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# *Effectiveness of Compassion-Focused Therapy in Improving Self-Esteem, Resilience, and Quality of Life among Individuals with Differences of Sex Development: A Quasi-Experimental Study*

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## Abstract

*Differences of Sex development (DSD) usually experience psychological and psychosocial challenges due to their conditions that make them feel guilty, ashamed and self-critical, thus affecting their self-esteem, resilience, and quality of life. Despite the increasing importance of the care of DSD, there is still limited psychological management for them. Compassion-Focused Therapy (CFT) is a new, effective approach developed to improve self-compassion and emotional resilience, which reduces stigma and psychological distress, thus improving overall quality of life. Therefore, the present study's main objective was to evaluate the effectiveness of the compassion-focused therapy in improving self-esteem, resilience, and quality of life among individuals with differences of sex development. The quasi-experimental study was conducted from June 2025 to January 2026. The sample consisted of 60 individuals with differences in sex development ranged in age from 18-40 years. The sample was selected through purposive sampling from two public hospitals of Peshawar. The sample was divided into two groups of 30 individuals each, i.e. experimental and control group. The RSA, RSES, and WHOQOL were used for both the pretesting and post testing period. The experimental group received compassion-focused therapy with different techniques like calming breath exercises and compassionate visualization, while the control group received the standard treatment. At post testing period the results indicated that participants in the experimental group showed significantly higher levels of self-esteem (M*

*= 40.85) compared to the control group (M = 34.05), t = 5.47, p < .001. Similarly, the experimental group reported significantly greater resilience (M = 118.47 vs. 101.42), t = 4.92, p < .001, and quality of life (M = 74.65 vs. 61.48), t = 5.12, p < .001, than the control group. The Cohen's d values varied between 1.35 and 1.48, indicating large effect sizes, suggesting that Compassion-Focused Therapy results in large and meaningful effects on psychosocial functioning. These results gave us empirical answers that the therapeutic intervention was very effective in improving the psychological state of people with Differences in Sex Development in the experimental group.*

***Keywords:*** *Quasi-experimental design, compassion-focused therapy, differences in sex development, self-esteem, resilience, quality of life*

## Introduction

Differences between chromosomal sex and external genitalia are congenital conditions known as disorders of sexual differentiation or differences in sex development (DSDs). This suggests that individuals with XX chromosomes, who are typically expected to have external female genitalia, may exhibit either clitoromegaly or ambiguous genitalia. On the other hand, individuals with Y chromosomes, who are generally expected to present with characteristic male genitalia, may also display variations in genital development (Amolo et al., 2019). DSDs can affect the genitalia's look and function, leading to abnormal or ambiguous genitalia at birth, among other issues. Significantly, studies have demonstrated that physical characteristics associated to congenital diseases, whether obvious or vague, are linked to poor adjustment results, especially for parents who might experience shame or guilt about their child's condition (Sandberg, 2017). DSD children and adolescents' parents are more worried about their children adjustment as they are more likely to experience a variety of negative psychosocial consequences, such as poor quality of life regarding health, low self-esteem and decline in academic performance, (Jurgensen et al., 2014), emotional disturbance and challenging behaviour (Oner et al., 2009). Further high dissatisfaction with assigned gender leads to an increase in gender dysphoria with their assigned gender compared to their peers without a DSD (Berenbaum & Meyer-Bahlburg, 2015). The European Society for Paediatric Endocrinology (ESPE) and the Lawson Wilkins Pediatric Endocrine Society (LWPES) summoned a consensus conference in 2005. The main theme of the conference was to address the clinical management and nomenclature of intersex disorders. Before the conference the term "intersex" was perceived ambiguous, confusing and stigmatizing for both families and healthcare providers. Therefore, the consensus statement presented "Disorders of Sex Development" (DSD) as a new umbrella term. This variation was made as people had concerns and experts believed in latest scientific understanding and flexibility to progress with new discoveries regarding DSDs (Rolstan et

al., 2017).

**Revised Nomenclature**

| Previous | Revised |
|---|---|
| Intersex | Disorders/ Differences of sex development (DSDs) |
| Male pseudohermaphrodite | 46,XY DSD |
| Undervirilization of an XY male | |
| Undermasculinization of an XY male | |
| Female pseudohermaphrodite | 46,XX DSD |
| Overvirilization of an XX female | |
| Masculinization of an XX female | |
| True hermaphrodite | Ovotesticular DSD |
| XX male or XX sex reversal | 46,XX testicular DSD |
| XY sex reversal | 46,XY complete gonadal dysgenesis |

(Kim & Kim, 2012).

**Clinical presentations of DSD**

Approximately 1 in 5000 neonates present with genital anomalies. According to Stochholm et al. (2024), the majority of individuals with 45, X/46, XY karyotype are diagnosed later in life, with median ages of 29.1 years for males and 13.3 years for females. Diagnosis is typically established when abnormal genitalia are observed in early infancy, or when a karyotype or other congenital anomalies, such as congenital heart defects or neonatal lymphedema, are identified (Stochholm et al., 2024). To access the genital development in new born and infants, doctors use the External Genitalia Score (EGS). If the score is lower than 10$^{th}$ percentile as compared to other babies of the same size and age indicates that baby should be refereed for further medical evaluation (Van Der Straaten et al., 2020). Some states that DSDs are diagnosed by pubertal signs such as male physical characteristics in female, delayed puberty or absence of first menstrual cycle by age of 15 years. The medical assessment of DSDs includes measuring the size of the genital tubercle, the fusion of the labioscrotal folds, the number and position of orifices, and the appearance of palpable gonads. The Prader scale is used to measure the level of genital ambiguity from stage I to stage V (minor clitoromegaly without labial fusion to a penile structure with a scrotal appearance and urethral meatus at the tip without palpable gonads) (Alkhzouz et al., 2021; Warne & Raza, 2008).

**Psychological Aspect of DSD**

Research has constantly shown that there are significant psychological challenges for DSD individuals at any age, which gives rise to anxiety, depression, social difficulties, and poor quality of life (Bohet et al., 2019). The medical treatment of DSDs not only affects the psychosocial problems but factors like social, family and cultural perspectives of these individuals. Selveidran et al. found in their study that DSD individuals' prevalence of

behavioural and emotional problems was higher as compared to the control groups. The results showed poor functioning of both behavious, the outward behavior domain with subscales of social and rule-breaking and the inner emotional domains with subscales of anxiety and depression. These problems arise mostly due to uncertainity about their gender identity, frequent hospital visits, and societal stigma, thus exacerbating ongoing emotional distress and problems with social relationships, especially in the adulthood (Selveindran et al., 2017). Sensitive matters like deciding about the gender in which the DSD individual is supposed to be raised, i.e. male or female, the surgical procedure timings and confidentiality can increase the risk of mental health such as, suicidal ideation, gender dysphoria, and post-traumatic stress disorder (PTSD) (Chameli et al., 2021). Weisniewski studied the personal experiences of DSD children, who think that constant medical examinations make them different from other children, thus giving rise to anxiety, uncertainty and feelings of loss of control over their bodies and future. These repeated medical visits, especially about the genital examinations results, in shame, body image dissatisfaction, and low self-esteem, leading to describe themselves mainly by physical condition rather than by their achievements or abilities. Some children tried to hide their medical conditions from others which further increased their social withdrawal and isolation (Weisneiski et al., 2019).

Pasterski et al. (2010) studied psychological adjustment in DSD individuals. They discovered that resilience can be there in DSD individuals, but repeated medical procedures, uncertainty about their condition and prognosis make it difficult. Further lack of social support or poor communication from doctors may increase anxiety, confusion about one's identity, and social withdrawal. This study highlighted that ongoing psychological support, family therapy, and supportive social environments can reduce stigma and help in healthy identity development along with appropriate medical care (Pasterski et al., 2010).

The mental health of parents and families of DSD individuals is also affected by hiding the conditions of their children and making important decisions about social and medical matters. Many parents after knowing the diagnosis experience different emotional reactions. Some might go in shock, denial, confusion or guilt and start blaming or questioning their child's condition as genetic cause or punishment from Divine. This emotional burden is further increased by the continuous pressure caused by decisions regarding gender assignment, whether to proceed with a specific medical procedure or disclose the conditions to the relatives (Sandberg & Gardner, 2022). Rigid cultural beliefs of South Asian communities about gender norms have raised many misconceptions about intersex conditions, thus causing further discrimination, social exclusion and secrecy about it (Hiort et al., 2022). Families feel forced by societal pressure to make their child appear according to the societal standards, for which they opt for early surgical procedures that

cannot be undone later without thinking about the psychological consequences in future (Mavhandu & Sandy, 2017). This pressurizes them to hide their children, thus damaging the child's self-esteem and affecting the normal identity development. Moreover, research shows many people, because of being judged or criticized by others, use unhealthy ways of dealing with stress, such as social withdrawal or hiding it from others, which makes them feel worse, more lonely and in distress (Merrick, 2019). All these findings emphasize the importance of culturally sensitive education, supportive therapies and stigma reduction strategies. My observations and literature review about individuals with DSD in Pakistan suggest that cultural silence, ignorance and inadequate connection of psychological care during treatment procedures increases the psychosocial challenges faced by them. Even after long surgical or hormonal treatments, there are unseen scars that are represented through self-stigma, personality problems, identity confusion, and dysfunctional family dynamics. According to me, psychological interventions, family therapies, and public awareness are important by reducing stigma and misconceptions in society along with medical treatments for better outcomes. Thus, for true health, it is important to deal with it through biopsychosocial holistic approach.

**Global Prevalence of DSD**

Differences or Disorders of Sex Development (DSDs) occur before birth during the fetal development due to many issues, like problems in producing hormones by ovaries/testes or adrenal glands, changes in genes or reproductive organs, and chromosomal abnormalities. Besides these, other factors that contribute to these conditions are chemicals in the environment that might interfere with hormones and the mother being exposed to hormones or medications during pregnancy. Recent studies have shown how genes work by either altering or switching on/off without actually changing DNA before birth, thus affecting sex development (Audi et al., 2018; Croft et al., 2016). All forms of DSD occurrence is estimated to be ranging from one in 2,500 to one in 4,500. Congenital Adrenal Hyperplasia (CAH) is the most common form of DSD and is approximately one in 15,000 in many countries. Evidence suggests that the occurrence of ambiguous genitalia in Egypt is 1:3,000 live births; Saudi Arabia is 1:2,500; in UK one in 18,000; whereas in Germany, it is two in 10,000. It has been reported that DSD forms occurrence is higher in societies where cousin marriages are common (Bashamboo & McElreavey, 2014; Thyen et al., 2006). The Danish Cytogenetic Central Registry stated that there are 6.4 XY girls per 100,000 live-born females; androgen insensitivity is 4.1 per 100,000, with a median age at diagnosis of 7.5 years; and XY gonadal dysgenesis, is 1.5 per 100.00 with the median age at diagnosis being 17 (Berglund et al.,2016). The estimated prevalence of 46XX DSD, primarily caused by congenital adrenal hyperplasia, ranges from 14,000 to 15,000 births worldwide, with genetic diversity linked to geographical

variation (Mehmood & Rentea, 2023). Numerous studies have identified the prevalence of Klinefelter syndrome at birth to range from 85 to 223 per 100,000 male infants (Gravholt et al., 2018). Similarly, the estimated prevalence of Turner Syndrome is approximately 64 cases per 100,000 live female births, as determined through chromosomal analysis in various studies. The highest documented overall prevalence is 88 cases per 100,000 females (Gravholt et al., 2023; Tuke et al., 2019). Ovatesticular DSDs are estimated to affect one in every 100,000 live births (Nistal et al., 2015). The prevalence of either testicular or mixed gonadal dysgenesis is estimated at 1:10,000 (Skakkebaek et al., 2001). In a single-center prospective study conducted in Duhok, Iraq, from June 2017 to June 2022, 40 patients (47.5% male, 52.5% female) referred to Hivi Paediatric Teaching Hospital were evaluated for DSD prevalence, genetic profiles, and clinical presentations, 10% of patients presented with clitoromegaly, 85% with penoscrotal hypospadias, and the remaining patients presented underdeveloped female-like genitalia. Congenital adrenal hyperplasia was the most common cause, accounting for 55% of cases, followed by testicular feminization syndrome at 37.5%, with a few cases remaining undiagnosed (Hassan & Atrushi, 2023).

**Pakistan and DSD**

Pakistan is a developing country and does not have a centralized database or lacks a systematic surveillance system for DSDs. These shortcomings further add to absence of newborn screening programs, inadequate genetic testing facilities, and hospital diagnoses, resulting in unreported cases of DSDs. The majority of available data is derived from isolated case series at tertiary care facilities, which do not accurately represent the broader community impact. Data collection is further blocked by cultural stigma, limited healthcare access in remote areas, and inadequate early identification training for healthcare personnel. Therefore, the epidemiology of DSDs in Pakistan remains largely unknown, hindering evidence-based policy and intervention planning. In a study conducted at the Children's Hospital and Institute of Child Health Multan from July 2018 to December 2019, approximately 52 children were enrolled for ambiguous genitalia. The most prevalent type of DSD identified was Congenital Adrenal Hyperplasia, accounting for about 86.5% of cases (Khan et al., 2021). Another study, conducted from January 2012 to August 2015 at the Armed Forces Institute of Pathology, Rawalpindi, within the Department of Chemical Pathology and Endocrinology, evaluated 151 patients for DSD. Among those with XY DSD, Partial Androgen Insensitivity Syndrome (PAIS) was identified in nearly half (45%) of the cases. Additional diagnoses included 5α-reductase deficiency (2.6%), hypogonadotropic hypogonadism (7.9%), primary hypogonadism (7.2%), isolated micropenis (12%), complete androgen insensitivity syndrome (CAIS) (8.6%), and incomplete gonadal dysgenesis (16.6%). This distribution indicates that PAIS is more prevalent among XY DSD cases in this Pakistani

cohort, while a variety of other less common disorders were also observed (Haroon et al., 2018). A cross-sectional study was conducted at The Children's Hospital & Institute of Child Health in Lahore from January to December 2016, including DSD children older than ten years old. The results showed that 15% presented with hypospadias, 2.4% were Klinefelter's syndrome, and 8.4% with Turner's syndrome (Khan et al., 2021). Another research carried out by the Urology Department of Allied Hospital in Faisalabad from 2008 to 2009 consisted of 34 patients. The results showed that 79.4% were 46XY DSD, 8.8% 46XX DSD, 5.88% chromosomal DSD, 2.9% 46XY complete gonadal dysgenesis, and 2.9% ovotesticular DSD (Munir et al., 2020).

**Resilience and DSD**

Individuals with Disorders of Sex Development (DSDs) encounter a range of medical, psychological, and social challenges that can significantly impact their overall well-being. The medical ambiguity, stigma, and secrecy associated with DSDs contribute to an increased likelihood of experiencing anxiety, depression, low self-esteem, and social integration difficulties (Dessens et al., 2005; Pasterski et al., 2010; Schützmann et al., 2009). Resilience emerges as a vital protective factor among the psychological resources that facilitate adaptation in the face of these challenges. Resilience in DSD individuals refers to the capacity to adjust positively to adversities, to manage psychosocial challenges, maintain self-identity and socialization. Research on chronic and stigmatized conditions suggested that resilience improves quality of life and acts as a protective factor against emotional disturbances, though studies on resilience in DSD are very limited. Resilience is an individual's characteristic shaped by social and environmental factors, thus, supported by identity confirmation, family unity and social support (Bennecke et al., 2021; Rolston et al., 2015; Sandberg et al., 2012). New treatment approaches in DSD focuse on strengthening resilience by giving importance to open communication, empowerment and psychological support to further reduce the effects of stigma, managing uncertainty, enhancing coping strategies and improving well-being (Bennecke et al., 2021; Sanders et al., 2008). Resilience is an important concept in understanding the emotional and psychological adjustment in DSDs, and strengthening it through different psychological interventions improves overall well-being and quality of life.

**Quality of Life and DSD**

DSD individuals with conditions that are long-term and mostly misunderstood or taboo face unique difficulties in many areas that affect their QOL. It is thus important to understand factors affecting QOL in DSDs through a detailed biopsychosocial model.

***Psychological factors***: People with DSDs, along with medical complications, are more prone to emotional problems such as an increased risk of anxiety, depression, and social withdrawal as compared to the common population (Jürgensen, 2014; Schützmann et al., 2009). It has been

seen that strong social support and acceptance from the family as well as the community can greatly improve mental health in the DSD population (Pasterski et al., 2015).

***Physical factors***: Hormonal therapies and surgical interventions are important in improving quality of life (QOL) in the medical management of DSDs. In the past most of the surgical procedures, such as genital reconstruction, were mostly done without inform consent of the patient, which led to emotional problems, medical complications and even dissatisfaction from the gender assigned during the early surgery (Carpenter, 2016). With time healthcare ethics have progressed, and importance is given to patient-centered approach, but still there are always worries about frequent procedures and hormonal therapy in the long terms (Lee et al., 2016). Infertility and chronic pain creates problems in adjustability and thus reduce quality of life (Crouch et al., 2008).

***Social factors***: Individuals with DSDs mostly face problems in starting intimate relationships, revealing their condition, and pressure of peer acceptance affects their QOL. Further this condition is usually kept as a secret because of fear of being rejected or misunderstood, and parents' fear about their child's condition as a social stigma, leading to avoidance of sexual relationships, social withdrawal, and affecting the child's resilience and self-identity. In adults sexual health problems may develop fear in disclosing their medical conditions which delays the development of intimate relations, thus showing that social support and relationship is an important aspect of QOL where both medical and social factors affect the QOL (Callens et al., 2016; Dessens et al., 2005; Pasterski et al., 2015).

***Religious and Cultural factors***: In societies where strict gender roles are made according to the cultural and religious concepts, fear of not being able to fit in either male or female category leads to stigma, discrimination, rejection by society, concealing the conditions and fear of societal criticism. It has been seen that resilience and acceptance can be improved by providing strong family and cultural support which further enhances QOL (Dessens, 2005; de Neve-Enthoven, 2022).

In DSD care, along with medical needs, it is important to work on psychological resilience, social inclusion, and cultural insensitivity to improve overall life satisfaction, which emphasizes the need for a biopsychosocial model. Several studies have demonstrated that the quality of life for intersex individuals includes physical, psychological, social, and environmental aspects and is frequently negatively affected by societal stigma and medical interventions. However, positive experiences with healthcare, psychological support and affirming environments are positively associated with an improved quality of life. Therefore, early, ongoing, and comprehensive psychosocial therapy is essential for maintaining long-term well-being (Alpern et al., 2016; Gramc et al., 2023; Leidmeier et al., 2021; Tschaidse et al., 2022; Vries et al., 2019; Waehre et al., 2022).

**Self Esteem and DSDs**

For individuals with DSDs, self-esteem is affected because they face multiple challenges regarding their identity, body image and social acceptance. In a European study of about a thousand adult DSD individuals showed significantly lower self-esteem as compared to controls, and the main experiences were body dissatisfaction, body discomfort, anxiety, depression, and limited openness about their condition leading to fears about social connectedness and physical looks (Van de Grift, 2018). Another study showed that individuals with DSDs had protective factors like positive experience with medical care, open communication, and supportive family environments that increased levels of self-esteem (Sandberg et al., 2017). Thus, to develop interventions to improve resilience and adjustment in DSD population, it's important to understand self-esteem and its effects on well-being and quality of life. Findings in women with DSDs have shown an association between self-esteem, coping, and overall well-being, where higher self-esteem leads to a better quality of life. Further, it showed a connection between psychosocial well-being and quality of life being affected by the DSD condition, giving rise to the need for psychological interventions to improve coping strategies and self-esteem (Liedmeier et al., 2021).

**Compassion Focused Therapy (CFT)**

A therapeutic approach specially planned for individuals experiencing obvious levels of shame and self-criticism is known as Compassion-Focused Therapy (CFT), introduced by Paul Gilbert in the 2000s. He noted that client's hidden deep-rooted self-destructive beliefs and feelings of worthlessness were not dealt with by classic cognitive and behavioural therapies, rather, he added that compassion is important element from evolutionary psychology, attachment theory and neurobiology that helps to lower negative emotions and help emotional recovery. The western psychological concepts of mindfulness practices, especially Buddhist principles of compassion, are similar to CFT, which deals in the scientific understanding of emotion regulation and social connections. The important elements of CFT are warmth, compassion, and self-kindness in the treatment of mental health, thus growing continually and increasing its attention as a "third-wave" cognitive-behavioural therapy (Gilbert, 2005, 2010).

**Fundamentals of Compassion Focused Therapy (CFT)**

The basic ideas and principles of CFT are in psychological rehabilitation, i.e., helping people recover emotionally and psychologically from any situation. The main principle of CFT states that compassion is a trainable, goal-oriented, sympathetic commitment to improve it, rather than just an emotion (Gilbert, 2010). This therapy focuses on the development of compassion for oneself and others and balancing of emotional regulation systems, as most mental issues are linked with shame, anxiety and self-criticism. Human beings use three primary emotion regulation mechanisms,

i.e., the threat system develops distress with guilt, anxiety, or self-criticism. To reduce this distress, the drive system gets activated, and to promote the emotional balance and resilience, the soothing- affiliation system further gets into action by using compassion techniques such as mindfulness, visualization, and compassionate self-talk to strengthen the soothing-affiliation system (Gilbert, 2010; Kirby, 2017).

Individuals who have high levels of self-criticism or adverse childhood experiences usually find it difficult to be compassionate, warm or kind towards themselves. Hence, developing compassion towards self is another important principle of CFT. It helps client to promote compassionate qualities, such as wisdom, strength, warmth, and commitment, to relieve harsh or negative self-talk through constant practice of compassionate and supportive self-talk. CFT also highlights the importance of hands-on practice by promoting compassion through behavioural exercises, breathing techniques, and guided imagery along with thinking and decision-making concepts (Gilbert, 2014). Matos et al. (2017) said that these practices help in regulating mood and stimulate the parasympathetic nervous system, which is linked with physical conditions of safety and affiliation. Lastly, the basis of CFT lies in the social philosophy of compassion, as experiences of rejection, bullying and stigmatization by others cause emotional distress. Hence, by accepting a compassionate mentality, one can improve their intrapersonal and interpersonal relationships from aggressive and isolated ones to supportive and well-connected ones (Gilbert, 2020; Matos et al., 2017).

**Compassion Focused Therapy's (CFT) Evidence Base**

Research has shown the effectiveness of Compassion Focused Therapy (CFT) in different therapeutic populations for about twenty years. In the beginning it was developed for individuals who experience extreme guilt and self-criticism and other mental conditions, like depression, anxiety disorders, eating disorders, and psychosis. Leaviss and Uttley (2015) conducted a comprehensive review, highlighting CFT's particular efficacy for individuals with intensified guilt and self-critical thinking, with evidence indicating improvements in self-compassion and reductions in psychological distress (Gilbert, 2014; Leaviss & Uttley, 2015). Similarly, Kirby, Tellegen, and Steindl (2017) in their meta-analysis found that CFT and other compassion-based therapies significantly improved mental health outcomes, such as anxiety, depression, and overall well-being. These findings suggest that promoting compassion serves as a protective factor against common forms of psychopathology (Kirby et al., 2017). In a pilot randomized controlled trial, Kelly et al.(2017) reported that group-based CFT significantly enhanced psychological well-being, reduced self-criticism, and increased self-compassion when used alongside standard outpatient treatment for eating disorders. Similarly, Goss and Allan (2014) emphasized that the development of CFT for eating disorders (CFT-E) provided patients with strategies to

address issues rooted in shame and manage their emotions more healthily. CFT has also been associated with improved emotional regulation and reduced internalized stigma in psychosis (Braehler et al., 2013; Goss & Alan, 2014; Kelly et al., 2017). Furthermore, pilot randomized controlled trials suggest that a core component of CFT, compassionate mind training, offers both psychological and physiological benefits, including increased heart rate variability and reduced stress responses (Matos et al., 2017).

**CFT's Significance to People with DSDs**

While no direct research has yet investigated the efficacy of Compassion-Focused Therapy (CFT) among individuals with Disorders of Sex Development (DSDs), evidence from related clinical populations indicates its significant potential for this group. Individuals with DSDs often encounter stigma, shame, and social isolation, which adversely impact self-esteem and quality of life (Callens et al., 2016; Pasterski et al., 2010). Given that CFT was specifically designed to assist individuals dealing with guilt and self-criticism (Gilbert, 2014), its framework is well-suited to address the psychological needs of this population. CFT showed great results by reducing shame and self-criticism in individuals with eating disorders and promoting psychological health (Goss & Allan, 2014; Kelly et al., 2017) and strengthening adaptive coping strategies, emotional regulation and social support (Finlay-Jones et al., 2017; Kirby et al., 2017). Due to a lack of direct research with individuals of DSDs, findings with other clinical populations have shown that CFT can also serve as an effective intervention for individuals with DSDs by reducing shame and improving self-acceptance, resilience and social support.

Compassion Focused Therapy (CFT) is an effective intervention for people who experience emotional distress, shame, and self-stigma, like in individuals with Disorders of Sex Development (DSD). CFT's main principle is the development of self-compassion and reducing self-criticism, which helps individuals accept and show compassion to themselves, thus improving resilience, coping mechanism, self-esteem and overall well-being. Danish and Chinese research has shown that in some clinical populations, due to self-criticism, there is an increase in psychological issues which affects self-esteem; thus, CFT plays an important role in improving self-esteem through self-compassion (Andersen & Rasmussen, 2017; Gu et al., 2022).

**Rationale**

Individuals with Disorders of Sex Development (DSD) face complicated challenges that are not just limited to the medical procedures but include psychosocial issues, like gender dysphoria, societal stigma, hiding the diagnosis, difficulty conceiving, and tough decisions regarding surgical and hormonal treatments. This study explores an important aspect of mental health, which is mostly neglected within this marginalized population in

Khyber Pakhtunkhwa. These individuals face different psychological issues that arise from societal stigma, discrimination, and a lack of understanding of their conditions, giving rise to emotional distress, low self-esteem, and resilience that impairs their quality of life.

There is insufficient data regarding compassion-focused therapy's effectiveness in treating DSD individuals globally and especially in Pakistan. In order to treat DSD individuals in Khyber Pakhtoonkhwa, this study investigates the possibility of using compassion-focused therapy. The study's main goal is to assess how well compassion-focused therapy works by using calm breathing techniques and understanding self-compassion through guided imagery in individuals with DSD in the public hospitals of Peshawar, KP.

**Methods:**

**Design and Source of Data:** This was a Quasi Experimental Study, with the sample consisting of 60 DSD individuals (N=60) diagnosed with differences in sex development (DSD). Sample for both experimental and control group were (n=30).

**Study Settings and Participants:** The sample was taken from public hospitals of Peshawar, Khyber Pakhtunkhwa. Patients diagnosed with differences in sex development and age range of 18-40 years were selected. The study excluded participants who had significant cognitive impairments or intellectual disabilities that hindered their ability to comprehend and respond to questions, as well as those already receiving psychiatric medication or psychotherapy from other sources.

**Phase I:** Patients from public care hospitals who had been clinically diagnosed with Disorders of Sex Development (DSDs) were assessed using the Resilience Scale for Adults (RSA), WHO Quality of Life BREF (WHOQOL) Urdu Version, and Rosenberg Self Esteem Scale (RSES). The participants were given detailed explanations about each instrument. Those who had low scores across all five scales were included in the next phase.

**Phase II:** After selecting the experimental group through purposive sampling, the compassion focused therapy was introduced to them. In the study, the control group was given only standard medical treatment and received no psychological intervention, whereas the experimental group received psychological interventions, such as Compassion Focused Therapy (CFT) along with standard medical treatment. The experimental group underwent a total of 10 sessions, once a week (60-90 minutes) for a period of 3 months.

**Phase III:** To evaluate the effectiveness of the treatment interventions, the Resilience Scale for Adults (RSA), WHO Quality of Life BREF (WHOQOL) Urdu Version, and Rosenberg Self Esteem Scale (RSES) were re-administered to both groups.

**Ethical Approval:** Formal ethical approval was taken from Graduate

Study Committee (GSC) and Advanced Study Research Board (ASRB). Informed consent were taken from the respondents before initiating the study and confidentiality was retained. All ethical principles were followed throughout the study period.

**Outcome Measures:**

Semi structure interview were conducted in order to take demographic information of the selected respondents i.e. about their age, gender, sex at birth, diagnosis of DSD, education level, occupation, socioeconomic status, area of residence, and medical or psychosocial history. Date of intervention of the compassion-focused therapy, worksheets of the compassion-focused therapy, number of sessions were calculated, these worksheets were used to measure improvement or then among the individuals with DSDs, by re-administering RSA, WHOQOL, and RSES.

The instruments were the Resilience Scale for Adults (RSA), which is a self-report tool used to measure resilience in adults. In 2003, Friborg et al. created the RSA, which was later improved. The resilience scale evaluates several traits and has been validated across multiple populations. The six characteristics of resilience are evaluated by 33 measures in the RSA, that are Personal Competence which means one's faith in themselves to manage problems, social competence which shows ones capacity to establish and maintain relationships, family coherence referred to the level of support and interaction within the family, social support describes how friends and family are regarded to be available to help, structured style is the ability to maintain regularity and order in one's life and internal locus of control - the belief that one's own actions may influence results. The scale uses a 7-point Likert scale which ranges from 1 – strongly disagree to 7- strongly agrees. The total score is obtained by adding all the items on the resilience scale and thus the higher score, the stronger is the resilience. With Cronbach's alpha values over 0.80 and a good internal consistency, the RSA is a reliable tool for assessing resilience traits (Friborg et al., 2003).

The WHOQOL Group created the WHO Quality of Life Scale in 1998. With only 26 items, as a shortened version of the WHOQOL using a five-point Likert scale is used. Physical health, psychological health, social interactions, and environmental components are its four subcategories (Whoqol Group, 1998). The Urdu version by Khan, Akhter, Ayub, Alam, and Laghari (2003) will be administered in this study. With a Cronbach alpha coefficient value of (.88) and four sub-domains—physical (.81), psychological (.77), social (.42), and environmental (.75)—it is a reliable tool for evaluating life quality overall.

The Rosenberg Self-Esteem Scale (RSES) is a widespread tool for measuring self-esteem. This scale, developed by Morris Rosenberg in 1965, is intended to assess individuals' worldwide self-worth and acceptance of themselves. The RSES comprises of ten questions that assess self-esteem using a variety of positive and negative sentiments about oneself. The items address

issues of self-acceptance, self-respect, and general self-worth. Each question is graded on a four-point Likert scale, in which respondents show their agreement and disagreement on each item; 0. Strongly Disagree, 1. Disagree, 2. Agree, 3. Strongly Agree. The total score is computed by adding the replies. Scores vary from 0 to 30, with higher values indicating stronger self-esteem. Some items are scored in reverse to adjust for negative self-perceptions. Cronbach's alpha for the original RSES was found to be between 0.88 and 0.90, indicating high internal consistency (Rosenberg, 1965).

**Statistical Analysis:**

Results were analyzed through SPSS v.25 (statistical and social science package). For demographic variable i.e., age, education, socioeconomic status, gender identity, gender assigned at birth and area of residence etc. frequency, percentages were calculated. Mean and standard deviation was calculated for the scores of RSA, RSES, and WHOQOL. After calculating the scores, the standard score was calculated through categorical variables. For comparison of Control and Experimental groups through RSA, RSES, and WHOQOL in both pre-test and post-test the paired t-test and independent sample t-test were utilized when the data was normally distributed. For associations of comorbid variables with other variables pearson correlation matrix test was used.

## Results

### Individuals characteristics

Table 1 shows that the mean age of the subjects was 27.33 (SD = 6.93) which indicated that the majority were young adults. The inclusion criteria of the research design perfectly suits the age-range (18-40 years old). This age effect is of theoretical significance because psychosocial issues associated with DSD (e.g., identity formation, marital issues, work stress, problems of stigmatization) are particularly topical in the early adulthood (Trindade et al., 2025). Even the young adulthood is a transitional period at which the susceptibility of the self-esteem and social anxiety exists especially in cultures with more collectivistic and honor based tendencies such as Khyber Pakhtunkhwa. Thus, the selected age sample of is an appropriate and clinically pertinent group to examine the effectiveness of Compassion-Focused Therapy (Sessions et al., 2023).

**Table 1**

*Descriptive Statistics for Age (N = 60)*

| Statistic | Value |
|---|---|
| Mean Age | 27.33 years |
| Standard Deviation | 6.93 |
| Minimum | 18 |
| Maximum | 40 |
| Median | 26.50 |

**Table 2**

Almost half of the participants (45%), rated as intersex and (30%), rated as female, and (25%), rated as male. It is based on this distribution representing the complicated identity experiences of people with DSD as explicated in the consensus literature (Vosper et al., 2023). Most (58.33) of them were mentioned as male at birth according to the regional trends in the South Asian literature in which the culturally preferred gender assignment was male (Yates et al., 2026). The results can be attributed to the cultural dynamics in Pakistan in relation to appreciation of male offspring in society, who are useful in terms of inheritance, financial aspects like being able to sustain themselves and religious aspects. Most of the participants (73.33% of the participants) were not married. This observation can be related to past researches that indicate issues in relationships that individuals with DSD face including fear of being revealed, stigma, and problems with fertility (Yates et al., 2026). Though, 23.33 percent of them had no formal education, a high percentage (36.67) had graduated or at the higher secondary level. Such dispersion has caused it to appear to be moderate education despite social alienation. There has been a constant correlation between education and higher degree of resilience as well as adaptive coping (Yates et al., 2026). Half the respondents were also working, which showed that they were functionally integrated socially despite psychosocial dysfunctions. Nevertheless, 38.33% is explained by the consistent obstacles, which might be related to discrimination and stigmatization of society.

The greatest percentage was (38.33) that would be falling below the middle income bracket (20,000-40,000 PKR), which suggests that the socioeconomic status was moderate. Access to health care services and health related quality of life has often been associated with socioeconomic stability (WHOQOL Group, 1998). Thus, the sample is reflective of sufficient variability to make significant study of psychosocial outcomes. There was equal representation in urban and rural areas (40 and 40) that enhanced generalisability of the results across geographic location. Rural participants can have more powerful traditional norms and stigma that can influence baseline psychosocial functioning. The strength of the external validity of the study is related to the balanced distribution.

**Table 2**

*Demographic Characteristics of Participants (N = 60)*

| Variables | N | % |
|---|---|---|
| Gender identity | | |
| Male | 15 | 25.0 |
| Female | 18 | 30.0 |
| Intersex | 27 | 45.0 |
| Assigned sex at birth | | |
| Male | 35 | 58.3 |

| | | |
|---|---|---|
| Female | 24 | 40.0 |
| Other / not known | 1 | 1.7 |
| Marital status | | |
| Single | 44 | 73.3 |
| Married | 12 | 20.0 |
| Divorced | 1 | 1.7 |
| Widowed | 1 | 1.7 |
| Separated | 2 | 3.3 |
| Educational level | | |
| No formal education | 14 | 23.3 |
| Primary | 13 | 21.7 |
| Matric | 11 | 18.3 |
| Intermediate | 8 | 13.3 |
| Graduation | 10 | 16.7 |
| Postgraduate | 4 | 6.7 |
| Occupational status | | |
| Employed | 30 | 50.0 |
| Unemployed | 23 | 38.3 |
| Student | 5 | 8.3 |
| Homemaker | 2 | 3.3 |
| Monthly family income (pkr) | | |
| < 10,000 | 3 | 5.0 |
| 10,000 – 20,000 | 16 | 26.7 |
| 20,000 – 40,000 | 23 | 38.3 |
| 40,000 – 60,000 | 11 | 18.3 |
| > 60,000 | 7 | 11.7 |
| Area of residence | | |
| Urban | 24 | 40.0 |
| Rural | 24 | 40.0 |
| Semi-urban | 12 | 20.0 |

**Table 3**

*Mean Differences and t-values of Control and Experimental Groups on Psychosocial Variables (Post-Test) (N = 60)*

| Variables | Control (n = 30 | | Experimental (n = 30) | | (58) | | Cohen's d | 95% CI LL | 95% CI UL |
|---|---|---|---|---|---|---|---|---|---|
| | M | SD | M | D | | | | | |
| Self-esteem | 34.05 | 6.23 | 40.85 | 6.85 | 5.47 | 000 | 1.35 | 4.31 | 9.29 |
| Resilience | 101.42 | 1.32 | 118.47 | 27.21 | 4.92 | 000 | 1.48 | 10.11 | 23.99 |
| Quality of life | 61.48 | 7.11 | 74.65 | 14.29 | 5.12 | 000 | 1.41 | 7.82 | 18.51 |

**Note:**

M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit.

The above table shows the mean difference of the control group and experimental group for purposes of psychological variables on Post-test. The results show statistically significant differences in both groups across all of the variables ($p < .001$). Participants of The Compassion-Focused Therapy (experimental group) showed better scores regarding self-esteem, resilience, perceived social support, quality of life, and coping strategies than those in the control group. Specifically, the experimental group performed higher than the control group with mean scores for self-esteem (M = 40.85) and (M = 34.05). Similarly, significant increases were found in resilience (M = 118.47 vs. 101.42), quality of life, and (M = 74.65 vs. 61.48). The Cohen's d values varied between 1.35 and 1.48, indicating large effect sizes, suggesting that Compassion-Focused Therapy results in large and meaningful effects on psychosocial functioning. These results gave us empirical answers that the therapeutic intervention was very effective in improving the psychological state of people with Differences in Sex Development in the experimental group.

**Descriptive Statistics and Baseline Group Equivalence (Pre-Test Comparison)**

**Table 4**

*Group Means and Standard Deviations (Pre-Test Scores)*

| Variable | Control Mean | Control SD | Experimental Mean | Experimental SD | t-value | p-value |
|---|---|---|---|---|---|---|
| Self-Esteem | 33.40 | 6.23 | 34.10 | 6.85 | -0.41 | 0.681 |
| Resilience | 100.00 | 41.32 | 82.33 | 27.21 | 1.96 | 0.055 |
| Quality of Life | 60.77 | 17.11 | 52.83 | 14.29 | 1.95 | 0.056 |

The descriptive statistics indicate that the levels of psychosocial functioning at baseline were much similar both in the groups. Means differences were low and within the allowable ranges of variability. Self-esteem scores were very similar between groups. Resilience and quality of life showed moderate differences but remained within overlapping standard deviation ranges. The findings suggest that the two groups gave similar answers prior to the application of Compassion-Focused Therapy. The independent t-test findings indicate that there were no statistically significant differences at baseline between the control groups and the experimental groups ( $p > .05$). Even though the values of resilience, social support, and quality of life were close to the statistical significance ($p = .05$), the evidence was not enough to make them statistically significant. This implies that any

trivial differences in means could have been as a result of random error and nothing to do with the fact that there might exist some systematic imbalance between groups. These findings yield the confirmation that the groups are statistically similar at baseline, no major selection bias was added during the quasi experimental assignment, and the Subsequent intervention differences can be attributed more readily due to the impact of Compassion-Focused Therapy.

**Table 5**

*Post-Test Comparison Between Experimental and Control Groups*

| Variable | Control Mean | Experimental Mean | t-value | p-value |
|---|---|---|---|---|
| Self-Esteem | 34.05 | 40.85 | 5.47 | .000 |
| Resilience | 101.42 | 118.47 | 4.92 | .000 |
| Quality of Life | 61.48 | 74.65 | 5.12 | .000 |

Post-test time experimental group performed much better than control group in all the psychosocial variables. The statistical significance of the distinctions was $p < .001$ in each area. The empirical content validity of the therapeutic effectiveness of Compassion-Focused Therapy of individuals with DSD is given serious empirical support by the taught consistency of significant differences of the five variables.

**Discussions**

This quasi-experimental study of clinical sample was to examine the self-esteem, resilience and quality of life among individuals with DSD, before treatment intervention, results suggested that control group and experimental groups had low scores on all three scales. After three months' intervention period of administering compassion-focused therapy, the experimental group showed high scores on the three scales. The fact that the control group did not indicate statistically significant change adds to the internal validity of the study and affirms that CFT was the active mechanism behind the improvement in the experimental group.

The association between resilience and quality of life appears to have grown over time. The current study's findings are in line with earlier studies that showed a strong positive correlation between resilience and quality of life in a variety of demographics. A crucial gap in the literature is highlighted by the visible lack of research looking at this link in people with DSD. The results of this study are consistent with previous research showing that resilience and quality of life (QOL) have a substantial positive association. A systematic review and meta-analysis among people with mental illnesses showed a strong positive relationship ($r = 0.551$, $p < .001$) between resilience and quality of life (QOL). Thus, higher resilience showed better coping in stressful situations and recovery (Chuang et al., 2023). During COVID-19 research done among doctors, it was seen that resilience served as a protective shield in stressful situations, thus greater resilience was associated with better QOL across physical, psychological, and social domains (Crişan et al., 2024).

Though there are limited studies on individuals with DSD, among parents and caregivers of cancer children, resilience showed improved quality of life and reduced psychological distressb(Chung et al., 2023). Particularly in teenagers with DSD, increased resilience has been associated with better psychosocial outcomes, such as enhanced quality of life (QoL) (Liles et al., 2024). Resilience may serve as an essential adaptive resource in this population given that people with DSD often face complex psychosocial challenges that could negatively impact their quality of life, such as problems with identity, social functioning, and long-term health outcomes (Grouthier & Bachelot, 2024). Overall, the results show a strong relationship between resilience and quality of life. This is consistent with a larger body of research that indicates resilience is essential for improving life satisfaction and well-being in both clinical and non-clinical populations.

Similarly, low self-esteem resulting from perceived poverty causes impoverished college students to have reduced life satisfaction, emphasizing the need for self-esteem-focused interventions to lessen these impacts (Liu and Fu, 2022). Additionally, among emerging adults and women in particular, body appreciation moderates the relationship between self-esteem and life satisfaction. This suggests that interventions that promote body positivity in addition to self-esteem could further enhance life satisfaction in minority groups facing body-related difficulties (Wodarz and Rogowska, 2024).

The results of this study show that the experimental group's self-esteem was considerably higher than that of the control group after receiving Compassion Focused Therapy (CFT). In particular, there was a statistically significant difference ($t = 5.47$, $p < .001$) in the self-esteem scores of participants who received the intervention ($M = 40.85$) compared to those in the control group ($M = 34.05$). These results imply that CFT is a successful psychological intervention for improving DSD individuals' positive self-evaluation. These findings align with other studies although there is currently insufficient data especially in people DSDs, it has demonstrated encouraging efficacy in enhancing self-compassion and decreasing self-criticism in a variety of clinical and non-clinical settings.

Systematic reviews and meta-analyses of CFT demonstrate its ability to improve self-compassion, boost self-assurance, and reduce self-criticism—all psychological traits that are closely associated with increases in self-esteem. For instance, CFT produced small to large effect sizes for improvements in self-compassion and self-reassurance compared to control groups and decreased symptoms of depression and other mental health issues, according to a systematic review and meta-analysis of randomized controlled trials with clinical populations. These results support the potential of CFT to improve compassion-based outcomes and reduce clinical symptomology (Millard et al., 2023; Vidal and Soldevilla, 2023). Additionally, research shows that CFT therapies enhance psychological distress and wellbeing by increasing self-compassion and decreasing guilt and self-

criticism—mechanisms that are essential for developing higher self-esteem. Despite some conflicting outcomes for depressive symptoms, internet-based group CFT has shown practical and acceptable for young individuals with stress, anxiety, and depression, demonstrating positive gains in self-compassion (Vestin et al., 2025). A self-compassion app based on CFT principles was used among non-clinical populations, and it showed reducing self-criticism and anxiety, while improving self-compassion, self-soothing, emotional control, and health (Beaumont et al., 2025). In a randomized controlled trial, Carvalho et al. compared chronic illness online compassion-focused therapy (CFT) with acceptance and commitment therapy (ACT). It showed that four short online CFT sessions were administered in which a focus on improving self-compassion through calming techniques, compassionate self-exercises, and emotional control was implemented to reduce self-criticism and shame related to illness and improve adaptive psychological processes. These findings are similar to the results of current study that showed CFT on the experimental group reduced the self-criticism and improved self-esteem, self-compassionate, and overall health. Further, it showed that people with chronic illnesses, like the DSD condition in the current study, individuals were able to accept their conditions without shame, improving self-esteem, making their lives meaningful and reducing psychological distress (Carvalho et al., 2022). Lawrence et al., among women in the perinatal period who feel vulnerable frequently and fear shame and self-criticism, administered CFT on them and showed that there was a statistically significant increase in self-criticism and self-compassion, thus improving mental health and self-esteem (Lawrence et al., 2025). Many theoretical perspectives about CFT have shown that through self-kindness, self-acceptance and reducing isolation, mental health and self-esteem can be improved. Increased self-kindness, mindfulness, and a sense of shared humanity are all components of the construct of self-compassion, which can be developed through compassion-based interventions and serve as the cornerstone for better self-esteem (Neff, 2023). Current management protocols for individuals with DSD conditions have been criticized for lacking holistic psychosocial approaches that address psychological wellbeing and self-esteem issues, despite the fact that no specific studies examining the effectiveness of CFT on self-esteem specifically in these individuals were found in the search (Garland et al., 2021). Future studies should specifically look into it as CFT could boost self-esteem in DSD populations as well, given its proven advantages in many clinical groups dealing with psychological discomfort, humiliation, and self-criticism.

In another study, participants who finished the 12-week CFT group showed that attending the group had helped them in personal change by developing greater understanding and awareness of their own emotional reactions, reporting increased perspective and greater ability to emotionally connect, leading to improved emotional regulation, compassionate thinking,

and self-forgiveness. 10 Participants reported the calming effect of body-focused interventions (e.g., soothing breathing) that acted as a base for increasing more mindful, self-compassionate, and resilience (Maynard et al., 2023).

**Conclusion:**

The current study's findings offer considerable empirical support for compassion-centered models of emotional regulation, demonstrating that activating the soothing system and diminishing threat-based self-assessment result in remarkable improvements in psychosocial functioning. The findings showed that resilience, coping mechanisms, social support, self-esteem, and quality of life are interconnected with each other and cannot be separated to improve the overall well-being of a person. When individuals with DSD improved in one area, improvement in another area were also seen, whether psychological or social, thus helping them in adjustment. The results showed the effectiveness of compassion-focused therapy in improving psychosocial factors. The experimental group participants showed significant reduction in self-criticism and shame, thus increasing self-esteem, resilience, adaptive coping skills, and better emotional regulation. Strong perceived social support suggested participants were able to develop more self-compassion, openness to communication, and reduced social withdrawal. Further, it suggested that participants who were able to replace maladaptive responses of denial with adaptive behavioural and emotional strategies had improved coping strategies and quality of life. These changes in increased self-esteem, resilience, perceived social support, coping strategies, and quality of life were not seen in the control group that received the standard treatment protocol, showing that the improvement in the experimental group was due to the intervention applied. The results showed that compassion-focused therapy has strong and reliable efficacy not only in research but also in improving the psychosocial well-being in real life especially among individuals with DSD in Khyber Pakhtoonkhwa.



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