social Development (**MoSD**), represented by the department of study and research, to submit a copy of the proposal and the approval letters. The author also filled an online study facilitation request. After review, the MoSD produced an official letter to the selected ASDcenters under its umbrella in various governorates to encourage them to cooperate and facilitate this study's endeavors (see the appendix: MoSD's facilitation letter). The Ministry also was responsible for addressing the concerned authorities directly from the directorates of the Ministry's general office or the directorates in the governorates. This step was essential to ensure the cooperation of various social and ASDcenters in the identification and the recruitment phase (see the appendix: selected ASD centers). The approval of the three entities was achieved for the recruitment flyers and banners.

### **3.4.2 Identification**

Prior to data collection, the researcher met with the administration of the twelve ASDcenters and the Oman ASDAssociation to explain, in detail, the study aims and implications, the identification and recruitment process, and the data collection plan. Few of them were contacted through phone or zoom due to their busy schedule. In this meeting, the researcher gave each ASDcenter and the association a package containing copies of IRB approval letters, a support letter for facilitating the study from MoSD, and a study flyer (hard and soft copies).

Approved flyers stating an overview of the study and its purpose, data collection plan, expected implications, participants' rights, and the researcher's contact information was posted on the Omani ASD Association website, the selected ASD centers, (see the appendix: flyer). Also, these documents were sent electronically to the potential candidates by the ASD center coordinators. Three banners were kept in front of the three main ASD diagnostic centers in Oman: Sultan Qaboos University Hospital, Royal Hospital, and Al-Masara Hospital.

The principal investigator maintained a list of the names and contact information of the appointed coordinators in each center (see the appendix). The moderator is a member of the center's administration team appointed to coordinate the study data collection process, primarily the identification and recruitment process. Two unpaid research assistants in the administration of the Omani ASD Association were responsible for the association's identification and recruitment process. One of the research assistants is the leader of the technical committee that was responsible for posting advertisements and supporting materials on the websites, and the other is a member of the scientific committee (see the appendix: the association structure).

The association technical support group posted an online link on the association's website ([www.omanautism.om](http://www.omanautism.om)) and its social media accounts (Facebook, Instagram, and Twitter) advertising the study among its members of mothers raising children with ASD. Interested mothers was directed to the online screening questionnaire to check their participation eligibility, which includes the mother's citizenship, age, child's age, where the mothers received the child's diagnosis of autism, and if they understand and speak Arabic



Figure 3.1: Screening Link

(<https://docs.google.com/forms/d/10SGLCDBOr4Zn0NR0-mihuBvnsHNfmcUpKFup1D5oHAQ/edit> ). The eligibility questionnaire showed whether the mother is or is not eligible for the study.

Data collected from mothers was to verify eligibility: did she meet the inclusion criteria. As the study focused only on Omani mothers, the data includes their citizenship. It also included their age. As part of the study, we ensure that we adhere to the Omani culture and norms by including only mothers who are 18 years of age or older so as to ensure that they are fully capable of making decisions regarding their participation in the study. For the purpose of verifying that the mother is not a mother of an adolescent or an adult with autism, the eligibility questionnaire also asked their child's age. The parenting stress created by transition to adulthood is not the focus of this study. This study focuses on the parenting stress predictors in Omani mothers of children with autism.

It was crucial to collect information about where mothers received their children's diagnoses. There are three main ASD diagnostic hospitals in Oman with trained and certified professionals. Mothers must mention one of them to be eligible for the study. Participation in the study requires a valid diagnosis of autism. Mothers who mention institutions other than those listed above will be excluded from the study. In addition, because the researcher will use phone calls to collect data, it is also imperative to know if mothers can understand and speak Arabic. As an Arabian country, Oman is primarily inhabited by Arabic speakers, but Omani people are ethnically diverse, coming from a wide variety of ethnic backgrounds. The majority of the population consists of Arabs, with many of these Arabs being Swahili language speakers and returnees from the Swahili Coast, particularly Zanzibar. Additionally, there are ethnic Balochis, Lurs, Persians, Mehris and Kumzaris who speak their own languages. There are also Omanis from South Asia like the Lawatis and others. Thus, it is imperative that these mothers understand and speak Arabic, even if they speak other languages. Finally, they must have access to WhatsApp.

### **3.4.3 Recruitment:**

For eligible mothers, the online eligibility page displayed a video prepared by the principal researcher (see the appendix) that briefly explained the study purpose, implication, and their rights as participants in the study. Mothers who were interested in joining the study were asked by each institution's moderator (coordinators) to submit their contact information, and give permission for the principal researcher to follow-up (see the appendix: recruitment plan).

### **3.4.4 Consenting (Enrolling) Study Participants**

After obtaining the contact information for the interested eligible participants, the principal investigator sent a package to each institution (through each institution's moderator) via e-mail or handed hard copies to them personally. An information sheet and informed consent forms were included in the package (see the appendix: information sheet and informed consent). Meanwhile, through WhatsApp audio and text messages, the principal investigator interacted with mothers to answer their questions about the forms and study. Upon the mother's agreement to participate, the moderator asked her to sign the informed consent. The principal researcher collected the signed consents from each institution (see the appendix, example of signed consent).

Few mothers preferred to electronically sign the consent. In this case, the student sent a package that included an information sheet and informed consent via an instant mobile application WhatsApp (end-to-end encrypted). The student PI guided these mothers through the signing process. WhatsApp allows participants to sign a document using Adobe Acrobat. E-signatures and digital signatures are permitted under Omani law pursuant to the Electronic Transactions Law (Royal Decree 69/2008 (as amended)) (the "**ETL**"). The ETL defines 'Electronic Signatures' to include digital signatures as follows: *"The signature on an electronic message or transaction in the form of letters, numbers, symbols, signs or others of a unique feature that allows others to identify the signatory"*. After signing the informed consent, the PI asked the participant if she can proceed with data collection or to schedule a convenient time.

### **3.4.5 Data Collection**

The PI collected data via a phone call (98% of the participants) or a face-to-face interview (2%) from February to March 2023 (see appendix: maintaining objectivity during phone call data collection ). The PI documented the mother's survey responses within the SPSS using a subject ID number. No identifying information was stored within the form or electronic database. Phone numbers was the **only** identifiable information obtained. **No** other direct or indirect identifiable information was collected, including names, addresses, dates of birth, ID card or passport number, financial or medical records identification numbers, etc. Despite this, the identifiable information (phone numbers) was indirectly linked to the subject data since it was stored separately from the study data. However, the author maintained a link between the subject's information and the study data indefinitely. That is, codes (subject codes) will link identifiable information to the subject in encrypted files stored in the cloud.

Copies of the study questionnaires were e-mailed or electronically texted to participants before starting the data collection (Appendix: Script of study's phone call for data collection). To minimize the instrument burden, the researcher tested the time it takes to administer each study measure on five mothers raising typically developing children. Completion of the assessments took approximately 35-45 minutes.

#### Data Collection Tools:

1. Parental stress scale (PSS) (5 minutes)
2. Affiliate Stigma Scale (7-10 minutes)
3. Depression Anxiety Stress Scales (DASS-21) (5-10 minutes)
4. The COPE Inventory (5 minutes).

5. The Multidimensional Scale of Perceived Social Support (MSPSS) (5 minutes)
6. Self-Compassion Scale (5-10 minutes)
7. Zarit Burden Interview (ZBI) (5 minutes)

The researcher sequenced the forms to ensure adequate and accurate data [PSS (outcome), affiliate stigma scale, DASS-21, ZBI: (predictors), SCS: (mediator), MSPSS, COPE: (moderator)]. Data from participant responses was exported into IBM Statistical for Social Sciences (SPSS) version 26 for data analyses.

The following figure briefly describes the identification, recruitment, consenting (enrolling) and data collection phases:

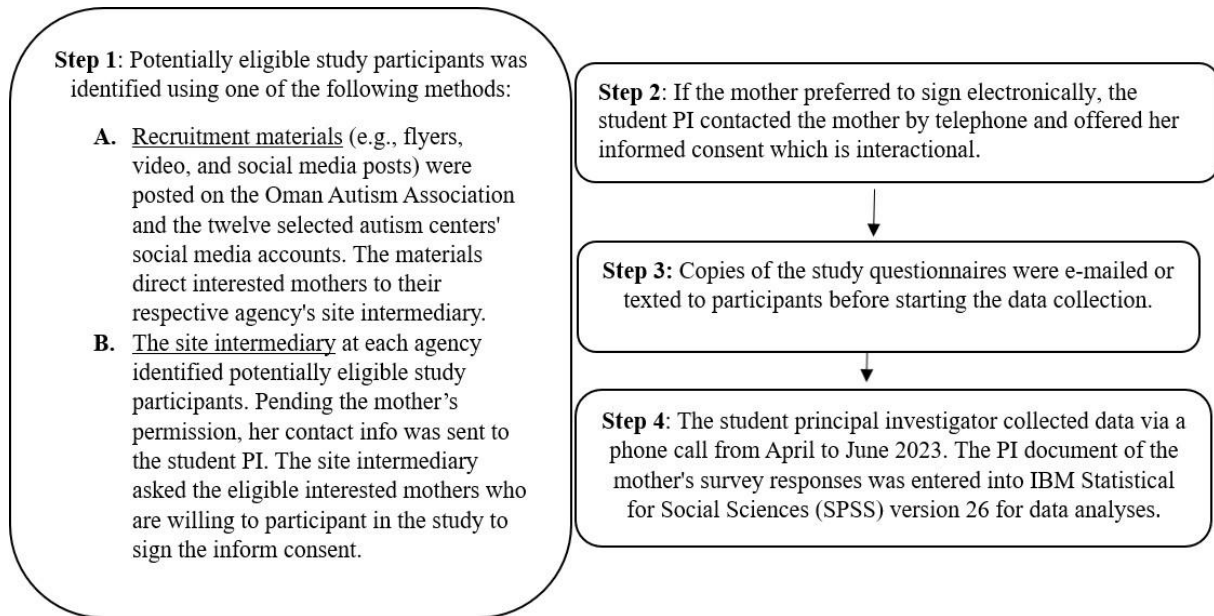


Figure 3.2: Description of identification, consenting, and data collection phases.

### 3.5. Measures

### **3.5.1 Demographic Data:**

The first page of the questionnaire measured the characteristics of mothers. For example, mothers were asked about their age, employment status, educational level, and marital status. This study focuses on maternal factors that might influence mothers' parenting stress levels.

### **3.5.2 Parenting Stress:**

#### **Parental Stress Scale (PSS; Berry & Jones, 1995):**

Self-report questionnaire was used to assess the stress of parents caring for children having ASD and those caring for TD children (Berry & Jones, 1995). This validated questionnaire consists of an 18-item scale that describes the parent's feelings towards the relationship with their children (Louie, Cromer, & Berry, 2017). PSS represents positive themes like emotional benefits, self-enrichment, and personal development. It also shows negative themes such as demands on resources, opportunity costs, and restrictions. The total stress score can range from 18 to 90, with higher scores indicating higher levels of stress. The PSS has been used in other studies measuring parental stress in families who have children with ASD (Turner, 2015). This instrument has been validated, and its high reliability has been approved by Berry (Berry & Jones, 1995). This 18-item subscale was found to have high internal consistency, and the Cronbach's  $\alpha$  was .89 for this sample. Parental stress scale was selected rather than the Parenting Stress Index (PSI; Abidin, 1995), which has been used by many researchers because it is brief. In addition, the PSS has been suggested as an alternative to the PSI as PSS concentrates specifically on the stress generated by the parenting role (Firth & Dryer, 2013). Sample items are "Caring for my child(ren) sometimes takes more time and energy than I have to give." and "The

behavior of my child(ren) is often embarrassing or stressful to me." I am happy in my role as a parent" [See the Appendix].

### 3.5.3 Coping:

Coping styles was measured by the abbreviated version of **the COPE Inventory** (Carver, 1990). **The Brief COPE** is a 28-item scale that measures the ways individuals cope with stress in their life. Specifically, how frequently they employ 28 different behaviors and cognitions when coping with a specific stressful situation (in the present study, parenting a child with autism). It is comprised of 14 domains (acceptance, active coping, planning, behavioral disengagement, denial, substance use, humor, positive reframing, religious coping, self-distraction, use of emotional support, use of instrumental support, and venting emotions), each consisting of 2 items. Items are rated on a four-point rating scale (i.e., from 1 = "I haven't been doing this at all" to 4 = "I've been doing this a lot." Total scores on each of the scales(strategies) are calculated by summing the appropriate items for each scale. Scores range from 2-8 for each strategy; higher scores (8) indicate increased utilization of that specific coping strategy. There is no overall score, only the total score for each scale. For instance, summing item3 and 8 yields the frequency of the utilization of the denial coping strategy. Sample items are "I have been turning to work or other activities to take my mind off things; I've been concentrating my efforts on doing something about the situation I'm in; I've been saying to myself, "this isn't real." The psychometric properties of the Brief COPE have been previously examined, and the instrument is used in many studies on stress and coping, with clinical or non-clinical samples (Carver 1997). The scale takes > 10 minutes to be completed. The scale has good internal inconsistency with Cronbach's alpha of .83 (Carver, 1990) This Several studies employed The Brief COPE in a sample of parents raising children with ASD. Also, it has been translated and validated in the

Arabic Language (Alghamdi; 2020, Mansour; 2013) and shows adequate validity and good internal consistency [See the Appendix].

### **3.5.4 Self-Compassion:**

The **Self-Compassion Scale (SCS; Neff 2003a)** is a self-reported, 12- item measure with responses ranging from 1 (almost never) to 5 (almost always). Average overall self-compassion scores are typically 3.0 on the 1-5 scale. Score ranges: 1-2.5 overall self-compassion score indicates low in self-compassion (Neff 2003a). 2.5-3.5 indicates moderate and 3.5-5.0 indicates high self-compassion. The SCS contains six subscales: self-kindness (e.g., I try to be loving toward myself when I'm feeling emotional pain), self-judgment (e.g., I'm disapproving and judgmental about my own flaws and inadequacies), common humanity (e.g., When things are going badly for me, I see the difficulties as part of life that everyone goes through), isolation (e.g., When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world), mindfulness (e.g., When I'm feeling down I try to approach my feelings with curiosity and openness), and overidentification (e.g., When I'm feeling down I tend to obsess and fixate on everything that's wrong).

Subscales of the SCS may be examined separately or a total self-compassion score can be used, given that a single higher-order factor of "self-compassion" was previously found to explain the intercorrelations between subscales (Neff 2003a). Neff (2003) effectively established the scale's validity and reliability. The internal consistency of the scale was 0.92. The computed Cronbach's alpha for the six dimensions were 0.78, 0.77, 0.80, 0.79, 0.75, and 0.81 for "Self-Kindness", "Self-Judgment", "Common Humanity", "Isolation", "Mindfulness, and "Over-identification", "respectively. It has been validated in various samples, including parents rearing children with ASD (Chen et al., 2011; Wong and Mak 2013; Wong, 2017). The scale has been

translated to Arabic and validated in a sample of nurses by ALabdulziz and colleagues (2020). It demonstrated satisfactory validity and good internal consistency of 0.81. [See the Appendix].

### **3.5.5 Social Support:**

The Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure satisfaction with social support. MSPSS (Zimet et al., 1988) is a 12-item instrument used to measure the adequacy of social support from three specific sources: family, friends, and significant other. Significant other refers to a "special person" that may be interpreted differently by respondents (Zimet et al., 1988). The Family, Friends, and Significant Other subscales each have four items, all rated on a 7-point scale (1 = very strongly disagree to 7 = very strongly agree). The total score for each subscale can range from 4 to 28. Higher subscale scores indicate greater perceived social support from each of the three sources of support (Zimet et al., 1988). The total MSPSS score ranges from 12 to 84, with higher scores indicating satisfaction with social support. The Cronbach's alpha of the total scale was 0.88 among a sample of 275 adult men and women (Zimet et al., 1988).

The test-retest reliability for MSPSS was 0.85; and 0.72, 0.85, and 0.75, respectively for the Significant Others, Family, and Friends subscales (Zimet et al., 1988). Therefore, the instrument had good internal consistency reliability and adequate stability over time. The MSPSS was culturally modified and translated into Arabic to measure perceived social support among Arab women with a sample of 539 immigrant Muslim women, with an average age of 40 years, of Arabic descent living in the United States, and was named MSPSS for Arab women (MSPSS-AW) (Aroian et al., 2010). Aronian and colleagues conclude that the MSPSS-AW is reliable and valid for use with Arab immigrant women [ See the Appendix].

### **3.5.6 Affiliate Stigma**

The 22-item **Affiliate Stigma Scale** (Mak and Cheung 2008) was used to measure the extent of internalized stigma among parents of children with ASD. Participants rated on a 4-point scale from (1) strongly disagree to (4) strongly agree. The total score is the mean score of the 22 items. The higher the score, the greater the level of affiliate stigma. Sample items are "I feel emotionally disturbed because I have a family member with ASDspectrum disorder," "Having a family member with ASDASDmakes me think that I am lesser than others," and "Given that I have a family member with mental illness/intellectual disability, I've cut down the contact with my friends and relatives." The Affiliate Stigma Scale was initially developed and validated with Chinese samples of caregivers, and it showed adequate reliability and adequate predictive validity on the subjective burden (Mak and Cheung 2008). It showed high internal consistency (Cronbach's alpha) of .95. This is the only scale that was not translated into the Arabic language. Therefore, a translation and back translation of the questionnaire was accomplished with an expert team.

### **3.5.7 Depression and Anxiety**

Depression Anxiety Stress Scales (DASS-21; Lovibond and Lovibond 1995) was used to measure mental health among participants. DASS-21 is used to measure parental distress and negative emotional states like depression, anxiety and stress, and psychological well-being during the last week (DASS-21; Lovibond & Lovibond, 1995b). It is a brief and short-form generated from 42-item DASS in which each of the three subscales 63 comprises seven items instead of fourteen (Firth & Dryer, 2013) that measures the frequency of behaviors or intensity of feelings based on three subscales of anxiety (DASS-A), depression (DASS-D) and stress (DASS-S). A DASS total score is computed from the three subscale scores of items rated on a four-point

scale (i.e., from 0 = "Did not apply to me" to 3 = "Applied to me very much or most of the time"). 0-9 means normal, 10-13 mild depression, 14-20 moderate depression, 21-27 points indicate severe depression, +28 indicates extremely severe depression. The DASS-21 demonstrated sound psychometric properties, is used widely in clinical and non-clinical samples, and has also been validated for use in Arab countries(A. M. Ali & Green, 2019)[ **See the Appendix**].

### **3.3.8 Parental Burden**

**Parental Burden** was measured utilizing Zarit Burden Interview (ZBI). It is a tool that was used to identify families with possible caregivers' distress (Zarit, 1985). To measure parental burden, a version of the 22-item was used to assess the burden on family caregivers of disabled persons (Ikeda et al, 2012). The ZBI describes some troubles that have been faced by caregivers like their physical and psychological health, finances, social life, and the relationship with the patient (Gallagher et al, 2008). Examples of items include "Do you feel stressed between caring for your child and trying to meet other responsibilities for your family or work?" "Do you feel your health has suffered because of your involvement with your child?" and "Overall, how burdened do you feel in caring for your child?" Responses range from never (0) to nearly always (4). The score ranges from 0-88, with these values: 0-20 points mean little or no burden, 21-40 points mean mild to moderate burden, 41-60 points mean moderate to severe burden, 61-88 points mean severe burden. Internal consistency was high (Cronbach's at .88 and .91). ZBI has been translated and used by a team in Egypt to assess and compare the burden on female caregivers who are suffering from psychiatric or physical disorders (Elmahdi et al, 2011). In addition, psychometric properties of the Arabic version of the ZBI have been assessed among

caregivers of cancer patients (Bachner, 2013). Using exploratory factor analysis has shown that ZBI is suitable for evaluating caregiving burden (Dada et al, 2011) [ See the Appendix].

### **3.6 Confidentiality and Privacy:**

Throughout the process of participants' identification, recruitment, and data collection, the PI knew it was imperative that participants understood and trusted the study and study results were confidential given that having a child with ASD in the Omani society is highly stigmatized.

Because the promise of confidentiality is not absolute in any study, it was possible that information gathered from the participants, such as data about their stress, burden, their feelings of hopelessness, stigmatization, and coping strategies might be disclosed by accident outside of this study.

To minimize any risk of disclosure, the PI, research assistants and coordinators assigned only code names and ID numbers to the participating mothers. There was no identifying information collected except for the phone numbers which linked to the study data and stored separately in safe cloud files. Moreover, the data collection session was conducted privately over the phone by the student PI. During data collection, the student PI assured mothers that their responses will be kept confidential and no names or personal identifiers would be used, only code numbers and code names

### **3.7 Data Analysis Plan:**

#### **Preparatory Analysis**

Prior to examining study aims, preparatory data analysis was carried out. IBM Statistical for Social Sciences (SPSS) version 26 was used to compute descriptive statistics. That

included the number of participants who completed the study measures and their demographic characteristics (age, level of education, and employment status). Statistical summaries (means, standard deviations, and frequencies) also were calculated. The data were inspected for missing data, distributions (normality, skewness/kurtosis). There was no missing data.

### **3.7.1 Analysis for Aim 1:**

To assess the levels of parental stress, parental burden, anxiety and depression, stigma, self-compassion, coping, and perceived social support among Omani mothers raising children with ASD, descriptive statistics were computed for each concept using total score and subscale scores. Measures of central tendency were computed, including mean/SD, mode, and median.

### **3.7.2 Analysis for Aim 2:**

Multiple linear regression was conducted to assess if the independent variables predicted the parental stress. A multiple linear regression assesses the relationship among a set of dichotomous or interval/ratio predictor variables on an interval/ratio criterion variable. In this instance, the independent variables include independent variable 1 (anxiety and depression), independent variable 2 (parental burden), and independent variable 3 (stigma) and the dependent variable is parenting stress. The following regression equation (main effects model) was used:

$y = b_1*x_1 + b_2*x_2 + b_3*x_3 + c$ , where Y = estimated dependent variable, c = constant (which includes the error term), b = regression coefficients and x = independent variable.

Standard multiple linear regression—the entry method—was used. Prior to testing the hypothesis, the assumptions of multiple regression—linearity, homoscedasticity, and absence of multicollinearity—were assessed. Linearity assumes a straight-line relationship between the predictor variables and the criterion variable, and homoscedasticity assumes that scores are

normally distributed about the regression line. Linearity and homoscedasticity was assessed by examination of a scatter plot. The absence of multicollinearity assumes that predictor variables are not too related and was assessed using Variance Inflation Factors (VIF). VIF values over ten suggest the presence of multicollinearity.

The standard method enters all independent variables (predictors) simultaneously into the model. Variables were evaluated by what they added to the prediction of the dependent variable, which is different from the predictability afforded by the other predictors in the model. The *F*-test was used to assess whether the set of independent variables (anxiety and depression, parental burden, and stigma) collectively predicted parenting stress. R-squared—the multiple correlation coefficient of determination—was reported and used to determine how much variance in parenting stress can be accounted for by the set of independent variables. The *t*-test was used to determine the significance of each predictor and beta coefficients were used to determine the magnitude of prediction for each independent variable.

### **3.7.3 Analysis for Aims 3 and 4:**

#### *Mediation role of self-compassion*

The mediation role of self-compassion between the predictors and parenting stress was tested using the traditional method by Baron and Kenny using SPSS regression analysis (Baron & Kenny, 1986). Baron and Kenny (1986) proposed a four-step approach in which several regression analyses are conducted, and the significance of the coefficients is examined at each step.

- First step: conduct a simple regression analysis with X predicting Y to test for path c alone,

$Y = B_0 + B_1X + e$  (See figure 5: e.g., parental depression and parenting stress)

- Second step: conduct a simple regression analysis with X predicting M to test for path a,

$M = B_0 + B_1X + e$  (Parental depression and self-compassion)

- Third step: Conduct a simple regression analysis with M predicting Y to test the significance of path b alone,

$Y = B_0 + B_1M + e$  (Self-compassion and parenting stress)

- Fourth step: Conduct a multiple regression analysis with X and M predicting Y,

$Y = B_0 + B_1X + B_2M + e$  (Depression, self-compassion, and parenting stress)

Steps 1-3 aim to establish that zero-order relationships among the variables exist. In the case of nonsignificant relationships, researchers usually conclude that mediation is unlikely. Step 4 should be followed if Steps 1 through 3 reveal significant relationships. The causal step approach designed and popularized by Baron and Kenny (1986) has received some criticism for its first step, that X must cause Y for a mediational effect to exist. MacKinnon et al. (2007) argued that a mediational effect could possibly exist despite there being no effect of X on Y. Similarly, Rucker et al. (2011) designed a simulation model to demonstrate that significant indirect effects could be found without a direct effect between X and Y. Therefore, bootstrapping using a contemporary method such as Hayes process macro test model 4 is used to confirm the results from the traditional method.

*Moderation role of social support and coping*

The moderation role of coping (problem vs emotion focused coping) and perceived social support was tested using Hayes PROCESS macro test model 1. PROCESS is a bootstrapping statistical computer tool for modeling observed variables through the use of OLS and logistic regression. It is developed by Andrew F Hayes as an extension for both SPSS and SAS. This program is used to test moderating and mediation effect between independent and dependent variables. Social, business, and health sciences use this method to estimate direct and indirect effects in single and multiple mediator and moderator models (parallel and serial), two and three-way interactions in moderation models along with simple slopes and regions of significance for probing interactions, as well as conditional indirect effects in moderated mediation models involving single or multiple mediators.

A mediator is a third variable that links a cause and an effect. A moderator is a third variable that modifies a causal effect (Wu & Zumbo, 2008). In other words, mediation explains the process of "why" and "how" a cause-and-effect happens, whereas moderation postulates "when" or "for whom" an independent variable most strongly (or weakly) causes a dependent variable (Frazier, Tix, & Baron, 2004).

## Chapter 4: Results

This chapter contains a description of the study sample and tests of the study hypotheses. The test of each hypothesis was organized around each study aim. The overall purpose of this study was to test whether anxiety and depression, parental burden, and stigma predicted parental stress among Omani parents caring for children with ASD. The secondary aims were a) to describe the levels of parental stress, parental burden, mental health, affiliate stigma, perceived social support, and self-compassion and coping strategies among Omani mothers raising children with ASD; b) to test whether parental self-compassion mediated the relationship between the predictor variables ( anxiety, stress, depression, parental burden, affiliate stigma) and parenting stress; and c) to test whether perceived social support and coping strategies moderated the relationship between parental stress and its potential predictors.

Specifically, we hypothesized that anxiety, stress, depression, parental burden, and affiliate stigma would significantly predict parental stress in Omani mothers raising children with ASD. We also hypothesized that Omani mothers raising children with ASD would report significant levels of parenting stress, parental burden, anxiety, stress, depression, and affiliate stigma and low levels of adaptive coping, perceived social support, and self-compassion.

#### 4.1 Demographic Characteristics of Mothers and Their Children

**Table 4.1: Sociodemographic characteristics of Omani mothers raising children with ASD.**

Table 4.1

*Demographic characteristics of study participants*

<b>Sample Characteristics</b>	<b>N</b>	<b>%</b>
<b>Age</b>		
25-34	23	23.0
35-44	57	57.0
55 or older	3	3.0
<b>Education</b>		
No schooling completed	1	1.0
Nursery school up to 8th grade	7	7.0
Some high school, no diploma	11	11.0
High school graduate, diploma	47	47.0
College degree	31	31.0
Master/Ph.D. degree	3	3.0
<b>Employment</b>		
Employed	33	33.0
Not Employed	66	66.0
<b>Marital Status</b>		
Married	89	89.0
Divorced	11	11.0

*Note: N=100.*

Table 4.1 summarizes selected demographic characteristics of the study sample. The majority of mothers were between 35 to 44 years of age; this range accounted for 57% of the sample. Younger mothers, aged 25 to 34, constituted 23% of the sample, the second largest age group in the sample. Mothers 45 to 54 represented 17%; another 3% were mothers aged 55 or older.

Most mothers were educated (87%). Most participants were high school graduates (47%), 31% had college degrees, and 3% had higher education (master's degree). Illiteracy was not prevalent

in this sample; only 8% of mothers had no schooling or nursery school education up to the eighth grade (1% and 7%, respectively). Only 34% of surveyed mothers were employed; 66% were not currently employed outside the home and were housewives. Most mothers (89%) were married, while 11% were divorced.

**Table 4.2: Age, birth order, and gender of child with ASD**

Table 4.2

*Age, birth order, and gender of children with ASD*

<b>Characteristics</b>	<i>N</i>	<i>%</i>
<b>Age(years)</b>		
2-3 Toddlers	2	2
4-5 Preschoolers	12	12
6-11 Middle Childhood	45	45
12-14 young teens	41	41
<b>Order</b>		
first	43	43
2nd	26	26
3rd	22	22
4th	7	7
5th	2	2
<b>Gender</b>		
Male	75	75
Female	25	25
<b>Another child with a chronic condition</b>		
Yes	12	12
No	88	88

*NOTE: N=100.*

The largest proportion of the children with ASD (45%), were 6 to 11 years old. Another 41% of the children were young teens, aged 12 to 14. Preschoolers constituted 12% of the study sample, and the smallest group, comprising just 2%, consisted of toddlers 2 to 3 years old (see

Table 4.2). Interestingly, three-fourths of those children were males (75%), while only 25% were females (3:1). In terms of the child's order in the family, a child with ASD in this sample was mostly the first or second child with 43% and 26% respectively. Notably, 12% of the children in the study had another sibling with a chronic disease, indicating potential additional challenges faced by these families (see Table 4.2, See Figure 4.1).

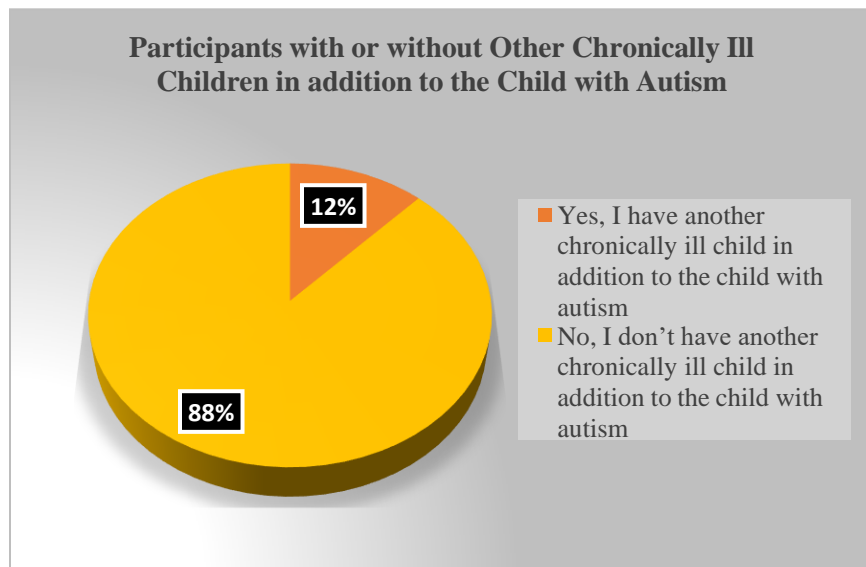


Figure 4.1: Participants with or without other chronically ill children in addition to the child with autism.

**Table 4.3: Demographics of ASDcenters and the Omani regions included in the study.**

Table 4.3

*Demographics related to ASD centers and Regions.*

<b>Sample Characteristics Related to Included ASDCenters and Regions</b>	<b>N</b>	<b>%</b>
<b>ASD Centers</b>		
National Center for ASD(NCA)	14	14.0
AL-Wafa Social Center-Rustaq	21	21.0
AL-Wafa Social Center-Suwaiq	8	8.0
AL-Manayer ASDCenter	2	2.0
Hams AL-Ahter Rehabilitation Center	5	6.0
AL-Rawa Rehabilitation Center	2	2.0
ALAjyal AL Moshraqh ASDCenter	38	38.0
Oman ASDAssociation (OAA)	1	1.0
AL-Bahja Rehabilitation Center	1	1.0
AL-Wafa Social Center Bedbed- Dakhiliya	2	2.0
Jalan ASD Center	1	1.0
Al-Wafa Social Center-Sur	3	3.0
AL-Wafa Social Center-Ibra	1	1.0
<b>Regions</b>		
Muscat	25	25.0
South Batinah	21	21.0
North Batinah	46	46.0
South Sharqiah	5	5.0
North Sharqiah	1	1.0
Dakhiliyah	2	2.0

*NOTE: N=100.*

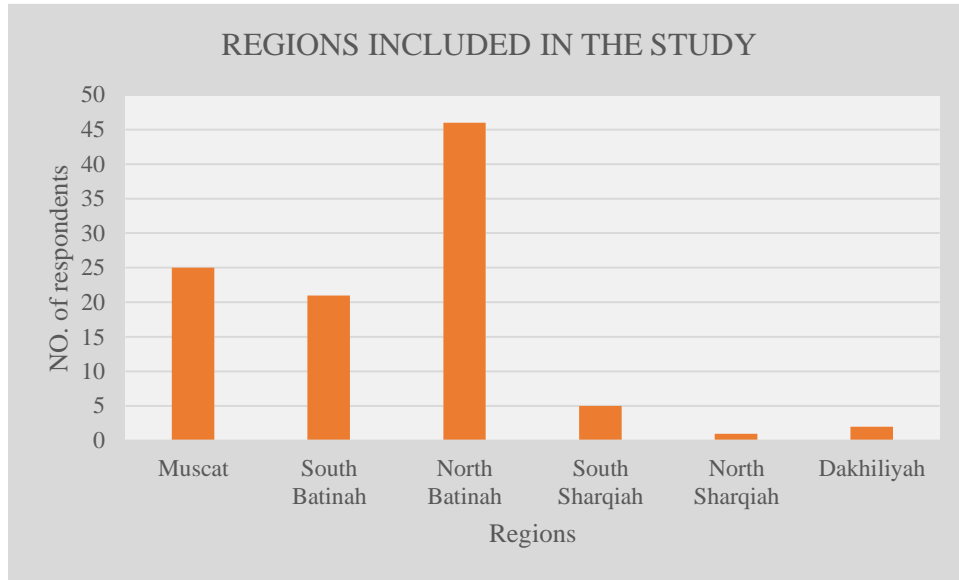


Figure 4.2: Respondents distribution among the six Omani Regions included in the study.

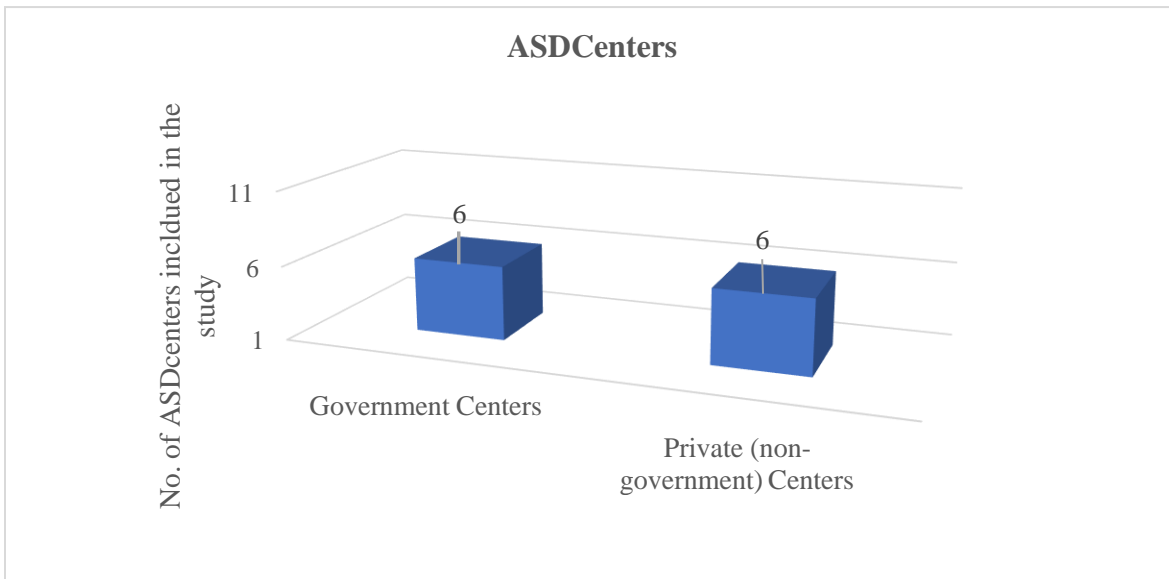


Figure 4.3: Government and private ASD rehabilitation centers included in the study.

Table 4.3 includes information on the geographical distribution of respondents, the majority of whom resided in the North Batinah region (46%), followed by Muscat (25%) and South Batinah (21%) (see Table 4.3, chart 4.2). Moreover, a total of twelve ASD centers as well as the Oman ASD Association (OAA) were included in the study (see Table 3, figure 4.3)

A total of 50% of the study participants were recruited from private ASDcenters, including Alajyal Almoshraqh Rehabilitation Center, Jalan Center, and Al-Bahja Center. Governmental ASDcenters such as NCA and AL-Wafaa social centers in Sur, Suwaiq, Ibri, and Bedbed, accounted for 49% of the total participants. However, the Oman ASDAssociation (OAA), which is a charity association, had a participation rate of only 1%.

The following text summarizes the scores of study participants on the questionnaires, based on the study's first aim. The central tendency measures of parental stress, parental burden, anxiety, depression, stigma, self-compassion, coping, and perceived social support are shown below.

#### **4.2 Measures of central tendency of parental stress, parental burden, anxiety, stress, depression, affiliate stigma, self-compassion, coping, and perceived social support.**

Study Aim 1: to describe the levels of parental stress, parental burden, mental health, affiliate stigma, perceived social support, and self-compassion and coping strategies among Omani mothers raising children with ASD

Table 4.4 summarizes measures of central tendency for the study variables: parental stress, anxiety, coping strategies, social support, and other factors are presented. This study measured parental stress using Parenting Stress Scale (PSS). Parental stress had a mean score of 63.06 (SD=12.35) and a median score of 63.00. The mode was 72.00, indicating that the most frequently occurring value was 72, which reflects a significant degree of parenting stress (Aggarwal 2018). Mothers' scores on parenting stress reflected moderate to severe parenting stress (Berry & Johns, 1995). Similarly, scores on parenting burden showed a mean score of 51.06 (SD=12.72); median

was 53.00. The mode was 64.00 (Herbert et al. 2000, Zarit et al, 1080). These scores reflect severe parenting burden (Yu et al. 2019, Zarit et al. 1980).

The DASS21 was used to measure anxiety, stress, and depression variables in this study. Scores on anxiety, stress, and depression were elevated. Maternal anxiety had a mean score of 23.44 (SD=11.76); a median of 28.00 and a mode of 36.00, reflecting an extremely severe anxiety level among participants. Stress, as a separate construct from parental stress, had a mean score of 26.10 (SD=10.33) and a median and mode of 30.00. These values reflect severe stress among respondents (Henry & Crawford 2005, Lovibond & Lovibond 1995). Mothers' depression scores had a mean score of 18.98, a median of 21.00 (SD=10.11), and a mode of 22.00, which reflects moderate to severe depression among participants (Lovibond & Lovibond 1995).

**4.2 Measures of central tendency of parental stress, parental burden, anxiety, stress, depression, affiliate stigma, self-compassion, coping, and perceived social support.**

**Table 4.4 Measures of Central Tendency of Study Variables**

*Mean, Media, Mode, SD, Theoretical range and Cut-off values for each variable*

<b>Variables</b>	<b>M</b>	<b>Median</b>	<b>Mode</b>	<b>SD</b>	<b>Theoretical range</b>	<b>Clinical Cut-Offs</b>
<b>Parenting Stress</b>	63.06	63	72	12.35	18-90	<18 Low <sup>a</sup> 18-42: Mild 43 - 66: Moderate 67- 90: Severe
<b>Parental Burden</b>	51.06	53	64	12.72	0-88	0-21: No to Mild <sup>b</sup> 21-40: mild to moderate 41-60: moderate to severe ≥ 61: severe burden
<b>Mental Health</b>						
Anxiety	23.44	28	36	11.76	0-42	0-6: Normal <sup>c</sup> 7-9: Mild 10-14: Moderate 15-19: Severe 20-42: Extremely severe
Stress	26.1	30	30	10.33	0-42	0-10: Normal <sup>d</sup> 11-18: Mild 19-26: Moderate 27-34: Severe 35-42: Extremely severe
Depression	18.98	21	22	10.11	0-42	0-9: Normal <sup>e</sup> 10-12: Mild 13-20: Moderate 21-27: Severe 28-42: Extremely severe
<b>Affiliate Stigma</b>	2.7	2.64	2.32a	0.37	1-4*	
<b>Social Support</b>						
Total	4.9	4.83	4.5a	0.75	1 to 7	1 to 2. Low support <sup>f</sup>
Significant other	5.84	6	7	1.21		3 to 5 Moderate support
Family	4.86	4.75	4.50a	0.91		5.1 to 7 High support
Friend	3.99	4	4	1		

<b>Self-Compassion</b>	2.94	2.96	2.92	0.63	1 to 5	1-2.5 Low. <sup>g</sup> 2.6-3.5 Moderate. 3.6-5.0 High.
<b>Coping</b>					1-4**	
Problem-Based Coping	2.83	2.75	2.5	0.44		
Emotional Based Coping	2.64	2.67	2.67	0.35		
Avoidant Coping	1.61	1.5	1.5	0.31		

Note: N=100.

a. Aggarwal 2018, Berry and Johes 1995

b. Zarit et al. 1980

c, d, e Lovibond & Lovibond 1995

f. Zimet et al. 1990

g. Neff 2003b, Neff 2011.

\* The higher the score, the greater the level of affiliate stigma.

\*\*The higher the scores, the more frequently the use of the coping strategy.

The DASS21 was used to measure anxiety, stress, and depression. Maternal anxiety had a mean score of 23.44 (SD=11.76), a median of 28.00, and a mode of 36.00, reflecting an extremely severe anxiety level among participants (Zarit et al. 1980). Stress, as a separate construct from parental stress, had a mean score of 26.10 (SD=10.33) and a median and mode of 30.00. These values reflect severe stress among respondents (Henry & Crawford 2005, Lovibond & Lovibond 1995). Mothers' depression scores had a mean score of 18.98 (SD=10.11), a median of 21.00, and a mode of 22.00, which reflects moderate to severe depression among participants (Lovibond & Lovibond 1995).

Affiliate Stigma Scale (ASS) was used to measure the extent of the internalized stigma among the participants. Mothers' Affiliate Stigma scores had a mean score of 2.70 (SD=0.37) and a median of 2.64; the mode was 2.32. Affiliate stigma scores indicate that there is mild affiliate stigma among respondents (Mark and Cheung 2008).

**Table 4.6***Affiliate Stigma Scale Items*

<b>Items</b>	<b>Description</b>
#3	Other people would discriminate against me if I was with my child who has autism
#7	The behavior of my child with autism is embarrassing.
#9	People's attitudes towards me are negative when I am with my child who has autism
#11	I reduce contact with my friends and relatives because I have a child with autism
#15	Having a child with autism makes me think that I am incompetent compared to other people

**Table 4.7***Participant Scores on Affiliate Stigma Scale Items*

<b>Item #</b>	<b>N</b>	<b>%</b>
<b>#3</b>		
disagree	2	2.0
agree	22	22.0
strongly agree	76	76.0
<b>#7</b>		
disagree	8	8.0
agree	42	42.0
strongly agree	50	50.0
<b>#9</b>		
disagree	10	10.0
agree	56	56.0
strongly agree	34	34.0
<b>#11</b>		
disagree	33	33.0
agree	38	38.0
strongly agree	29	29.0
<b>#15</b>		
strongly disagree	1	1.0
disagree	63	63.0

agree	29	29.0
strongly agree	7	7.0

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*NOTE N=100.*

Social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS). Total and subscale scores (significant other, family, and friend social support) were assessed. Total social support had a mean score of 4.90 (SD=0.75), a median of 4.83, and a mode of 4.50. These parameters reveal moderate social support among mothers in the study sample (Zimet et al. 1990). The subscale of “significant other” had a mean score of 5.84 (SD=1.12), a median of 6.00, and a mode of 7.00. These scores show high support from significant others as reported by mothers in this sample (Ramaswamy et al. 2009; Zimet et al. 1990). The family subscale in the social support scale had a mean score of 4.86 (SD=0.91), a median of 4.75, and a mode of 4.50. Participants claimed they received moderate social support from family (Zimet et al. 1990). The friend subscale had a mean score of 3.99 (SD=1.00), a median of 4.00, and a mode of 4.00, which indicated moderate social support. In summary, social support scores reflect moderate social support from family and friends but high social support from significant others.

An assessment of self-compassion was computed using the Self-Compassion Scale (SCS). Results showed a mean score of 2.94 (SD=0.63), a median of 2.96, and a mode of 2.92, indicating a moderate level of self-compassion (Neff 2003, Neff 2011).

Coping was measured using the Brief COPE instrument. Subscale scores were computed, including problem-based coping, emotion-based coping, and avoidant coping (Benson 2010, Carver 1997). The total coping scale score had a mean of 2.36 (SD=0.26), a median of 2.38, and a mode of 2.13. As with stigma, social support, and family support, the footnote indicates multiple

modes of coping, and the smallest mode was reported. Problem-Based Coping had a mean score of 2.83 (SD=0.44), a median of 2.75, and a mode of 2.50. Emotion-Based Coping had a mean score of 2.64 (SD=0.35), a median of 2.67, and a mode of 2.67. Avoidant Coping had a mean score of 1.61(SD=0.31), a median of 1.50, and a mode of 1.50. These subscale scores indicated that the most frequently used coping strategies were Problem-Based coping such as active coping, the use of informational support, positive reframing, and planning. The second most frequently used coping strategy was Emotional-based coping: emotional support, venting, humor, acceptance, self-blame, and religion (see Table 4.7). The least frequently used coping strategies were Avoidant coping: self-distraction, substance use, denial, and behavioral disengagement. However, the most used coping strategies among the three strategies were religious coping (M = 3.87, SD = 0.39), active coping (M = 3.35, SD = 3.5), planning (M = 2.91, SD = 3.00), and acceptance (M = 2.87, SD =3.00). In contrast, the least used coping strategy was humor (M = 1.96, SD = 2.00).

**Table 4.8**  
*Coping Strategies faces utilization among respondents*

	<i>M</i>	<i>Median</i>	<i>Mode</i>	<i>SD</i>
<b>Coping Strategies</b>				
Active Coping	3.35	3.50	3.00 <sup>a</sup>	0.56
Informational support coping	2.56	2.50	2.00	0.62
Positive reframing coping	2.50	2.50	2.50	0.74
Planning coping	2.91	3.00	3.00	0.59
Emotional support coping	2.51	2.50	2.50	0.81
Venting coping	2.48	2.50	2.50	0.51
Humor coping	1.96	2.00	2.00	0.63
Acceptance coping	2.87	3.00	3.00	0.67
Religion coping	3.87	4.00	4.00	0.39
Self-blame coping	2.13	2.00	1.00	0.94

*NOTE: N=100.*

a. Multiple modes exist. The smallest value is shown.

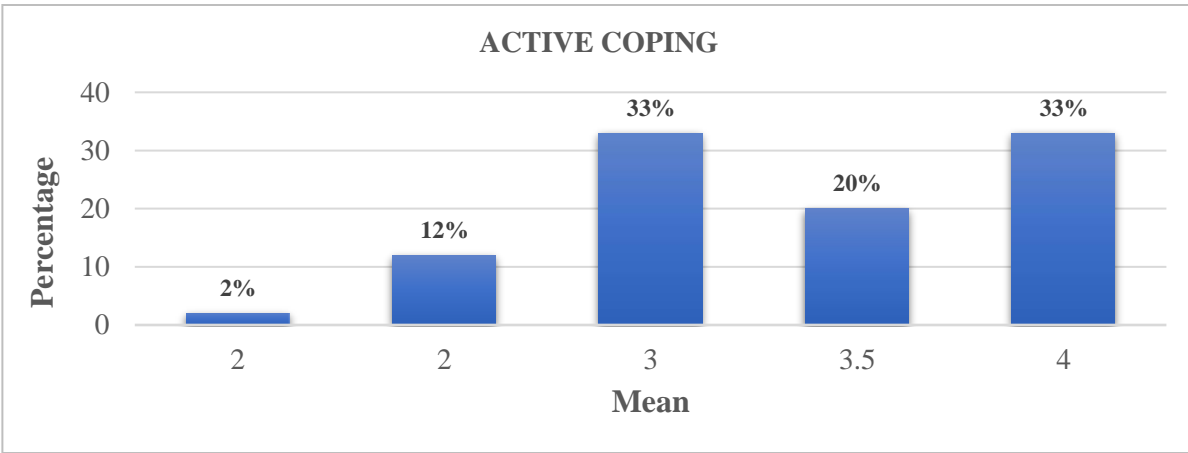


Figure 4.4: Active coping

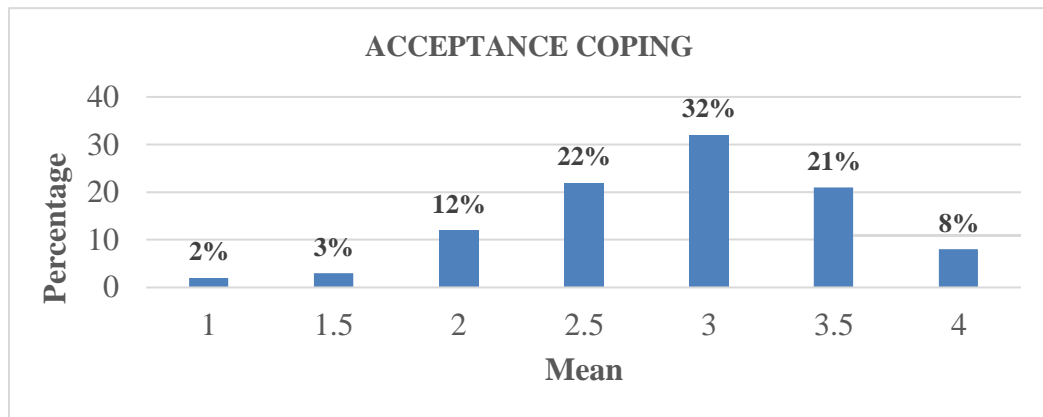


Figure 4.5: Acceptance coping strategy

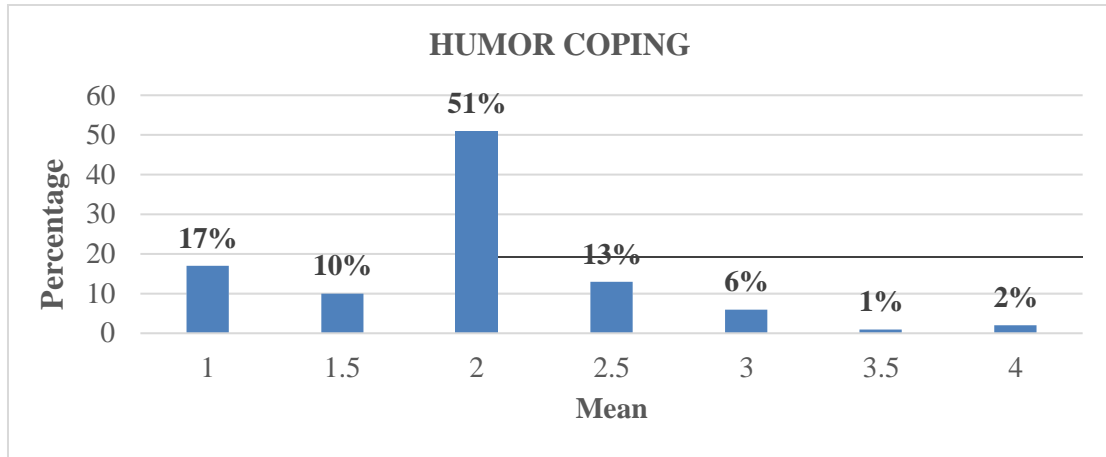


Figure 4.6: Humor coping

In the next section, the author summarizes the results of the study’s second aim.

### 4.3 Anxiety, stress, depression, parental burden and affiliate stigma as predictors of parenting stress

**Aim 2:** To test whether anxiety, stress, depression, parental burden, and affiliate stigma predict parental stress levels among Omani mothers raising children with ASD, controlling for parental characteristics (education, age, marital status, employment status).

**Hypothesis:**

**H<sub>a</sub>:** Anxiety, stress, depression, affiliate stigma and parental burden will significantly predict parental stress levels in Omani mothers raising children with ASD.

**Table 4.9**

*Predictors of parenting stress by anxiety, stress, depression, parental burden, affiliate stigma, age, education level, employment and marital status*

Variables	Model (a)					Model (b)				
	B	SE	Beta	t	p	B	SE	Beta	t	p
constant	0.86	0.07		13.121	<.001	0.85	0.10		8.21	<.001
Anxiety	0.02	0.03	0.06	0.63	0.53	0.01	0.02	0.053	0.544	0.588
Stress	-0.01	0.03	-0.04	-0.512	0.61	-0.01	0.02	-0.043	-0.49	0.625
Depression	0.01	0.03	0.05	0.515	0.608	0.02	0.03	0.06	0.594	0.554
Parental burden	0.40	0.06	0.55	7.323	<.001	0.40	0.05	0.554	7.009	<.001
Affiliate stigma	0.53	0.11	0.36	4.918	<.001	0.50	0.11	0.341	4.539	<.001
Age						-0.01	0.01	-0.061	-1.026	0.308
Level of Education						0.01	0.01	0.071	1.059	0.293
Employment status						0.01	0.01	0.05	0.784	0.435
Marital status						0.01	0.014	0.033	0.639	0.525
Adj $R^2$		0.763					0.761			
$F$		61.632					34.166			

Note:  $N=100$ .

Model (a): without controlling for the mother's characteristics (age, etc.)

Model (b): controlling for mother's characteristics

a Dependent Variable: logps

Table 4.9 shows multiple linear regression results testing whether anxiety, stress, depression, parental burden, and affiliate stigma predicted parenting stress. We hypothesized that stress, anxiety, depression, parental burden, and affiliate stigma will significantly predict parenting stress. The table contains two models/ Model (a), did not control for mothers' characteristics. Model (b) controlled for the mother's characteristics. The result was consistent in the two models: parental

burden and affiliate stigma significantly predicted parenting stress. We will focus on model (b) in accordance with Study Aim 2.

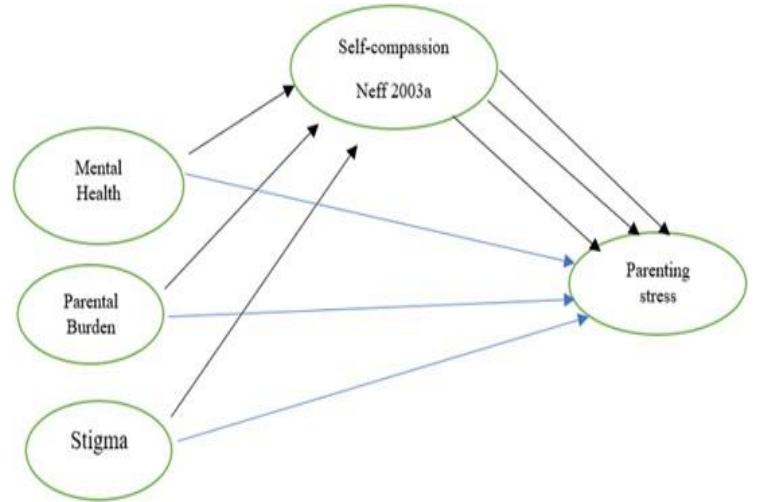
The overall regression model was statistically significant ( $\text{Adj } R^2 = .76$ ,  $F(9,85) = 34.166$ ,  $p < .001$ ). This suggests that the model as a whole provides a good fit for predicting parenting stress based on the selected predictors. The regression model accounted for 76.1% of the variance in the dependent variable, parenting stress. Parental burden ( $\beta = 0.554$ ,  $p < .001$ ) and stigma scores ( $\beta = 0.341$ ,  $p < .001$ ), significantly predicted parenting stress scores. The other remaining predictors were not significantly predicting parenting stress (Table 4.6).

#### 4.4 Self-compassion as a mediator between the predictors and parenting stress

**Study Aim 3:** To test whether parental self-compassion significantly mediated the relationship between the predictive variables

(anxiety, stress depression, parental burden, stigma) and parenting stress in a sample of Omani mothers raising children with ASD. See Figure 4.7.

**Hypothesis:**



*Figure 4.7: conceptual model of self-compassion as a mediator*

**H<sub>a</sub>:** Parental self-compassion significantly mediates the relationship between predictive factors (anxiety, stress, depression, parental burden, affiliate stigma) and parenting stress among Omani mothers raising children with ASD.

**Table 4.10**

*Zero-order correlations between predictor study variables*

Variable	1	2	3	4	5	6	7
1. Parenting stress	—						
2. Anxiety	.50**	—					
3. Stress	.51**	.78**	—				
4. Depression	.44**	.70**	.78**	—			
5. Parental burden	.86**	.50**	.53**	.42**	—		
6. Affiliate Stigma	.79**	.49**	.47**	.42**	.74**	—	
7. Self-Compassion	-.64**	-.35**	-.32**	-.33**	-.65**	-.69**	—

\*\*Correlation is significant at the 0.01 level (2tailed).

**Table 4.11***Results of Mediation analysis (Baron and Kenny, 1986)*

Variable	Model tested	Path	B	SE	$\beta$	t
Anxiety						
	Anxiety-> parenting stress	c	.13	.02	.505***	5.77
	Anxiety -> self-compassion	a	-.11	.03	-.352***	-3.7
	Self-compassion -> parenting stress	b	-.55	.07	-.498***	-6.3
	Anxiety->self-compassion-> parenting stress	c'	.09	.02	.330***	4.17
Stress						
	Stress-> parenting stress	c	.14	.03	.457***	5.51
	Stress_Self-compassion	a	-.48	.07	-.533***	-6.94
	self-compassion-> parenting stress	b	-.09	.03	-.265**	-2.71
	stress ->self-compassion -> parenting stress	c'	.09	.23	.316***	4.11
Depression						
	Depression->parenting stress	c	.13	.03	.446***	4.8
	Depression-> self-compassion	a	-.10	.02	-.311**	-3.15
	Self-compassion -> parenting stress	b	-.48	.07	-.54***	-6.72
	Depression -> self-compassion -> parenting stress	c'	.08	.02	.278***	3.46
Parental burden						
	Parental burden ->parenting stress	c	.62	.04	.837***	15.14
	Parental burden-> self-compassion	a	-.50	.07	-.605***	-7.61
	self-compassion-> parenting stress	b	-.15	.06	-.166*	-2.44
	Parental burden -> self-compassion -> parenting stress	c'	.54	.05	.736***	10.82
Affiliate stigma						
	Affiliate stigma ->parenting stress	c	1.17	.04	.775***	12.13
	Affiliate stigma-> self-compassion	a	-1.16	.12	-.696***	-9.58
	self-compassion-> parenting stress	b	-0.13	.08	-.146 <sup>n</sup>	-1.66
	Affiliate stigma -> self-compassion -> parenting stress	c'	1.02	.13	.673***	7.64

\*p &lt; .05, \*\*p &lt; .01, \*\*\*p &lt; .001, n: not significant

Prior to testing the mediation hypothesis, Pearson correlations were computed between study predictors; all variables were significantly related to each other; See Table 4.10.

Simple and multiple linear regression analyses were used to test the mediation model; see Table 4.11. Results revealed that self-compassion partially mediated the relationship between

parenting stress and predictor anxiety, stress, depression, and parental burden but did not mediate affiliate stigma.

In Step 1 of the mediation model, maternal anxiety, stress, depression, and parental burden significantly predicted parenting stress; (path c:  $\beta = .505, .457, .446, .837$  respectively,  $p < .001$ ). In Step 2 of the Baron and Kenny approach, maternal anxiety, stress, depression, and parental burden significantly predicted self-compassion (SC), (path a:  $\beta = -.352, -.265, -.311, -.609$  respectively,  $p < .001$ ). In Step 3 of the mediation analysis, self-compassion significantly mediated parenting stress, controlling for the predictor scores (path b:  $\beta = -.498, -.533, -.54, -.166$  respectively,  $p < .001$ ). In Step 4 of the analyses, controlling for the mediator, the relationship between stress, anxiety, depression, and parental burden and parenting stress reduced but remained statistically significant (path c':  $\beta = .33, .316, .278, .736$  respectively,  $p < .001$ ). The results indicate that self-compassion partially mediates the relationship between parenting stress and its predictors: anxiety, stress, depression, and parental burden. That supports the study hypothesis (See Table 4.11).

Acknowledging the criticism of Baron and Kenny's approach, a second more contemporary mediation analysis was used: bootstrapping using Hayes SPSS version 4.2 Process Macro Test (Hayes 2018). A bootstrapping method was performed using SPSS Process Macro version 4.2 to examine if self-compassion mediated the relationship between anxiety, stress, depression, parental burden, affiliate stigma and parenting stress.

**Table 4.12***Results of bootstrapping using Hayes SPSS Process Macro Test*

Variable	Effect	b	SE	t	p	95% CI	
						Lower	Upper
Anxiety							
	Direct	0.09	0.02	4.17	<.001	0.13	0.32
	Indirect*	0.05	0.01			0.02	0.06
	Total	0.14	0.02	5.77	<.001	0.18	0.5
Stress							
	Direct	0.09	0.02	4.11	<.001	0.05	0.14
	Indirect*	0.04	0.01			0.02	0.07
	Total	0.14	0.03	5.06	<.001	0.05	0.14
Depression							
	Direct	0.08	0.02	3.46	<.001	0.03	0.13
	Indirect *	0.05	0.02			0.03	0.07
	Total	0.13	0.03	4.8	<.001	0.08	0.18
Parental burden							
	Direct	0.54	0.05	10.82	<.001	0.44	0.64
	Indirect*	0.07	0.03			0.02	0.13
	Total	0.62	0.04	15.14	<.001	0.54	0.7
Affiliate stigma							
	Direct	1.02	0.13	7.64	<.001	0.75	1.28
	Indirect*	0.15	0.09			-0.02	0.34
	Total	1.17	0.13	7.64	<.001	0.98	1.37

\*Based on 5000 bootstrap samples

Results from Hayes' method were consistent with results from Barron and Kenny's approach. Self-compassion mediated the relationship between anxiety, stress, depression, parental burden, and parenting stress, but did not mediate affiliate stigma. First, the results of the regression analysis ( $\text{Total} = \text{direct} + \text{indirect effect}$ ) showed that anxiety ( $b = .14, t = 5.77, p < .001$ ), stress ( $b = .14, t = 5.06, p < .001$ ), depression ( $b = .13, t = 4.80, p < .001$ ), and parental burden ( $b = .62, t = 15.14, p < .001$ ) significantly predicted parenting stress. The results also showed a

statistically significant direct effect between anxiety ( $b = .09, t = 4.17; p > .001$ ), stress ( $b = .09, t = 4.11; p > .001$ ), depression ( $b = .08, t = 3.46, p > .001$ ), parental burden ( $b = .54, t = 10.82; p > .001$ ), and parenting stress).

Results of the indirect effects (mediated by self-compassion), based on 5000 bootstrap samples, showed a significant indirect relationship between anxiety ( $a*b = .05$ , Bootstrap CI95 = .02 and .06), stress ( $a*b = .04$ , Bootstrap CI95 = .02 and .07), depression ( $a*b = .05$ , Bootstrap CI95 = .03 and .07), parental burden ( $a*b = .07$ , Bootstrap CI95 = .02 and .13), and parenting stress. The mediator, self-compassion, accounted for approximately 36%, 29%, 38%, and 11% of the total effect on parenting stress respectively. There was no statistically significant indirect effect between affiliate stigma and parenting stress ( $a*b = .15$ , Bootstrap CI95 = -.02 and .34), which shows no mediation effect. Table 4.12 graphically displays the results of the mediation analysis by Hayes method.

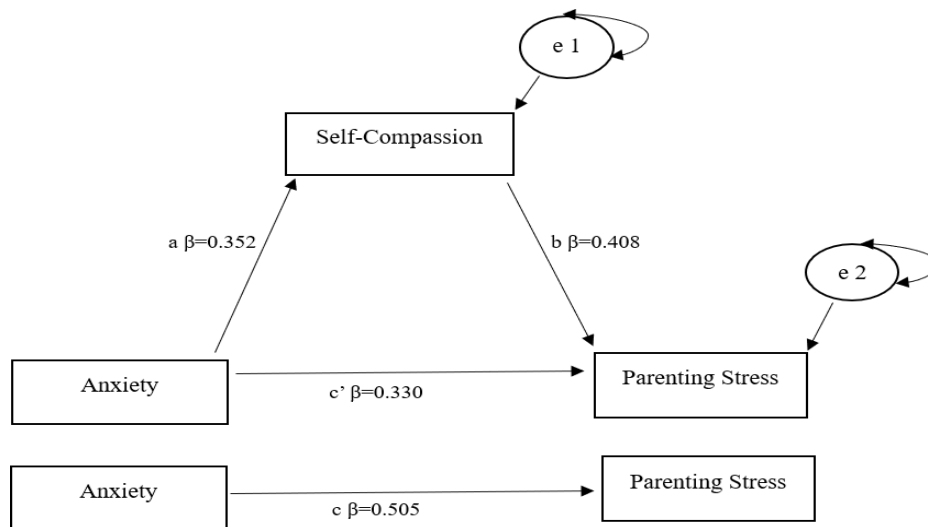


Figure 4.8: Self-compassion partially mediates the relationship of anxiety and parenting stress.

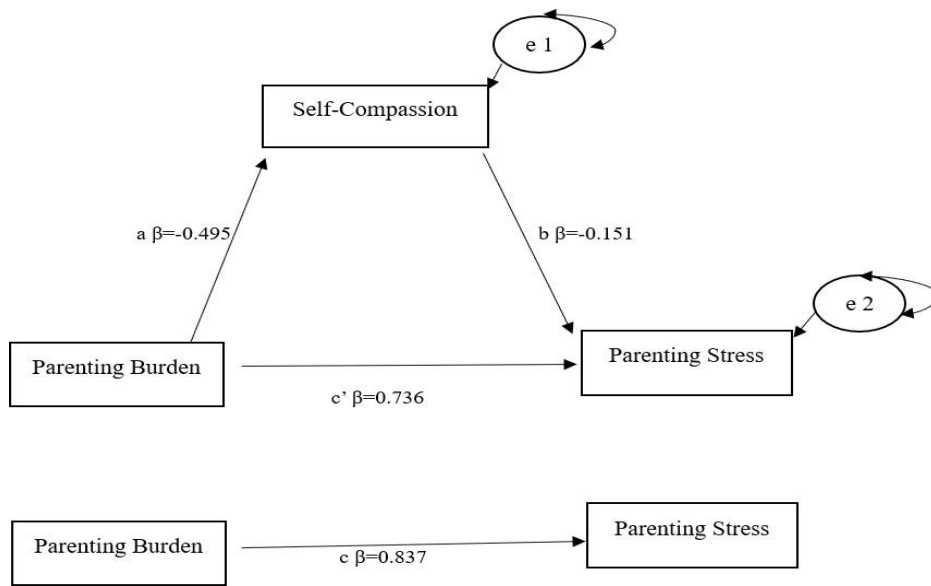


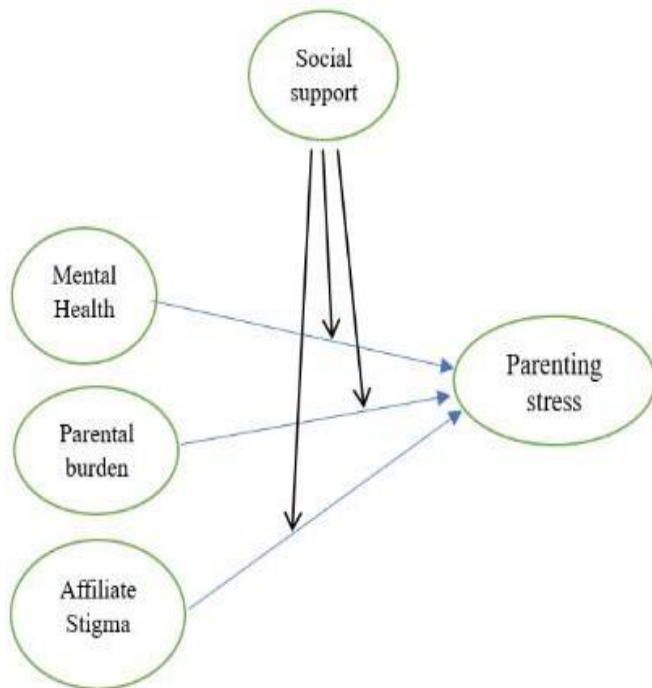
Figure 4.9: Self-compassion partially mediates relationship of parenting burden and parenting stress.

The next section of results presents results on Study Aim 4, test of the moderator hypothesis. This study hypothesizes that social support and coping moderate the relationship between parenting stress and its predictive variables (anxiety, stress, depression, parental burden, and stigma). In this study, we examine the effects of social support and coping on parenting stress and its predictive factors, utilizing Hayes approach to moderation.

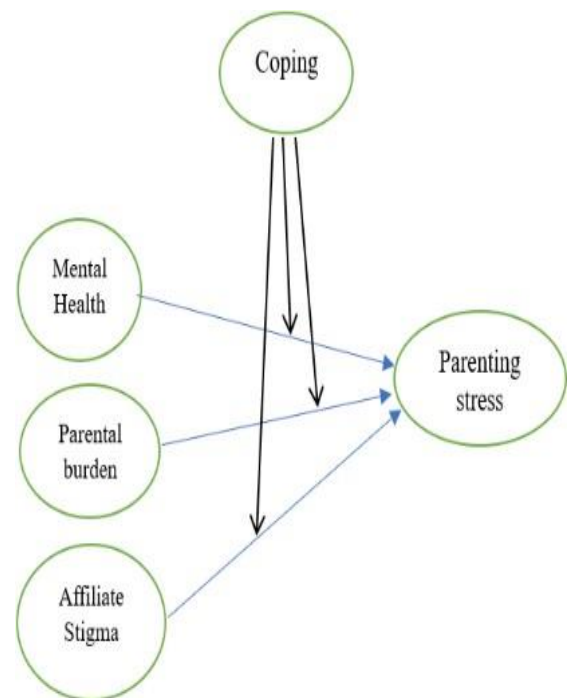
## 4.5 Moderation analysis (coping and social support)

**Aim 4:** To examine whether perceived coping strategies significantly moderated the relationship between parental anxiety and depression, parental burden, stigma (predictive factors) and parenting stress in Omani mothers raising children with ASD.

**H<sub>a</sub>:** Coping and perceived social support significantly moderated the relationship between the predictive factors and parental stress in a sample of Omani mothers raising a child with ASD.



*Figure 4.10: conceptual model of social support a moderator between parenting stress and its predictive factors*



*Figure 4.11: conceptual model of coping as a moderator between parenting stress and its predictive factors*

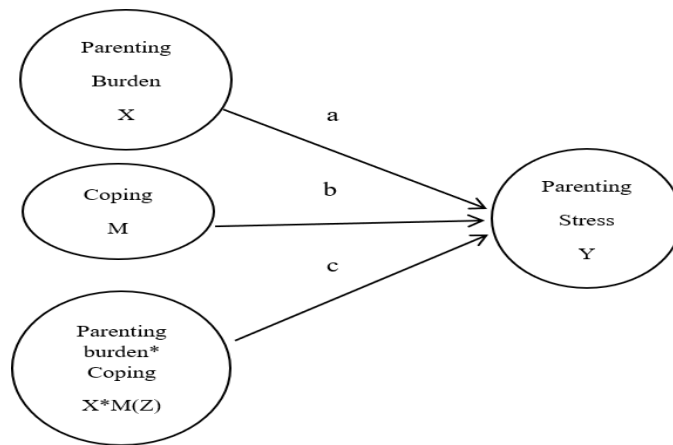


Figure 4.12: a statistical model of coping as a moderator between parenting stress and its predictive factors

#### 4.5.1 Moderating Role of Coping

Table 4.13

*Moderating role of problem-focused coping using Hayes process Macro Test (model 1)*

Variable	B	SE	t	p	R2-change	p
Anxiety	-1.26	0.4	-3.212	<0.01	0.055	<0.01
Stress	-1.1	0.48	-2.26	<0.05	0.03	<0.05
Depression	-1.11	0.48	-2.33	<0.05	0.033	<0.05
Parental burden	-1.31	0.76	-1.73	>.05	0.009	>.05
Affiliate stigma	0.719	1.41	0.509	>.05	0.001	>.05

a. Dependent Variable parenting stress

**Table 4.14***Moderating role of emotion-focused coping using Hayes process Macro Test (model 1)*

<b>Variable</b>	<b>B</b>	<b>SE</b>	<b>t</b>	<b>R2-change</b>	<b>p</b>
Anxiety	-0.831	0.4	-2.07	0.027	<.05
Stress	-0.251	0.41	-0.61	0.003	>.05
Depression	-0.79	0.4	-2	0.027	>.05
Parental burden	-0.62	0.73	-0.855	0.002	>.05
Affiliate stigma	1.69	1.93	0.874	0.003	>.05

a. Dependent Variable parenting stress

Table 4.13 contains a summary of the regression analysis which examined the moderating role of coping strategies (problem vs. emotion-focused coping) on the relationship between various predictive independent variables and the dependent variable, parenting stress using Hayes process macro test model 1. The results revealed a negative and significant moderating effect of problem-focused coping on the relationship between anxiety and parenting stress ( $b = -0.831$ ,  $t = -2.07$ ,  $p < .05$ ). Similarly, problem-focused coping significantly moderated the relationship between stress and parenting stress ( $b = -1.1$ ,  $t = -2.26$ ,  $p < .05$ ). The interaction between depression and problem-focused coping had a significant moderating impact on parenting stress ( $b = -1.11$ ,  $t = 2.33$ ,  $p < .05$ ). However, results also showed there was no moderating effect by problem-focused coping on the relationship between affiliate stigma and parenting stress ( $b = 0.719$ ,  $t = .509$ ,  $p < .05$ ), and parental burden and parenting stress ( $b = -1.311$ ,  $t = -1.73$ ,  $p > .05$ ). Moderation analysis of problem-focused coping is presented in Table 4.13.

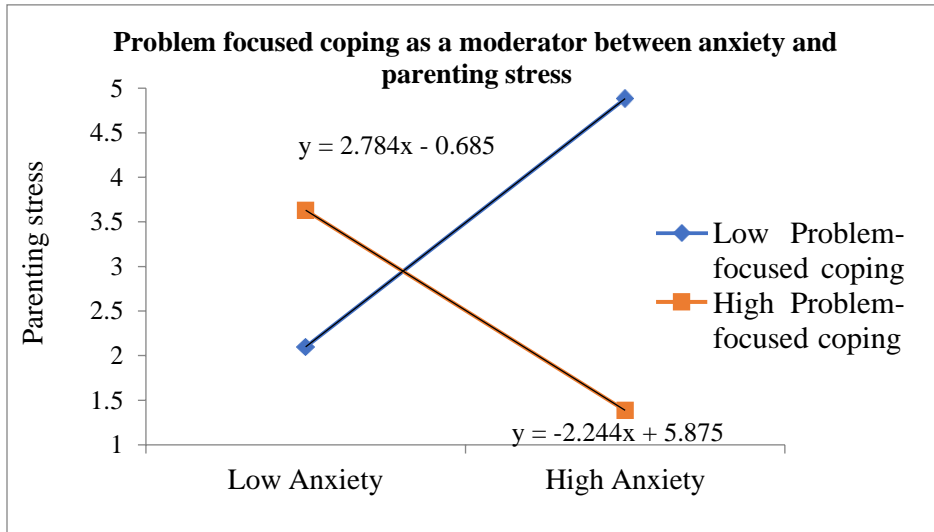


Figure 4.13: problem-focused coping as a moderator between anxiety and parenting stress

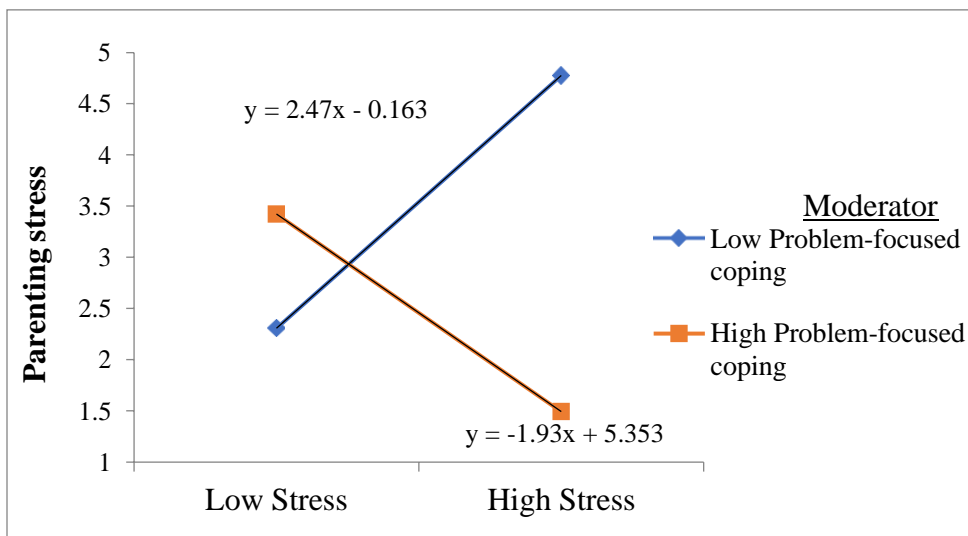


Figure 4.14: problem focused coping as a moderator between stress and parenting stress.

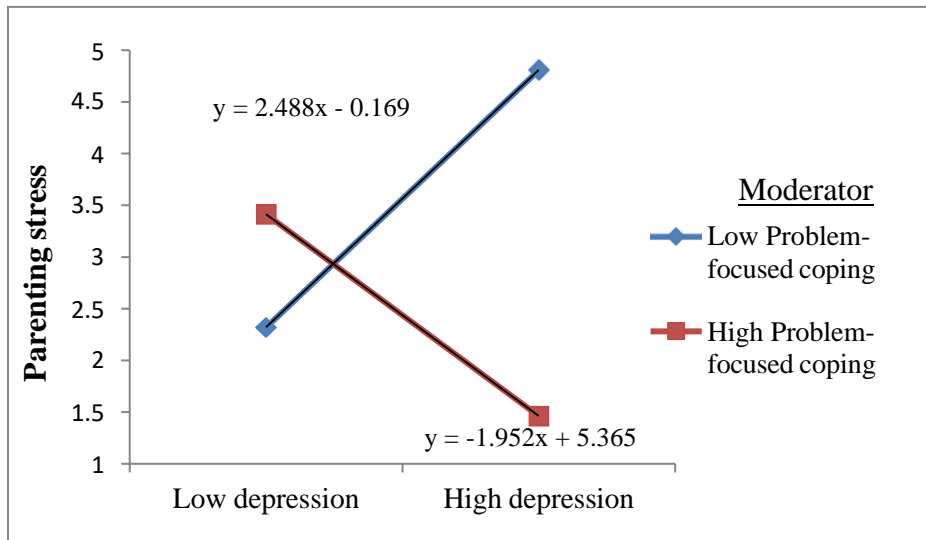


Figure 4.15: problem-focused coping as a moderator between stress and parenting stress.

Results of simple slope analysis conducted to better understand the nature of the moderating effects are shown in Figures 4.13, 4.14, and 4.15. As can be seen in the figures, the line is much steeper in the low utilization of problem-focused coping, showing that when the utilization of problem-focused coping is low, the impact of the relationship between anxiety and parenting stress, stress and parenting stress, and depression and parenting stress are much stronger in comparison to high utilization problem-focused coping. As shown in the figures, as the level of the utilization of problem-focused coping increased, the strength of the relationship between anxiety and parenting stress, stress and parenting stress, and depression and parenting stress decreased.

On the other hand, the results of emotion-focused coping moderation analysis revealed a negative and significant moderating effect of emotion-based coping on anxiety ( $b = -0.831$ ,  $t = -2.07$ ,  $p < .05$ ), but not the other remaining predictor factors. This moderation analysis summary is presented in Table 4.14.

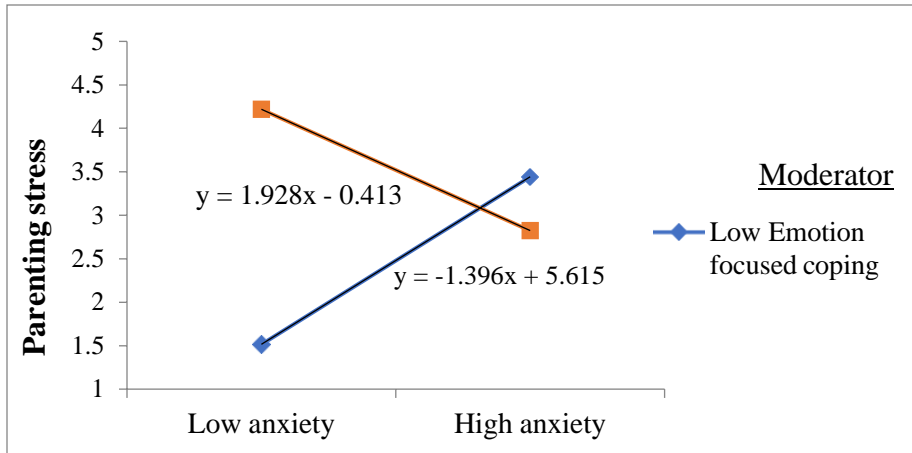


Figure 4.16 the moderator role of emotion-focused coping on anxiety and parenting stress

As seen in Figure 4.16, emotion-focused coping significantly negatively moderates the relationship between anxiety and parenting stress. As shown in the figures, as the frequency of mothers use of emotion focused coping increases, the strength of the association between stress and parenting stress decreases.

#### 4.5.2 Moderating Role of Social Support

In this moderation analysis by Hayes macro test model 1, social support is tested if it moderates the relationships of parenting stress and its predicting factors (anxiety, stress, depression, parental burden, and affiliate stigma). None of the interaction terms were significant, which indicates that social support does not have a significant moderating role between parenting stress and its predictive factors, which supports the null hypothesis. The moderation analysis summary is presented in Table 4.15.

**Table 4.15**

Moderating role of social support

<b>Variable</b>	<b>B</b>	<b>SE</b>	<b>t</b>	<b>R2-change</b>	<b>p</b>
Anxiety	-0.308	0.34	-0.898	0.006	>.05
Stress	-0.332	0.42	-0.783	0.005	>.05
Depression	0.055	0.4	0.139	0.0002	> 0.05
Parental burden	-0.937	0.73	-1.285	0.005	>.05
Affiliate stigma	1.535	1.69	0.908	0.003	>.05

a. Dependent Variable parenting stress

## Chapter Five: Discussion

### 5.1 Parenting stress, parenting burden, affiliate stigma, mental health (anxiety, stress, depression), self-compassion, coping, and social support levels

This study sought to examine the levels of parenting stress, parenting burden, affiliate stigma, mental health (anxiety, stress, depression), self-compassion, coping, and social support levels among Omani mothers. As predicted, Omani mothers raising children diagnosed with ASD reported severe levels of parenting stress, parenting burden, stress, and anxiety. It also shows moderate depression, social support, self-compassion levels as well as mild affiliate stigma. However, unpredictably, the study shows that mothers mainly utilize active problem-focused coping as compared to emotion-focused or avoidant coping.

#### 5.1.1 Parenting Stress

The study's findings demonstrate that Omani mothers raising children with ASD experience moderate to severe levels of parenting stress (see Table 4.4). These findings are consistent with prior claims in the literature related to ASD (Desmarais et al. 2020; Gallagher & Whiteley 2012; Huang et al., 2019 Kelly et al. 2013; Wang et al. 2013). The construct of parenting stress, however, is not examined in the Omani literature, particularly in the ASD field; no study to which we can compare these findings. In the Arab scholar community, it is poorly represented. However, AL-Farsi et al. (2020) in an article that focused on these parents' quality of life posited that parents of children diagnosed with ASD reported higher levels of parenting stress in comparison to parents having children with intellectual disability (ID) or typically developing children (TDC). Also, a study conducted by Emam et al. 2023, tested the relationship between parenting stress and parents' satisfaction with life (SWL) in parents having children with disabilities across samples from three Arab countries (Oman, Saudi Arabia, Qatar), the

result revealed that parents experienced high levels of parenting stress, especially in Oman and Qatar.

#### 5.1.2 Mental Health (stress, anxiety, depression)

This study also revealed significant severe anxiety and stress levels among mothers of children with ASD. The depression levels were moderate to severe (see Table 4.4). The stress, anxiety, and depression levels in this study signify mothers' mental health. These results are congruent with a study conducted in Oman by AL-Farsi et al. 2015, which examined whether there is variation in the performance of indices of stress, depression, and anxiety explored via Depression, Anxiety, and Stress Scale 21(DASS21) among parents caring for children with autism, caregivers of children with intellectual disabilities, and caregivers of typically developing children. The study also shows that all indices of stress, depression, and anxiety were higher in parents with children compared to other caregivers in the control group. Another study conducted in Oman by AL Shekaili and his colleagues (2019) attempted to understand the prevalence and risk factors among Omani parents raising children with ASD and revealed that the depression rate was at 71.3% with unemployment and being the sole parent/caregiver in the family where both significant correlates of depressive symptoms. The same result was reported by parents raising children diagnosed with ASD in other Arab countries, namely Saudi Arabia and Kuwait (Almansour et al. 2013, Fido & AL Saad 2013).

Worldwide, several studies have supported this study's findings about the mental health of parents raising children with ASD (Hodge et al. 2013; Tomeny 2017). For instance, in a national survey conducted by Zablotsky and colleagues (2013), the researchers tested the stress level and mental health of mothers with children with autism. After accounting for the child's, mothers', and family characteristics, it was determined that mothers of children with ASD were at

greater risk for poor mental health and high stress levels. This study also corroborates with other studies carried out in other populations, which determined that caring for children diagnosed with ASD impacts the mental health of parents (Alibekova et al. 2022). Therefore, there are strong grounds to contemplate mechanisms to help such vulnerable mothers.

However, while mothers in this study reported extremely severe anxiety it does not appear that this affected depression levels, as they remained moderate. This can be explained by that mothers may have coped with stress by using coping skills and receiving social support from a significant other, family, or friend, but they sometimes find it difficult to stop worrying due to the intense, chronic, repetitive, and daily responsibilities while performing others roles, at work for instance.

### 5.1.3 Parental burden

The study also indicates that Omani mothers raising children with ASD endure severe parental burden levels. This finding is consistent with the literature related to ASD that explores the parental burden and its impact on parents having children diagnosed with ASD (Singh & Ghosh & Nandi, 2017 Wang et al., 2018). For instance, Picardi et al.2018, tested parental burden among parents of 359 children/adolescents with ASD compared to parents of age-matched patients with Down syndrome (N=145) and Type 1 diabetes mellitus (N=155). They confirmed that parents of children with ASD carry a huge caregiving burden in comparison to their counterparties. Similarly, Bozkurt et al. 2019 conducted a descriptive cross-sectional study to examine parental burden with parents of 131 children with ASD who were enrolled in a private education practice center. They also determined that parents of children with ASD had a higher burden of care. There is consonance in the literature that parental burden is a significant concept that negatively affects parents of children having ASD (AL Nazly 2016, Rayan & Ahmed 2016).

This concept carries a huge relevance to ASD because of the ASD nature, chronicity, and symptomatology. The higher levels of parental burden in this sample (see Table 4.4) are alarming and need to be dealt with.

#### 5.1.4 Affiliate stigma

This is the first study in Oman to examine the affiliate stigma among Omani mothers raising children diagnosed with ASD. The study indicates that Omani mothers experience moderate levels of affiliate stigma. This indicates that mothers in this sample moderately internalize stigmatization from the public. For instance, the majority of Omani mothers (90%) reported that they agree (56%) or strongly agree (34%) with item #9 on the stigma scale which states that “people's attitudes towards me are negative when I am with my child who has autism” (see Table 4.4). Also, a significant proportion of them (76%) strongly agreed with item #3 on the scale which states that “Other people would discriminate against me if I was with my child who has autism”. These findings regarding affiliate stigma are also consistent with the literature related to ASD (Mitter et al. 2019; Patra & Patro 2019; Salleh et al. 2020;). Yet, it contradicts the result of Western literature which reported lower levels of affiliate stigma (Recio et al., 2020; Werner & Shulman, 2015). The difference may result from different cultural contexts and social representations of disability. Western culture is characterized by individualism and analytical thinking (Nisbett et al., 2001). However, the Asian literature has a culture similar to the Omani culture that emphasizes social evaluation, the evaluation of others, and a strong sense of social and family responsibility (Ma et al. 2023; Mitter et al. 2019; Patra & Patro 2019; Salleh et al. 2020; Stalder, 1996) reported high levels of affiliate stigma in the ASD context among parents (Ma et al. 2023, Mak & Cheung, 2008; Mak & Kwok, 2010).

This discrepancy raises questions about what may act as a maternal stress buffer that prevents mothers in this sample from internalizing higher levels of affiliate stigma as described in the literature, particularly in Asian literature. One possible explanation for this discrepancy may be the different characteristics and range of participants. The current study focuses primarily on mothers of children diagnosed with autism. Previous research has mainly focused on parents and caregivers (e.g., grandparents); also, on both children and adolescents with ASDs as well as children with special needs, and not exclusively on children with autism. Another explanation may be that the majority of respondents (77%) were between the ages of 35 and 55, in contrast to only 23% of younger mothers. Younger parents may be more inclined to seek the approval of others and uphold a favorable reputation, while older ones may be less concerned with how others perceive them (Luo, 2017). These findings may also underlie the increasing individualism that accompanies socioeconomic development globally, especially during and after the COVID-19 pandemic (Pilotii et al. 2023). Thus, it may reflect that Omani society is undergoing a transition in its traditional collective ethos to become an individualistic society (cultural disposition) due to the sustainable, knowledge-driven, and market-based economy that Oman witnessed recently (Rayan et al. 2014). Thus, norms and public reactions no longer play a significant role in shaping the behavior and thinking of individuals. Moreover, other factors, such as coping strategies and social support from a significant other, may also play a role.

These mothers internalize stigmatization feelings, due to their affiliation with a child having autism. This prejudice and discrimination may lead to feelings of hopelessness and shame in those struggling to cope with their situation as mothers of a child with autism, creating a serious barrier to rehabilitation and a reluctance to seek help or treatment for these children (Zhuo et al. 2018). This is one of the significant findings of this study, which needs deep

exploration and interventions to alleviate its impact on mothers and potentially their children. Additionally, the experience of affiliated stigma by caregivers is relatively understudied in Omani society, despite contributing to a range of poor outcomes and having an overarching impact on their mental health as reported by literature (Al-Maskri 2018, Kim et al, 2022; Turnock et al. 2022).

#### 5.1.5 Self-compassion

This is the first time that the concept of self-compassion has been introduced and studied in ASD research in the Omani and Arab scholar communities related to ASD. Few studies in the neighboring countries have examined its prevalence and impact in other various populations such as adolescents (Hammad et al. 2023), pregnant women (Chasson et al. 2022), and women with breast cancer (Shams EL-din 2021). So, no study to compare the results to the Omani or Arabic literature.

However, the Western literature indicates that parents having children diagnosed with ASD may experience a low level of self-compassion, which contradicts this study's findings. A possible explanation for the moderate level of self-compassion in this sample and not a lower level as hypothesized may be that the sample is primarily composed of women. In Almazan et al. (2019), women exhibited more compassion than men as evidenced by nurturing, kindness, gentleness, and emotional warmth. It is noteworthy, however, that Phillips and Ferguson (2013) found no gender differences with regard to self-compassion.

There is also the possibility of a sociocultural explanation. Compassion for oneself, others, and the surrounding environment are influenced partly by sociocultural aspects of life (Abdulaziz et al. 2020). Societal and cultural norms largely influence individual experiences that

shape their perspectives toward self, others, and situations (Alshehrye et al., 2019). In Oman, a quick industrialization leap occurs due to the expansion of urbanization (Al-Badi, A., & Al-Mubarak, 2019). Accordingly, this phenomenon may lead to social advancement, which may have the potential to provide further opportunities for self-care, self-development, and growth (Abdulaziz et al. 2020); hence, a significant level (moderate or high level) of self-compassion is anticipated. However, this premise requires further investigation in future studies. In general, a moderate level of self-compassion indicates that further intervention is needed. In order to alleviate the negative outcomes associated with raising children with ASD spectrum disorders, this area needs to be strengthened so that mothers possess a greater sense of self-compassion.

#### 5.1.6 Social support

The findings of this study also revealed that Omani mothers experience moderate levels of social support. In a study conducted in Oman, the researchers found that seeking social support is the most frequently utilized strategy to cope with ASD among Omani parents (Al Busaidi et al. 2022). Similar findings have been reported by researchers in Saudi Arabia and China (Khusainfan & El keshky 2021; Ebrahim and Alothman, 2021 Lei & Kanotr 2021). These findings also corroborate with literature on ASD (Ekas et al, 2010, Johnson et al. 2011). Due to the maladaptive or challenging behavioral problems of children with ASD, mothers of these children have less leisure time and social activities, which aggravates the parents' parenting stress (Heiman and Berger, 2008). Social support can alleviate the burden of mothers who take care of children with ASD and consequently mitigate parenting stress (Picardi et al. 2018).

Of the three sources of support, mothers reported the lowest perceived support from friends, followed by families, and significant others. This finding concurs with that of Ravindran and Myers (2012) and Singh and colleagues (2017), who found that Indian caregivers of children

with ASD were less likely to cite friends and support groups as sources of support than their Western counterparts. An analysis conducted by Divan et al. (2012) revealed that mothers had withdrawn from society, cut off all friendships, or become socially isolated or homebound after their children were born. Similar findings were also found among Iranian parents of children with ASD (McConkey and Samadi 2013).

These results are in contrast to mothers in the West, who tend to identify providers, including other parents of children with ASD, as sources of support (Mackintosh et al. 2006; Boyd 2002). There are two possible reasons why mothers tend to rate low on perceived support from their friends. The first reason could be perceived affiliate stigma from having a child with ASD, and the second could be cultural norms, which do not support sharing worries beyond one's immediate network. In Oman, disability in any form is stigmatizing and may result in 'losing face,' being 'criticized,' 'being disruptive to group harmony,' or 'bringing shame to the family.' Therefore, disclosing one's child's condition beyond one's immediate family and seeking social support for the same may not be an option for these mothers. Hence dependence on family or significant others is reportedly higher.

A moderate level of social support may explain the increased level of parenting stress among mothers. It is possible that mothers seek social support primarily from their significant others and may be reluctant to extend the cycle of social support to their families, friends, or even community institutions. Therefore, the findings of this study emphasize the importance of cultivating social support, particularly from family and friends, in order to mitigate parental stress.

#### 5.1.7 Coping

The study also demonstrated that mothers mainly utilize adaptive problem-focused coping as compared to emotion-focused or maladaptive avoidant coping strategies. These findings are consistent with Omani (AL Busaidi et al. 2020) and worldwide literature (Pepperell et al, 2016; Wang et al 2013). The most frequently used active coping strategy among these mothers was religious coping strategies. This can be explained with that Islam is a way of life in Oman, and the concepts of both religiosity and spirituality are intertwined within life. In Omani Arabian culture, religiosity is a component of human life demonstrated through one's values, belief systems, attitudes, and behaviors (Weathers 2018). Therefore, Islamic values are among the core influencers of Omani culture (Ramli & Mokhtar & Abdul Aziz, 2014). Activities that may be considered coping and resilient include moments of silence during prayers, fasting, supplication, mindfulness, patience, and a positive outlook toward life and situations that occur and are beyond one's control. One example of these statements in the Quran is "And seek help through patience and prayer, and indeed, it is difficult except for the humbly submissive [to Allah]" (Surat ALBaqrah, ayah 45). Finally, mindfulness can be practiced through the five daily prayers and reciting self-centering affirmations, such as the Athkar supplications.

To date, little research has explored the relationship between religious coping and parenting stress for those caring for children with ASD (Davis & Kinang, 2020; Pearson et al., 2021). Nevertheless, it has been studied in other populations, such as cancer patients, women with infertility, and hemodialysis patients (Gaston-Johansson 2013, Kraegeloh 2012, Thuné-Boyle 2011). Generally, inconsistencies exist in the literature about the role of religious coping as a stress-reduction strategy in the ASD context. According to the researchers, this is due to the fact that religion and religious coping are complex constructs. In Davis and Kiang's (2020) study, religious coping did not demonstrate any significant main or interactive effects on parenting

stress and maternal well-being. In contrast, Shepherd and colleagues (2018) contend that there is a significant relationship between religious coping and parenting stress.

Active coping (Problem-based coping) has a positive effect on parental stress as their stress levels become lower with repeated use of this type of coping strategy (Cappe et al. 2011, Dabrowaska & Pisula 2010, Dardas & Ahmed 2015, Rayan & Ahmed 2017, Wang et al. 2013). Interestingly, in this study, though mothers used such adaptive, positive coping strategies (problem-focused coping), mothers nonetheless experienced moderate to severe parenting stress, which indicates either mothers need more training in utilizing them or the existence of more variables that hinder the proper, and optimized utilization from such coping strategies.

In contrast, escape avoidance and distancing were the least frequent coping strategies reported by Omani parents of children with ASD. Escape avoidance is a maladaptive way of coping with stressful situations in which the individual avoids addressing or dealing with the issue in question. On the other hand, a person who employs a distancing coping strategy will realize the problem, but intentionally remove themselves from it so as to reduce its significance and impact (Rayan & Ahmad, 2018). Wang et al. (2013) reported that the use of avoidance coping is less common among parents of children with ASD, Ahmad and Dardas (2015), found distancing to be the least frequently reported coping strategy among the parents of children with ASD in Jordan. Both results are in support of this study's findings regarding coping strategies. Whereas Lai et al. (2015) and Pisula & Kossakowska (2010) reported that these coping strategies (escape avoidance and distancing) were the most frequent coping strategies reported by parents rearing a child afflicted with ASD. Further, few researchers have argued that parents of children diagnosed with ASD employ more avoidance strategies than parents of typical children (Hastings et al, 2005; Towy et al, 2007), but no recent studies have substantiated this claim. There are

conflicting findings as to whether distancing and escape avoidance represent a positive or negative coping mechanism, with some researchers indicating that distancing may have a negative impact on mental health while others consider that this mechanism may act as a helpful, albeit temporary, moderator in the relationship between stressors and mental health (Dardas & Ahmad, 2015; Smith et al., 2008).

## **5.2 Predictors of parenting stress**

The second aim of this study is to test whether stress, anxiety, depression, parental burden, and affiliate stigma predict parenting stress. The current study demonstrated that parental burden and affiliate stigma significantly predicted parenting stress among Omani mothers raising children with ASD regardless of their age, marital status, and educational level. This finding implies that as the level of parental burden increases, so does the perceived parenting stress. This result aligns with existing literature that highlights the significant impact of the parental burden on parenting stress (Patel 2022; Picardi 2018; Treyvaud et al. 2011). Likewise, the variable "affiliate stigma" showed a significant and positive relationship with parenting stress. This suggests that mothers who experienced higher levels of affiliate stigma related to their parenting role also reported higher levels of parenting stress. Prior literature has also shown that affiliate stigma can be a significant stressor for parents, especially those who have children with ASD (Chu et al. 2020; Rebecca et al. 2018, Salleh et al. 2022). The internalization of stigma by association predicts greater psychological distress and may subsequently decrease well-being and increase parenting stress among parents (Torbet et al. 2019).

Surprisingly, anxiety, stress, and depression were found not to predict parenting stress. The small sample size in relation to the number of independent variables could contribute to the non-significance of anxiety, depression, stress, and maternal characteristics. This suggests that

the levels of anxiety, stress, and depression experienced by parents in the study did not significantly influence their perceived parenting stress. The findings regarding mental health corroborate with the findings from a study conducted by Cheung and colleagues (2019) in which they found that parents' mental health did not explain the variability of parenting stress. In contrast, the findings regarding mental health in this study are also inconsistent with some previous studies that have found associations between parental mental health issues and parenting stress. Prior literature has shown that parental anxiety, stress, and depression can contribute to higher levels of parenting stress and decreased parenting satisfaction (Leigh, & Milgrom, 2008; Rezendes, & Scarpa, 2011). However, it's worth noting that the strength of these associations may vary across different populations and contexts. In addition, mothers may use various coping stress and social support to reduce their stress and potentially their depression. This also indicates that parenting stress is a distinct domain of stress (role-specific) and that raising a child with ASD is a multifaceted experience due to its chronicity and its complex nature.

The control variables, including education, age, marital status, and employment, did not have significant relationships with parenting stress. This means that these variables did not exert a significant influence on the perceived parenting stress in the sample. The lack of significant relationships for these variables aligns with some prior literature (Dukmak et al. 2021; Lee & Chiang 2017; Tomeny 2017); while other studies may have found different associations depending on the specific cultural context (Camisasca et al. 2014, Epstein et al. 2008).

In summary, the findings from this multiple linear regression analysis provide insights into the predictor factors of parenting stress. The significant positive associations between parenting stress and variables like parental burden and stigma are consistent with prior literature

(Cheung et al. 2018; Dehnavi et al. 2011). However, the non-significant relationships between parenting stress and mental health variables like anxiety, stress, and depression may differ from some prior claims in the literature. It's important to acknowledge that this study is just one piece of the broader research landscape on parenting stress, and findings may vary across different populations and research designs. Researchers should consider these factors when interpreting and applying these findings to real-world contexts. Further research is needed to explore the complex and multifaceted nature of parenting stress and its determinants fully.

### **5.3 Self-compassion as a partial mediator**

The third aim of this study is to examine the moderation role of self-compassion. The findings from the mediation analyses presented in Table 4.11 and 4.12 shed light on the role of self-compassion in the context of parenting stress and its associations with different predictor variables. The result shows that self-compassion mediates the relationship between anxiety, stress, depression, parental burden, and parenting stress, but not affiliate stigma. This implies that mothers who exhibit higher levels of self-compassion tend to experience lower levels of parenting stress, even when they face challenges related to anxieties, stress, depression, or parental burden. Self-compassion seems to buffer the impact of these factors on parenting stress to some extent. Each of the predictor variables (anxieties, stress, depression, parental burden) exhibits a significant direct relationship with parenting stress. This means that these factors have an independent association with higher levels of parenting stress, indicating that they are important contributors to the stress experienced by parents. However, it is essential to note that even after considering self-compassion, the predictor variables still retain a significant association with parenting stress, indicating that there are additional factors beyond self-compassion that contribute to parenting stress. There is a scarcity of self-compassion as a

mediator between these variables and parenting stress in the ASD context, so there were no studies to compare with.

Self-compassion, also, doesn't mediate the relationship between affiliate stigma and parenting stress, which indicates that the relationship between affiliate stigma and parenting stress is not affected by the extent to which these mothers are compassionate and kind to themselves. There is a dearth of information about self-compassion as a mediator between affiliate stigma and parenting stress. Therefore, there is no literature to compare these results with.

In conclusion, the results underscore the importance of self-compassion as a psychological resource that can help parents cope with stress. Being kind and understanding toward oneself in the face of challenges may serve as a protective factor against the negative effects of various stressors commonly experienced by these mothers.

## **5.5 Moderation analysis**

### **5.5.1 Coping as a Moderator**

The fourth aim of the study is to test the moderation role of coping (problem vs. emotion-focused coping) and social support on the relationship between anxiety, stress, depression, parental burden, and affiliate stigma (independent variables) and parenting stress (outcome criterion). According to the moderation analysis of problem-focused coping, it negatively moderates the relationship between anxiety, stress, depression, and parenting stress. Using problem-focused coping appears to have an impact on the relationship between mothers' mental health and parenting stress. The utilization of problem-focused coping negatively influences stress, anxiety, and stress which ultimately reduces parenting stress. This finding therefore,

suggests that the increased utilization of problem-focused coping strategies may lead to a decrease in stress, anxiety, and depression, which ultimately reduces parenting stress (Cappe et al. 2011, Dabrowaska & Pisula 2010, Wang et al. 2013).

By contrast, emotion-focused coping only moderates the relationship between anxiety and parenting stress. The association between anxiety and parenting stress is negatively impacted by the use of an emotion-focused strategy which suggests that increased utilization of emotion-focused strategies may decrease anxiety and parenting stress. The moderation analysis also implies that emotion-focused coping does not influence the relationship between the other independent variables (anxiety, stress, depression, parental burden, and affiliate stigma) and parenting stress. This comparison in the moderation role of problem versus emotion-focused coping strategies denotes that mothers who are able to develop effective coping strategies such as problem-focused coping are likely to experience satisfactory levels of parenting stress. In particular, adaptive coping strategies were more likely to be associated with positive outcomes (Rayan and Ahmed 2017).

Coping (problem and emotion-focused), however, does not moderate the relationship between parental burden and affiliate stigma. This finding entails that the relationship between the extent of mothers' feelings of burden due to their responsibilities and parenting stress are not influenced by the utilization of coping strategies. Moreover, the use of coping strategies will not have an impact on the relationship between the extent of stigma internalization and the level of parenting stress. The findings of this study indicate that mothers are experiencing heightened parental stress levels despite utilizing positive adaptive coping strategies, which suggests they require immediate intervention in order to reduce their parenting burden and affiliate stigma through the utilization of various interventions (anti-stigma, psychoeducational intervention) in

addition to coping strategies. However, this finding needs further exploration using a larger sample size.

### **5.5.1 Social support as a moderator**

The last aim of this study was to examine the moderation role of social support between the relationship of parenting stress and its predictors. The findings from the moderation analysis provided insights into the role of social support in the context of parenting stress. Unpredictably, social support has no moderation role in any of the independent variables (stress, anxiety, depression, parental burden, and affiliate stigma) and parenting stress. There was no significant interaction between these variables and parenting stress. These findings contradict the literature which suggested that social support can act as a buffer against parenting stress for individuals with varying levels of parental burden or with poor mental health parents (Al Busaidi et al. 2022; Khusainfan & El keshky 2021; Ebrahim and Alothman, 2021 Lei & Kanotr 2021). For instance, when parents have higher levels of social support, it may help alleviate the negative impact of low parental burden on parenting stress (Lei & Kanotr 2021). This study, however, indicates that the presence or absence of social support may not significantly alter the impact of stress, anxiety, depression, parental burden, and affiliate stigma on parenting stress. Other factors may have a more prominent influence on parenting stress in the presence of these factors. It is also possible that social support could be a mediator not a moderator or even a predictor in this relationship. Further research, therefore, is needed to explore the mediating role of social support.

The non-significant moderating role of social support between mental health, parental burden, affiliate stigma, and parenting stress stood out as an important finding. There are three plausible explanations. One explanation may be the relatively small sample size, which could lead to the inability to detect a significant relationship. The other potential explanation may be measurement

error. Although the measure of social support in this study had well-established reliability and validity, it may be measuring the wrong aspect of social support. We selected interpersonal support as the dimension of social support for this study. The mother's report of social support reflected moderate to high levels of social support from her network. Although the support of significant others, family members, and friends is important for these families, we did not measure institutional social support such as that provided by medical and social organizations. In Oman, the system of services is focused on the autistic child, not the family; services for these families from organizations are not the same type of social support as the interpersonal support that was assessed in the current study. Future studies need to consider the assessment of organizational or institutional support. For this purpose, it may also be beneficial to use an instrument that incorporates institutional support.

The study findings also may call for forming system-level collaborative implications between the two organizations (Ministry of Health and Ministry of Social Development) to bridge the gap between the services provided to individuals diagnosed with ASD and their families. Literature () indicated that the interaction between children with ASD and their families is a significant factor in improving their quality of life (QoL). Therefore, the collaborative effort in providing services between these organizations may provide individuals with ASD and their families with a healthier and more conducive environment to live and interact. Study results documented high levels of parental burden and parenting stress that were not moderated by interpersonal social support. Given this result, we speculate that although the service agencies in Oman for the child with autism may be serving the child well, there is a gap of services for serving the families. Services are needed to help reduce parenting burden and parental stress. This need argues for a

needed collaboration between the Ministry of Health and the Ministry of Social Development in Oman

### **Implications of the study related to the Omani system of health and social welfare.**

The ASDrate is substantially increasing in Oman (AL-Mamari et al. 2019). In parallel with this increment, Oman's health and social welfare systems also advance the services provided to those children. For instance, in 2017, the country launched a national screening program, requiring all children to be screened for ASD at 18 months when they receive their compulsory measles-mumps-rubella vaccines (AL-Mamari et al. 2017). Clinicians then refer children to diagnostic centers and services as needed. Another vast step was done by the Ministry of Social Development when it established the Oman National Center for ASD (ONCA). The center, the first of its type in Oman, offers top-notch services for children with ASD in need of rehabilitation and therapy. Using the most recent programs to facilitate social inclusion and independence, it is intended to provide cutting-edge rehabilitation and therapy services for individuals with ASD of all ages, from toddlerhood to adulthood.

However, this is not the case with families suffering from the hardship of ASD along with their children in Oman. The Ministry of Health provided early screening programs to detect cases of ASD, diagnostics centers, and trained professionals who provided services solely to these children. To the best of my knowledge, there are no programs or resources created to support mothers and other family members. Likewise, the Ministry of Social Development provided children with rehabilitation services by supervising various governmental and private ASD centers. The Oman ASD Association made a few successful attempts toward supporting mothers such as providing educational workshops and creating the first support group for

mothers. However, these few services were scattered with no collaboration between these three institutions. Additionally, the services were mainly in the capital Muscat.

ASD is a unique condition that may affect not only the child but all family members including parents and siblings. This is what this study indicates. Omani mothers, in this sample, endure severe parenting stress as a result of caring for a child diagnosed with ASD. Though the study implies that mothers' mental health (stress, anxiety, and depression) could not predict their parenting stress levels, it also shows that mothers sustain extremely severe anxiety and moderate levels of stress and depression. Many of them were burdened with the responsibilities of caring for these children. One can imagine how these alarming signs may affect their abilities to care for their children and the quality of life of both.

In this matter, we argue that one important point to consider when investing budget and resources for children with ASD is to simultaneously invest budget and resources in supporting their families. The Omani system fails to provide mothers with the necessary services to support them in their journey toward adaptation, empowerment, healthy growth, resilience, and improved quality of life (AL Farsi et al. 2021, AL Maskri et al. 2018). Omani system fails to deal with children with ASD and their mothers as a unit (AL Maskri et al. 2018, AL-Akhzemi and Huang 2020). Recognizing that the chronic state of ASD mandates that mothers may play a key role in teaching, rehabilitating, treating, and adapting to their children's condition. Literature in the ASD field constantly discussed and proved that healthy interactions between mothers and their children with ASD lead to better parenting outcomes and improved quality of life for both (Parlade et al. 2020; Rozenblatt-Perkal & Zaidman-Zait 2020).

We, therefore, urge the Omani Ministry of Health and the Ministry of social development to bridge the gap between the services they provide to children diagnosed with ASD and their

mothers to be more family-focused instead of investing huge amounts of money and services to children, while ignoring the most important factor in this child health, his own environment, and surroundings (family, particularly mothers). The Omani system (health and social welfare fields) related to ASD should be shifted to a more individualized and family-focused healthcare system including simultaneously both mothers and their children.

One significant factor that predicts parenting stress is stigma. While awareness of ASD has improved in Oman, the stigma surrounding it still lingers. This is one of the important findings of this study. Omani mothers internalize stigmatization from the public. This predictor should be deeply investigated in the Omani context. Oman is a community with norms and traditions. As it is reported in the literature, challenging behaviors in public by children with ASD cause stigmatization and embarrassment to mothers. A genuine effort is needed from the government and its institutions to establish a social platform and media and campaigns that educate and enhance public awareness and challenge society's stereotypical thought about ASD and about supporting mothers with children having ASD in public. The government also should encourage interventions and supporting programs to compact stigma in the community. Government through its various institutions including the Ministry of Health and the Ministry of social welfare should create cultural and systemic shifts that foster inclusivity and recognize neurodiversity.

### **Strengths and innovation of the study**

This study contributes to the existing literature on parenting stress and its associated factors. Even if some findings are not statistically significant, they can still contribute to the

understanding of this complex issue. This study, therefore, has promising practical relevance, as it addresses an essential aspect of parental well-being and family dynamics. An understanding of the factors influencing parenting stress can help develop interventions and support programs for parents. The study's findings provide insights into potential targets for intervention and support programs aimed at reducing parenting stress and enhancing family well-being. The same applies in particular to concepts such as affiliate stigma and self-compassion and coping strategies. This is the first study in Oman that focuses on parenting stress and its predicted factors in the ASD field. Concepts such as self-compassion and affiliate stigma were introduced to the Omani ASD literature. This is also one of the few studies to examine the coping strategies used by Omani mothers who raise children diagnosed with autism.

**Limitations:**

The study design, which is a cross-sectional multiple linear regression analysis, cannot establish causality. The identified relationships between variables do not indicate the direction of influence. Longitudinal or experimental research designs would be necessary to determine causal relationships. Moreover, the study's findings may not be generalizable to all populations or cultural contexts. The sample used in the analysis might not fully represent the diversity of parents and families, limiting the external validity of the results. The data used in the analysis likely relies on self-reported measures, which can be influenced by social desirability bias or memory recall issues. Participants may underreport or overreport certain factors, leading to inaccuracies in the data. The multiple linear regression model is based on the variables included in the analysis. Other relevant factors that were not measured or considered may also influence parenting stress, and their exclusion can affect the model's explanatory power. Measurement errors in the variables used in the analysis can affect the accuracy of the results. The reliability

and validity of the measurement tools utilized should be considered. If the study utilized a large and diverse sample size, it enhances the study's statistical power and strengthens the reliability of the findings.

Overall, while the study has its limitations, its statistical rigor and practical implications are strengths that can contribute to the knowledge base on parenting stress and inform clinical practice and future research.

### **Future Research Direction**

Based on the limitations identified, several potential future research directions could further enhance our understanding of the studied population and related variables. Here are some suggestions for future research:

- Sources of parenting stress: The sources of parenting stress among Omani mothers should be investigated (for example, difficulties interacting with the child, marital conflicts, and impaired family functioning caused by difficulty meeting the child's needs, and societal stigma).
- Longitudinal Studies: Parenting stress is a dynamic and evolving phenomenon. Conduct longitudinal studies to track changes in parental stress, burden, mental health, coping strategies, and social support over time. This would provide insights into the dynamic nature of these variables and how they may evolve in response to different life events and circumstances. This knowledge can inform the development of targeted interventions at specific points in a child's life and mothers' life events.
- Qualitative Research: Complement the quantitative data with qualitative research methods, such as interviews or focus groups, to gain in-depth insights into the

experiences and perspectives of the individuals in the study. Qualitative data can provide a deeper understanding of the factors contributing to stress, the effectiveness of coping strategies, and the nature of social support. Particularly, qualitative data exploring the two significant predictors: Stigma and parenting burden.

- Intervention Studies: Implement and evaluate targeted interventions aimed at reducing parental stress and improving mental health outcomes. Investigate the effectiveness of different coping strategies and social support interventions to help parents better manage challenges related to caregiving.
- Subgroup Analysis: Given the presence of multiple modes for some variables, consider conducting a subgroup analysis to explore potential differences in stress, coping, and social support among distinct groups within the studied population. This could help identify specific subgroups that might require tailored interventions.
- Comparison with Other Populations: Compare the data from this study with data from other populations to gain insights into how parental stress, mental health, and coping strategies may vary across different contexts. This could involve comparing data with other caregiving populations or non-caregiving populations.
- Mediation and Moderation Analysis: Investigate potential mediators and moderators of the relationships between parental stress, mental health, and coping strategies. For example, explore whether social support acts as a mediator or whether certain demographic factors moderate the effects of stress on mental health.
- Cultural and Contextual Considerations: Examine how cultural and contextual factors influence parental stress, coping behaviors, and social support. Investigate the role of

cultural beliefs, norms, and support systems in shaping experiences related to caregiving stress.

- Technology and Support: Explore the use of technology-based interventions to provide support and resources to parents, such as mobile apps or online platforms designed to reduce parenting stress and improve coping skills.
- Long-Term Outcomes: Investigate the long-term consequences of parental stress, burden, and coping strategies on the well-being of both parents and their children. This could involve examining how these factors affect parenting practices, child development, and family dynamics over time. Overall, future research should strive to build upon the existing knowledge, address the limitations of the current study, and provide valuable insights that can inform evidence-based interventions to support parents' mental health and well-being. Regenerate response
- Diverse Populations: Expanding the research to include more diverse populations, such as different cultural groups, socioeconomic backgrounds, and family structures, will help ensure the findings are more representative and applicable to a broader range of parents.
- Interventions and Support Programs: Conducting rigorous evaluations of interventions and support programs aimed at reducing parenting stress can identify effective strategies. Comparative studies can help determine which interventions work best for specific populations and contexts.
- Biological and Neurobiological Correlates: Investigating the neurobiological correlates of parenting stress can provide insights into the physiological mechanisms involved.

Understanding the biological underpinnings of stress responses in parents can lead to novel interventions and targeted support.

- Parenting Stress and Child Outcomes: Examining the links between parenting stress and child outcomes, such as child behavior, emotional development, and academic performance, can help understand how parental stress affects children's well-being in the short and long term.

By focusing on these research directions, scholars can advance our understanding of parenting stress and contribute to the development of effective interventions and policies that promote positive parenting experiences and family well-being. As parenting stress can have far-reaching effects on both parents and children, further research in this area is crucial for building healthier and more resilient families.

## **Conclusion**

Parenting stress in the ASD context is a significant and multifaceted aspect of family life that can have a profound impact on both parents and children. This study examined parenting stress predictors in the ASD field. In contrast to mental health, parental burden, and stigma were significant predictors of parenting stress. The findings highlight the importance of addressing parental burden and stigma in supporting parents and promoting family well-being. We also investigated the mediation role of self-compassion, and the moderating roles of coping and social support between mental health, parenting burden, affiliate stigma, and parenting stress. The findings of the mediation and moderation analysis support the enhancement of mothers' self-compassion and the utilization of adaptive coping strategies.

Parental support programs that focus on coping strategies, resources, and education may be beneficial for parents. Mental health interventions targeting parental stress should be considered, even though the study did not demonstrate that these constructs predict parenting stress.

Despite the study's limitations, such as its cross-sectional design and reliance on self-reported measures, its statistical rigor and practical implications contribute to the existing literature on parenting stress related to autism. The impact of parenting stress on parents' well-being and family dynamics should be considered by clinicians and mental health professionals. The integration of evidence-based interventions, such as cognitive-behavioral therapy, mindfulness-based practices, and parent-child interaction therapy, can help parents manage stress and enhance their coping skills.

These findings also highlight the need for further research, including longitudinal studies, qualitative investigations, and research with diverse populations, to better understand parenting stress and to develop more targeted and effective interventions. Building on these findings, future research can employ longitudinal designs and consider other relevant factors to further enhance our understanding of the complex dynamics influencing parental well-being and stress management. Ultimately, a deeper comprehension of these relationships will contribute to the development of more effective interventions to support and promote the well-being of parents in their crucial role as caregivers.

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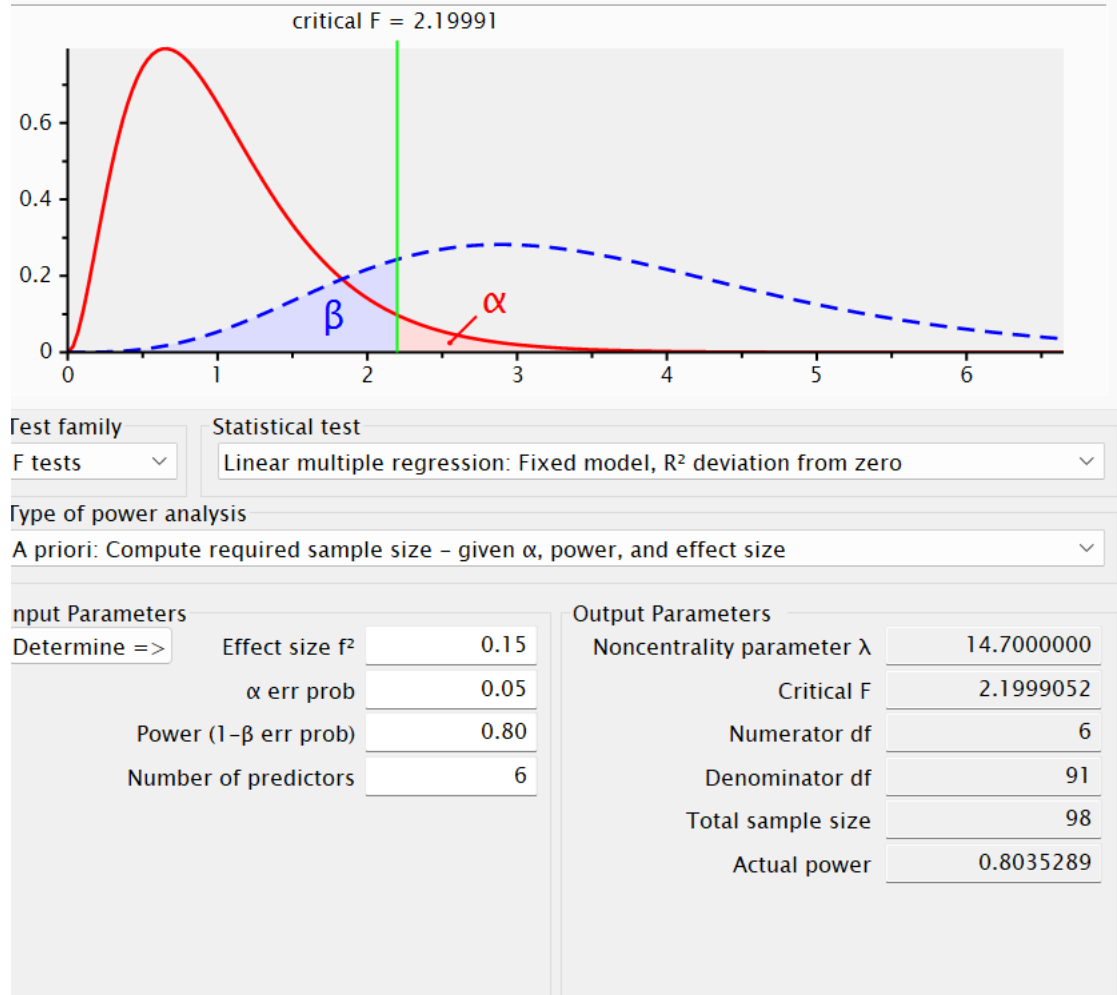
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**(Appendix- G\*Power sample size calculation)**



(Appendix: Oman map)



(Appendix: Oman administrative regions)



(Appendix: information sheet & informed consent)

## **UNIVERSITY OF WASHINGTON**

### **PATIENT CONSENT FORM**

#### **Predictors of Parenting Stress among Mothers Raising Children with ASD(ASD): A Cross-Sectional Study**

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You are invited to participate in a research study. In this form, you will find information that will assist you in deciding whether to participate in the study. Please read this carefully. You may ask any questions about the study. Please note that your participation in the study is voluntary.

#### **PURPOSE OF THE STUDY**

The study aims to test whether anxiety and depression, parental burden, and stigma predict parental stress among Omani parents caring for children with ASD. This study starts in November 2022 and ends in May 2023.

#### **STUDY PROCEDURE**

If you are interested in joining this study, I will ask you to read this information sheet carefully. We will also need you to sign the consent form electronically and return it to me via WhatsApp. We will interact with you through WhatsApp text and audio messages to guide you through the process. When we receive the consent form, this will be a confirmation of your participation. To collect the study's data, we will contact you by telephone. You will be asked to complete seven questionnaires, which will take 45-60 minutes. We will provide online gift vouchers worth 10 OMR upon completion of the data collection.

#### **RISKS, STRESS, OR DISCOMFORT**

You may experience emotional distress or discomfort as a result of personal and perhaps sensitive questions, or as a result of discussing your feelings and your child's condition. The distress usually lasts for only a short period of time, but should you require assistance in dealing with these feelings, we will be happy to provide you with a referral to an appropriate resource. Your permission must be given before a referral is made because all information you share with us is kept strictly confidential within the limits of the law. It is possible that information gathered from or about you, such as your child's diagnosis and information we collect about your family, may be disclosed by accident outside of this study. Our efforts will be made to ensure your confidentiality, but we cannot guarantee it.

## **ALTERNATIVES TO TAKING PART IN THIS STUDY**

The alternative to participation in a study is to choose not to participate.

## **BENEFITS OF THE STUDY**

Often, Omani mothers who raise children with ASD do not have the opportunity to express their feelings about their parenting experiences. In Omani culture, such exploration of feelings is discouraged since it signifies impatience and resentment. In this study, you can express your feelings regarding your parenting experience and challenges that you may encounter as a mother raising a child or children with autism. Furthermore, the information you provide can help us better understand the experiences of mothers who care for children with autism. It is possible that this information may contribute to the development of future interventions and parental training to reduce parenting stress. Apart from this, we do not know whether participants will benefit from this study. We hope that the information we gain will help parents of children with ASD in the future.

## **SOURCE OF FUNDING**

The principal student researcher receives financial assistance from the Ministry of Higher Education, Oman, through the Omani Embassy (cultural attaché office) in the USA.

## **CONFIDENTIALITY OF RESEARCH INFORMATION**

We will maintain a link between your information and the study data indefinitely. We may use the information we obtain from you in future studies. We may remove anything that might identify you from the information. This information can be used for future studies or given to another investigator without your permission. It is also possible that in the future, we may want to utilize or share study information that might identify you. In that case, a review board will decide whether we need your additional permission. Data collection, storage, and processing will comply with the Research and Ethical Review & Approval Committee (RERAC-Oman) and the University of Washington Institutional Review Board (UW IRB) principles.

All of the information you provide will be confidential. However, if we learn that you intend to harm yourself or others, we must report that to the authorities. In addition, we will also report any observed instances of child abuse or neglect. Studies like this one may be reviewed by government or university staff to ensure they are legal and safe. It may be necessary to examine your records if this study is reviewed. The reviewers will protect your privacy. The study records will not be used to put you at risk of legal liability.

You can find a description of this study at <http://www.omanautism.om>. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time. You or a member of your family can also share information about yourself or your role in this research.

It is important to note, however, that this protection has some limitations. We will voluntarily provide the information to the following:

1. A government employee who needs it to audit or evaluate the research.
2. Individuals at the institution(s) conducting the research, the funding agency, and other groups involved in the research, if they need the information to make sure the research is being done correctly.
3. Individuals who want to conduct secondary research, if allowed by federal regulations and if given your consent for future research use as outlined in this form.
4. We will alert the authorities if we become aware of child abuse, elder abuse, or the intent to harm yourself or others.

### **STUDY RESULTS**

Information emanating from the research will only be made public in a completely unattributable format or at the aggregate level in order to ensure that no participant will be identified. The results from this analysis will be available in one or more of the following sources: scientific papers in peer-reviewed academic journals; presentations at a regional or national conference, local seminars, and workshops. You can also check the Oman ASDassociation to know the study result.

### **OTHER INFORMATION**

You may refuse to participate, and you are free to withdraw from this study at any time without penalty or loss of benefits to which you are otherwise entitled and without giving a reason. If you do not wish to participate, you do not have to do anything in response to this request. If you decide to join this study, I would like you to consent to participate in this study. In addition, you may check the Web site of the Oman ASDassociation for information regarding the study's results.

This study has been approved by the Research and Ethical Review Committee (RERAC) in Oman and the University of Washington Institutional Review Board (UW IRB) in the US. If you have any concerns about the ethical conduct of the research, you may contact the **RERAC** at phone NO. 24695921. Any issues you raise will be treated in confidence and investigated, and you will be informed of the outcome.

**Thank you for taking the time to consider this study.**

**If you wish to take part in it, please sign the attached consent form.**

**This information sheet is for you to keep.**

**Title of project:**

Predictors of Parenting Stress among Mothers Raising Children with ASD(ASD) in the Sultanate of Oman: A Cross-sectional Study

**Subject's statement**

This study has been explained to me. I have had a chance to ask questions. If I have questions later about the research, or if I have been harmed by participating in this study, I can contact the principal student researcher listed on the first page of this consent form. If I have questions about my rights as a research subject, I can call RERAC at (968) 24695921. I will receive a copy of this consent form.

Is it OK if someone contacts you in the future to ask about your responses to this study?

(Circle one)

YES                      NO

Is it OK if your de-identified data is stored and made available to researchers in the future who may want to do further analysis of the data?

(Circle one)

YES                      NO

I also understand that:

1. I may withdraw myself (or any information I have provided) from this project (before data collection and analysis is complete) without having to give reasons or without penalty of any sort.
2. I understand that any information I provide will be kept confidential to the researcher
3. No opinions will be attributed to me in any way that will identify me.
4. I consent to information or opinions which I have given being attributed to me
5. I am aware that the data may be published, but my anonymity will be preserved.

I agree to take part in this research

Signed:

Name of participant:

(Please print clearly) Date:

### Recruitment plan

Institutions	Address & Contact number	Region	Mediator/Focal Point	No. of Recruited Women
Oman National ASDCenter	Muscat Phone: 22 649700	Muscat	Ms. Mawiya albaridi	14
AL_Wafa Social Center -Suwaiq	Suwaiq Phone:+968 9246 6659	North Batinah	Mrs. Asma AL-Balushi	8
AL_Wafa Social Center - Bedbed	Bedbed Phone:+968 9120 8553	AL-Dakhiliya	Mrs. Fathiya AL-Zedjali	2
AL- Wafa Social Center- Rustaq	Rustaq Phone: +968 26 87 52 82	South Batinah	Mrs. Samiya AL-Syabi	21
AL- Wafa Social Center- Sur	Sur Phone:+968 9936 2080	South Sharqiyah	Mrs. Abeer	3
AL-Wafa Social Center- Ibra	Ibra Phone: +968 9964 4590	North Sharqiyah	Mrs. Bardiya AL-Maskri	1
AL-Ajyal AL-Moshriqah-South Batinah	Sohar Phone: +968 9410 2555	North Batinah	Mrs. Amna AL-Farsi	38
Hams Alather_ ALkhudh	Muscat Phone: +968 9907 7232	Muscat	Mrs. Jokha Al -Saadi	6
Al- Rawa ASDcenter	Muscat Phone:+968 9288 7455	Muscat	Dr. Zayana AL-Maskri	2
AL-Manayer ASDCenter	Muscat Phone:+968 9944 9466	Muscat	Mrs. Aliya Rashid	2
Jalan ASDcenter	Barka Phone:+968 9944 5063	South Sharqiyah	Mr. Mohammed AL-Rahbi	1
AL-Bahja Center for Rehabilitation	Sur Phone: +968 9487 2422	South Sharqiyah	Mrs. Amira	1
Oman ASDSociety	Muscat Phone: +968 24 128949	Muscat	Mrs.khulood AL-Balushi Ms. Samah	1
<b>12 centers+ Oman ASDSociety</b>				<b>100</b>

### Recruitment Plan

Data collection data	No. of Recruited Women
Phone Calls	98
Face to Face interview	2
Self-reported <i>online</i> questionnaire	-

## **Reflection on the collection method (phone calls) and how objectivity is maintained.**

This paper reflects on the collection method (phone calls) and how the researcher maintained objectivity during data collection. A specific and useful insight is presented into how objectivity can be maintained during the collection of phone call data. The author of the interview summarizes the reflection into three phases: pre-telephone interview, phone call, and post-telephone interview.

### 1. Pre-interview phase

In the pre-interview phase, the author is primarily concerned with determining what needs to be done before conducting the interview. During this stage of conducting a study, the author heavily relied on planning, pre-testing, and organizational skills. The researcher should test the interview protocol, or list of interview questions, before collecting data for the main study. Therefore, the author conducted a pilot study before the actual data collection process. This is to understand the timing, get acquainted with the asked questions, understand which tools need more clarification, and what are the most often unclear questions or tools. This also helps to determine the most logical and smooth-flowing order of the questions. It further identifies wording issues that need to be addressed for clarity's sake, which will enhance the integrity of the data. Lastly, a pre-test sheds significant light on the amount of time it will take to conduct the interview, which is one of the first questions asked by potential participants. This also enables me to sketch a plan about how many phone calls I can approximately conduct in a day. A pilot study was conducted with five mothers raising typically developing children by the author. To minimize the instrument threat, the researcher tested the time it takes to administer each study measure on five mothers raising typically developing children.

Another key point is that the researcher was determined to communicate the interview questions (tools) ahead of time to participants, along with a general introductory letter about our study. I, therefore, send the tools via two essential ways: soft copies (attachments) or online Google Doc links. The author also informs the participants that phone calls will not be audiotaped. This is because this is quantitative research, and it also encourages trust and confidentiality. The researcher prepared a plan for how many phone calls she could conduct in a day (3-4 phone calls) depending on the participants' circumstances and responses. Accordingly, she scheduled and rescheduled appointments with participants asking them about the most convenient time for them. Additionally, she made sure they sit in a very relaxed and distraction-free environment and that it takes about 40-60 minutes (pilot study result). The author stressed in communication with participants that she would be making a special effort to reconnect with them at the agreed-upon time. Then, pleasantly repeat the agreed-upon time and suggest recording the appointment in their scheduler. Being extremely organized in setting up these phone call appointments, given the inevitable re-scheduling that will occur, is one of the critical points in finalizing the plan. There are some participants who do not mind the date as long as the time is right. It can be at 10 am on any day except weekends. Thus, the author keeps a daily log of whom you call and the result of the phone call (e.g., leaving a message, setting up an interview, etc.). My logistical preparation involves preparing my place away from distractions, my phone, a list of appointments with subjects already scheduled, and a notebook for record-keeping.

Lastly, the author deeply considered whether to promise participants a summary of the results ahead of time. In the interview, when will she mention this? Should she promise to share results with participants, she will need to specify exactly what she will share. The estimated timeframe for generating this report

will also need to be communicated. Upon finishing the research, writing the discussion, and defending the dissertation, the author decided to provide participants with summaries of the study using the Oman Society website (The website is in Arabic).

## 2. During the interview phase

The author's (interviewer's) style was friendly, courteous, straightforward, guided by the tools' questions, and unbiased. The author reads questions in a conversational tone and avoids awkward pauses between questions. A professional tone was used to convey the researchers' knowledge of the questions and tools. The interviewer also does not show surprise or disapproval with responses. Given this, it was useful to assume the role of a reporter trying to keep the phone call in focus—not that of a debater or curiosity seeker. Finally, the researcher asked every question with the same wording, and in the prescribed order, for each interview. This is to maintain data reliability and integrity. The researcher sequenced the forms to ensure adequate and accurate data [PSS (outcome), affiliate stigma scale, DASS-21, ZBI: (predictors), SCS: (mediator), MSPSS, COPE: (moderator)].

Data Collection Tools:

1. Parental stress scale (PSS) (5 minutes)
2. Affiliate Stigma Scale (7-10 minutes)
3. Depression Anxiety Stress Scales (DASS-21) (5-10 minutes)
4. The COPE Inventory (5 minutes).
5. The Multidimensional Scale of Perceived Social Support (MSPSS) (5 minutes)
6. Self-Compassion Scale (5-10 minutes)
7. Zarit Burden Interview (ZBI) (5 minutes)

During the phone interview, it was important to get the interviewee focused on the questions to finish on time. However, the participants were willing to talk beyond the questions. They explained their answers and the researcher had to focus them on the interview. It was difficult to interrupt them from expressing their feelings but looking at the number of tools and the limited time, the researcher was fully aware that sometimes, the author has to make them focused on answering questions the way it is described in the tool (e.g., answering with the following words “never”, “rarely”, “sometimes”, “almost always”. The researcher is aware that she does not wish to influence any participant's response in any way. Hence, the researcher did not suggest a possible answer and did not agree with the interviewee's position.

## 3. post-interview phase

For data analysis, participants' responses were entered into IBM Statistical for Social Sciences (SPSS) version 26 after a few good numbers of phone interviews each day. This is to save time and ensure complete and accurate data. There was no procrastination so that the integrity of the study's data and ultimate findings was not jeopardized.

(Appendix: Measures: Arabic and English versions)

### Parental Stress Scale

The following statements describe feelings and perceptions about the experience of being a parent. Think of each of the items in terms of how your relationship with your child or children typically is. Please indicate the degree to which you agree or disagree with the following items by placing the appropriate number in the space provided.

1 = Strongly disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly agree

1	I am happy in my role as a parent	
2	There is little or nothing I wouldn't do for my child(ren) if it was necessary.	
3	Caring for my child(ren) sometimes takes more time and energy than I have to give.	
4	I sometimes worry whether I am doing enough for my child(ren).	
5	I feel close to my child(ren).	
6	I enjoy spending time with my child(ren).	
7	My child(ren) is an important source of affection for me.	
8	. Having child(ren) gives me a more certain and optimistic view for the future.	
9	The major source of stress in my life is my child(ren).	

10	Having child(ren) leaves little time and flexibility in my life.	
11	Having child(ren) has been a financial burden.	
12	. It is difficult to balance different responsibilities because of my child(ren).	
13	The behaviour of my child(ren) is often embarrassing or stressful to me.	
14	. If I had it to do over again, I might decide not to have child(ren).	
15	I feel overwhelmed by the responsibility of being a parent.	
16	Having child(ren) has meant having too few choices and too little control over my life.	
17	I am satisfied as a parent	
18	I find my child(ren) enjoyable	

**Brief COPE: (ENG.)**

- 1 = I haven't been doing this at all  
 2 = I've been doing this a little bit  
 3 = I've been doing this a medium amount  
 4 = I've been doing this a lot

<b>Item</b>	<b>I haven't been doing this at all</b>	<b>I've been doing this a little bit</b>	<b>I've been doing this a medium amount</b>	<b>I've been doing this a lot</b>
1. I've been turning to work or other activities to take my mind off things.	1	2	3	4
2. I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
3. I've been saying to myself "this isn't real."	1	2	3	4
4. I've been using alcohol or other drugs to make myself feel better.	1	2	3	4
5. I've been getting emotional support from others.	1	2	3	4
6. I've been giving up trying to deal with it.	1	2	3	4
7. I've been taking action to try to make the situation better.	1	2	3	4
8. I've been refusing to believe that it has happened.	1	2	3	4
9. I've been saying things to let my unpleasant feelings escape.	1	2	3	4
10. I've been getting help and advice from other people.	1	2	3	4
11. I've been using alcohol or other drugs to help me get through it.	1	2	3	4
12. I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4
13. I've been criticizing myself.	1	2	3	4
14. I've been trying to come up with a strategy about what to do.	1	2	3	4
15. I've been getting comfort and understanding from someone.	1	2	3	4
16. I've been giving up the attempt to cope.	1	2	3	4
17. I've been looking for something good in what is happening.	1	2	3	4
18. I've been making jokes about it.	1	2	3	4
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4

20. I've been accepting the reality of the fact that it has happened.	1	2	3	4
21. I've been expressing my negative feelings.	1	2	3	4
22. I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
23. I've been trying to get advice or help from other people about what to do.	1	2	3	4
24. I've been learning to live with it. I've been thinking hard about what steps to take.	1	2	3	4
25.	1	2	3	4
26. I've been blaming myself for things that happened.	1	2	3	4
27. I've been praying or meditating.	1	2	3	4
28. I've been making fun of the situation.	1	2	3	4

**Brief COPE: (Arabic Version)**

مقياس الكيفي

الرجاء الإجابة على الأسئلة التالية مشيراً إلى أي مدى نوافق أو ال نوافق على كل عبارة. ضع إشارة مقابل التكرار المناسب لك:

لقد كنت أفعل هذا بشكل متوسط	لقد كنت أفعل هذا بشكل كثيرا	لقد فعلت هذا قليلا	أنا لم أفعل ذلك على الطلاق	البند	
3	4	2	1	تحولت إلى العمل أو الأنشطة الأخرى لتصديقه ذهني	1
3	4	2	1	رأيت جهودتي على القيام بشيء حيال الوضع الذي أنا فيه	2
3	4	2	1	كنت أقول لنفسي "هذا ليس حقيقيًا".	3
3	4	2	1	استخدمت الكحول أو المخدرات لتسرع على نحو أفضل.	4
3	4	2	1	حصلت على الدعم العاطفي من الآخرين.	5
3	4	2	1	دخلت عن محادثة التامل مع الموقف.	6
3	4	2	1	اتخذت إجراءاتني محاولة لجعل الوضع يبدو أفضل.	7
3	4	2	1	كنت أرنص أن أصدق أنه ما حدث قد حدث فعلاً.	8
3	4	2	1	ولت أشياء حتى أتخلص أو أهرب من المشاعر غير السارة المتعلقة بالحدث.	9
3	4	2	1	حصلت على المساعدة والمشورة من أشخاص آخرين.	10
3	4	2	1	استخدمت الكحول أو المخدرات لتساعديني الخروج من ذلك الموقف	11
3	4	2	1	حاولت أن أرى الموقفني صورة مختلفة، لجعله يبدو أكثر إيجابية.	12
3	4	2	1	انتقدت نفسي.	13
3	4	2	1	حاولت الخروج باستراتيجيات حول ما يجب القيام به.	14

4	3	2	1	حصلت على الراحة والتفهم من شخص ما.	15
4	3	2	1	تخلت عن محاولة التأقلم مع الموقف	16
4	3	2	1	بحثت عن شيء جيد ليوم يحدث.	17
4	3	2	1	صنعت وقلت الكلمات حول هذا الموضوع.	18
4	3	2	1	تعلت أشياء أؤلل من التفكير ني الموقف، مثل الذهاب إلى السينما، ومشاهدة التلفزيون والقراءة وأحلم اليقظة، النوم، أو التسوق.	19
4	3	2	1	تبلت بواقع الحظوة أنه حدث	20
4	3	2	1	عبرت عن مشاعري السلبية.	21
4	3	2	1	حاولت أن أجد الراحة ني ديني ومعتقداتي الروحية.	22
4	3	2	1	حاولت الحصول على مشورة أو مساعدة من الآخرين حول ما يجب القيام به.	23
4	3	2	1	تعلمت كيفية العيش معه.	24
4	3	2	1	تأرت مليا ني الخطوات التي يجب اتخاذها.	25
4	3	2	1	لومت نفسي عن الأشياء التي حدثت.	26
4	3	2	1	صلوت أو لجأت إلى التأمل.	27
4	3	2	1	سخرت من هذا الموقف.	28

## Self-Compassion Scale

### How I Typically Act Towards Myself in Difficult Times

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

**Almost never**

**Almost always**

1

2

3

4

5

- \_\_\_\_\_ 1. I'm disapproving and judgmental about my own flaws and inadequacies.
- \_\_\_\_\_ 2. When I'm feeling down, I tend to obsess and fixate on everything that's wrong.
- \_\_\_\_\_ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
- \_\_\_\_\_ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
- \_\_\_\_\_ 5. I try to be loving towards myself when I'm feeling emotional pain.
- \_\_\_\_\_ 6. When I fail at something important to me I become consumed by feelings of inadequacy.
- \_\_\_\_\_ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
- \_\_\_\_\_ 8. When times are really difficult, I tend to be tough on myself.
- \_\_\_\_\_ 9. When something upsets me I try to keep my emotions in balance.
- \_\_\_\_\_ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
- \_\_\_\_\_ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.

\_\_\_\_\_12. When I'm going through a very hard time, I give myself the caring and tenderness I need.

\_\_\_\_\_13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

\_\_\_\_\_14. When something painful happens, I try to take a balanced view of the situation.

\_\_\_\_\_15. I try to see my failings as part of the human condition.

\_\_\_\_\_16. When I see aspects of myself that I don't like, I get down on myself.

\_\_\_\_\_17. When I fail at something important to me, I try to keep things in perspective.

\_\_\_\_\_18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.

\_\_\_\_\_19. I'm kind to myself when I'm experiencing suffering.

\_\_\_\_\_20. When something upsets me I get carried away with my feelings.

\_\_\_\_\_21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.

\_\_\_\_\_22. When I'm feeling down, I try to approach my feelings with curiosity and openness.

\_\_\_\_\_23. I'm tolerant of my own flaws and inadequacies.

\_\_\_\_\_24. When something painful happens, I tend to blow the incident out of proportion.

\_\_\_\_\_25. When I fail at something that's important to me, I tend to feel alone in my failure.

\_\_\_\_\_26. I try to be understanding and patient towards those aspects of my personality I don't like.

**Reference:**

Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250.

**Coding Key:**

Self-Kindness Items: 5, 12, 19, 23, 26

Self-Judgment Items: 1, 8, 11, 16, 21

Common Humanity Items: 3, 7, 10, 15

Isolation Items: 4, 13, 18, 25

Mindfulness Items: 9, 14, 17, 22

Over-identified Items: 2, 6, 20, 24

**Subscale scores** are computed by calculating the mean of subscale item responses. To compute a total self-compassion score, reverse score the negative subscale items - self-judgment, isolation, and over-identification (i.e., 1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1) - then compute a total mean.

(This method of calculating the total score is slightly different than that used in the article referenced above, in which each subscale was added together. However, I find it is easier to interpret the scores if the total mean is used.)

## Arabic version of Multidimensional Social Support Scale (MSPSS)

### إرشادات:

يختمن هذا الإستفتاء عدد من الإقتراحات التي تتعلق بالدعم الإجتماعي. إستعمل المقياس أدناه من 1 إلى 7 لتقييم كل بند من البنود من خلال وضع دائرة حول الرقم المناسب.

7	6	5	4	3	2	1	
أوافق بشدة	أوافق باعتدال	أوافق قليلا	حيادي	اعتراض قليلا	اعتراض باعتدال	اعتراض بشدة	
7	6	5	4	3	2	1	1- هناك شخص مميز بجانبني عندما أحتاجه.
7	6	5	4	3	2	1	2- هناك شخص مميز أستطيع ان اشارك أفرأحي و أحرأاتي معه.
7	6	5	4	3	2	1	3- عائلتي تحاول مساعدتي.
7	6	5	4	3	2	1	4- أئال مساعدة عاطفية ودعم من عائلتي.
7	6	5	4	3	2	1	5- هناك شخص مميز هو/هي مصدر حقيقي للراحة لي.
7	6	5	4	3	2	1	6- أصدقائي يحاولون مساعدتي.
7	6	5	4	3	2	1	7- بإمكانني الإعتماد على أصدقائي عندما تجري الأمور بشكل سيء.
7	6	5	4	3	2	1	8- بإمكانني التحدث عن مشاكلي مع عائلتي.
7	6	5	4	3	2	1	9- عندي أصدقاء أستطيع ان اشارك أفرأحي و أحرأاتي معهم.
7	6	5	4	3	2	1	10- هناك شخص مميز في حياتي يهتم بمشأعري.
7	6	5	4	3	2	1	11- عائلتي ترغب في مساعدتي لإتخاذ القرارات.
7	6	5	4	3	2	1	12- أستطيع ان أتحدث عن مشاكلي مع أصدقائي.

من هو الشخص المميز الذي أشرت إليه بالإستمارة ؟ حدد علاقتك به وليس الإسم. مثلاً، أختي، زوجي.

**Affiliate Stigma Scale**  
(Translated English Version)

**Instructions:** Below are some sentences related to your life as a caregiver of child with intellectual disability. There are no right or wrong answers. Please read each sentence carefully then choose the option which best represents your opinion.

A: Affect; B: Behavior; C: Cognition

			Strongly disagree	Disagree	Agree	Strongly agree
A	1.	I feel inferior because I have a family member with an intellectual disability.	①	②	③	④
B	2.	I avoid communicating with my family member who has an intellectual disability.	①	②	③	④
C	3.	Other people would discriminate against me if I was with a family member who has an intellectual disability.	①	②	③	④
A	4.	I feel emotionally disturbed because I have a family member with an intellectual disability.	①	②	③	④
B	5.	I do not dare to tell others that I have a family member with an intellectual disability.	①	②	③	④
C	6.	My reputation is damaged because I have a family member with an intellectual disability.	①	②	③	④
A	7.	The behavior of my family member with an intellectual disability is embarrassing.	①	②	③	④
B	8.	I avoid going out with my family member who has an intellectual disability.	①	②	③	④
C	9.	People's attitudes towards me are negative when I am with my family member who has an intellectual disability.	①	②	③	④
A	10.	I feel helpless about having a family member with an intellectual disability.	①	②	③	④
B	11.	I reduce contact with my friends and relatives because I have a family member an intellectual disability.	①	②	③	④
C	12.	Having a family member with an intellectual disability has a negative impact on me.	①	②	③	④
A	13.	I feel sad because I have a family member with an intellectual disability.	①	②	③	④
B	14.	When I am with my family member who has an intellectual disability, I keep a relatively low profile.	①	②	③	④

A: Affect; B: Behavior; C: Cognition

			Strongl y disagre e	Disagre e	Agree	Strongl y agree
C	15.	Having a family member with an intellectual disability makes me think that I am incompetent compared to other people.	①	②	③	④
A	16.	I worry that other people will find out I have a family member with an intellectual disability.	①	②	③	④
B	17.	I reduce interacting with my family member who has an intellectual disability.	①	②	③	④
C	18.	Having a family member with an intellectual disability makes me think that I am less than others.	①	②	③	④
A	19.	I feel that I am under great pressure because I have a family member with an intellectual disability.	①	②	③	④
B	20.	I do not dare to participate in activities related to intellectual disability lest other people suspect I have a family member with an intellectual disability.	①	②	③	④
C	21.	Having a family member with mental illness/intellectual disability makes me lose face.	①	②	③	④
B	22.	I reduce contact with my neighbors because I have a family member with an intellectual disability.	①	②	③	④

**Scoring:**

Total mean score: Take the mean for the total mean score. The higher the score, the greater is the level of affiliate stigma.

**Subscale scores:**

Take the mean of the corresponding items for each subscale.

## (Appendix : Script of study's phone call for data collection)

### Introduction

Hi, my name is Maiyasa AL-Saadi and I'm a doctorate student at University of Washington school of nursing. I am conducting a study about predictors of parenting stress among Omani mothers raising children with ASD(ASD).

I'm calling you about the study's questionnaires, in which you agreed to participate and answer earlier. I would like to go through the survey with you now. Is this a good time to speak with you?

**\*If no, move to 'Reschedule' section\***

**\*If yes, move to 'Survey' section\***

### Reschedule

Thank you. What would be a good time to reach out to you again and go through the survey? (Schedule callback disposition on the calling software)

### Questionnaires

Alright, let's get into it then! Before we begin, I would like to share a few details about the questionnaires.

1. These questionnaires have all been scientifically validated. In addition, the Oman Ministry of Health ethical review committee reviewed and approved the study.
2. The objective of the study is to identify the predictors of parenting stress among parents raising children with ASD.
3. Each of these questionnaires measures a different concept. A number of concepts are discussed here, including parenting stress, anxiety and depression, affiliate stigma, parental burden, self-compassion, social support, and coping strategies. For your convenience, I have already emailed or texted you copies of the questionnaire. A different color is assigned to each concept. I would appreciate it if you had these questionnaires with you now.
4. Please be assured that all your information will be kept private and confidential, such as your name, address, email, etc.
5. You can withdraw from these questionnaires at any time, and participation is voluntary.

I hope these points have addressed any concerns you may have. We can proceed with the survey unless you have any questions.

**\*Begin survey\***

## 1# Parenting Stress

### Parental Stress Scale

The following statements describe feelings and perceptions about the experience of being a parent. Think of each of the items in terms of how your relationship with your child or children typically is. Please indicate the degree to which you agree or disagree with the following items by stating the appropriate number in the space provided.

1 = Strongly disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly agree

- 1 I am happy in my role as a parent
- 2 There is little or nothing I wouldn't do for my child(ren) if it was necessary.
- 3 Caring for my child(ren) sometimes takes more time and energy than I have to give.
- 4 I sometimes worry whether I am doing enough for my child(ren).
- 5 I feel close to my child(ren).
- 6 I enjoy spending time with my child(ren).
  
- 7 My child(ren) is an important source of affection for me.
- 8 . Having child(ren) gives me a more certain and optimistic view for the future.
- 9 The major source of stress in my life is my child(ren).
- 10 Having child(ren) leaves little time and flexibility in my life.
- 11 Having child(ren) has been a financial burden.
- 12 . It is difficult to balance different responsibilities because of my child(ren).
- 13 The behaviour of my child(ren) is often embarrassing or stressful to me.
- 14 . If I had it to do over again, I might decide not to have child(ren).
- 15 I feel overwhelmed by the responsibility of being a parent.
- 16 Having child(ren) has meant having too few choices and too little control over my life.
- 17 I am satisfied as a parent
- 18 I find my child(ren) enjoyable

## Now we will move on to the second questionnaire which is about affiliate Stigma

### #2Affiliate Stigma

I will read some sentences related to your life as a parent of child with autism. There are no right or wrong answers. Please listen carefully and then choose the option which best represents your opinion.

**1-Strongly disagree, 2-Disagree, 3-Agree, 4-Strongly agree**

1. I feel inferior because I have a family member with an intellectual disability.
2. I avoid communicating with my family member who has an intellectual disability.
3. Other people would discriminate against me if I was with a family member who has an intellectual disability.
4. I feel emotionally disturbed because I have a family member with an intellectual disability.
5. I do not dare to tell others that I have a family member with an intellectual disability.
6. My reputation is damaged because I have a family member with an intellectual disability.
7. The behavior of my family member with an intellectual disability is embarrassing.
8. I avoid going out with my family member who has an intellectual disability.
9. People's attitudes towards me are negative when I am with my family member who has an intellectual disability.
10. I feel helpless about having a family member with an intellectual disability.
11. I reduce contact with my friends and relatives because I have a family member an intellectual disability.
12. Having a family member with an intellectual disability has a negative impact on me.
13. I feel sad because I have a family member with an intellectual disability.
14. When I am with my family member who has an intellectual disability, I keep a relatively low profile.
15. Having a family member with an intellectual disability makes me think that I am incompetent compared to other people.
16. I worry that other people will find out I have a family member with an intellectual disability.
17. I reduce interacting with my family member who has an intellectual disability.
18. Having a family member with an intellectual disability makes me think that I am less than others.
19. I feel that I am under great pressure because I have a family member with an intellectual disability.
20. I do not dare to participate in activities related to intellectual disability lest other people suspect I have a family member with an intellectual disability.
21. Having a family member with mental illness/intellectual disability makes me lose face.
22. I reduce contact with my neighbours because I have a family member with an intellectual disability.

**Now we will move on to the third questionnaire which is about anxiety and depression**

**#3 Anxiety and depression**

I will read each statement, then you can state a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all,

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree or a good part of time

3 Applied to me very much or most of the time

1 (s) I found it hard to wind down

2 (a) I was aware of dryness of my mouth

3 (d) I couldn't seem to experience any positive feeling at all

4 (a) I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)

5 (d) I found it difficult to work up the initiative to do things

6 (s) I tended to over-react to situations

7 (a) I experienced trembling (e.g., in the hands)

8 (s) I felt that I was using a lot of nervous energy

9 (a) I was worried about situations in which I might panic and make a fool of myself

10 (d) I felt that I had nothing to look forward to

11 (s) I found myself getting agitated

12 (s) I found it difficult to relax

13 (d) I felt down-hearted and blue

14 (s) I was intolerant of anything that kept me from getting on with what I was doing

15 (a) I felt I was close to panic

16 (d) I was unable to become enthusiastic about anything

17 (d) I felt I wasn't worth much as a person

18 (s) I felt that I was rather touchy

19 (a) I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)

20 (a) I felt scared without any good reason

21 (d) I felt that life was meaningless

## Now we will move on to the fourth questionnaires about parental burden

### #4 parental burden

The following is a list of statements that reflect how you as a mother for a child with ASD sometimes feel when taking care of your child. After I read each statement, please indicate how often you experience the feelings identified in the statement by choosing the number that best corresponds to the frequency of these feelings

The rating as follow: **0- Never, 1- Rarely, 2- Sometimes, 3- Frequently, 4- Nearly Always**

- 1) Do you feel you don't have enough time for yourself?
- 2) Do you feel stressed between caring and meeting other responsibilities?
- 3) Do you feel angry when you are around your child?
- 4) Do you feel your child affects your relationship with others in a negative way?
- 5) Do you feel strained when are around your relative?
- 6) Do you feel your health has suffered because of your involvement with your child?
- 7) Do you feel you don't have as much privacy as you would like, because of your child?
- 8) Do you feel your social life has suffered because you are caring for your child?
- 9) Do you feel you have lost control of your life since your child's illness?
- 10) Do you feel uncertain about what to do about child?
- 11) Do you feel you should be doing more for your child?
- 12) Do you feel you could do a better job in caring for your child?

## Now we will move to the fifth questionnaire which is about Self-Compassion

### 5# Self-Compassion

#### Self-Compassion Scale

##### How I Typically Act Towards Myself in Difficult Times

Please indicate how often you behave in the stated manner, using the following scale:

**Almost never**

**Almost always**

**1**

**2**

**3**

**4**

**5**

1. I'm disapproving and judgmental about my own flaws and inadequacies.
2. When I'm feeling down, I tend to obsess and fixate on everything that's wrong.
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
5. I try to be loving towards myself when I'm feeling emotional pain.
6. When I fail at something important to me I become consumed by feelings of inadequacy.
7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
8. When times are really difficult, I tend to be tough on myself.
9. When something upsets me I try to keep my emotions in balance.
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
11. I'm intolerant and impatient towards those aspects of my personality I don't like.
12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
14. When something painful happens, I try to take a balanced view of the situation.
15. I try to see my failings as part of the human condition.
16. When I see aspects of myself that I don't like, I get down on myself.
17. When I fail at something important to me, I try to keep things in perspective.
18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
19. I'm kind to myself when I'm experiencing suffering.
20. When something upsets me I get carried away with my feelings.

21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
22. When I'm feeling down, I try to approach my feelings with curiosity and openness.
23. I'm tolerant of my own flaws and inadequacies.
24. When something painful happens, I tend to blow the incident out of proportion.
25. When I fail at something that's important to me, I tend to feel alone in my failure.
26. I try to be understanding and patient towards those aspects of my personality I don't like.

## **We will now move on to the sixth questionnaire, which is about social support**

### **# 6 Social Support**

I am interested in how you feel about the following statements. I will read each statement. Listen Carefully and indicate how you feel about each statement.

"1" if you Very Strongly Disagree

"2" if you Strongly Disagree

"3" if you Mildly Disagree

"4" if you are Neutral

"5" if you Mildly Agree

"6" if you Strongly Agree

"7" if you Very Strongly Agree

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends

**Now we will move to the sixth questionnaire which is about coping**

**# 7 Coping**

1 = I haven't been doing this at all

2 = I've been doing this a little bit

3 = I've been doing this a medium amount

4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

We reached to the end of the data collection process. My sincere thanks and appreciation go out to you for your patience and support.  
Thank you

## (Appendix: Assumptions diagnostic tests)

Diagnostic tests are sacrosanct and pertinent in ensuring that the right type of data is engaged and that the basic assumptions of a statistical method or technique are not ignored or violated. As doing so will culminate in outcomes and results that may not be fit for valid analysis and useful discussions, In this respect, the diagnostics cover tests of sample adequacy, linearity, normality, collinearity, and heteroskedasticity.

### Normality test

The normality test is assumed to be an important aspect. Normality often manages the way of data distribution for constructs and its relationship with normal distribution (Tabachnick & Fidell, 2013). Tabachnick and Fidell (2013) asserted that one of the basic postulates of regression analysis is that each variable in the study and all linear groupings of the variable are normally distributed. The normality test is usually examined using a graphical method. In this study, the graphical method was employed to test the normality of the data, as suggested by Tabachnick and Fidell (2013). The histogram of the regression standardized residual was used, and it was observed from Fig. 4.1 that all the bars of the histogram are moving toward the center of the histogram. This shows the assumption of normality is not violated.

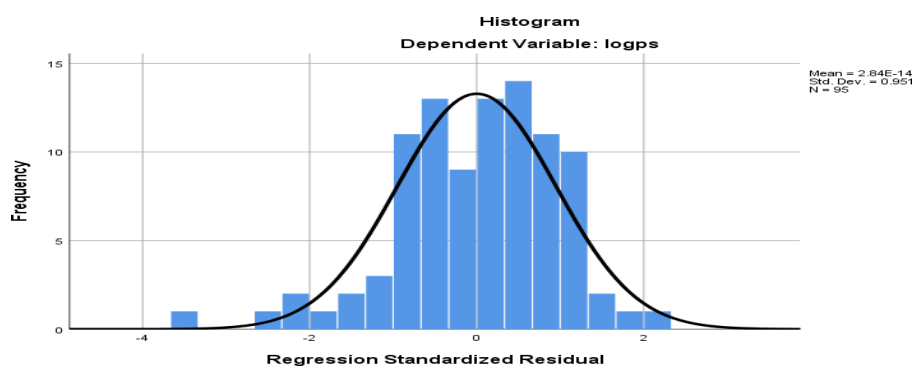


Figure 1

## **Linearity Test**

The test for linearity is aimed at determining whether or not the relationship that exists between the dependent and independent variables is linear. One of the basic assumptions underlying the application of the regression method is that the relationship between the dependent and independent variables must be linear. The method of scatter diagrams is used in this study to observe whether the relationship between the dependent and independent variables is linear. A scatter diagram has been described by Gupta (2013) as one of the simplest ways of diagrammatic representation of bivariate distribution and provides one of the simplest tools for ascertaining the correlation between two variables. Three figures are used to show the relationship between the dependent variable and each of the three independent variables. Figures 4.2 to 4.6 show the scatter diagram showing the relationship between dependent and independent variables in the study. A close observation of the five scatter diagrams (Figures 4.2, 4.3, 4.4, 4.5, and 4.6) reveals that there is an upward trend rising from the lower left hand corner going upward to the upper right hand corner, indicating a positive correlation since the two variables are moving in the same direction (Gupta, 2013). Since correlation exists between the dependent and independent variables, it can be inferred that the relationship between the dependent and independent variables is linear.

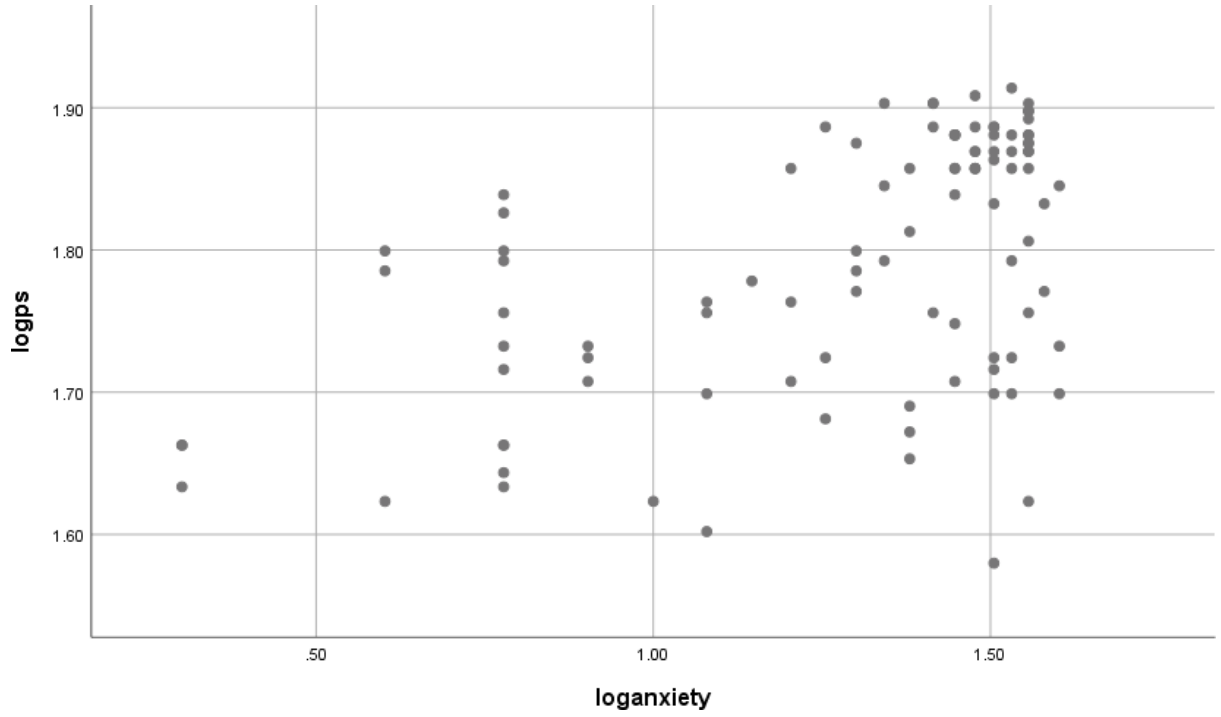


Figure 4.2 scatter diagram showing the relationship between anxieties and parenting stress.

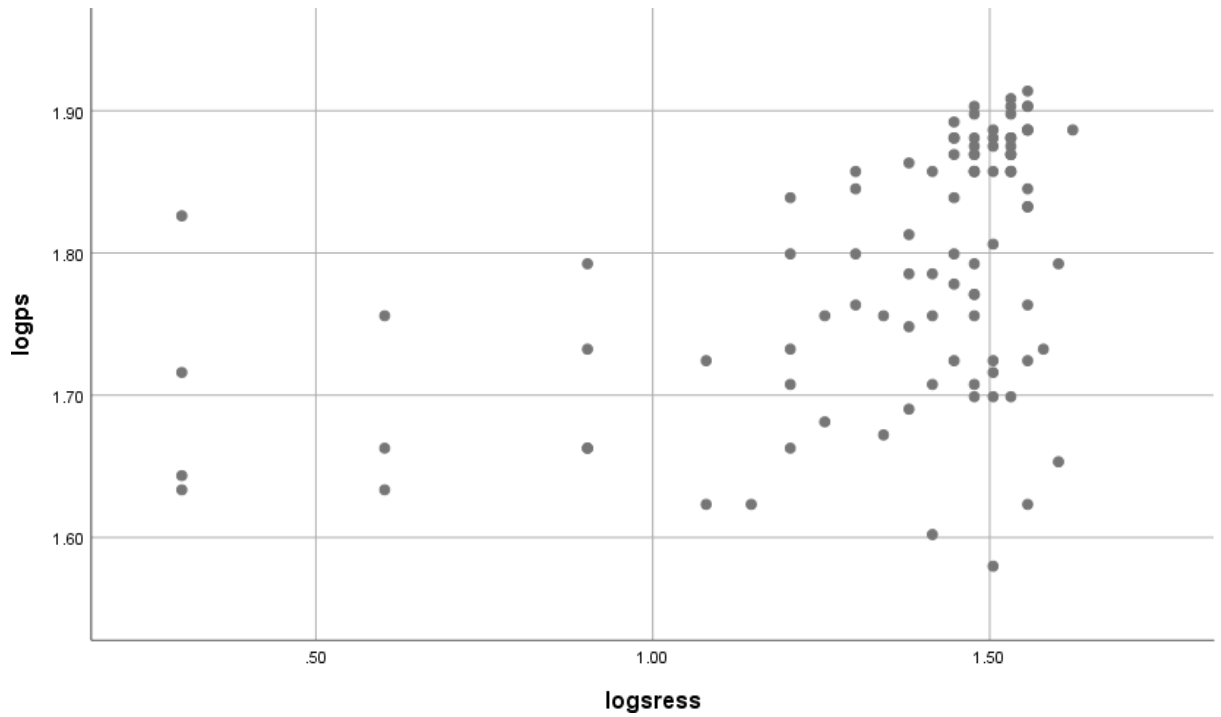


Figure 4.3 scatter diagram showing the relationship between stress and parenting stress

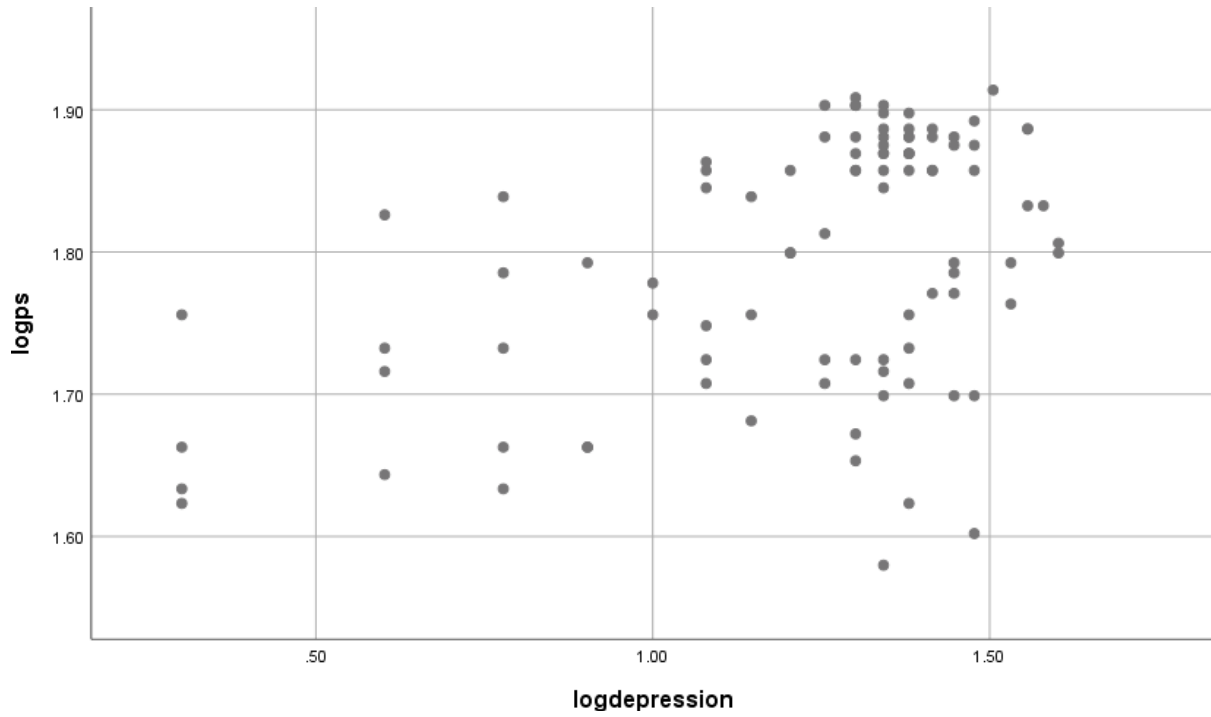


Figure 4.4 scatter diagram showing the relationship between depression and parenting stress

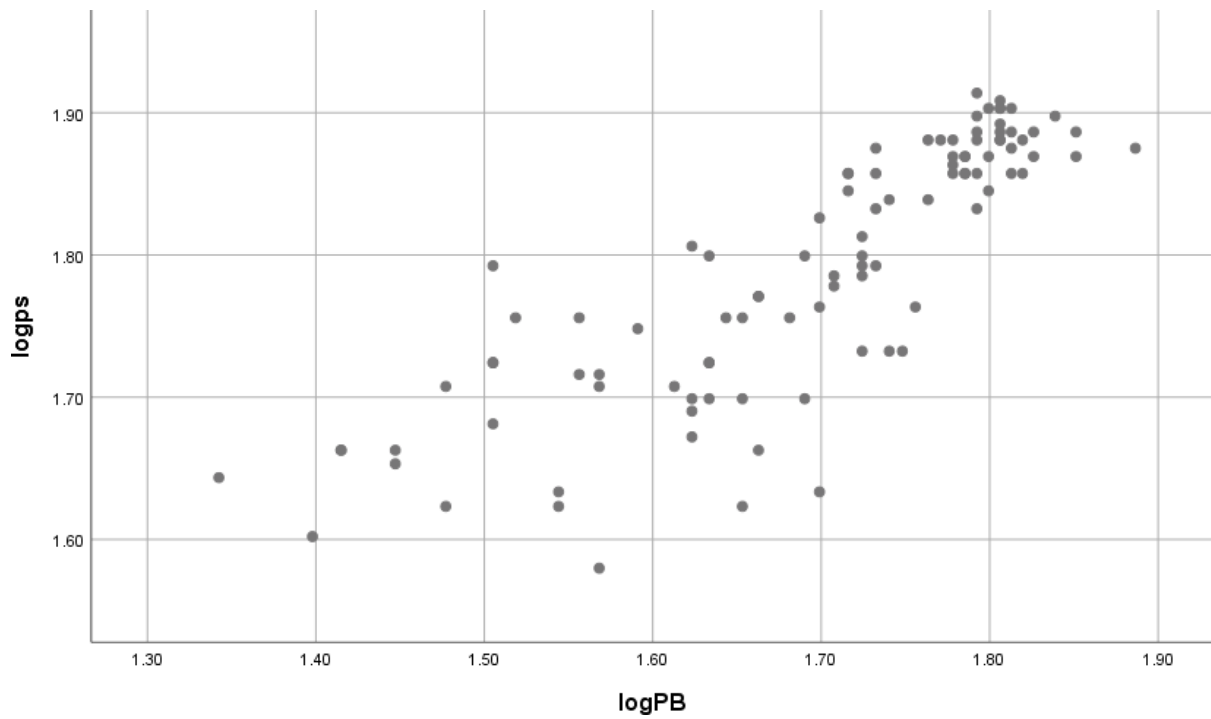


Figure 4.5 scatter diagram showing the relationship between Parental Burden and parenting stress

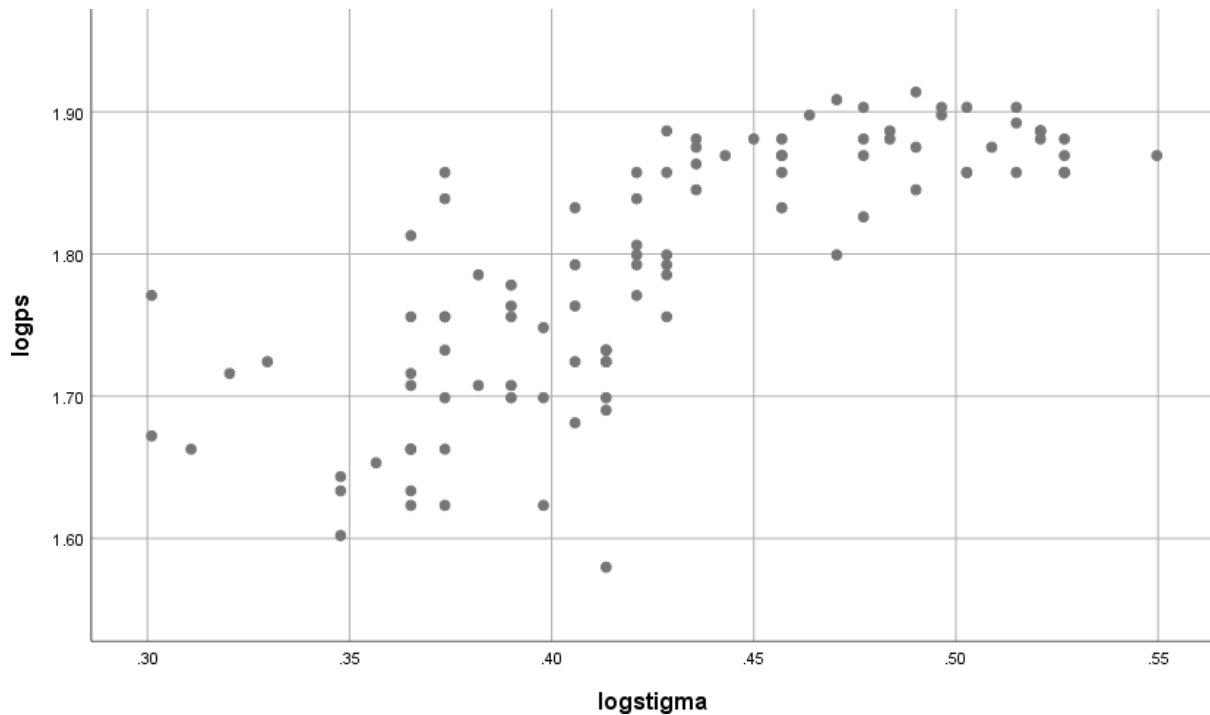


Figure 4.6 scatter diagram showing the relationship between stigma and parenting stress

### Multicollinearity Test

Multicollinearity is concerned with the interaction between independent variables. The presence of which can considerably alter the quality of the coefficient estimate and hence the statistical significance (Hair et al., 2014; Tabachnick & Fidell, 2013). When independent variables are overly associated, multicollinearity occurs. The multicollinearity screening was also carried out through the Variance Inflation Factor (VIF) and the tolerance value using regression results generated from SPSS. Marcoulides and Raykov (2019) suggested that a tolerance level of 0.20 and below or a VIF value of 5 and above indicates the presence of multicollinearity among variables. Therefore, multicollinearity is not an issue in this study, as shown in Table 3.

**Table 3 Tolerance Value and VIF of independent variables**

<b>Independent variables</b>	<b>Collinearity Statistics</b>	
	<b>Tolerance</b>	<b>VIF</b>
Anxiety	0.271	3.696
Stress	0.338	2.963
Depression	0.249	4.022
Parental Burden	0.408	2.449
Stigma	0.451	2.217

### **Heteroskedasticity Test**

One of the classical assumptions of the regression model is the absence of heteroskedasticity. Different approaches can be utilized to detect the presence or otherwise of heteroskedasticity in a model. The method of scatterplot graphing is adopted for this study. The scatterplot graph between the predictive values of the independent variables (ZPRED) and the residual (SRESID) is presented as figure 4.7. Based on the output of the scatterplot in Figure 4.7, it is evident that the spots do not provide a clear, specific pattern. Hence, it can be concluded that the regression model does not suffer from the problem of heteroskedasticity.

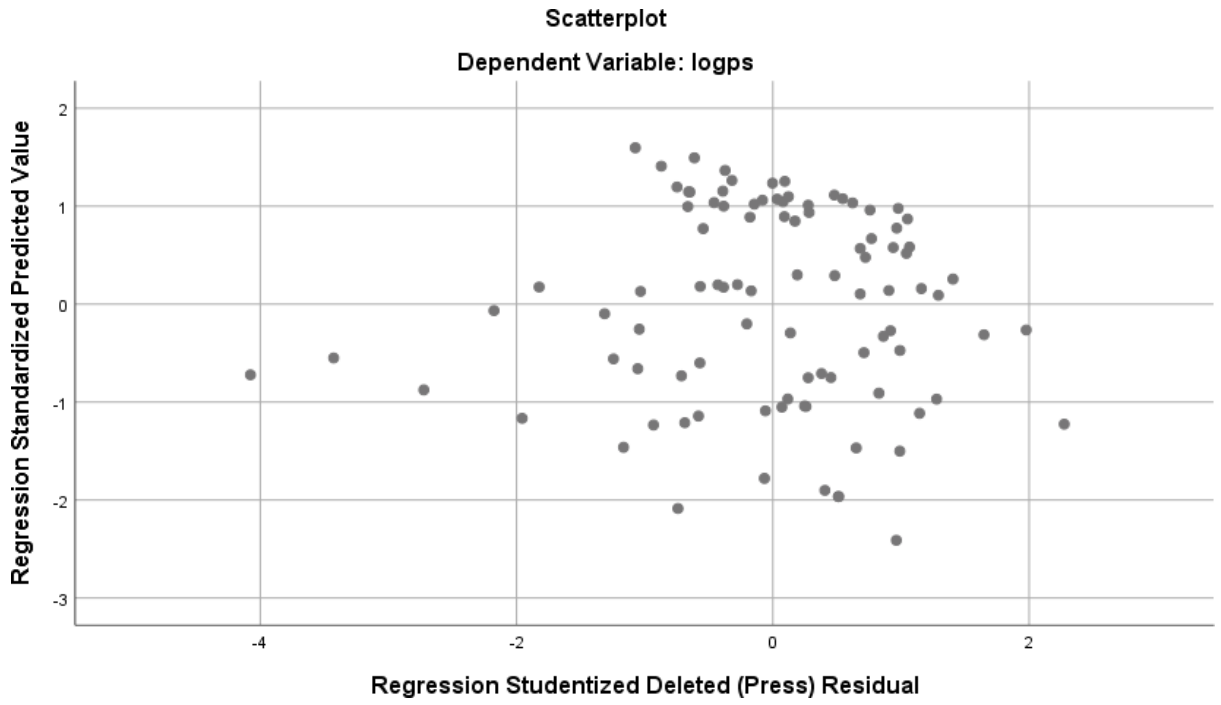


Figure 4.7: Scatterplot Graph

