

**STRESS AND RESILIENCE AMONG SIBLINGS OF CHILDREN  
WITH PHYSICAL AND INTELLECTUAL DISABILITIES**



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*Dedicated to Children with Disability*

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## **ABSTRACT**

The aim of the present study was to study the relationship between stress and resilience among the siblings of children with physical and intellectual disabilities. Role of various demographics variable (age, gender, education, monthly income, parental attachment, and academic achievement, social support of participant, and age, gender, education type of disability, of brother/sister) is also explored in stress and resilience. The Stress Scale for Sibling of Children with Disability (Rauf, 2006) was modified and used as per the requirement of the present study. State Resilience scale (Kausar & Jabeen, 2009) was used to measure resilience. The study was conducted in two phases Pilot Study and main study. Pilot Study (N = 30) was conducted to study psychometric properties of the measures. The sample of Main Study was comprised of 198 siblings of children with different disabilities (103 female and 95 male siblings). Including groups of 57 siblings of children with intellectual disability and 141 siblings of children with physical disability. Results showed sound psychometric properties of measures used. Pearson Correlation, t-test, ANOVA, and hierarchical regression were computed to test the hypothesis. Results of the study showed nonsignificant relationship between stress and resilience. Stress reflected as blame and physical symptoms were more in siblings of children with intellectual disability as compared to the other domains of stress. Female siblings face more stress as compared to male siblings in intellectual disability group. Siblings of sister with disabilities face more stress as compared to the brother with disability. Most significant correlation of resilience is birth order and family size having negative relationship. Father education and family's monthly income appeared consistent negative correlation with stress and its domain. Anger as indicator of stress is significantly related to demographic variables in physical disability group.



## Chapter 1

### INTRODUCTION

Most distressing phase of parent's life is those years when their children are too young preschoolers because young children are dependent on their parents. This stress is temporary because children are growing and moving towards autonomy, and maturity. Certainly outcomes are not supportive for the families of children with any disability and feature of such children is unpredictable that creates pessimism among parents. There are chances that child with disability may be dependent on others for whole life. It becomes permanent stressor for the whole family. Family members including parents, grandparents, and siblings lay foundation for child's development, socialization, values, and characteristics. In our Pakistani society disability is usually considered as a stigma for the whole family. It is considered as a sign of discouragement that add to stress for the whole family.

Along with the parents, siblings also face adjustment and adaptation problems while having a child with disability in the family. Information about the sibling experience is valuable to solve their adjustment problems not only useful for parents, but also for health professionals providing diagnostic support and care services to their families. Parents can use information to promote realistic expectations about the impact on their family and clinicians can provide specific practical and emotional support.

The objective of this study is to examine the stress level and resilience among the siblings of children with physical and intellectual disabilities which help the parents to understand the experiences of their normal children about their sibling with disability. In context of stress negative emotional responses like worry, anger, blame, disruption of social life, psychological manifestation of stress, and physiological manifestation of stress is examine. Previous researches show that siblings of children with disability are experience various negative emotions (Cuskelly & Gunn, 2006; Gass & Dunn, 2007; Kaminsky & Dewey, 2002; Rao & Beidel, 2009)

When children with disability become the center of attention for their parents because of their special needs, he/she turn into burden and source of stress for the whole family by drawing more social, economical and emotional support as compared to their normal siblings in the family. Siblings of children with disability are mostly ignored by their parents because of their child with disability, which lead to stress in the normal siblings (Caroli & Sagone, 2012). Older siblings especially girls share their parents responsibilities related to such children, so they are more prone to stress (Guse & Harvey, 2010). In this study, the sample is consisting of normal siblings of (both gender) of children with disability.

Resilience show the ability to cope effectively with challenges and stressor faced and in present study it has special context i.e., children with disability in family. Researches show that there is some positive effects on the siblings of children with disability, they become more responsible, mature having more scores on pro-social behavior; and strong personality characteristics (Dykens, 2005; Hastings, 2003; Rauf, 2000; Stoneman, 2005; Taunt & Hastings, 2002). Resilience is personal characteristic which strengthen by facing the adverse event (Garmezy, Masten, & Tellegen, 1984). Siblings of children with disability are facing continues exposures to stressor because of their brother/sister with disability so their resilience may be increases or decreases with the level of stress or family risk or resilience factors. So, to check the state resilience (resilience according to the present mental state) along with demographic variables is an important objective of this study.

The significance of present study is like for example if children with disability are aware about problems of their normal siblings they can help their siblings for normal adjustment by giving credit to their siblings for their services. If knowledge about the stressors or negative emotions of normal children which they face because of their sibling with disability is provided to the parents then parents can promote acceptance and resiliency in their normal children by giving secure attachment and confidence. And the risk of emotional and behaviors problems in siblings of children with disability can be minimize. It can help the siblings for better adjustment. Knowledge about disability of brother/sister is useful for siblings. They can understand the disability well and co-prate

with their parents regarding children with disability. Awareness about the siblings problem is also important for children with disability because if they know that they can treat their normal siblings with gratitude and can enhance their normal sibling well being.

It is useful to explore the issues of siblings and make strategies to overcome their problems by giving social and emotional support. By to minimizing the bad experiences of siblings and create environment to enjoy being a sibling of child with disability. Can be optimize and their development encouraging resilience in long term enhance their contribution to community, country, and family life.

### **Disability**

There is no universal definition of disability; however this term has been used in (Aron, Loprest, & Steuererle, 1996). American Disabilities Act (1995) defines disability "as any physical or mental impairment that substantially limits one or more life activity". Whereas, LaPlante, Carlson, Kaye, and Bradsher (1996) define as a person with disability is one who suffers from inability to perform the work properly. A person with disability usually impaired that can be sensory, cognitive or intellectual. Pakistani society considers as shame or dishonors something in person body not looking properly or any flow in body development. Equality Act (2010) define disability as "having a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on one's ability to do normal daily activities" substantial' is more than minor e.g. it takes much time then normal person take to complete activity for example taking meal and 'long-term' means 12 months or more e.g., a kidney pain that develop as a result of kidney infection.

A definition provided by (Weiss, 2010) says that a person suffers from disability when a person is unable to perform task like the normal individual does. Societal and cultural attitudes manipulate the definitions which create several discrepancies (Fewell, 1986; Fewell & Gelb, 1983). Disability is used by Pakistani society for any kind of impairment, handicap, or developmental delay. World Health Organization defines disability "as any restriction or lack (resulting from any impairment) of ability to perform an activity in the manner or within the range considered normal for a human being". (Waqar, 2014). Developmental disabilities are defined by (Pueshel, Bernier, &

Weidenman, 1988) the disabilities pertaining to children means the limitation in developing cognitive, physical or emotionally if compared to the normal children. The answer behind such a condition can possibly be the results of early diseases, or something pertaining to genes, chronic illnesses infections or mishaps in the childhood.

World Health Organization defines disability as the limitation in performing activity as compared to others. As the statistics shows that among world population the approximately 15% or about one billion fit on the definition of mild, moderate, or severe nature disabilities: 93 million of these are children. Current annual growth rate of disabilities is at 2.65 % per annual more than the annual growth rate (2.03%) of total population of Pakistan. Only 14% of persons with disabilities are in work, rest are dependent on family members for financial support. The number of children with disability is 43.4% of total population of people with disabilities, 58.4% male and 41.6% female (Population Census, 1998). The females with disabilities are in lesser number than males possibly because of the high incidence of female infanticide caused by social discrimination, preference for the male child, and deep rooted gender insensitivity within households. Interestingly it is estimated that 1.4 million (28.9% of the total number of person with disability) are not adults, but children who are unable to get education (Waqar, 2014).

Broadly there are two types of disability: *Physical disability* pertaining to physical impairment that is related to upper limb lower limb disfunctioning or sensory issues like hearing impairment. *Cognitive disability* comprises of disability connected to intellect, Including Intellectual disability, Autism, Learning disability, Language and communication d .o.

Types of disabilities include various physical and mental impairments create hurdles in carrying out every day activities and living a normal life. There are many sub-categories, of disability, which include the following: (Disabled World, 2013):

*Mobility and physical impairments.* Include Individual with Upper and lower limb (s) disability. That creates hurdle in mobility and movement, person who comes on bed due to breakage of bones or who could not move properly falls in this category.



*Vision disability.* People suffering from such disability are of huge number, blindness, injured cornea falls into this category. Some of the common vision impairment includes scratched cornea, scratches on the sclera, diabetes related eye conditions, dry eyes and corneal graft.

*Hearing disability.* It includes people who cannot hear properly, deaf, or these people are dependent on hearing equipments. Deafness can be evident at birth or occur later in life from several biologic causes, for example Meningitis can damage the auditory nerve or the cochlea. People suffering from this disability rely on nonverbal communication sign language, rather than language.

*Intellectual disabilities.* Are kind of disability present in people who are suffering from intellectual disability, Autisms, learning difficulties, and speech disorders.

Brothers/sisters of children with disability express more negative representation of self concept than normal children siblings (Caroli & Sagone, 2012). They confront adjustment issues because of major part of attention of parents is towards there sibling with disability (Cuskelly & Gunn, 2006; Gass & Dunn, 2007; Kaminsky & Dewey, 2002). Having children with disability is a unique experience for the all members of family, and whole family functioning is affected by this unique experience. These parents are mostly suffered from difficulties in maintaining good behavior and are usually stressed out (Hassall, Rose, & McDonald, 2005). It was consistent findings that parents of children with intellectual disability faces more stress than parents of children with other disabilities (Gerstian, Crnic, Blacher, & Baker, 2009).

Siblings of children with disability are more responsible, and have high scores on pro-social behavior (Hastings, 2003). Better quality of sibling relationship (Stoneman, 2005) more coping (Taunt & Hastings, 2002), Well-Being, and Character Strengths (Dykens, 2005; Rauf, 2000).

## **Stress**

In these contemporary times stress is a usual phenomenon and a part of everybody's life, people experience stress in different degrees, depending on a person's

patience level. There is also not easy to define stress like disability (Bailey & Simeonsson, 1988), people have come up with different definitions according to their perceptions.

"Psychological stress refers to the emotional and physiological reactions experienced when an individual confronts a situation in which the demands go beyond their coping resources" (Sowder, 2014). Psychological stress is produce when thinking in negative and exaggerated way by a person about past, present, or predicted feature. In other words, thinking by us create stressful situation. Person is perceived the situation in different ways a same stressful situation can be a source of stress for a one person and it may be not stressful for other. Other person can be perceived the same situation as an opportunity or challenge. So, for the first person it is a stressor because of his negative thinking but for second person will be a lot less stressed. A person has a choice how he perceived and react the situation (Sowder, 2014).

There can various causes; the most important is the change in one's daily life that can be related to job, life style or personal loss. In tractions and changing situation can also produce stress (Romas & Sharma, 2000). Stress can be caused by small everyday hassles, as well as pervasive, ongoing factors, which may arise from specific events, but have long-term ramifications (Bailey & Simeonsson, 1988; Romas & Sharma, 2000). The person suffering from stress always has a perception that is really important, because it determines the person's response towards the stressor (Romas & Sharma, 2000).

### **Stress in Siblings of Children with Disability**

Sibling can confront with numerous problems while living with a brother/sister with disability it can lead to stress; or the results can also be in shape of confusion, reward, or frustration. Sibling of children with disability express a range of emotions and responses to that sibling, similar in most ways to the range of emotions experienced toward siblings who have no disability (Powell & Ogle, 1995). The detection that brother or sister with disability in family, sibling must adjust to a brother or sister who become the center of attention of their parents because of their condition and consume a larger portion of family social and emotional support. The adjustment of siblings towards their

brother/sister with disability demands a numerous amount of patience, support and tolerance.

Lazarus and Folkman (1984) defined stress as "a specific relationship between the person and the environment that is appraised by the person". The environment and atmosphere plays important role in the life of individual pertaining to stress because the changing environment plays important part in determining the stressful conditions "Stressors are demands made by the internal or external environment that upset balance, thus affecting physical and psychological well-being and requiring action to restore balance" (Lazarus & Cohen, 1977). Few decades back, stress was taken as the phenomenon that was purely transactional and dependant on stimulus and perceiver. For evaluating the processes of coping with stressful events transactional model of stress and coping is a framework. Stressful events also accord in individual's life when there is environment involved in it like the change of environment from one to another. These changes depend on the source of external stressor that is perceived by the person he takes it as a threat. This is mediated by firstly the person's appraisal of the stressor and secondly on the social and cultural resources at his or her disposal When faced with a stressor, a person evaluates the potential threat (primary appraisal). Primary appraisal is a person's judgment about the significance of an event as stressful, positive, controllable, challenging or irrelevant. Facing a stressor, the second appraisal follows, which is an assessment of people's coping resources and options (Lazarus & Cohen, 1977). Secondary appraisals address what one can do about the situation. Actual coping efforts aimed at regulation of the problem give rise to outcomes of the coping.

Unlike individual stress, family stress does not involves the individual only, it included the family members as well (Curran, 1987). A family is a bond made by individual family members, the difference or change in family relationship can be the cause of changing the entire system of family. Family stress is defined as "a state that arises from an actual or perceived imbalance between demand (e.g., challenges, threat) and capability (e.g., resources, coping) in the family's functioning". Any incident or event that beings stress can bring change in the family system structure, values or goals (Burr, 1982).

One of the universal characteristics and forced behind stress is change. A system of family is affected if additional member joins the family. This change can be particularly stressful if the child has a disability (Kazak & Marvin, 1984). A family suffers tremendous change in every sphere and parenting is also affected by the stress (Gallagher, Beckman, & Cross, 1983). Another issue that parents of disabled children confronts the numbers of questions and indifferent behavior of social members towards them because they are considered as different. Thus the level of stress is much more in the parents of children with disability than the ones with normal children (Gallagher et al., 1983).

### **Theoretical Perspectives**

**ABCX model of family stress theory.** In the last decade, Hill (1949) ABCX model has been used as the foundation for studying family stress. In this theory, (A) The stressor event interacts with (B) the family's crisis-meeting resources, and (C) the family's definition of the stressor event to (X) the crisis (McCubbin & Patterson, 1983). Some families who experience stress may not even reach a crisis, depending upon the ability to restore stability, and using existing resources.

*The stress provoking event (A)* is defined as a kind of events that encourages bringing change in the family system as far as social perspective is concerned. For example, change in the family routine to accommodate children with disability or need for extra support or cooperation in caring for those children. Extra responsibilities affect the routine of whole family members including parents, grandparents and siblings of children with disability, this provoke stressor not only for parents but also for the siblings of children with disability.

*Resources (B)* are the families and personal ability to cope with the specific stressor or crisis. Family resources include an individual's personal resources, the family systems internal resources, education, social support, social economic status, coping, and resilience. Personal resources include finances, education, health, attachment and psychological resources. The family adapts to the stressful event. The family itself can be

a major source of social support; however, support can also be found outside the family (Rice, 1992).

*The (C) factor* it is the perspective of the family toward the stressful event. It is how the family takes the stress and what family values are there for dealing with such stressors. Family perception about the children with disability and child's characteristics, for example level of dependency in self help behavior, type of disability, gender, age, and level, frequency, and severity of maladaptive behavior in the case of intellectual disability. This is a critical factor in determining the severity of the stressor even and whether or not the family will experience a crisis. The subjective definition of the stressor event is influenced by family values, the family's previous experience with stress, the cultural definition of the stressor, and the community's image of the event (McCubbin & Patterson, 1983).

*X factor* are the stressor or crisis in the case of children with disability. Children with special needs turn into burden and source of stress for the whole family by using more social, economical, and emotional support as compared to their normal siblings. Siblings of children with disability are mostly ignored by their parents when their parents accommodate their brother/sister with disability which arise stress in the siblings.

From ABCX model in present study factor *X stress* and *B resources* are focused for example, in family systems internal resources, social support, social economic status, parental education, in personal resources, education, attachment with parents, are focused. Coping is focused by using state resilience measure. The *C Factor* the characteristic of children with disability like type of disability, gender, and education are also consider in the present research.

There are various factors in family that determines the nature of relationships and the mode of behavior of the family members siblings and parents it includes the life style, financial status of the family, number of family members, kind and severity of the disability; the number of children in the family; age differences between children in the family; other stress-producing conditions that exist in the family; kinds of coping

mechanisms and interaction patterns that exist within the family; the kind and quality of the support services available in the community (Kathy, 2013; Rauf, 2006).

A study on the sibling of children with disability conducted by Barbara and Bronson (2013) displays that the treatment given to person with disability can affect its siblings. The lack of attention can cause the difficulty to develop interpersonal skills to the optimum level, they also suffer from psychological issues and get involved into extracurricular activities less than that the siblings of children with disability, and they also suffer low functioning at school.

Brothers and sisters influence each other and play important roles in each other's lives. Because siblings are the first social relationship that is way it directly affects the behavior of each other. Sibling relationships make up child's first social network and are the basis of his or her interactions with people outside the family (Powell & Ogle, 1985).

In an indigenous study by Rauf (2006), an assessment of stress levels of parents and siblings of disabled children revealed that siblings of intellectual disability have high stress level than normal siblings. There was non-significant difference between sisters, and brothers, stress level. Mothers feel more stress, than fathers of children with disability. Increase in family size and social support, decrease parent and siblings stress. Increased family income decreases the stress level. Siblings of mentally retarded siblings experience more stress than normal children sibling group.

Studies reveal that sisters, mostly older sisters are more involved in the care of their siblings than the brothers (Dyson, 2010). This responsibility may include helping the child with special needs to socialize outside the home (Floyd, Purcell, Richardoson, & Kupersmidt, 2009). Older sisters also feel and express more worries regarding the sibling situation and well-being (Guse & Harvey, 2010) which taken together with this responsibility constitutes a significant stressor for the older sisters (Olsen et al., 1999). Psychological stress was assessed in three national surveys administered in 1983, 2006, and 2009. In 3 surveys, stress was higher among women than men; and increased stress level with decreasing age, education, and income (Cohen & Deverts, 2009).

Siblings could not be socialized because they have to look after their brother or sister with disability. A gender difference exist, sisters are more likely to engage in caretaking of their brother/sister with disability and are more prone to stress as compared to brothers (Nelson & Isreal, 2003).

### **Resilience**

Resilience is a natural phenomenon. It is the result of the difficulty one faces on gets stranger, thus gets capable of confronting the difficulties of life. Resilience is promoted as part of developmental process of a child over time (Malik, 2005). The term resilience has its roots in material science, where it refers to the capacity of a stressed body to recover its size and shape after compressive stress twist (Alvord & Grados, 2005) say that in order to have resilience, there must involve some risk or danger that construes the result that is better. Thus resilience strengthens man who confronts difficulties. Resilience is a multidimensional phenomenon. It comes in a person after confronting risk that ends in positive outcome in shape of strengthened human capability. It has been described by the (Cicchetti, 2007) that positive outcomes must show by the resilient person across multiple aspects of life over a period of time. Moreover Resilience indicates the possession of several skills, in varying degrees, that help a person cope (Alvord & Grados, 2005). Thus resilience results in making stronger even when people are at greater risks than average people. Resilience refers to achieving positive outcomes despite challenging or threatening circumstances (Brooks, 2006).

Positivity is an important factor in terms of resilience, the presence of risk helps a resilient person to act in a positive way and the chance of negativity minimizes (Fergus & Zimmerman, 2005). For the purpose of achieving resilience, it is imperative that the person had gone through various risks and danger in his past and the constant threat lies in his life (Masten & Coatsworth, 1998). First, there must be a significant perceived threat to an individual's development. Secondly, there must be experience past or present risk having the intensity to disrupt normal development. In other words, risk must be noticeable. As such, hazard must be detectable. Intermittently, risk are really based indicators of unfavorable results drawn from confirmation that this condition is

measurably connected to a higher likelihood of up and coming awful results (Fergus & Zimmerman, 2005).

In the case of siblings of children with disability there is visible threat to the development for normal siblings because siblings are the first social relationship brother and sisters influence each other's and play important roles in each other's lives so siblings resiliency is affected by their sibling with disability.

Interestingly, the resilience is based on couple of factors. That includes risk factors and protective factors (Alvord & Grados, 2005; Benzies & Mychasiuk, 2009; Fergus & Zimmerman, 2005; Martinez, Torteya, Bogat, von Eye, & Levendosky, 2009; Masten et al., 1991; Rak & Patterson, 1996). Protective factors adjust reactions to unfavorable occasions with the goal that potential negative results can be evaded. Then again, risk factors are circumstances that expand the likelihood of poor results. Protective and risk factors are not stationary units; they change in connection to context leading to different outcomes. The risk factor results in negativity and the ends in poor, on the other hand, the protective and risk factor does not remain constant, their results vary from time to time and its results differ. When the resilience has the positive outcome, it means that the strengthening of protective model is ensured at all levels society i.e., individual, family, and community (Benzies & Mychasiuk, 2009).

### **Factors Affecting Resilience**

**Biological factors.** Biological factors can lead to defects from birth, and underweight child (Rak & Patterson, 1996). Moreover, the poor diet of mother and malnutrition can lead to the occurrence of these factors. Furthermore, carelessness during pregnancy period and intake of intoxicating items like alcohol and other types of drug also play vital role in contributing to these factors. Children of drug-addicted mothers may be born with serious physical and emotional problems that are environmental in origin.

**Environmental factors.** Social problems can lead to these factors like poor financial condition of family, poor behavior of family members towards individual issues



and conflicts can also result in engendering these factors (Brooks, 2006; Luthar, 1991; Masten, 2011; Rak & Patterson, 1996). Experiences that lead to have negative impact on individual's mind are also the factors like violence and abuse. According to Brooks 2006, racial discrimination is also the factor. According to Masten (2011), a child belonging to societies where there are lack of opportunities and under stressed environment especially where there is absence of services pertaining to the well being of community and lack of basic facilities, these problems tend to rise in such environments African societies is a case in point. When these risks tend to rise then it leads to negative results over the period of time (Brooks, 2006; Masten, 2001). It includes the case of drugs poor performance in academics (Brooks, 2006) and antisocial behavior leading to violence (Fergus & Zimmerman, 2005; Resnick, 2000). These risk factor damages the individual, according to Resnick (2000), these antisocial behaviors can lead to crimes, psychological disorders and negative conditions pertaining to the emotions. Risk has the tendency to results in negative change in the behavior of the individual (Rak & Patterson, 1996) fortunately there is evidence in the seminal works of the 1970s on child and adolescent resilience, that negative outcomes may be circumvented (Resnick, 2000). Some factors like social economic status, education level of parents, and academic achievements will study in present research.

**Individual characteristics.** Various studies show that individual characteristics also play role in making a person resilient (e.g., Garmezy et al., 1984; Werner, 1984, 2000; Werner & Smith, 1982). According to Werner (1984) the children having the innate tendency to be resilient have the capability to learn positivity from the society (Werner 1984). According to Murphy (1962), resilient children are stranger in terms of socialization. There exist various other characteristics as well in their resilient behavior which includes good socializing qualities, bonding with the loved ones and positivity in behavior and viewing the environment (Werner 1984). There exist also increased intelligence capabilities in child (Alvord & Grados, 2005). Coping skills, temperament, health, gender play important role (Benzies & Mychasiuk, 2009). Motivation and internal self belief are also the part of child's behavior that results in resilience (Masten, 2001).

***Self-regulation.*** Researchers have identified that an easy going temperament and good self regulation is one of important elements in the resilient behavior of individual (Werner, 1993). It has been studied by Rydell, Berlin, and Bohlin (2003) that low self regulation leads to low pro social behavior on the other hand, high self regulation results in more pro- social behavior of an individual. Moreover, according to Werner (1993), the individuals with more resilience have the ability to solve their problems with sheer confidence. The ability to find ways and opportunities in going forward and develop in their lives, moreover, they accept the difficulties and obstacles as lessons to move forward in their careers e.g., seeking mentors, pursuing educational opportunities, participating in extracurricular activities (Werner & smith, 2001).

***Self-concept.*** It is another important factor in resilience as accepted by various researchers Masten et al. (1988) found that positive self-esteem was identified with having a feeling of self and a feeling of significant attachment figures. Other researchers found that for some at-risk children, stressful events served to strengthen them against harm and challenge rather than compound their weakness (Rutter, 1986; Werner, 1986). According to Werner (1984) feeling of confidence plays important role in resilient child to cope up with problems. Moreover, the success after coming up with difficulty increases the feeling of self concept that leads to resilient behavior of child.

***Family conditions.*** Family conditions play important role in child behavior. If the parents are responsive then it results in competent children with resilient capabilities (Baumrind, 1989).The authoritative parents control and up brings their children in suitable way with equal inputs of love, care and being responsive. Rationality is another factor that is important in such parents that ends in a competent child, (Baumrind, 1991). Eisenberg et al. (2003) found that the mother's response is positive towards the child and socially positive response is present in her behavior then the competence of child related to society and positive emotion will occur. There exist other factors as well that are related to the family of the individual and ultimately results in resilient behavior that is Structure of the family, Intimate partner relationships, Family cohesion, Supportive parent-child interactions, Stimulating environments, Social support, A stable and adequate income (Benzies & Mychasiuk, 2009).

Child level of dependency or child poor adaptive function is a risk factor for the family's resilience of children with disabilities. Low level of parental education and insecure attachment with parents is also the risk factors for sibling resilience (Perry, 2006). Past attendance of sibling groups like older sisters who take care of the siblings, stressful home environments, poor communication within the family, inconsistent and irregular family routine, and parental stress is great risk for the resilience of children with disability (Giallo & Gavidia, 2006).

**Community support.** Community is an essential factor in determining the behavior of individual because after the family, it is the community that comes in the socialization process in the life of individual. Community plays role as potential buffer for child at risk that saves the child from threads and damagers the community acts outside the family (Garmezy et al., 1984; Masten, 2001; Werner, 1984, 1986, 2000) that is why it includes non- family members which may include neighbors, teachers, religious figures in neighborhood, community center workers (Alvord & Grados, 2005). The factors which play role in protecting an individual as community level includes facilities provided for the purpose of recreation, providing religious services and support services for the children (Alvord & Grados, 2005; Benzies & Mychasiuk, 2009). The community supports play important part in making children stronger enough to cope up with the hurdles in their life and successfully pass the development stages of their life with confidence. Studies show that there are numerous factors that play role in enhancing the abilities of the children which includes faith, internal and biological elements that helps them to use different protective factors. Different factors Alvord and Grados (2005) accept that protective factors that effectively help children adjust and adapt to the troubles of life must be seen in the connection of their individual societies and formative stages. The International Resilience Project (Grotberg, 1995) demonstrated that confidence capacities as a stronger protective factor in a few societies than in others. Moreover, youngsters' development and cognitive levels, as well as internal and biological vulnerabilities, also inward and natural vulnerabilities influence their capacity to utilize diverse protective factors. According to Benzies and Mychasiuk (2009) resilience can be increased by belief in oneself and skills in education and training to deal with the problems.

## Models of Resilience

It has been suggested that model of resilience recognizes to explain how an individual and environmental factor has capacity to counterbalance the unfavorable impacts of risk factors (Fergus & Zimmerman, 2005; Garmezy et al., 1984; Rutter, 1985; Zimmerman & Arunkumar, 1994). Garmezy et al. (1984) proposed three models to describe the effect of stressors and individual characteristics on the nature of adjustment:

(a) Compensatory model.

(b) Challenge model.

(c) Protective factor model

**Compensatory model.** As indicated by Garmezy et al. (1984), a compensatory factor minimizes the presentation to hazard. There is no connection with risk factors; rather, it has an immediate and autonomous impact on the result (Fergus & Zimmerman, 2005; Zimmerman & Arunkumar, 1994). For instance, youth belong to low social economic status are more risk to engage in violent behavior than the youth belong to middle or upper social economic status, but if there is check and balance from adults on youth then there will be less chances to commit inappropriate behavior of the youth (Fergus & Zimmerman, 2005). The direct impact of a compensating variable would foresee less delinquency, psychopathology, or drug use (Zimmerman & Arunkumar, 1994).

**Challenge model.** In the challenge model, a stressor (i.e., risk) is dealt with as a possible increase of ability, that the stressor is not much dangerous, but manageable (Garmezy et al., 1984). As per Zimmerman and Arunkumar (1994), excessively little stress is not sufficiently challenging, but high levels stress leave the individual powerless bringing about potential maladaptive behavior. Then moderate levels of stress give the individual a strength that, when overcome, succeeds competence. Garmezy et al. (1984) depict this model as ongoing developmental phenomenon which reform with experience. Where children learn to move on and cope as they are presented to hardship. Youth get to be more exposure to the risk, as they effectively overcome low levels of hazard (Fergus

& Zimmerman, 2005). With proceeded with exposure to risk as youth age and mature their ability improve to face the stressor and to cope with it. This sort of model requires longitudinal information (Fergus & Zimmerman, 2005; Zimmerman & Arunkumar, 1994).

**Protective-factor model.** The protective factor model is also called the immunity versus vulnerability model. Garmezy et al. (1984) clarify that there is a conditional relationship in the stress and personal attributes concerning adjustment. Individual properties can intensify the effect of stress as a variable. Probability of a negative result is reduced when protective factors collaborate with risk factors. For example in the youth, tendency to adapt violent behavior in poverty is reduced when there is high level of parental support is available (Fergus & Zimmerman, 2005).

**Protective–stabilizing model.** The protective–stabilizing model refers to occurrence when the risk factor is neutralized by the protective factor (Luthar et al., 2000). So, in the absent of protective factor, high level of negative outcomes are received in the present of risk factor. In any case, when the protective factor is available, there is no relationship between the risk and result. Case in point, youth who have lacking parental help (risk factor) and don't have a grown-up tutor (protective factor) may display delinquent behaviors (result); however, youth with a non-parental grown-up coach may not (Fergus & Zimmerman, 2005)

**Protective–reactive model.** As per Luthar et al. (2000), in spite of the fact that the protective factors does not totally uproot the relationship between a risk and an outcome, the connection can be weekend. In this model, the association between the risk and outcome is stronger when the protective factor is not show. Case in point, Fergus and Zimmerman (2005) clarify that young who abuse drug may be more inclined to take part in risky sexual behavior. On the other hand, this relationship may be more weakened among those exposed to far reaching sexual instruction in their schools than among youth not accepting this training

**Protective–protective model.** In the protective–protective model, Brook et al. (1986, 1989) suggest that a protective factor can enhance the impacts of an alternate

protective factor in making outcome. For instance, parental support may increase the positive impact of academic achievement in producing more positive academic results than for either factor alone (Fergus & Zimmerman, 2005). On the other hand, on the grounds that resilience requires the presence of risk, this model may not be considered as resilience based model.

### **Resilience and Stress in the Siblings of Children with Disability**

A study related to siblings of children with disabilities on children's ratings of their own well-being and their attitudes and behavior toward their siblings with disability, revealed that they scored more poorly on some adjustment measures, but rated their behavior toward their sibling with disability more positively (Gamble & McHale, 1987).

A major finding of a study by Dervishaliaj and Murati (2014) was that taking care of the brother/sister is not considered a burden, and many of the participants accomplished these tasks related to the brother/sister with pleasure. They felt satisfied and rewarded by this relationship, overcoming innumerable challenges related to health problems, but they faced problems in social adjustment and felt stress.

In another study results revealed that the family level of risk and resilience factors were influence more on the sibling adjustment than siblings' own experiences of stress and coping resources, and parents play an important role in siblings adjustment. Siblings face less adjustment problems where regular and consistence routines are followed by the family members. Families with good communication and problem solving skill enhance the resilient behaviors in the siblings, who then adopt these strategies into their own coping range (Giallo & Gavidia, 2006).

Major findings of an important study (Ann, Karin, & Norman, 2011) revealed that children who experience adverse events cope more successfully when they have a positive relationship with a experienced adult. Because they are good learner, and problem solvers; they are engaging to other people; and they have areas of competence and perceived efficacy valued by self or society.

A study (Edith & Grotberg, 2011) revealed that with age resilience increases older children encourage resilience with the same frequency as their parents and younger children do promote resilience, there no difference regarding gender on resilience. It has been suggested that the first born or older sibling personality exhibits greater resiliency (Carson et al., 2002) Youngest children has attention seeking behavior and they show aggression or to misbehave if they feel a lack of attention (Nims, 1998). One of study which examines risks, resources, and adjustment among siblings of children with severe emotional disturbances revealed that there is non-significant difference in gender on resilience among the siblings of children with emotional behavior problems (Kilmer, Cook, Taylor, Kane, & Clark, 2009)

Relationship between stress and resilience is confusing; some studies showed that there is positive relation between stress and resilience (Nassal, Holtz, & Retzlaff, 2011). On the Other side, studies showed that there is negative relationship between stress and resilience among the siblings of disabled children (Hastings, 2004; Kilmer, Munsell, & Cook, 2010; Varaniyab, 2010).

### **Rationale of the Study**

Studies revealed that disability in a family bring problems for whole family members. Parents face the stress and burden of the needs of special children because children with disability needs more time, attention, and recourses of the family. Siblings of children with disability are affected because of extra-responsibility of their brother/sister with disability and neglect by parents. Normal sibling's attitude towards their brother/sister with disability can influence the adjustment and self-esteem of both normal children and children with disability. Sibling in a family is first social network, they learn from each other (Powell & Ogle, 1985; Scott, 2014). Researches show that siblings of children with disability are at high risk of internalizing and externalizing problems because of neglectful parenting (Cuskelly & Gunn, 2006; Gass & Dunn, 2007; Kaminsky & Dewey, 2002; Rao & Beidel, 2009) So it is important to work on the issues of siblings having brother or sister with disability because if the siblings will have good adjustment and stayed happy then whole family will be happy. Researches show that

siblings of children with disability have high level of stress than normal children's siblings (Breslau & Prabucki, 1987; Barbara & Bronson, 2013; Dervishaliaj & Murati, 2014; Rauf, 2006). There is need to explore the concern of siblings with disability regarding their brother/sister with disability (Skrtic, Summers, Brotherson, & Turnbull, 1984). Because information about sibling's adjustment can help the parent and professionals to make plan for better adjustment of a family of the children with disability; it can help the children with disability to be acceptable with their disability and move on with positive expectations for life.

Giallo and Gavidia (2006) took the sample from 49 families of children with intellectual, sensory, physical, or developmental disabilities in their research. So, in present study groups of different disabilities was taken. Physical disability: Upper limb and Lower limb(s) disability, Hearing and visual impairment and Intellectual disability.

Siblings feel satisfied by serving their brother/sister with disability but their social life is disrupted because of their brother and sister with disability (Dervishaliaj & Murati, 2014). Researches show that siblings of children with disability have poor adjustment (Dervishaliaj & Murati, 2014; Gamble & McHale, 1987).

Rauf (2006) also studies stress in parents and sibling with reference to intellectual disability. To study the stress among siblings of children having different disabilities including intellectual disability and physical disability is the originality of present study in context of variables of the study (i.e) stress and resilience.

There are studies on resilience, but these are all on family resilience especially on resilience of parents having children with disability (e.g. Ann, Karin, & Norman, 2013; Bayat, 2007; Heiman, 2002; Seligma, 2002). There are very few researches on resilience of sibling of children with disability. Present study focused on the resilience of siblings having disability. This is the uniqueness of present study. There are few researches (Rauf, 2006) in Pakistan on siblings of children with disability. Mostly of the work is done on issues of parents of children with disability (Azeem, 2013; Rauf, 2006; Sajad, 2009). So, there is need to explore the issues of siblings who have brother/sister with disability.



For relationship between stress and resilience inconsistent findings exist; some studies showed that there is positive relationship between stress and resilience (see e.g., Nassal, Holtz, & Retzlaff, 2011). On the other side, studies showed that there is negative relationship between stress and resilience among the families of children with disabilities (see e.g., Hastings, 2003; Kilmer et al., 2011; Varaniyab, 2010). Therefore, no assumption is made to study their relationship except that it will be explored in the present sample.

Finding of the present study will be use full for parents and health care experts to identify the problems related to the adjustment of the siblings of children with disability. Findings will provide social and emotional support for their better adjustment. Factors related to sibling's resilience may pin-point through this study this can be helpful for parents to promote better coping in the siblings.

## METHOD

### Objectives

The major objectives of the Main study are to:

1. Establish the psychometric properties of the stress related measure.
2. Study relationship between stress and resilience among the siblings of children having intellectual and different types of physical disabilities.
3. Compare the group of siblings of children having different (physical and intellectual) disabilities on resilience and stress.
4. Investigate role of various demographic variables (e.g. age, gender, education, attachment with parents, social support available, academic achievement, knowledge about nature of disability, ect. in resilience and stress among the siblings of children with disabilities.

### Hypotheses

1. There is more stress in female siblings as compared to male siblings.
2. Family monthly income has negative relationship with stress level in siblings.
3. Parental attachment and education has negative relationship with stress in siblings.

### Conceptual and Operational Definitions

**Stress.** "Psychological stress refers to the emotional and physiological reactions experienced when an individual confronts a situation in which the demands go beyond their coping resources" (Sowder, 2014). To assess siblings stress level an indigenously developed scale (Rauf, 2006) was used. The scale assesses sibling's perceptions of stress in seven different dimensions: Worry, Anger, Disruption in of Social Life, Acceptance, Blame, Psychological Manifestation of Stress, and Physical Manifestation of Stress in

context of having a brother or sister with disability. High scores show greater stress levels in siblings of children with disability and less score show less stress.

**Resilience.** Resilience is a strength it is developed in the result of the difficulty one faces on gets stranger, thus gets capable of confronting the difficulties of life. (Malik, 2005). State resilience is resilience of present mental state. To assess state resilience a scale State Resilience Scale (Kausar & Jabeen, 2009) is used to measure the state resilience. High score indicate the high resilience.

**Intellectual disability.** Is a term used when a person has certain limitations in mental functioning and in skills such as communicating, taking care of him or herself, and social skills (Weiss, 2010).

**Physical disability.** It is a limitation on a person's physical functioning, mobility, dexterity or stamina (Weiss, 2010) including upper limb(s) disability, lower limb(s) disability, disability in co-ordination with different organs of the body, Sensory impairment like visual and hearing impairment. In physical disabilities, we are considering visual impairment, hearing impairment, and physical disability in which upper limbs and lower limbs disabilities are included.

## **Research design**

It was a cross-sectional and exploratory study, using survey method for data collection. The study was carried out in two phases, Phase I was Pilot Study in which psychometric properties of modified stress related measure was established, and understanding of the measures for the participants of the study was ascertained. The second phase was the Main Study, in which objectives were achieved with empirically testing the hypotheses.

### **Phase I: Pilot Study**

**Objectives of Pilot Study.** The major objectives of the Pilot study are to:

1. Check the psychometric properties of stress and resilience scale.
2. Pretest the workability of the measures for the study's sample.

**Sample of the pilot study.** Sample of the present study comprised of 30 siblings of physical and intellectual disabilities. The inclusion criteria of the study sample were both male and female siblings without any disability with age minimum 12 years, who could read and understand the Urdu statements and were living with their family and their sibling with disability in home. Siblings elder to children with disability was preferred (where possible) because elder sibling witness neglect from their parents because of parental extra responsibilities and disturb family routine for having a child with disability in the family. Data were collected through snowball sampling technique from Rawalpindi and Islamabad

### **Instruments**

**Stress Scale for Sibling of Children with Disability (SSSCD).** It was developed by (Rauf, 2006). It consisted of 52 items have 5 point Likert scale in which response options are: 1 *untrue*, 2 *to some extent untrue* 3 *don't know*, 4 *to some extent true*, and 5, *true* (See Appendix A-2). It assesses siblings stress in seven different dimensions. Worry (2, 21, 28, 31, 33, 40, and 47), Anger (10, 12, 23, 38, 44, 48, and 50), Disruption of social life (14, 16, 18, 22, 24, 36, 42, 45, and 51), Acceptance (4, 7, 11, 17, 25, and 27), Blame (9, 19, 29 and 32), Psychological Manifestation of Stress (1, 6, 8, 20, 30, 34, 35, 37, 39 and 41), and Physical Manifestation of Stress (3, 5, 13, 15, 26, 43, 46, 49, and 52). There is 13 reverse score items (1, 4, 5, 7, 11, 17, 20, 22, 25, 28, 27, 41, and 50). All subscales have significant positive correlations ranging from .36 to .87 at  $p < .01$  (Rauf, 2006).

**Worry.** Siblings of children with disability feel anxious about their siblings with disability because of their dependency that reflect the worry about the siblings with disability, in the siblings of children with disability.

**Anger.** It is the feeling that normal siblings may express or feel it may be the result of neglect on the part of the parents towards normal siblings as their greater attention is usually towards the children with disability.

***Disruption of Social Life.*** When there is a person with disability is presents in family, family members face disruption of social life because of extra-burden of children with disability. Children with disability need help of parents and siblings for socialization, there for because of those siblings face disruption in their social life.

***Acceptance.*** It reflects acceptance level in siblings of children with disability. Siblings has low level of acceptance of their siblings with disability because they are ignored by their parents, they feel jealousy about their siblings with disability.

***Blame.*** Siblings of children with disability blame their siblings with disability because of stressful environment of family.

***Psychological manifestation of stress.*** This include the psychological symptoms of stress e.g., being tense.

***Physiological manifestation of stress.*** This includes the physical symptoms of stress for example feeling pain in some parts of body.

***Modification of Stress Scale for Sibling.*** Purpose of modification of the scale was to reduce the number of items in scale. Modification of the scales was done with the permission of the author of the scale (see Appendix A-1). Items were pin-pointed by subject matter expert's (all psychologists) of National Institute of Psychology Quaid-e-Azam University, Islamabad and forwarded for the further desired changes to the committee including the senior psychologist (PhD) of the National Institute of Psychology and the author of the Scale. Detailed discussions were made to bring the changes about the scale, and changes were finalized by establishing the consensus in committee.

Out of total 14 items were excluded from original scale. Item no 28 was excluded from Worry subscale because there is another item which is measuring same thing. Item no 44 and 48 were excluded from anger subscale because of complex structure. Item no 14 and 22 was excluded from Disruption of Social Life subscale because of repetition and complex structure. From Acceptance subscale item 7, 25, and 27 were excluded because of repetition; 25 was related to parent perception, whereas present study was focused on

siblings of children with disability so excluded and item 27 because of complex structure. Items 26, 46 and 52 were excluded from the subscale of Psychological Manifestation of Stress because in subscale anger, items were repeated. Items.3 items were excluded from Physiological Manifestation of Stress which show extreme physical symptoms of stress because here basic concern is psychological stress not physical stress. Total 7 items excluded because of repetition, 4 items because of complex structure, and 3 for some other reasons.

After making the changes following was the structure of modified scale (See Appendix A-3) is consisted of 38 items based on 7 subscales. Worry (2, 21, 23, 30, and 35), Anger (8, 10, 17, 18, 28, and 37), Disruption of Social Life (13, 15, 19, 26, 31, 33, 34, and 38), Acceptance (4, 9, and 14), Blame (7, 16, 20, and 22), Psychological Manifestation of Stress (1, 6, 24, 25, 27, and 29), and Physical Manifestation of Stress (3, 5, 11, 12, 32 and 36). There is 6 reverse score items in the final form of the Scale (1, 4, 5, 8, 13, and 37). It was five-point Likert scale in which response options were: 1(*untrue*), 2 (*to some extent untrue*), 3 (*don't know*), 4 (*to some extent true*), and 5 (*true*).

**State Resilience Scale (SRS).** developed by Hiew (2002) and translated in Urdu by Kauser and Jabeen (2009) was used to measure the state resilience (See Appendix B). It was a 5-point Likert scale: Response range from *strongly disagree* to *strongly agree* for 15 items. Respondent rated themselves on statement describing them at present time. Score range was 15-75 and high score on the measure indicated high resilience.

**Demographic sheet.** A detailed demographic sheet was developed to obtain specific demographic information of the respondent (See Appendix C). The sheet included information related to the age, gender, education, birth order, academic achievement, job status of parents (working and nonworking), education of parents, family monthly income, number of siblings, numbers of family members, knowledge about siblings disability, parental attachment, and social support available. In demographic sheet, information about sibling with disability was also sought like his/her age, gender, birth order, type of disability, education, and extent of parental attachment.

**Procedure.** The participants were conveniently approached at their homes. Instruments were administered individually. Written Informed consent of the participants was sought out. Participants were briefed about the study and were requested to respond on all items as honestly as possible. Time for the administration was about 15-20 minutes. Respondent were also acknowledged for their co-operation and participation of the study. Participants were assured that their information would be kept confidential and would be used only for the research purpose.

**Results.** The alpha reliability coefficients of Stress Scale for Siblings, and their subscales, and State Resilience Scale, were computed for present sample (see Table 1).

Table 1

*Cronbach Alpha Reliability Coefficients for State Resilience Scale and SSSCD (N=30)*

Scales and subscales	No. of items	<i>A</i>
State Resilience Scale	15	.82
SSSCD	38	.90
Worry	5	.53
Anger	6	.50
Disruption of Social Life	8	.65
Acceptance	3	.67
Blame	4	.69
Psychological Stress	6	.60
Physiological Stress	6	.59

*Note = SSSCD = Stress Scale for Siblings of Children with disability.*

Table 1 show that Cronback alpha reliability coefficient for Stress Scale for Siblings of children with disability is very good and for subscales it ranges from .50 to

.69. Three subscales Worry, Anger, and Physiological Manifestation of Stress have low reliability. The reliability coefficient for State Resilience Scale is good

**Discussion.** Participants were able to understand statements of the measure. They did not find any difficulty in answering the statements. The reliability coefficient for overall SSSCD was very satisfactory, but quite low for Worry, Anger, and Physiological Manifestation of Stress subscales that may be because of small sample size. Decision about items regarding deletion to improve reliability was not taken and postponed till results of Main Study. If reliability in the Main Study would also be low then with non significant item-to-total correlation, item would be removed from the subscale to improve the reliability. Overall, SSSCD reliability had good reliability that reflected upon good homogeneity of the measure (Cohen & Swedish, 1992), so it was decided to move forward for Main Study. The reliability coefficient for SRS was also good .82.

During data collection, problems for approaching siblings in their homes were faced as some parents were not willing to allow their children to disclose the information about their child with disability. Therefore in Main Study, for large data, children with disability in special education institutes would be approached to hand over questionnaires to these children to be filled by their normal siblings. Discrepancies in reporting were observed between the actual attitude observed in siblings and their responses to the questionnaires and verbal expression; siblings felt a lot of stress but did not report much openly in self-reported measures. Cronbach alpha reliabilities of scales are in satisfactory range above then .65 (Kline, 2002). Except worry, Anger, and physical manifestation of stress subscale ranges are low then .65.

## **Phase II: Main Study**

**Sample.** Sample was collected with the help of 4 different special education institutes of Islamabad. (National Institute of Mental Retardation, Al-Farabi Center for Physical Disable Children, Almakhtum Special Education Center for Visually Impairment, and Special Education Center for Hearing Impairment). The inclusion criteria of the study sample were both male and female siblings without any disability



with age minimum 12 years, who were living with their family and their sibling with disability in home. Sibling elder to children with disability was preferred (where possible). One questionnaire is given to one child to fill it either by their brother or sister. Total sample was 198 consisted of girls and boys 103 girls and 95 boys (age range: 12-29 years,  $M = 19.03$ ,  $SD = 5.10$ ). Out of total sample, 57 were siblings of children with cognitive disability (intellectual disability only) 49 of physical impairment, 51 of visual impairment, and 41 of hearing impairment.

Table 2

*Mean, Standard Deviation, and Range of Demographic Variable*

Demographic variables	Range	$M(SD)$	Missing values
Age of participant	12-29	19.03(5.10)	0
Birth order participants	1-8	2.50 (1.67)	1
Family size	3-9	7.37 (2.88)	0
Family monthly income (in rupees)	3500-100000	29906 (20867)	5
Age of children with disability	5-25	15.01 (5.17)	1
Birth Order of brother/sister	1-10	4.89 (1.70)	0
Education of brother/sister	.0-10	5.10(3.44)	28

Table 2 shows that mostly participant was educated because sample was belonged to urban area Rawalpindi Islamabad by approaching special education institutes. Some participants are reluctant to respond monthly income as one participant commented as “Why should I tell you? Education of children with disability is missing in the group of intellectual disability.

(See Table 3) shows the frequencies and percentages of sample along different demographic variables. Percentage in last exam was missing in demographic sheet. Out of total sample 59% have average academic achievement. Mostly sample is Muslim. In sample there are more female siblings who participate as compared to the boys may be

mostly girls were present in homes so it was easy to fill the questionnaire or siblings with disabilities are more attached with their sisters. 90% mothers was not working some siblings commented that their mothers leave their work because of their sibling with disability. Mothers are more illiterate then fathers. 56% fathers was doing government job other then farmer, teacher, driver, and army parsons was present in sample. Participants are aware about the disability of their siblings only 13% are not aware. Children with disability are more boys as compared to girls.

Table 3

*Frequencies and Percentages along Demographic Variables (N = 198)*

Demographic variables	f(%)	Demographic variables	f(%)
Group of disabilities		Groups of Physical disabilities	
Intellectual disability	57(28.8)	Visual impairment	51(36.2)
Physical disability	141(71.2)	Hearing Impairment	41(29.1)
Father education		Physical disability	49(34.8)
Illiterate	20(10.1)	Father occupation	
Under-matric	35(17.7)	Labors	28(14.1)
Matric	62(31.3)	Farmer	12(6.1)
Under-graduate	58(29.3)	Teacher	6(3.0)
Graduate	21(10)	Shopkeepers	13(6.6)
Mother education		Government employer	56(28.3)
Illiterate	64(32.3)	Self employer	46(23.2)
Under-matric	40(20.2)	Army	14(7.1)
Matric	44(22.2)	Driver	20(10.1)
Under-graduate	40(20.2)	Gender of Children with disability	
Graduate	9(4.5)	Male	126(63)
Mother occupation status		Female	73(37)
Working	19(9)		
Not working	179(91)		

**Instruments.** Same instruments were used in the main study as were used in pilot study. See instruments with detail in pilot study (p. 28)

1. Demographic sheet (See Appendix C)
2. Stress Scale for Sibling of children with disability (See Appendix A-3)
3. State Resilience Scale (See Appendix B)

**Procedure.** In Main Study the data were collected with the help of special education institute of Islamabad. Permission was taken from the Director Gernal of Special Education for data collection. The research measures were shown to the Director Gernal of Special Education in order to address any of their concern. After taking permission latter children with disabilities were approached in their institutes. Questionnaires were given to the children with disability with the help of class teachers to be fill in by their siblings without any disability. For mentally retarded children teacher wrote on their home work dairies with clear instructions that siblings without disability will fill. Participants were clearly informed about the academic nature of the research then written consent (see Appendix D) was taken from the participants. Participants were assured that their information would be kept confidential and would be used only for the research purpose and only overall findings would be reported to maintain anonymity. Participants were informed about the length of the questionnaires and were give right to leave the questionnaire at any step if they found it emotionally challenging. Instructions were given in the stat of questionnaire. In total, 203 filled questionnaires were received, out of which 5 were discarded due to response set and unsystematic marking. After the data collection, all data were entered into the SPSS-18 and further analyses of data were done and results were tabulated.

## RESULTS

The present research was aimed to explore the relationship between stress and resilience among the siblings of children with disabilities (physical and cognitive). Comparison of siblings of children with different disabilities on stress and resilience was also studied. Appropriate statistical procedures were used to analyse the data. All analysis was done through SPSS-18 software. The internal consistencies of the measure were determined through Cronbach alpha reliability coefficient. Pearson Product Moment Correlation was used to determine the relationships between variables of the study i.e. stress and resilience. Independent sample *t*-test and ANOVA were used to find out difference along gender, types of disability, social support, parental attachment, parental education and gender of children with disability. Pearson Product Moment Correlation was also computed to study the relationship of main variables of the study with demographic variables i.e. age, education, birth order, academic achievement, age and education of children with disability, no of family members that represent the family size, etc. Moderation by using hierarchical regression analysis was computed to check the moderating role of social support, parental attachment, social economic status, gender, type of disability and parental education for stress in predicting resilience. The results are tabulated as follows:

### **Construct Validity of Stress Scale for Sibling**

Table 4 shows the item-total correlation of items of stress scale for siblings of children with disability with its subscale total. All of the items are significantly correlated with its subscales, except two items (13, 31) in subscale Disruption of Social Life. In final analysis these two items which are not significantly correlated with subscale-total are excluded from the subscale to increase reliability, which is not satisfactory when including these items.

Table 4

*Item-total Correlation of items of Stress Scale for Sibling of Children with Disability with Subscale Total (N = 198)*

<u>Worry</u>		<u>Anger</u>		<u>Disruption of social life</u>				<u>Acceptance</u>		<u>Blame</u>		<u>Psychological manifestation</u>		<u>Physiological manifestation</u>	
item	<i>r</i>	item	<i>r</i>	item	<i>r</i>	item	<i>r</i>	item	<i>r</i>	item	<i>r</i>	item	<i>r</i>	item	<i>r</i>
2	.66**	8	.17*	13	-.03	4	.44**	7	.51**	1	.38**	3	.48**		
21	.44**	10	.48**	15	.93**	9	.77**	16	.65**	6	.60**	5	.23**		
23	.53**	17	.71**	19	.35**	14	.75**	20	.66**	24	.60**	11	.52**		
30	.55**	18	.76**	26	.23**			22	.43**	25	.68**	12	.64**		
35	.31**	28	.47**	31	.08					27	.70**	32	.47**		
		37	.51**	33	.39**					29	.46**	36	.63**		
				34	.43**										
				38	.52**										

## Alpha Reliability and Descriptive Statistics of Measures

The reliability of Resilience scale and Siblings Stress Scale and its all subscales was assessed through Chronbach's alpha ( $N = 198$ ). Descriptive statistics were calculated by computing their mean, standard deviation, skewness and kurtosis. The results are presented in the Table 5.

Table 5

*Cronbach alpha and Descriptives and Skewness, Kurtosis of Stress Scale for Sibling, Its Subscales and State Resilience Scale (N = 198)*

Scales	No of items	A	$M(SD)^a$	$M(SD)^b$	Range <sup>a</sup>		Skewness	Kurtosis
					Potential	Actual		
State Resilience	15	.74	58.91(8.48)	4 (.6)	15-75	15-75	-1.0	2.01
SSSCD	38	.82	88.5(22.26)	2.3 (.6)	38-190	44-154	.56	.31
Worry	5	.70	9.94(3.75)	2 (.7)	5-25	4-19	-.00	-.30
Anger	6	.73	11.87(4.08)	2 (.7)	6-30	5-23	.57	-.23
Disruption	6	.77	10.70(3.99)	3 (1.1)	6-30	4-20	.26.	-.91
Acceptance	3	.75	6.71(2.96)	2.21 (1)	3-15	3-14	.41	-.64
Blame	4	.71	13.08(3.01)	3.23 (.8)	4-20	4-20	-.54	.30
Psychological S	6	.72	15.84(4.64)	2.49 (.8)	6-30	6-28	.67	.42
Physical Stress	6	.70	14.36(4.18)	3 (.64)	6-30	6-30	.55	.84

*Note.* <sup>a</sup>On the basis of raw scores. <sup>b</sup>On the basis of transformed scores. SSSCD = Stress Scale for Siblings of Children with Disability. Psychological S = Psychological Stress.

Table 5 shows that Cronbach alpha coefficient for all Scales and subscales are satisfactory. It is observed that mean is greater for resilience as compared to stress mean but standard deviation is same for resilience and stress. Skewness is within the desired range of -1 to +1 indicating that the data is normally distributed and parametric tests can

be carried out. Negative values of kurtosis on four subscales of sibling stress scale indicate that the distribution curve is relatively flat and heavy tailed distribution of obtained sample scores, which indicate that entire sample, has variety of features evenly distributed revealing unique status (Kim, 2013)

### Relationship between Stress and Resilience

Pearson Product Moment correlation was computed separately for two groups i-e intellectual disability group ( $n = 57$ ) and physical disability group ( $n = 141$ ) to evaluate the relationship between stress and resilience (see Table 6).

Table 6

*Pearson product Moment Correlation of Stress and Resilience along Groups of Siblings of Children with Physical Disability and Intellectual Disability (N=198)*

Variables	1	2	3	4	5	6	7	8	9
1. Resilience	-	.12	-.02	.19*	.09	.82	.02	.02	.21*
2. Stress	-.10	-	.58**	.80**	.75**	.49**	.59**	.83**	.64**
3. Worry	-.13	.64**	-	.31**	.38**	.21**	.34**	.52**	.19*
4. Anger	-.11	.83**	.45**	-	.66**	.26**	.45**	.62**	.47**
5. Disruption	.04	.75**	.30**	.73**	-	.22**	.36**	.59**	.34**
6. Blame	.11	.72**	.45**	.52**	.50**	-	.12*	.37**	.29**
7. Acceptance	-.06	.60**	.37**	.38**	.29*	.26*	-	.35**	.24**
8. Psychological S	.00	.86**	.51**	.69**	.56**	.54**	.53**	-	.45**
9. Physical Stress	-.15	.73**	.28*	.53**	.52**	.54**	.37**	.57**	-

*Note.* Upper diagonal represent the siblings with physical disability ( $n = 141$ ) and lower diagonal represent correlation of siblings with cognitive disability ( $n = 57$ ).

Table 6 shows that Anger and Physical Manifestation of Stress are significantly positively correlated with resilience for siblings with children of physical disability while



or next of subscales and for overall Scale relationship is non-significant. Resilience has non-significant correlation with stress and its domains for siblings of children with intellectual disability.

### **Correlation of Resilience and Stress with Demographic Variables**

Pearson Product Moment Correlation was computed to determine relationship of demographic variables i.e., age of participant, education, birth order, family size, mother's education, and father's education, and family's monthly income, age of brother/sister with disability and his/her education. All demographic variables were continues in nature.

Table 7 Results show that age of participant is significant positively correlate with worry. That shows that older siblings have more worry because of their brother/sister sibling with disability. Education of the participant is significant negatively correlated with overall stress, and its sub domains disruption of social life ( $p < .05$ ) and anger ( $p < .01$ ) which shows that if the siblings are educated they face less stress and less anger, and less disruption in their life. Birth order is negatively correlated ( $p < .01$ ) with resilience which shows with decrease in birth order resilience increase. Family size (no. of siblings) is significant negatively correlated ( $p < .05$ ) with resilience which shows that increased number of siblings is related to less resilience. Social economic status in the term of family monthly income is significantly negatively correlated with overall stress, and its domains anger ( $p < .01$ ), disruption of social life, and physiological manifestation of stress ( $p < .05$ ). This shows that with increase in family monthly income stress reduces along anger, disruption in social life, and physical symptoms of stress. Mother's education is significant negatively correlated ( $p < .05$ ) with anger which show that if the mother is educated then siblings less anger experience because of their brother/sister with disability. Father's education is significant negatively correlated with overall stress, along anger, disruption of social life ( $p < .01$ ), psychological manifestation of stress and physiological manifestation of stress ( $p < .05$ ) and significant positively correlated with acceptance ( $p < .05$ ). Age of brother/sister is significant positively correlated with anger ( $p < .01$ ) i.e., if the child with disability is old then more anger is experienced by their

normal siblings because of his/her disability. Education of brother/sister with disability is significantly negatively correlated ( $p < .01$ ) with worry and blame. This means that if the brother/sister with disability is studying then with their increase education their normal siblings have less worry and they blame less.

Table 7 also show coefficient for two groups separately i.e., significance of children with intellectual disability ( $n = 57$ ) and physical disability ( $n = 141$ ) in the siblings of children with physical disability, age and education are significant negatively correlated with anger ( $p < .01$ ). Birth order is significant negatively correlated with resilience and psychological manifestation of stress ( $p < .05$ ). Birth order is positively correlated with resilience. Father education is significant negatively correlated stress, anger, disruption in social life ( $p < .01$ ), and physiological manifestation of stress ( $p < .05$ ). Family monthly income is significant negatively correlated with stress including anger and disruption in social life ( $p < .01$ ). And family size is significantly negatively correlated with resilience ( $p < .01$ ).

In the sibling of children with intellectual disability age is significant positively correlated with worry which shows older siblings have more worry about their sibling with disability. Father's education is significant positively correlated ( $p < .01$ ) with acceptance of such brother/sister. Family monthly income is negatively correlated ( $p < .05$ ) with blame and physical stress, which shows in high social economic status less symptoms of physiological stress, is experienced by sibling. Age of brother/sister with disability is negatively correlated with resilience. And education of brother/sister with disability is significant negatively correlated with blame ( $p < .01$ ).

Table 7

*Pearson Product Moment Correlation of Stress and Resilience along Demographic Variables (N = 198)*

Overall Sample <sup>a</sup>									
Variables	<i>RE</i>	<i>ST</i>	<i>WR</i>	<i>AN</i>	<i>DI</i>	<i>AC</i>	<i>BL</i>	<i>Psy</i>	<i>Phy</i>
Age of siblings	.03	-.01	.14*	-.06	-.08	.09	-.03	-.04	-.06
Education	.00	-.17*	-.05	-.22**	-.14*	-.05	-.09	-.11	-.13
Birth Oder	-.18**	-.06	.02	-.04	-.05	-.06	-.07	-.11	-.01
Family Size	-.17*	.04	.04	.00	.05	.10	-.07	-.02	.06
Family Monthly Income	.04	-.21**	-.07	-.26**	-.26**	-.10	-.05	-.13	-.17*
Mother education	.13	-.04	-.00	-.14*	-.10	-.04	-.01	.03	.02
Father education	-.03	-.25**	-.02	-.33**	-.23**	.19**	-.05	-.14*	-.21**
Age of brother/sister	-.06	.08	.03	.20**	.10	.05	-.03	.07	-.02
Education of bro/sis	.05	-.14	-.22**	-.08	-.06	.10	-.17*	-.08	-.03
Physical Disability <sup>b</sup>									
Education	.04	-.20*	-.08	-.26**	-.16	-.00	-.19*	-.10	-.16
Birth Oder	-.18*	-.11	.04	-.08	-.04	.19*	-.03	-.17*	-.08
Father education	-.11	-.25**	.02	-.39**	-.24**	-.13	-.08	-.12	-.26*
Family Monthly Income	.00	-.20**	-.06	-.30**	-.28**	-.02	-.12	-.14	-.06
Family Size	-.24**	.06	.06	.02	.11	.01	-.11	.02	.09
Intellectual Disability <sup>c</sup>									
Age of siblings	.06	.21	.36**	.24	.12	.09	.16	.12	.06
Father education	.16	-.26*	-.13	-.19	-.22	.34**	.00	-.21	-.23
Family Monthly Income	.17	-.24	-.07	-.25	.06	-.19	-.26*	-.22	-.28*
Age of brother/sister	-.37**	-.04	-.01	.00	-.07	-.06	-.05	-.17	.07
Education of bro/sis	.08	-.36	-.34	-.13	-.30	-.36	-.47**	-.15	-.19

Note. <sup>a</sup>n = 198; <sup>b</sup>n = 141; <sup>c</sup>n = 57. *RE* = Resilience, *ST* = Stress, *WR* = Worry, *AN* = Anger, *DI* = Disruption, *AC* = Acceptance, *BL* = Blame, *Psy* = Psychological Stress, *Phy* = Physical Stress.

## **Moderating Role of Different Variables for Stress in Predicting Resilience**

Moderating role of different variables (type of disability, social support, parental attachment, social economic status, gender, and parental education taken separately as moderators) were checked for stress in predicting resilience. First of all centering through means of independent variable (stress) and (moderator) were carried out to control error variance. Then interaction terms were computed on all variables (type of disability, social support, parental attachment, social economic status, gender and parental education) with stress were made. The independent variable (stress), moderator, and interaction terms were added through Enter Block method in hierarchical regression analysis. Nonsignificant interaction effect was found between type of disability and stress ( $\beta = -.19, p > .05$ ), social support and stress ( $\beta = .65, p > .05$ ), social economic status and stress ( $\beta = .18, p > .05$ ), gender and stress ( $\beta = .04, p > .05$ ), father's education and stress ( $\beta = -.19, p > .05$ ), and mother's education and stress ( $\beta = .02, p > .05$ ) in predicting resilience.

## **Comparison along Social Support Available**

The mean differences for siblings of children with physical and cognitive disability along social support available or not available on resilience and stress level were computed through independent sample *t*-test ( $N = 198$ ).

Results reveal that scores on **Blame** subscale of the stress ( $t = 1.99, p < .05$ ) shows that if there is social support available ( $M = 12.55, SD = 3.17$ ) then there will be less blame in the participant than if no social support is available ( $M = 13.74, SD = 3.06$ ) with Cohen's  $d = 0.33, 95\% CI [-1.53-.51]$ . Cohen's  $d$  is effect size of the difference between the two means which is of medium value. Non-significant ( $p > .05$ ) difference between social support available and not available on Resilience ( $t = 1.03$ ), Stress ( $t = -1.5$ ), Worry ( $t = .33$ ), Anger ( $t = -1.03$ ), Disruption in social life ( $t = -1.06$ ), Acceptance ( $t = -1.59$ ), Psychological manifestation of stress ( $t = -.98$ ), Physiological manifestation of stress ( $t = -1.5$ ).

## Comparison of Siblings along Gender

The mean differences along gender on resilience and stress and its domains were computed through independent *t*-test for the and siblings of children with physical disability (69 boys and 72 girls) ( $n = 141$ ) and for siblings of children with intellectual disability (26 boys and 31 girls) ( $n = 57$ ) and overall sample of siblings of children with disability (103 girls and 95 boys) with ( $N = 198$ ).

Table 8

*Mean Differences along Gender on Resilience and Stress and its domains in the Group of Intellectual Disability (N = 57)*

Scale	Boys ( $n=26$ )	Girls ( $n=31$ )			95% CI		Cohen's
	<i>M(SD)</i>	<i>M(SD)</i>	<i>t</i> (55)	<i>P</i>	<i>LL</i>	<i>UL</i>	<i>D</i>
Stress	82.23(23.16)	94.58(20.15)	2.15	0.03	-23.8	-0.85	0.57
Anger	10.57 (3.87)	12.96 (3.98)	2.28	0.02	-4.49	-0.29	0.61
Phy Stress	13.07 (4.29)	15.45(23.82)	2.2	0.03	-4.53	-0.21	0.59

*Note.* *CI* = confidence interval; *UL* = upper limit; *LL* = Lower limit.

Table 8 results show that there is significant difference on  $p < .05$  between boys and girls on overall stress and its domains anger and physiological manifestation of stress. Effect sizes is medium ranges are between (.05 to .08).

Results reveal non-significant difference between boys and girls on resilience ( $t = 1.78$ ), stress ( $t = -1.26$ ) and its all subscales all the  $p$  values are ( $p > .05$ ) on the siblings of children with disabilities ( $N = 198$ ). There is non-significant difference between boys and girls on resilience ( $t = 1.65$ ), stress ( $t = -0.74$ ) and its all subscales among the siblings of children with physical disability ( $p > .05$ )

## Comparison along Gender of Children with Disability

The mean differences for siblings of children with intellectual disability and the siblings of children with physical disability regarding gender of children with disability

on Resilience and Stress level along with all the domains were computed through independent sample *t*-test significant results revealed are given.

Table 9

*Mean Standard Deviation and t-value for Gender of Children with Intellectual Disability (n =57)*

	Brothers (n= 26)	Sisters (n=31)			95% CI		Cohen's
Scale	<i>M(SD)</i>	<i>M(SD)</i>	<i>t(55)</i>	<i>P</i>	<i>LL</i>	<i>UL</i>	<i>D</i>
Stress	83.71(9.29)	94.7(24.22)	1.89	0.05	-3.79	5.29	0.5
Anger	10.30(3.51)	13.6(24.01)	3.34	.00	-5.32	-1.33	0.9
Disruption	9.70(3.81)	11.8(13.97)	2.04	0.04	-4.18	-0.04	0.55

*Note.* *CI* = confidence interval; *UL* = upper limit; *LL* = Lower limit

Table 9 show that there is significant difference on overall stress, anger, and disruption in social life regarding gender of children with disability  $p < .05$ . Siblings face more stress, anger, and disruption in social life if sisters are with intellectual disability than brothers. Anger is experienced more strongly as shown by effect size than others two. For overall sample ( $N = 198$ ) there is significant difference was found on **Anger**  $p < .001$   $t = 2.8$  more anger was found towards sisters with disability ( $M = 12.98$ - $SD = .49$ ), then brother with disability ( $M = 11.24$ - $SD = 3.91$ ) with Cohen's  $d = .61$ , 95% *CI* [-2.8-.53] effect size is large. Non-significant difference was found along gender on resilience ( $t = .34$ ), and stress ( $t = .24$ ) and remaining domains. There is no significant difference on resilience ( $t = .70$ ), ( $p = .48$ ) and stress ( $t = -.04$ ), ( $p = .96$ ) and its all domains ( $p > .05$ ) in physical disability group.

### **Comparison along Parental Attachment**

The mean differences along parental attachment for siblings of children with disability on resilience and stress along with its domains was computed through one way ANOVA. Four groups were formed i.e. siblings attached with mother, siblings attached with father, siblings attached with both mothers and fathers, and forth was the sibling attaches with no one ( $N = 198$ ).

Results reveal that there is significant difference on **Acceptance** ( $F = 2.89, p = .03$ ). Bonferoni post-hock was used to study between groups difference two groups attached with father ( $M = 8.69, SD = 2.78$ ) and attached with mother ( $M = 6.19, SD = 2.56$ )  $d = .93$  with 95%  $CI [.23 - 4.75]$  effect size is large. Siblings who are attached with father have more acceptances about brother/sister with disability than attached with mother. There is non-significant difference among four groups on resilience ( $F = .81$ ) and stress ( $F = .79$ ) and its remaining domains.

### **Comparison along groups of Siblings of Children with Different Type of Physical Disabilities**

The mean differences for siblings of children with 3 different physical disabilities Visual impairment ( $n = 51$ ), Hearing impairment ( $n = 41$ ), and physical disability ( $n = 49$ ), groups on Resilience and Stress level along with all the domains through One way ANOVA was computed ( $n = 141$ ).

Results reveal that there is significant difference ( $F = 3.70, p = .02$ ) on one subscale **Disruption in Social Life** between siblings of children with physical disability ( $M = 9.65, SD = 4.19$ ) and the siblings of children with visual impairment ( $M = 11.96, SD = 4.27$ ) 2.36 with 95%  $CI [.17 - 4.43]$ . Bonferoni post-hock was used to study between groups difference. Siblings who have brother/sister with visual impairment face more disruption in their social life as compared to the siblings of children with physical disability. And there was non-significant difference between three groups on resilience ( $F = .03$ ), stress ( $F = 2.23$ ) and other domains, values are ( $p > .05$ ).

### **Comparison along Groups of Variation Stress (level)**

The mean differences for level of stress of siblings of children with disabilities along resilience were computed through One way ANOVA ( $N = 198$ ). Three groups on stress level mild, moderate, and sever were computed on 33% criteria of total scores. In first group scores range was till 0 to 62.7 ( $n = 20$ ) declare as mild stress, in second group scores range was 62.7 to 125.5 ( $n = 168$ ) declare as moderate stress, and in third group score range was 125.7 to 190 ( $n = 10$ ) declare as severe stress. Results reveal non-significant difference between groups on resilience ( $F = 1.13, p > .05$ )

**DISCUSSION**

The study was conducted on the siblings of children with disabilities because where a children with disability is present problems arise for this family. Children with special need consume more resources like more money, time attention of family members siblings of children with disability experience more stress and other negative emotion as compared to normal children siblings (Rauf, 2006). So, to check the resilience and stress level in its different domains is the purpose of present study. Comparison of different disability groups on resilience and stress was the major objective of study. To check the role of different demographic variables on resilience and stress is an important objective. Relationships between variables were also checked. There was more female sibling participants in the sample as compared to male because female were mostly present in home so it was easy to fill the questionnaire or may be children with disability more attached with their female siblings sisters, mostly older sisters are more involved in the care of their siblings than the brothers (Dyson, 2010). There was more boys with disability is present in the sample as compared to girls with disability. Disability ratio is high in males as compared to females in all provinces of Pakistan (Faizunnisa & Ikram, 2002). Fathers are more educated as compared to mothers in overall sample. And mostly mothers are not working because of extra responsibilities of their children with disability.

Results show that psychometric properties of resilience, stress and its all subscales was good, ranges were above then .7 "A reliability of .7 is a minimum for a good test" (Kline, 2000, 13). In modified Stress Scale for Siblings of children with disability all the items are highly correlate with its total at significant level ( $p < .01$ ) which shows good internal consistency of scale. Skewness was within the desired range of -1 to +1 indicating that the data was normally distributed. Negative values of kurtosis on four subscales of sibling stress scale indicate that the distribution curve was relatively flat and heavy tailed distribution of obtained sample scores, which indicate that entire sample, has variety of features evenly distributed revealing unique status (Kim, 2013).



In the present study four groups of siblings of children with (physical and intellectual) disability was taken in a previous study by (Giallo & Gavidia, 2006) Sample was Forty-nine families of children with intellectual, sensory, physical, or developmental disabilities. So, in present study groups of different disabilities was taken for comparison between each other.

Previous researches show confusing relationship between stress and resilience. Some studies showed that there is positive relation between stress and resilience (Nassal, Holtz, & Retzlaff, 2011), on the other side, studies showed that there is negative relationship between stress and resilience among the siblings of children with disability (Hastings, 2004; Kilmer et al., 2010; Varaniyab, 2010). In present study, significant results were not found between stress and resilience that may be because of small sample size, sample was consisting of just 198 individuals. In protective–reactive model of Luthar et al. (2000), in spite of the fact that the protective factors does not totally uproot the relationship between a risk and an outcome, the connection can be weekend. In this model, the association between the risk and outcome is stronger when the protective factor is not show. For example, Fergus and Zimmerman (2005) clarify that young who abuse drug may be more inclined to take part in risky sexual behavior. On the other hand, this relationship may be more weakened among those exposed to far reaching sexual instruction in their schools than among youth not accepting this training. So, resilience is vary from family to family its depends upon family risk and protective factors if there is more risk factors present in family then resilience will be more stress and less resiliency but the families where protective factors are strong, members of these families are more resilient in the stressful situation so, results on relationship between stress and resilience can be confusing. Challenge model of resilience (Fergus & Zimmerman, 2005) says that with continues exposure to risk as youth age and mature their ability improve to face the stressor and to cope with it. This sort of model requires longitudinal information. Present research is cross-section; data was collected at the spot. So, and relationship is not significant because participant was not observed with change in their age and maturity.

In past research, non-significant difference along gender was found on resilience among the siblings of children with emotional behavior problems (Kilmer et al., 2009).

A study by Edith and Grotberg (2011) revealed that sibling's scores on resilience promoting behavior were the same for girls and boys. In present research non-significant difference is found in along gender on resilience which validates the previous researches results.

First hypothesis is supported that there is more stress in female siblings as compared to male siblings. Siblings of mentally retarded siblings experienced more stress than normal children sibling group (Rauf, 2006). Studies revealed that sisters, mostly older sisters (Olsen et al., 1999), are more involved in the care of their siblings than the brothers (Dyson, 2010) and that this responsibility is more or less permanent (Lobato, 1990). This can lead to severe adjustment problems and mental ill health both in the short- and long-term (Thompson, Curtner, & O'Rear, 1994). In the present study, there is significant difference along gender on stress, anger, and physical manifestation of stress in the group of intellectual disability. Brother and sisters are often socialized to anticipate caring for the child with disability in the future. A gender difference exists, and sisters are more likely to engage in caretaking across the life span hence are more prone to stress (Nelson & Isreal, 2003). Girls faced more stress, anger and physical stress because female siblings are at home they have to be sharing the responsibility of their mothers to look after the sibling with disability. Researches show that there is more stress in mother of children with intellectual disability. Mothers feel more stress then fathers of children with intellectual disability (Rauf, 2006) and more stress in female siblings as compared to male siblings (Thompson et al., 1994). Because it is more difficult to look after the children with intellectual disability, they have poor adaptive functioning as compare to the children with physical disability.

There is significant difference on gender of children with disability in intellectual disability group. Siblings of sisters with intellectual disability face more stress, anger, and disruption of social life, because it is more problematic for a girl to face disability in our male dominating society where parents prefer their male child girl with disability. So girl with disability may have low acceptance as compared to boy with disability. In the group of intellectual disability sister with poor adaptive functioning is more problematic because girls have some private issues, for example menstrual cycle, girl with intellectual

disability have no sense how to handle such issues so, their mothers or sisters take care of them and develop more stress and disruption of social life because of their extra responsibility of their girl with intellectual disability.

Age of participant was positively correlated with worry. Older siblings experience more worry about their brother/sister with disability because they have more sense to understand the related problems and issues and related outcomes. Older sisters also feel and express more worries regarding the sibling's related problems and their well-being (Guse & Harvey, 2010) which taken together with this responsibility constitutes a significant stressor for the older sisters (Olsen et al., 1999).

Education is significantly negative correlated with stress, anger, disruption of social life, blame. With education siblings face less stress, anger, disruption of social life and blame. Education bring knowledge and acceptance about the siblings with disability in their normal sibling so they faced less stress because of their sibling with disability, they did blame themselves for their stressful situation. Psychological stress was assessed in three national surveys administered in 1983, 2006, and 2009. In 3 surveys, stress was high in low education, and low income group (Cohen & Deverts, 2009).

Sibling of children with disability face disruption in social life in family, each sibling, and each relationship that siblings have, is unique, important, and special. Brothers and sisters influence each other and play important roles in each other's lives. Indeed, sibling relationships make up a child's first social network and are the basis for his or her interactions with people outside the family (Powell & Ogle, 1985). Educated siblings learned how to manage their own life in existing stressful situation in family due to the children with disability so, disruption in their social life is less as compared to uneducated siblings.

Birth order is significantly negatively correlated with resilience birth order increases the resilience decreases which mean that with first one in the family has more resilience as compared to younger one. It has been suggested that the first born or older sibling personality exhibits greater resiliency (Carson et al., 1992). Youngest children are believed to be accustomed to receiving attention and thought to misbehave if they feel a

lack of attention (Nims, 1998). Another study results revealed that older children promote resilience with the same frequency as their parents and younger children did not promote resilience by (Edith & Grotberg, 2011). The situation in which children with disability is present in a family other siblings are ignored by their parents so; younger children have less resiliency and acceptance for this stressful situation.

Resilience is negatively correlated with family size, in present study family size mean number of siblings, it means that if number of sibling increases resilience decreases. It is fact that when there are more children in a family parents could not fulfill their children social and emotional needs properly, because they have to manage the time and resources with many children so, siblings are more ignored by their parents in the case of large family size and because of that siblings well being is affected and resilience decreases.

An indigenous study by Rauf (2006) result revealed that increase in family income decreases the stress level in the parents and siblings of children with intellectual disability. Present study validate the results there is less stress, anger, disruption of social life and physical manifestation of stress with increase in income. Second hypothesis that negative relationship between family income and stress is supported.

Third hypothesis is also supported by study results that parental education has significant negative relationship with stress, anger, disruption in social life, physical stress and significant positive relationship with acceptance. Families where mothers are educated children express less anger towards sibling with disability because educated mother understand the emotional needs of their children and promote acceptance about sibling with disability in their normal children. In present study, father's education has greater role as compared to mother's education on children which is negatively correlated with stress, anger, disruption in social life and physical stress. Father's education is actually linked with the social economic status, and researches show that increases in the family's income decreases the stress (Cohen & Deverts, 2009; Rauf, 2006).

Father education and acceptance is positively correlate with each others because father has dominating role in a family he has authority so, if father is educated and having knowledge about disability he can promote acceptance in their children about disability.

In physical disability group, age is negatively correlated with anger. Younger children experience more aggression towards sibling with disability as compared to older may be because younger children need more attention of their parents and when they are ignored by their parents they fell jealousy and show anger towards such sibling who takes as more attention of parents related of their physical and intellectual impairments. Research also revealed that youngest children are believed to be accustomed to receiving attention and thought to misbehave if they feel a lack of attention (Nims, 1998).

Moderation analysis is non-significant because of sample size sample is consist of just 198 individuals. Values are so close to significance value its mean that increasing the sample size values would be significant.

Researches show that the positive or negative nature of the relationships between siblings and family members may be influenced by factors such as family's resources ; family's lifestyle; kind and severity of the disability; the number of children in the family; age differences between children in the family; other stress-producing conditions that exist in the family; kinds of coping mechanisms and interaction patterns that exist within the family; the kind and quality of the support services available in the community (Kathy, 2007; Rauf, 2006). On social support available results was significant on only one subscale, Blame there is more blame in the group of siblings where social support is not available as compared to support available. People shaped our attitude if siblings have supportive social group then he/she put less blame to the disability of their sibling. There was only one question about social support available/not available in the questionnaire so, it was not necessary to be significant result on the basis of just one statement.

Youth who have inadequate parental support (risk factor) and do not have an adult mentor (protective factor) may exhibit delinquent behaviors (outcome); however, youth with a non-parental adult mentor may not (Fergus & Zimmerman, 2005). In the present study when siblings of children with disabilities are attached with father they have more

acceptances about brother/sister with disability and faced less stress. Second part of third hypothesis is also proved that parental attachment has negative relationship with stress.

Protective model of resilience says that specifically, protective factors can interact with risk factors in reducing the probability of a negative outcome. For example, for youth with high levels of parental support, the relationship between poverty and violent behavior is reduced (Fergus & Zimmerman, 2005). Father has strong role in a family, if the children are friendly with their parents, especially, with father then children feel more confidence and understanding about stressful situation in the family and cope with it. A study by Giallo and Govinda (2006) also revealed that the family level of risk and resilience factors were better predictors of sibling adjustment than siblings' own experiences of stress and coping resources, highlighting the importance of familial and parental contributions to the sibling adjustment process.

Siblings of children with visual impairment face more disruption in social life as compared to sibling of children with physical disability. May be because children with visual impairment are more dependent on their sibling for socialization and social mobility. Children with physical disability are able to move outside by using wheelchair or any physical aid but children with visual impairment are totally dependent on others while going out of the home. So, when siblings move with their brother or sister with disability their own social life is disrupted.

Nonsignificant results were found on three level of stress along resilience. Challenging model of resilience tell that continued exposure to adversity as youth age and mature, their capacity to thrive despite risks increases, and for meaningful conclusion longitudinal data is required (Fergus & Zimmerman, 2005; Zimmerman & Arunkumar, 1994). Present research was cross-section therefore conclusion could not be drawn with study.

### **Limitations and Suggestion**

1. Data for the present study was taken from the different institutes of children with disability of Islamabad. Siblings were indirectly approached questionnaires were

given to children with disability for their siblings. Future researches should approach the siblings with disability in face to face and from different cities so that authentic data collected and generalizability of the results could be increased.

2. The questionnaires used in this study were self-report measures. Such measures may result in single source biasness and discrepancies were observed between attitude and responses of the participants during data collection. In the future research, qualitative studies (i.e, in-depth interviews) should be conducted for more reliable and detailed information.
3. Present research was cross-sectional, data was collect at the spot, so results on the resilience was not so meaningful because risk and protective factors for resilience were may changed with age and maturity. Future researches should be on longitudinal data for more meaningful results.
4. Social support available measured through one statement in demographic sheet important finding on only one subscale Blame was found. It is suggested that valid and reliable measure of social support could be used in feature researches.
5. Suggested analysis for feature studies is MANOVA along gender of siblings and gender of children with disability for experience stress and resilience.
6. Moderation analysis is suggested for future studies on family size parental education, and family monthly income for predicting resilience.
7. The sample was consisted of a mixed disability group. While it is likely that the experiences of siblings of children with a range of disabilities overlap, it brings up a important issue about whether children with different disability should be combined as a heterogeneous group for research or takes separate groups for different disabilities (Hodapp & DesJardin as cited in Giallo & Gavidia, 2006). So it is suggested to take homogeneous groups and study their experience in detailed.
8. In the present study sample size for each disability group was too small; it was difficult to compare the adjustment of siblings of children with different disability type. Future studies may take the sample of specific disability types to explore any significant difference in sibling adjustment (Giallo & Gavidia, 2006).
9. In present research, severity of disability was not measured in the case of intellectual disability group siblings of children with a more severe disability may

be more likely to attend support groups or come from families with disrupted family routines (Cuskelly & Gunn as cited in Giallo & Gavidia, 2006). It suggested for future researches that severity of disabilities must be noticed for intellectual disability group.

10. Findings of present study pinpoint the two factors which may helpful for sibling adjustment parent education and monthly income so it is suggested for government to give privileges to siblings of children with disability for enhancing their well beings. It also suggested that giving family stipends for children with disability which may be help the family and siblings for better adjustment.

### **Implications**

Despite its limitations, the current study has important implications for future research and the design of interventions and supports for siblings and families. This study identified siblings stress along different domains and roles of different demographic on stress and resilience. Parent and family characteristics that may serve to increase the risk of sibling adjustment difficulties highlighted the importance of parental education contributions to the sibling adjustment process. So parent should be educated about how to handle disability of the child in social context of family where other children are also laying and getting effected by parental attitudes and their life style.

This study also has implications for assessment and intervention of sibling adjustment difficulties. Experts working with families need to consider the effect of disability on siblings and also the children and their parents. Given that family context assume a discriminating part in effecting sibling adjustment difficulties, interventions emphasizing on supporting the entire family, in addition to specifically supporting siblings, may be the best. Strengthen siblings, parent, and general family functioning may likewise enhance their ability to adapt to and address the needs of the children with disability.

Knowledge about the sibling experience is significant to tackle their adjustment issues valuable for parents as well as for wellbeing experts giving diagnostic, support and care services to their families. Parents can utilize these information's to promote coping



and resiliency about the effect on their family and clinicians can give particular practical and emotional support and interventions.

Study has valuable implication for example if normal children are aware about problems of their siblings with disability they can help their siblings for normal adjustment by giving credit to their siblings for their services. Similarly, child with disability should be made aware of normal sibling's services to him. So that their acknowledgment may improve self-esteem and self-concept of normal sibling and would be more willing to help in future and be more resilient.

### **Conclusions**

It was concluded that there is non-significant relationship between stress and resilience. Female sibling's experiences more stress because of sharing responsibilities and may be because of more caring nature. Anger was more reported in physical disability group. Being a female with disability is more problematic for siblings. Small family size and low birth order promote resilience in the siblings. Parent education and family monthly income play very important role in sibling adjustment. Educated parents are more understandable and create positive expectations in the siblings which lead to less stress. With increase family monthly income available facilities are increased for siblings and they face less stress.

## References

- Ahern, N. R., Kiehl, E. M., Sole, M. L., & Byers, J. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing*, 29(3), 103–125. doi: org/10. 1080/01460860600677643
- Alvord, M. K., & Grados, J. J. (2005). Enhancing resilience in children. A proactive approach Professional Psychology. *Research and Practice*, 36(3), 238–245. doi:org/10.1037/0735-7028.36.3.238
- Aron, L.Y., Oprest, P.J., & Steuerle, C.E. (1996). *Serving children with disabilities*. Washington, D.C Urban Institute. Retrieved from <http://www.pop.org.pk>
- Azeem, M. A. (2013). Anxiety and Depression among Parents of Children with Intellectual Disability in Pakistan. *Journal of Child Adolescent Psychiatry*, 22(4), 290–295
- Ann, A., Karin, Y. R., & Norman, A. (2011). *Siblings of Disabled Kids May Show Emotional Effects*. Retrieved from <http://consumer.healthday.com/> .html
- Baliley, D. B., & Simeonsson, R. J. (1988). *Family assessment in early intervention*. Columbus, OH: Merrill.
- Barbara, S & Bronson, P., (2013). *Siblings of Disabled Kids May Show Emotional Effects*. Retrieved from <http://consumer.healthday.com/> .html
- Baumrind, D. (1989). *Rearing competent children*. In W. Damon (Ed.), *Child Development Today and Tomorrow*. San Francisco. pp. 349–378.
- Bayat, M., (2007). Evidence of resilience in families of children with autism: Rearing competent children. In W. Damon (Ed.), *Child Development Today and Tomorrow*. San Francisco. pp. 385–390.
- Beardslee, M. D., & Podorefsky, M. A. (1988). Importance of self-understanding and relationships. *The American Journal of Psychiatry*, 145(1), 63–69.

- Benzies, K., & Mychasiuk, R. (2009). Fostering family resiliency a review of the key protective factors. *Child & Family Social Work*. Retrieved from <http://dx.doi.org/10>
- Breslau, N., & Prabucki, K. (1987). Siblings of disabled children effects of chronic stress in the family. *Journal of Intellectual Disability Research*, 44(12), 1040-6.
- Brook, J. (2006). Dynamics of childhood and adolescent personality traits and adolescent drug use. *Journal of FDevelopmental Psychology*, 43(3), 423–35.
- Brook, J. S., Whiteman, M., Gordon, A. S., & Cohen, P. (1986). Dynamics of childhood and adolescent personality traits and adolescent drug use. *Journal of FDevelopmental Psychology*, 22(3), 403–414.
- Burr, W. (1982). In H.I., McCubbin., Cauble & J.M. Patterson ( Eds.), Families Under Stress Coping, and Social Support. *Springfield, IL* pp.5-25.
- Callanan, C.R. (1990). Since Owen Baltimore, MD: Johns Hopkins University Press.
- Caroli, M .E., & Sagone, E., (2012). A study on social attitudes toward disabled brothers and sisters. *Journal of Social and Behavioral Science*, 93(21), 1217–1223. doi:10.1016/j.sbspro 2013.10.0818
- Carson, D. K., Swanson, D. M., Cooney, M. H., & Gillum, B. J. (1992). Stress and coping as predictors of young children’s development and psychological adjustment. *Journal of Child Study*, 24(5), 273-296.
- Chohen & Deverts, D, J., (2009). Distribution of psychological stress in the united states in probability sample. *Journal of Applied Social Psychology*, 42(6), 1320–1334. doi: 10.1111/j.1559-1816.2012.00900.x
- Cicchetti, D. (2006). In D. Cicchetti, & D. Cohen (Eds.), (2nd ed.) *Developmental and psychopathology*, 1 (pp. 1–23) Hoboken NJ: Wiley.

- Cicchetti, D., & Curtis, W. J. (2006). In D. Cicchetti, & D. Cohen (Eds.), *Implications for normality, psychopathology, and resilience* (2nd ed.). 2(pp. 710–741) New York: Wiley.
- Cicchetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology, 70*(1), 6–20.
- Coatsworth, J. D., Pantin, H., & Szapocznik, J. (2002). Familias unidas: A family-centered developmental intervention to reduce risk for problem behavior among *Journal of Consulting and Clinical Psychology, 70*(1), 20–26.
- Cowan, & M. Hetherington (Eds.), *Family transition* (pp.111–163). Hillsdale, NJ: Erlbaum
- Crosnoe, R., Erickson, K. G., & Dornbusch, S. M. (2002). Reducing the impact of risky friendships. *Youth & Society, 33*(4), 515–533.
- Curran, D. (1987). Stress and the healthy family. *San Francisco*. pp 132-145.
- Curtis, W. J., & Cicchetti, D. (2003). Moving research on resilience into the 21st century *Journal of Intellectual Disability Research, 50* (12), 960–995.
- Cuskelly, M., & Gunn, P. (2006). Adjustment of children who have a sibling with Down syndrome. *Journal of Intellectual Disability Research, 50* (12), 917–925  
doi: 10.1111/j.1365-2788.2006.00922.x
- Dervishaliaj, E., & Murati, E., (2014). Families of children with developmental disabilities and experience of adolescent siblings of children with disability. *European Scientific Journal, 10*(2), 234-27.
- Disability World Information, (2013). *Benefits, Facts and Resources for Persons with Disabilities*. Retrieved from <http://www.disabled-world.com/disability/htm>
- Dykens, E.M. (2005). Happiness, well-being, and character strengths: *Journal of Developmental Psychology, 43*(5), 360-364.

- Dyson, L. (2010). Unanticipated effects of children with learning disabilities on their families. *Learning Disability Quarterly*, 33, 43-55.
- Edith, H., & Grotberg, A. (2011). *The International Resilience Project*. Retrieved from <http://resilnet.uiuc.edu/library/grotb95b.html>
- Eisenberg, N., Valiente, C., Morris, A. S., Fabes, R. A., Cumberland, A., & Reiser, A. (2003). Longitudinal relations among parental emotional expressivity, children's regulation, and quality of socioemotional functioning. *Journal of Developmental Psychology*, 39(1), 3–33.
- Faizunnisa, A., & Ikram, A. (2002). Pakistan's population statistical profile. *Journal of Youth Services reviews*, 32(212) 2295-2303.
- Fergus, S., & Zimmerman, M. A. (2005). A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*, 26, 399–419, doi:10.1146/26.021304.144357
- Fewell, R. (1986). A handicapped child in the family. In R.R. Fewell & P.F. Vadasy (Eds.). *Families of handicapped children: (PP. 3-31)*. Austin, TX: PRO-ED, Inc.
- Fewell, R. R., & Gelb, S. A. (1983). Parenting moderately handicapped persons. In M.Seligman (Ed.), *The family with a handicapped child (pp.175-202)*. New York.
- Floyd, F., Purcell, S., Richardson, S., & Kupersmidt, J. (2009). Sibling relationship quality and social functioning of children and adolescents with intellectual disability. *American Journal of Intellectual and Developmental Disabilities*, 23(3), 110-127.
- Fredman, N., & Sherman, R. (1987). *Handbook of measurements for marriage & family*.
- Gallagher, J. J., Beckman, P. J., & Cross, A. H. (1983). Families of handicapped children: Sources of stress and its amelioration. *Exceptional Children*, 50, 10–19.

- Gallagher, P., Powell, T., & Rhodes, C. (2006). *Brothers and sister: A Special Part of Exceptional Families*. Baltimore, MD: Paul Brookes.
- Garnezy, N., Masten, A. S., & Tellegen, A. (1984). A building block for developmental psychopathology. *Child Development*, 55, 97–111.
- Gass, K., & Dunn, J. (2007). Life events, sibling warmth, and youths' adjustment. *International journal of disability, community & rehabilitation*, 73(5), 902–912. doi: 10.1111/j.1741-3737.2011.00857.x
- Gerber, P. J., Ginsberg, R., & Reiff, H. B. (1992). Identifying alterable patterns in employment success for highly successful adults with learning disabilities. *Journal of Learning Disabilities*, 25(8), 475–487.
- Gerstein, G., Crnic, A., Blacher, M., & Baker, L. (2009). Resilience and the course of daily parenting stress in families of young children with intellectual disabilities. *Journal of Intellectual Disability Research*, 53(12), 981–997. doi: 10.1111/j.1365-2788.2009.01220.x
- Giallo, R., & Gavidia, S. P. (2006). Child, parent and family factors as predictors adjustment for siblings of children with a disability. *Journal of Intellectual Disability* 50(12), 937-948. doi: 10.1111/j.1365-2788.2006.00928.x
- Gottesman, I. I. (1974). In A. D. Pick (Ed.), *Minnesota Symposium on Child Psychology*, 8 (pp. 55–80) Minneapolis, MN: University of Minnesota Press.
- Gottesman, I. I., & Shields, A. (1972). *Schizophrenia and genetics*: 8 (pp. 86–98) Minneapolis, MN: University of Minnesota Press
- Grotberg, E. H. (1995). A guide to promoting resilience in children. *American Journal of Community Psychology*, 30(3), 399-412.
- Guse, T., & Harvey, C. (2010). Growing up with a sibling with dwarfism: Perceptions of adult non-dwarf siblings. *Disability & Society*, 25, 387-401.

- Gutman, L. M., Sameroff, A. J., & Eccles, J. S. (2002). An examination of multiple risk, promotive, and protective factors. *American Journal of Community Psychology*, 30(3), 367–399.
- Hassall, R., Rose, J., & McDonald, J. (2005). Parenting stress in mothers of children with an intellectual disability. *Journal of Intellectual Disability Research*, 49(2) 405-418. doi:10.1037/0003-066X.56.3.227
- Hastings, R. P. (2003). Report of adjustment of siblings of children with autism. *Journal of Autism and Developmental Disorders*, 33(1), 24-36 doi:123xx45678-222 <http://resilnet.uiuc.edu/library/grotb98a.htm>
- Hastings, R. P., & Taunt, H. M. (2002). Positive perceptions in families of children with developmental disabilities. *American Journal of Mental Retardation*, 107, 116–120.
- Heiman, T. (2002). Parents of children with disability resilience coping and future expectation. *Journal of Developmental and Physical Disability*, 14(2), 159-171.
- Kaminsky, L. A., & Dewey, D. (2003). Living with impairment. *International Journal of Disability, Community & Rehabilitation*. 6(1), 1703-3381. doi:125670055/ph6432
- Kaminsky, L. A., & Dewey, D. (2002). Psychosocial adjustment in siblings of children with autism. *Journal of Child Psychology and Psychiatry*, 43, 225-232.
- Kathy, S. (2013). *What is Psychological Stress Therapy Live Care*. Retrieved from <http://www.sharecare.com/health/stress-reduction/what-is-psychological-stress>.
- Kazak, A. E., Marvin, R. S. (1984). Differences, differences, difficulties, and adaptation: Stress and social networks in families with a handicapped child. *Family Relations*, 33(1), 67-77.
- Khosa, K. L., Zoka, S. D., & Leutenberg, E. A. (1994). *Life management skills III*. Beachwood, OH: Wellness Reproductions, Inc.

- Kilmer, R. P., Cook, J. R., Taylor, C., Kane, S. F., & Clark, L. Y. (2009). Siblings of children with severe emotional disturbances risks, resources, and adaptation. *American Journal of Orthopsychiatry*, 78(1), 1–10. doi: 10.1037/0002-9432.78.1.1
- Kilmer, R. P., Cook, J. R., & Munsell, E. P. (2010). Recommended policy changes to promote family-centered care. *American Journal of Community Psychology*, 46(3-4), 332–341. doi: 10.1007/s10464-010-9350-9
- Kim, H.Y. (2013). *Statistical notes for clinical Researches: assessing normal distribution using Skewness and Kurtosis*. *Restorative from Dentistry Endodontics*, 38(1), 52-54. doi:395/rde.2013.38./52
- Kline, P., (2000). *Hand book of Psychological Testing* (2<sup>nd</sup> ed.). London: Routledge.
- LaPlante, M. P., Carlson, D., Kaye, H. S., & Bradsher, J. E. (1996). *Families with disabilities Statistics Report*. Washington DC: U.S. Department of Education, Nation Institute on Disability and Rehabilitation Research.
- Lobato, D. J. (1990). *Brothers and sisters and special needs: Information and activities for helping young siblings with chronic illnesses and developmental disabilities*. Baltimore, MD: Paul Brookes.
- Lazarus, R. S., & Cohen, J. B., (1977). In I. Altman and J. F. Wohlwill (eds.), *Human Behavior and Environment*. 2. New York: Plenum.
- Lazarus, R. S. (1993). "From psychological stress to the emotions: A history of changing outlooks." *Annual Review of Psychology*, 44, 1-21. doi:10.1146/annurev.ps.44.020193.000245
- Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. In W. D. Gentry (Ed.), *The Handbook of Behavioral Medicine* (pp. 282-325). New York: Guilford.



- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). *Measurement and relationship with performance and satisfaction*. *Personnel Psychology*, 60, 541–572.
- Luthar, S. S. (1991). Vulnerability and resilience. *Child Development*, 62, 60–66.
- Luthar, S. S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology*, 12, 857–885.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562.
- Malik, A., (2005). Resilience in maltreated children. *M.Phil Thesies National Institute of Psychology*.
- Martinez, A., Torteya, C., Bogat, G. A., von Eye, A., & Levendosky, A. A. (2009). Resilience among children exposed to domestic violence. *Child Development*, 80(2), 562–577.
- Marton, P., Golombek, H., Stein, B., & Korenblum, M. (1988). The relation of personality functions and adaptive skills to self-esteem in early adolescence. *Journal of Youth and Adolescence*, 17(5), 393–401.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227–238.
- Masten, A. S. (2007). Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology*, 19, 921–930, doi:org/10.1017/S0954579407000442
- Masten, A. S. (2011). Resilience in children threatened by extreme adversity. *Development and Psychopathology*, 23, 493–506, doi:org/10.1017/S0954579411000198.

- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: *Lessons from Research on Successful Children*. *American Psychologist*, 53(2), 205–220.
- Masten, A. S., & Obradovic, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences*, 1094, 13–27. Retrieved from <http://dx.doi.org/10.1196/annals.1376.003>
- Masten, A. S., Best, K. M., & Garmezy, N. (1991). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology*, 2, 425–444.
- McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The double ABCX model of adjustment and adaptation. In H. I. McCubbin, M. B., Sussman, J. M. & Petterson (Eds.), *Social Stress and the Family* (pp.7-37). New York, NY: Haworth Press.
- Mederer, H., & Hill, R. (1983). Critical transitions over the family life span: Theory and research. In H.I McCubbin, M.B. Sussman, & J.M. Patterson (Eds.), *Social Stress and the Family* (pp.39-60). New York, NY: Haworth Press.
- Meisels (Eds.), *Handbook of early childhood intervention* (pp. 115–132). (2nd ed.).
- Miller, M. (2002). Resilience elements in students with learning disabilities. *Journal of Clinical Psychology*, 58(3), 291–298.
- Murphy, L. B. (1962). *The widening world of childhood: Paths toward mastery*. New York, NY: Basic Books.
- Murray, C. (2003). Risk factors, protective factors, vulnerability, and resilience. Remedial and Special Education, *Journal of Developmental Psychology*, 24(1), 16–26.
- Nassal, A., Holtz, K. L., & Retzlaff, R. (2011). Resilience, coherence and stress in families of children with intellectual disabilities. *Article in German* 60(7), 527-43.

- Nelson, W. R., & Isreal, C. A. (2003). *Behavior Disorder of Childhood* (5<sup>th</sup> ed.). Upper Saddle River, New Jersey. Western Psychological Services. New York, NY: Cambridge University Press.
- Nims, D. R., (1998). Searching for self: a theoretical model for applying family system to adolescent group work. *Journal for Specialists in Group Work*, 23, 133-144.
- Olsen, S. F., Marshall, E. S., Chipman, S., Bingham, J., Buchanan, M., & Mandlco, B. L. (1999). Daily stressors and coping responses of siblings of children with special needs. In F. Benardo, & C. Shehan (Eds.), *Contemporary Perspectives on Family Research*, (pp. 311\_328). Stamford, CT: JAI.
- Perry, A. (2006). A model of stress in families of children with developmental disabilities. *Journal of Developmental Disability* 11(1), 1-16. doi:10.1177/1744629512472618
- Powell, T. H., & Gallagher, P.A. (1993). *Brothers and sisters: A Special Part of Exceptional Families* (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes
- Powell, T. H., & Ogle, P. A. (1985). *Brothers and sisters: A Special Part of Exceptional Families*. Baltimore: Paul H. Brookes Publishing. Press Publishing.
- Pueschel, S. M., Bernier, J. C., & Weidenman, L. E. (1988). *The Special Child*. Baltimore, MD: Paul H. Brooks: Publishing, Co.
- Rak, C. F., & Patterson, L. E. (1996). Promoting resilience in at-risk children. *A Special Part of Exceptional Families*. Baltimore: Paul H. Brookes Publishing. Press. Publishing.
- Rao, P. A., Beidel, D. C., (2009). The impact of children with high-functioning autism on parental stress, sibling adjustment, and family functioning. *Behavior Modification*. 33(4), 437-451.
- Rauf, N. K. (2006). An assessment of stress levels of parents and siblings of disabled children (M.Phil Thesis). National Institute of Psychology.

- Resnick, M. D. (2000). Protective factors, resiliency, and healthy development. *Adolescent Medicine: State of the Art Reviews*, 11(1), 157–164.
- Rice, P. L. (1992). *Stress and Health* (2<sup>nd</sup> ed.). Pacific Grove, CA: Brooks/Cole Publishing Co.
- Romas, J. A., & Sharma, M. (2000). *Practical Stress Management* (2<sup>nd</sup> ed.). Needham Heights, MA: Allyn & Bacon.
- Rose, H. W. (1987). *Something's Wrong with my Child*. Spring, IL: Charles C Thomas.
- Rutter, M. (1976). *Research report: Isle of Wight Studies*. *Psychological Medicine*, 6, 313–332.
- Rutter, M. (1979). In M. W. Kent, & J. E. Rolf (Eds.), *Primary Prevention of Psychopathology: Social competence in children*, 3. (pp. 49–74) Hanover, NH: University Press of England.
- Rutter, M. (1986). Meyerian psychobiology, personality, development. *Social competence in children*, 3. (pp. 49–74) Hanover, NH: University Press of England.
- Rutter, M. (2002). The challenge ahead for mental health. *Archives of General Psychiatry*, 59, 996–1000.
- Rutter, M., & The English and Romanian Adoptees study team (1998). Developmental catch-up, and deficit, following adoption after severe global early privation. *Journal of Child Psychology and Psychiatry*, 39(4), 465–476.
- Rydell, A. M., Berlin, L., & Bohlin, G. (2003). Emotionality, emotion regulation, and adaptation among 5- to 8-year-old children. *Emotions*, 3(1), 30–47
- Sajad, S. (2009). stress faced by mother of children with intellectual disability. *Journal of Child Adolescent Psychiatry*. 22(5): 300–365.

- Seligman, M. (2000). Conducting effective conferences with parents of children with disabilities. *A guide for teachers*. New York: Guilford Press
- Selye, H. (1993). History of the stress concept: Stress and disease. *Journal of Medical Science, 122*, 625-631.
- Sowder, K. (2014). *What is Psychological Stress*. *Therapy Live Care*. Retrieved from <https://therapists.psychologytoday.com>
- Scott, H. (2014). *Definition of Disabilities*. Retrieved from <http://www.disabled-world.com/disability/types>
- Stoneman, Z. (2005). Siblings of children with disabilities. *Journal of Mental Retardation and developmental disorders, 43*(5). doi: 10.1146/.ps.44.020193.000245
- Skrtic, T. M., Summers, J. A., Brotherson, M. J., & Turnbull, A. P. (1984). *Severely handicapped children and their brothers and sisters*. In J. Blancher (Ed.), *Severely handicapped young children and their families: Research in review*. New York: Academic Press
- Taunt, A., & Hastings, J. (2002). Positive contributions made by children with an intellectual disability in the family Mothers 'and fathers 'perceptions. *Journal of Intellectual Disabilities, 9* (2) 155-165. doi: 10.1177/1744629505053930
- Tedeschi, R. G., & Kilmer, R. P. (2005). Assessing strengths, resilience, and growth to guide clinical interventions. *Professional Psychology Research and Practice, 36*(3), 230–237. New York, NY
- Thomas, C. W. (2010). *Definition of Disabilities*. Retrieved from <http://www.disabled-world.com/disability/types>.
- Thompson, A. B., Curtner, M. E., & O'Rear, M. R. (1994). *The psychosocial adjustment of well siblings of chronically ill children*. *Children's Health Care, ;23*:211–226

- Varaniyab, T. S. (2010). Resilience and perceived stress: predictors of life satisfaction in the students of success and failure. *American Journal of Community Psychology*, 60(7), 527-43. doi:10.1016/j.sbspro07.178
- Waqar, K. (2014). Helping hand for relief and development. Person with Disabilities Statistics in Pakistan. Retrieved from <http://directory.nowpdp.org/directory/education/govt-deaf-defective-hearing-school.htm>
- Werner, E. E. (1971). *The children of Kauai: A Longitudinal Study from the Prenatal Period to Age Ten*. Honolulu, HI: University of Hawaii Press.
- Werner, E. E. (1984). *Resilient Children*. *Young Children*, 40, 68–72.
- Werner, E. E. (1986). The concept of risk from a developmental perspective. *Advances in Special Education*, 5, 1–23.
- Werner, E. E. (1992). The children of Kauai: Resiliency and recovery in adolescence.
- Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai longitudinal study. *Development and Psychopathology*, 5, 503–515.
- Werner, E. E. (2000). *Protective Factors and Individual Resilience. Journeys from Childhood to Midlife*. Ithaca, NY: Cornell University Press.
- Werner, E. E., & Smith, R. S. (1982). *Vulnerable but not Invincible: A longitudinal study of resilient children and youth*. New York, NY: McGraw Hill.
- Werner, E. E., & Smith, R. S. (2001). *Journeys from Childhood to Midlife*. Ithaca, NY: Cornell University Press.
- Zimmerman, M. A., & Arunkumar, R. (1994). Resiliency research: Implications for schools and policy. *Social Policy Report: Society for Research in Development*, 8(4), 1–20.
- Zolkoski, S. M. & Bullock, L.M. (2012). Children and youth services of adolescent health. *Journeys from Childhood to Midlife*. 32(212) 2295-2303.

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