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From Dependence to Independence: A Feasibility Testing of Behavioral Skills Training (BST) to Improve Self-Help Skills among Intellectually Disabled Individuals in Pakistan

by

Asfa Zamir

A thesis submitted in partial fulfillment for the degree of Master of Science

in the

Faculty of Management & Social Sciences
Department of Psychology

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This research is dedicated to my beloved parents, whose love and unwavering support have been my guiding light throughout this journey. Abu, you've always been there for me, offering your strength and encouragement whenever I needed it. Your belief in me has motivated me more than words can express. Ami, your nurturing care, constant sacrifices, and endless love have shaped my path, and I am forever grateful for your presence in my life. And to my Bhai, your understanding and support have always brought me comfort. All of your love and encouragement have been the foundation of everything I've achieved, and I'm so grateful for all of you.

CERTIFICATE OF APPROVAL

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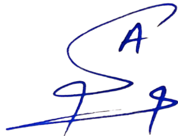

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(Asfa Zamir)

Abstract

The enhancement of self-help skills is critical for promoting independence in individuals with intellectual developmental disability (IDD). This study evaluated the efficacy of a newly developed Behavioral Skills Training (BST) intervention and a Self-Help Skills Assessment Checklist aimed at improving self-help skills among 50 participants with mild to moderate intellectual disability, using a pre-post within-subjects design. The checklist was carefully constructed to assess a range of self-help domains, including clothing management, eating etiquette, hygiene maintenance (hands, clothing, hair, and nails), general cleanliness, and appropriate coughing and sneezing behaviors. The BST protocol incorporated structured components including instruction, modeling, rehearsal, and feedback, all adapted to the cognitive and functional levels of participants to effectively teach self-help skills. The Self-Help Skills Assessment Checklist was employed for both pre- and post-intervention assessments to measure skill acquisition across 48 sessions. Results revealed statistically significant improvements in all targeted skill areas ($z = -6.930, p < .001$). The intervention was particularly effective in bridging skill gaps between individuals with mild and moderate IDD. Gender differences were observed post-intervention, with males showing greater improvement in hygiene skills compared to females, potentially due to variations in disability severity distribution. Although not statistically significant, age-related trends suggested greater improvement among older participants, likely due to increased cognitive maturity and more real-world practice opportunities. These findings highlight the importance of tailored interventions to address the unique needs of individuals with varying levels of IDD. Future research should explore long-term skill retention, include more diverse samples, and investigate the broader applicability of BST to other functional domains. This study provides strong evidence supporting the efficacy of the developed BST intervention and checklist in enhancing self-help skills and fostering independence in individuals with intellectual disability.

Keywords: Self-help skills, Intellectual developmental disability, Behavioral Skills Training (BST), Independence.

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Abbreviations

ABA	Applied Behavior Analysis
ADHD	Attention Deficit Hyperactivity Disorder
ASD	Autism Spectrum Disorder
BST	Behavior Skills Training
CNIC	Computerized National Identity Card
CRC	Child Rights Convention
DAB	District Assessment Board
IDD	Intellectual and Developmental Disabilities
ID	Intellectual Disability
IQ	Intelligence Quotient
NICOP	National Identity Card for Overseas Pakistanis
NGO	Non-Governmental Organization
PIEP	Punjab Inclusive Education Project
SDI	Specially Designed Instruction
WISC	Wechsler Intelligence Scale for Children

Chapter 1

Introduction

Intellectual disability (ID) is a lifelong condition that profoundly affects individuals across several key areas of life, including health, well-being, education, employment, citizenship, community participation, and economic sustainability (Gómez et al., 2020). According to the Diagnostic and Statistical Manual 5th edition (American Psychiatric Association, 2022), and the International Classification of Diseases 11th edition (WHO, 2018), Intellectual developmental Disorder IDD is classified as a neurodevelopmental disorder, defined by three key criteria; deficits in intellectual functioning, limitations in adaptive behavior, and onset during the developmental period.

Individual with IDD faces challenges in intellectual functioning encompasses cognitive abilities like reasoning, problem-solving, abstract thinking, and academic learning, with an IQ score around 70 or below suggesting significant impairment (Bertelli et al., 2022). Adaptive behavior involves difficulties in daily life skills across conceptual such as language, numeracy, and self-direction), social skills (including social problem-solving, interpersonal interactions, and social responsibility), and practical domains (such as personal care, vocational abilities, community participation, and healthcare). These are skills that individuals typically acquire and perform in their daily lives, and limitations in these areas are central to diagnosing intellectual disability. These challenges must emerge before age 18 to confirm a diagnosis (Paolo et al., 2023).

ID is grouped under the broader category of neurodevelopmental disorders, which also includes autism spectrum disorder, communication disorders, attention-deficit hyperactivity disorder (ADHD), and motor disorders, all characterized by early developmental disruptions that impact daily functioning (Jeste, 2015).

1.1 Level of Intellectual Disability

The DSM-5-TR classifies intellectual disability (ID) into four levels of severity mild, moderate, severe, and profound based on how individuals' function in everyday life, rather than solely on IQ scores, as shown in Table 1.1.

TABLE 1.1: Levels of Intellectual Disability, IQ Ranges, and Approximate Mental Age in Adulthood (Sattler, 2002; Shree and Shukla, 2016)

Level of Intellectual Disability	IQ Range	Approximate Mental Age in Adulthood
Mild	55–69	8 years, 3 months to 10 years, 9 months
Moderate	36–51	5 years, 7 months to 8 years, 2 months
Severe	20–35	3 years, 2 months to 5 years, 6 months
Profound	< 20	Less than 3 years, 2 months

The Table 1.2 presented a detailed classification of intellectual disabilities (ID) across four severity levels: mild, moderate, severe, and profound. These levels are characterized by varying degrees of impairment in three main domains: conceptual, social, and practical. The conceptual domain encompasses difficulties in acquiring academic skills, ranging from mild struggles with reading, writing, and arithmetic in individuals with mild ID to minimal understanding of written language and numbers in those with profound ID. The social domain highlights challenges in communication, social interactions, and judgment. For individuals with mild and moderate ID, there may be issues with interpreting social cues and forming relationships, while those with severe and profound ID exhibit limited or nonverbal communication. In the practical domain, individuals' independence in daily tasks is assessed. Those with mild ID may need support for complex tasks, while individuals with severe and profound ID are fully dependent on caregivers for basic functions such as personal care and safety.

Table 1.2: Severity Levels of Intellectual Developmental Disorder (American Psychiatric Association, 2022)

Severity Level	Conceptual Domain	Social Domain	Practical Domain
Mild	Preschool children may show no noticeable differences.	Immature social interactions.	May function age-appropriately in personal care.
	School-age children struggle with academic skills (reading, writing, arithmetic, time/money management).	Difficulty interpreting social cues and using communication and language concretely.	Requires support for complex tasks (e.g., grocery shopping, transportation, finances).
	Adults have impairments in abstract thinking, executive functioning, short-term memory, and practical application of academic skills.	Immature social judgment, leading to vulnerability to manipulation.	Competitive employment is possible, but support needed for complex decisions (e.g., healthcare, legal matters).
Moderate	Preschoolers show delays in language and pre-academic skills.	Speech is less complex.	Can achieve independence in personal care (eating, dressing, hygiene) with extended teaching and practice.
	School-age children make slow progress in academic skills (reading, writing, math).	Difficulty interpreting social cues.	Ongoing support required for adult tasks and employment. Maladaptive behaviors may occur in some.
	Adults have only elementary-level skills and need daily support for conceptual tasks.	Relationships exist but are affected by limitations in communication and social judgment.	Requires significant social support for work and social settings.

Severity Level	Conceptual Domain	Social Domain	Practical Domain
Severe	Very limited attainment of academic skills. academic skills.	Minimal spoken language (single words or phrases). academic skills.	Dependent on caregivers for all aspects of daily living.
	Minimal understanding of written language, numbers, time, and money.	Communication through gestures.	Constant supervision needed for safety. Limited participation in activities, requiring ongoing support.
	Problem-solving requires extensive caregiver support.	Can understand simple speech and gestures. Relationships are formed with familiar caregivers and family.	Maladaptive behaviors (e.g., self-injury) may be present.
Profound	Engaging physically involves a direct, hands-on approach, focusing on sensory experiences and real-world interaction, prioritizing immediate, intuitive responses over abstract thought.	Communication is nonverbal or nonsymbolic (gestures, emotional expressions).	Completely dependent on others for care, health, and safety.
	Limited functional use of objects.	Limited understanding of symbolic communication.	May participate in passive activities (e.g., listening to music, going for walks).
	Significant motor and sensory impairments involve major difficulties in movement and sensory perception.	Close relationships with caregivers/family.	Significant motor and sensory impairments restrict participation in activities.
			Maladaptive behaviors (e.g., self-injury) may occur.

1.2 Diagnostic Features of Intellectual Developmental Disorder

Intellectual Developmental Disorder, commonly referred to as Intellectual Disability, is characterized by deficits in general mental abilities (Criterion A) and impairments in adaptive functioning relative to peers of similar age, gender, and sociocultural background (Criterion B), with onset during the developmental period (Criterion C). Diagnosis is based on comprehensive clinical assessments, standardized intellectual tests, neuropsychological evaluations, and adaptive functioning measures.

1.2.1 Criterion A: General Mental Abilities

Deficits in intellectual functioning include impairments in reasoning, problem-solving, planning, abstract thinking, judgment, and learning from experience. These deficits are typically assessed through individually administered, psychometrically valid, and culturally appropriate standardized tests (Tenorio D and Arango U, 2024). Key cognitive domains include:

1. Verbal comprehension
2. Working memory
3. Perceptual and quantitative reasoning
4. Abstract thought and cognitive efficiency

Intellectual functioning is generally indicated by an IQ score approximately two standard deviations below the population mean (IQ range: 65–75, with a ±5-point margin for error). However, clinical interpretation is essential as test scores can be influenced by factors such as practice effects, outdated norms (Flynn effect), and co-occurring disorders affecting communication, language, or motor functions. Sole reliance on IQ scores is insufficient; instead, a detailed cognitive profile derived from cross-battery intellectual assessments provides a more accurate understanding of the individual's abilities (Glover et al., 2014).

1.2.2 Criterion B: Adaptive Functioning

Deficits in adaptive functioning reflect challenges in meeting age-appropriate cultural and social expectations. Assessment involves three domains:

1. **Conceptual (Academic)**: Difficulties in memory, language, reading, writing, mathematical reasoning, practical knowledge, and problem-solving.
2. **Social**: Deficits in empathy, interpersonal communication, social judgment, and relationship skills.
3. **Practical**: Impairments in self-care, job responsibilities, money management, recreation, behavior regulation, and task organization.

Adaptive functioning is assessed using standardized tools combined with clinical evaluation and corroborated by informants such as parents, teachers, or caregivers. Criterion B is fulfilled when at least one domain is sufficiently impaired to necessitate ongoing support across multiple environments, including home, school, and community. In cases where formal testing is not feasible due to sensory impairments or behavioral challenges, a diagnosis of unspecified intellectual developmental disorder may be appropriate (Glover et al., 2014).

1.2.3 Criterion C: Developmental Period Onset

This criterion ensures that deficits in intellectual and adaptive functioning are present during childhood or adolescence, distinguishing the condition from impairments acquired later in life (Glover et al., 2014).

1.3 Significance of Clinical Judgment

Clinical judgment is integral to interpreting intellectual and adaptive functioning assessments, particularly when standardized test scores do not align with observed real-life functioning (Tortora et al., 2024). This approach ensures a nuanced understanding of the individual's capabilities and challenges, facilitating tailored

intervention and support planning. This framework underscores the importance of combining clinical expertise with standardized evaluation tools to ensure accurate diagnosis and effective intervention planning for individuals with Intellectual Developmental Disorder.

1.4 Comprehensive Diagnostic Process

A well-rounded diagnostic process integrates the following:

1. **Clinical Assessments**: In-depth evaluations by trained professionals to identify cognitive and adaptive challenges.

2. **Psychometric Testing**:

    - **Standardized Intelligence Tests**: Instruments such as the Wechsler Intelligence Scale for Children (WISC) and Stanford-Binet Intelligence Scales assess cognitive abilities, including reasoning, problem-solving, and abstract thinking. Scores approximately two standard deviations below the mean (IQ range 65–75 ± 5) are indicative of intellectual disability (American Psychiatric Association, 2022).

    - **Adaptive Behavior Assessments**: Tools like the Vineland Adaptive Behavior Scales evaluate daily living skills, including communication, self-care, and social functioning, across conceptual, social, and practical domains (American Psychiatric Association, 2022).

3. **Historical and Environmental Context**: Individual history, school performance, and environmental factors are crucial to understanding developmental progress and challenges. Interviews with caregivers and direct observations provide additional insights into real-life functioning.

1.5 Prevalence of intellectual disability (ID)

The global prevalence of intellectual disability (ID) increased from 92.8 million individuals in 1990 to 107.6 million in 2019. Males had a slightly higher prevalence

than females. The highest prevalence was observed in younger age groups, with 25.8 million children aged 0–9 years in 2019. The prevalence is higher among children and adolescents compared to adults, reflecting earlier detection during developmental years.

Low-middle SDI regions consistently had the highest rates of ID, and although prevalence has decreased globally, it remained higher in these regions compared to middle and high SDI areas. Inequalities between low and high SDI regions increased over time, particularly for older age groups, with a significant rise in disparity for those aged above 70 (Nair et al., 2022). As shown in 1.1, the prevalence varies by income level, with middle-income countries exhibiting the highest rates and high-income countries showing lower prevalence.

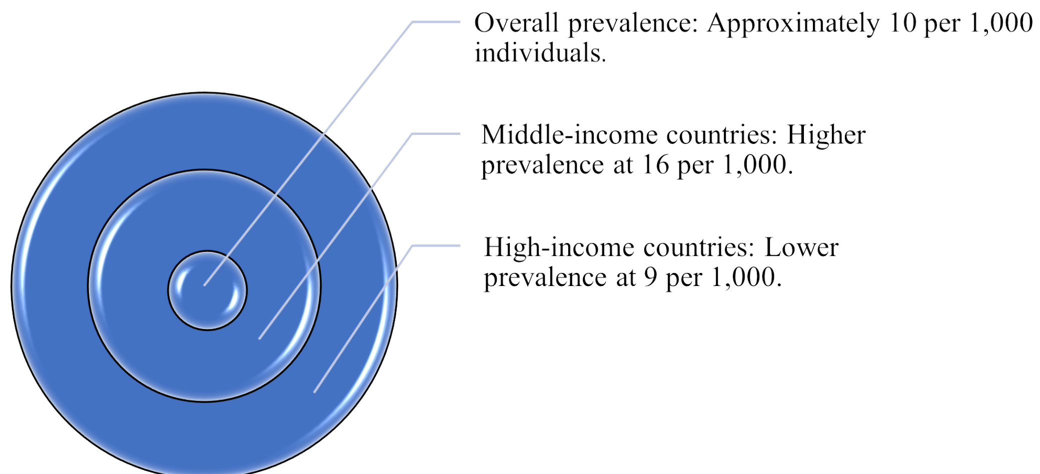

FIGURE 1.1: Prevalence of intellectual disability (ID)

1.6 Prevalence of Intellectual Disability (ID) in Pakistan

In Pakistan, with an estimated population of 160 million, 45% of whom are under the age of 18, intellectual disability rates are higher than expected (Naz et al., 2021). Prevalence estimates range from 19.1 per 1,000 for severe intellectual disability to 65 per 1,000 for mild intellectual disability (Mirza et al., 2009; Maulik et al., 2011). Despite these significant figures, services for individuals with intellectual disabilities remain rudimentary, and more research need to be conducted

to develop feasible, cost-effective community-based interventions that can be integrated into existing health systems.

1.7 Importance of Self-Care Skills for Individuals with Intellectual Disabilities

Self-care refers to the ability to perform tasks and activities necessary for daily living, enabling individuals to meet their basic personal needs independently. Self-care skills are essential for children with intellectual disabilities as they significantly impact their independence, quality of life, and social inclusion. These children often face challenges in developing self-care abilities, such as bathing, toileting, and personal hygiene, which are crucial for their day-to-day functioning. The ability to perform self-care tasks not only enhances their self-reliance but also reduces their dependence on caregivers for basic needs (Hall, 2024).

Research indicates that a large percentage of children with intellectual disabilities, particularly those with moderate severity, struggle with self-care skills, with over 60% showing low self-care abilities (Keesler and Troxel, 2020). This lack of independence can lead to social isolation, as difficulties in toileting and hygiene may exclude them from participating in group activities, attending public schools, or engaging in community events (Desai et al., 2024).

Mastering self-help skills empowers individuals with ID to perform daily tasks like dressing, eating, and maintaining personal hygiene independently. This reduces their dependence on caregivers, easing the burden on families and providing individuals with a greater sense of autonomy. Independence in these areas boosts confidence and enables individuals to actively engage in daily routines without constant assistance, enhancing their overall well-being (Sandjojo et al., 2019).

Self-help skills are pivotal in enabling individuals with ID to integrate more fully into society. Managing tasks like dressing or eating facilitates participation in public and social activities, such as attending events or interacting with peers. This capability fosters acceptance, reduces exclusion, and allows individuals to

contribute meaningfully to their communities, strengthening their social bonds and encouraging inclusion (Heister et al., 2023).

As individuals with ID demonstrate competence in self-help skills, societal perceptions of their abilities begin to evolve. Visible independence challenges traditional stereotypes, encouraging communities to value their strengths rather than focus on limitations. This shift nurtures a culture of inclusion, where individuals with ID are recognized for their contributions and welcomed as equal members of society (Jansen-van Vuuren and Aldersey, 2020).

Moreover, children with intellectual disabilities who are unable to manage their self-care needs are at a higher risk of experiencing neglect, abuse, and societal exclusion due to their dependence on others (Jansen-van Vuuren and Aldersey, 2020). Effective self-care skills can empower these children, providing them with a sense of autonomy and boosting their self-esteem. These skills are also vital for promoting better health outcomes, as poor hygiene can lead to infections and other health issues, further complicating their condition.

The development of self-care skills in children with intellectual disabilities is influenced by several factors, including age, motor skills, and parenting styles. Supportive parental involvement and appropriate training can significantly enhance these abilities, helping children achieve a greater degree of independence (Pesau et al., 2020). Therefore, it is essential for parents, educators, and caregivers to focus on improving self-care skills through structured programs and interventions. By doing so, children with intellectual disabilities can enjoy a higher quality of life, increased social participation, and a reduced risk of exclusion, ultimately contributing to their overall well-being and social integration.

Self-help skills, such as personal hygiene, dressing, and feeding, are fundamental to the independence and quality of life for children with intellectual disabilities. These skills form the basis for daily functioning and directly impact a child's ability to engage in society, perform basic tasks, and experience a sense of autonomy. The development of self-help skills plays a critical role in fostering independence, reducing dependency on caregivers, and improving self-esteem (Peterson et al., 2023).

1.7.1 Personal Hygiene

Being able to manage personal hygiene, including bathing, toileting, and brushing teeth, is essential for health and social inclusion. Children who are capable of maintaining cleanliness are less likely to experience health problems, such as infections or skin irritations, which can result from poor hygiene practices (Chanie et al., 2024). Moreover, personal hygiene is a key component of social acceptance. Children who can manage their hygiene are more likely to participate in school, recreational activities, and social interactions without facing embarrassment or exclusion. In contrast, those who struggle with hygiene may be socially isolated, leading to negative emotional and behavioral outcomes (Khawa et al., 2021).

1.7.2 Dressing

The ability to dress independently is another important self-help skill that promotes self-esteem and autonomy. Dressing is a daily task that, when learned, gives children with intellectual disabilities a sense of accomplishment and pride. It also supports their involvement in community and social settings, such as school or social gatherings, where personal presentation is important. As children develop their dressing skills, they gain confidence and the ability to manage one of the basic aspects of personal care, further reducing dependence on others (Hayton, 2017).

1.7.3 Feeding

Being able to feed oneself is a foundational skill for children with intellectual disabilities. Independent eating not only ensures adequate nutrition but also plays a significant role in social interactions, such as eating in group settings or participating in meals with family and peers. Children who require assistance during meals may experience feelings of dependency and isolation, which can negatively affect their social and emotional development. On the other hand, children who develop feeding independence experience greater autonomy and inclusion (Kalhoff et al., 2024).

The development of these self-help skills is influenced by both internal and external factors. For example, internal factors such as physical and motor condition problems may hinder the development of feeding or dressing abilities (Pesau et al., 2020). However, external factors like parental involvement and the use of effective training strategies can significantly enhance the acquisition of these skills. Parents and caregivers who provide consistent support, encouragement, and tailored training can foster independence in children with intellectual disabilities. Additionally, collaboration between parents, teachers, and therapists ensures that children receive the necessary guidance and resources to develop these essential life skills (Jeong et al., 2021).

1.8 Behavioral Skills Training (BST) as an Intervention for Developing New Behaviors

Behavioral Skills Training (BST) has been identified as a highly effective program for enhancing personal skills among individuals with intellectual disability. According to Wurtele et al. (1989), BST serves as a practical approach for teaching essential skills to vulnerable populations. The program's applicability is rooted in its foundation in behavior modification principles. Miltenberger (2008) highlighted BST as a structured method for shaping new behaviors by employing the fundamentals of operant conditioning.

Operant conditioning, as described by Skinner (1963) involves learning that is driven by consequences, such as reinforcement or punishment. Positive reinforcement strengthens desirable behaviors, making them more likely to be repeated, while punishment serves to reduce or suppress undesirable responses. Skinner's research underscores the fundamental principle that organisms, including humans, are inclined to repeat behaviors that result in positive outcomes while avoiding those that lead to negative consequences. This principle is integral to BST's structure, which utilizes modeling, instructions, and reinforcement to promote skill acquisition and behavioral change (Miltenberger, 2008).

BST combines multiple learning modalities, such as visual demonstrations, verbal instructions, and hands-on practice, to support the learning process. The feedback component is particularly significant, as it reinforces correct behaviors and provides corrective guidance when necessary, facilitating skill mastery over time (Mandouit and Hattie, 2023). By systematically applying these principles, BST offers a comprehensive framework for addressing behavioral deficits and equipping individuals with the skills needed to navigate their environments safely and effectively.

This evidence suggests that BST, when grounded in operant conditioning principles, represents a robust and adaptable method for promoting skill development in individuals with cognitive challenges (Britton and Sellers, 2023). The combination of theory and practice within BST provides a promising avenue for research and application in diverse contexts.

One of BST's significant strengths is its ability to accommodate diverse learning styles. The auditory component is addressed through instructions, the visual component through modeling and pictorial aids, and the kinesthetic component through role-playing and hands-on practice. The integration of these modalities ensures that learners with varying needs and abilities can benefit from the training. Additionally, the use of role-playing allows for the simulation of real-life situations, making BST particularly effective in preparing individuals to apply their newly learned skills in practical contexts (Erath et al., 2020; Erhard et al., 2021). By combining structured training sessions with real-world relevance, BST has proven to be a valuable tool for teaching new behaviors and enhancing the independence of individuals with cognitive challenges.

1.9 Problem Statement

Disabilities continue to pose a major public health and social challenge in Pakistan, with significant repercussions for the quality of life of a substantial segment of the population. According to the Pakistan Bureau of Statistics (2023), 371,833 individuals are officially registered as having disabilities, with physical disabilities constituting 79% of these cases (295,093 individuals), followed by intellectual

disabilities (31,914 individuals) and hearing and speech impairments (25,183 individuals). Detailed data on disability types and regional disparities are presented in Table 1.3 and Table 1.4, which highlight that Punjab registers the highest number of cases (147,539) and Khyber Pakhtunkhwa follows with 116,491, while regions such as Sindh, Azad Jammu and Kashmir, Islamabad, Balochistan, and Gilgit-Baltistan report lower yet significant figures. Moreover, the urban-rural divide is pronounced; urban areas, benefiting from superior healthcare infrastructure, report higher overall disability rates, whereas rural regions suffer from a higher incidence of hearing and physical disabilities due to hereditary factors and preventable diseases like polio, typhoid, and meningitis (UNICEF, 2022; Social Policy and Research Centre (SPRC), 2022; HI-Pakistan, 2022).

Table 1.3: Data by Disability Type (Pakistan Bureau of Statistics, 2023)

Disability Type	**CNIC**	**CRC**	**Juvenile NICOP**	**NICOP**	**Grand Total**
Blind	18,290	749	431	173	19,643
Deaf & Dumb	21,330	1,761	1,874	218	25,183
Physical Disability	262,361	18,251	10,753	3,728	295,093
Intellectual disability	23,713	4,850	3,090	261	31,914
Grand Total	325,694	25,611	16,148	4,380	371,833

Note. CNIC = Computerized National Identity Card, CRC = Child Registration Certificate, NICOP = National Identity Card for Overseas Pakistanis.

Educational inequities further compound these challenges, particularly for girls and children with disabilities. For instance, the literacy rate for females aged 15–24 years stands at only 46.5%, compared to 69.3% for males (Statista, 2022). These disparities contribute to a cycle of poverty and disability, exacerbated by inadequate support structures, societal stigma, and a shortage of specialized resources.

A critical and underexplored aspect of this multifaceted challenge is the deficit in self-help skills among children with intellectual disabilities. These children often struggle with everyday tasks—such as cloth management, eating etiquette, personal hygiene, and general cleanliness—that are essential for independent living. Existing interventions in Pakistan, such as the Punjab Inclusive Education Project

Table 1.4: Disability Data by Province (Pakistan Bureau of Statistics, 2023)

Province	CNIC	CRC	Juvenile NICOP	NICOP	Total
Azad Jammu and Kashmir (AJK)	10,368	2,259	392	310	13,329
Balochistan	9,682	475	287	51	10,495
Gilgit-Baltistan (GB)	6,147	1,216	506	17	7,886
Islamabad	5,941	437	183	145	6,706
Khyber Pakhtunkhwa (KP)	101,625	10,665	2,624	1,577	116,491
Punjab	127,591	7,471	10,563	1,914	147,539
Sindh	64,340	3,088	1,593	366	69,387
Grand Total	325,694	25,611	16,148	4,380	371,833

Note. CNIC = Computerized National Identity Card, CRC = Child Registration Certificate, NICOP = National Identity Card for Overseas Pakistanis.

(PIEP) and programs offered by the Punjab Education Foundation, primarily focus on academic and communication skills, neglecting the development of these fundamental self-help skills. Although behavioral skills training (BST) has been successfully employed in other contexts to enhance independence, its application in Pakistan remains limited, and the few available programs do not adequately consider cultural nuances or the varying levels of intellectual disability (United Nations Enable, 2023; Khan et al., 2023).

This gap is particularly concerning given the dual impact of inadequate self-help skills: on one hand, it hampers the ability of children with intellectual disabilities to function independently, and on the other, it imposes substantial emotional, physical, and financial burdens on their caregivers (Malik et al., 2022). The lack of tailored, culturally sensitive interventions not only restricts the development of essential life skills but also limits the potential for social inclusion and overall improvement in quality of life (Fuad et al., 2024; Kamaludin et al., 2022; Special Education Institution, 2022).

Given these pressing issues, there is an urgent need to develop and evaluate a comprehensive intervention that enhances self-help skills among intellectually disabled individuals. Specifically, an intervention using BST must be designed and implemented to target critical areas such as cloth management, eating etiquette, hygiene, and general cleanliness. This approach is anticipated not only to foster

greater independence among children with intellectual disabilities but also to alleviate caregiver burden, ultimately contributing to more inclusive educational and social frameworks within the country (Gómez et al., 2020; Bridges et al., 2020; Preas and Mathews, 2021; Opoku et al., 2020).

1.10 Rationale

Despite constitutional mandates and policy commitments, Pakistan continues to face significant challenges in ensuring equitable and inclusive education, particularly for children with disabilities and girls. Gender disparities remain stark, with literacy rates among females aged 15-24 years at only 46.5%, compared to 69.3% for males in 2019 (Statista Research Department, 2024).

Around one billion people globally, or 15% of the population, live with some form of disability, with particularly high prevalence rates in developing countries. In these regions, individuals with disabilities often face profound socioeconomic challenges, including limited access to education, healthcare, and employment opportunities. This creates a cycle where poverty exacerbates the risks of disability, while disability itself deepens poverty through barriers to basic services and economic participation. In countries like Pakistan, societal and systemic barriers compound these challenges. Deep-rooted stigma, inadequate support structures, and a lack of specialized resources severely hinder the full inclusion and participation of people with disabilities in social, educational, and economic life. These barriers prevent individuals from accessing the opportunities they need to break the cycle of disadvantage and contribute fully to society.

Individuals with disabilities in Pakistan face severe challenges due to inadequate support structures, specialized resources, and essential services. They are significantly less likely to attend school or acquire foundational skills due to inaccessible infrastructure and a shortage of trained educators and assistive technologies. Health disparities, including malnutrition and limited access to healthcare, exacerbate their vulnerabilities, while inadequate household resources and sanitation increase disease risks. Psychosocially, they often experience unhappiness, harsh

punishment, and diminished hopes for the future, affecting their mental well-being. Early childhood development is also hindered by insufficient stimulation and responsive care, perpetuating cycles of disadvantage and limiting their potential.

1.10.1 Challenges in Acquiring Self-Help Skills and Their Impact on Independence

The lack of self-help skills in children with intellectual disabilities significantly impacts their ability to function independently, which creates a range of challenges for both the child and their caregivers. Self-help skills refer to the ability to manage day-to-day tasks, such as personal hygiene, dressing, preparing food, managing time, and engaging in social and recreational activities. These skills are essential for independence and contribute to an individual's ability to participate in family and community life.

However, children with intellectual disabilities often struggle to develop these skills at the same rate as their typically developing peers. Cognitive limitations, physical difficulties, and social challenges can make it more difficult for these children to understand or perform the necessary actions for daily living. For example, tasks that most children learn without much effort, like brushing their teeth, getting dressed, or using the bathroom independently, may take much longer and require additional support and practice for children with intellectual disabilities. This gap in skill development often results in the child relying on caregivers for these basic activities, which can lead to over-dependence.

Individuals with intellectual disabilities (ID) often depend heavily on caregivers for daily tasks, creating emotional, physical, and financial challenges for families. Caregivers may experience stress, burnout, and exhaustion, while financial strain arises from specialized care costs and modifications. The lack of self-help skills also limits the child's ability to engage fully in society, hindering their participation in social, educational, and recreational activities, which can negatively impact their social development and self-esteem.

As such, teaching self-help skills is crucial for improving the child's quality of life and reducing their reliance on caregivers. These skills, though, must be taught

through appropriate, individualized approaches. Effective teaching methods involve using materials and strategies that match the child's developmental level, interests, and needs. Without these tailored resources, children may struggle to acquire these important skills, further perpetuating the cycle of dependence and limiting their potential for greater independence and social inclusion.

1.10.2 Lack of Interventions and Regional Need for Tailored Programs

There is a significant gap in interventions specifically aimed at developing self-help skills among individuals with intellectual disabilities (ID). While some programs in the field focus on behavior management, social skills, and academics, they often overlook the vital aspect of fostering independence in daily life. For instance, programs like Early Intervention Programs (EIPs) or Behavioral Skills Training (BST) primarily focus on academic and communication skills rather than on life skills that enable individuals to perform everyday tasks such as dressing, feeding, and personal hygiene. This lack of emphasis on self-help skills contributes to a continued dependence on caregivers, leading to higher emotional, physical, and financial burdens. As Özkan et al. (2023), there are very few programs globally that specifically address this gap, particularly in the context of developing self-help abilities in children with intellectual disabilities.

In Pakistan, the need for tailored interventions targeting the development of self-help skills in individuals with intellectual disabilities is pressing. The lack of specialized programs in the country means that children with intellectual disabilities are often left without critical life skills training. Government initiatives such as the Punjab Inclusive Education Project (PIEP) have made steps in including children with mild disabilities in mainstream schools, focusing on improving teacher training and school infrastructure. However, PIEP still does not sufficiently address the needs of children with more disabilities, particularly in the area of self-help skills development. Nawi et al. (2022) emphasize that many children with intellectual disabilities remain excluded from these initiatives, particularly those in rural areas, where specialized educational services are almost non-existent.

Furthermore, specialized programs like The Punjab Education Foundation provide some support through low-cost private schools, but they largely focus on academic skills and do not offer comprehensive life skills training. As pointed out by Derakhshan (2021), despite the availability of government incentives such as transportation and uniforms, these initiatives fall short when it comes to providing tailored life skills programs for children with severe disabilities.

1.10.3 Lack of Comprehensive National Programs

The lack of comprehensive national programs is evident when reviewing the situation in Punjab. Specialized institutions for children with intellectual disabilities are mostly concentrated in urban areas, leaving rural regions underserved. For example, while programs such as The National Special Education Centre cater to children with intellectual disabilities in urban settings, they do not have the infrastructure to support children from remote areas, leading to limited access for many children who need them most. Opoku et al. (2020) highlights that Pakistan, despite its international commitments, struggles to implement programs that address the full spectrum of needs for children with intellectual disabilities, especially in terms of developing self-help skills.

As a result, the children who do have access to educational programs like The Punjab Special Education and Rehabilitation Centre are often provided with basic academic education, but the lack of life skills training means they remain dependent on their families for many aspects of daily living. This gap in programming means that children with intellectual disabilities in Pakistan are not receiving the comprehensive, holistic education required for them to function independently within society.

This study will address the lack of self-help skills among intellectually disabled children and improve their independence through the implementation of behavioral skills training (BST). The study focuses on critical self-help skills such as dressing, eating manners, proper coughing and sneezing etiquette, as well as personal hygiene tasks such as maintaining cleanliness of hair, nails, and surroundings.

By focusing on these fundamental skills, the study aims to empower children with intellectual disabilities to gain greater independence, reduce their reliance on caregivers, and increase their participation in everyday activities. Furthermore, the development of these skills is expected to promote social inclusion by enabling these children to engage more effectively within their communities, thus enhancing their sense of dignity, confidence, and belonging. Ultimately, this study seeks to contribute to improving the quality of life for individuals with intellectual disabilities, helping them live more autonomously while fostering more inclusive and supportive environments.

Empowering individuals with intellectual disabilities by developing essential self-help skills offers significant societal benefits. As individuals with disabilities gain more independence in tasks like dressing, eating, and personal hygiene, they are better able to integrate into society, fostering a sense of dignity and autonomy. This, in turn, helps to reduce the stigma associated with disabilities, as these individuals demonstrate their ability to function independently in everyday life. When communities witness the success of individuals with disabilities in mastering self-help skills, it challenges preconceived notions and encourages a more inclusive, supportive environment.

Moreover, improving self-help skills can alleviate the burden on caregivers. By reducing the reliance on caregivers for daily tasks, the study aims to provide caregivers with more time and energy for other aspects of their lives, ultimately improving family dynamics and caregiver well-being. This reduction in caregiver burden can lead to a better quality of life for both caregivers and individuals with disabilities.

This study focuses on developing a culturally relevant checklist to assess self-help skills among children with intellectual disabilities and designing an intervention program tailored to their specific needs. Unlike interventions from other countries, which are often unsuitable for direct application in Pakistan due to cultural differences, this study prioritizes alignment with local traditions, norms, and values.

The study emphasizes culturally appropriate practices related to dressing, eating manners, personal hygiene, and social behaviors, ensuring that the tools and

strategies created are practical, applicable, and effective within the Pakistani context. By addressing these unique cultural aspects, this study aims to promote meaningful skill development and enhance social inclusion for individuals with intellectual disabilities.

The findings from this study have significant implications for policies and programs supporting individuals with intellectual disabilities. The results can inform the development of more targeted, evidence-based interventions that emphasize the importance of self-help skills in the holistic development of children with disabilities. These interventions could be integrated into existing special education frameworks or included as programs in community-based services.

1.11 Theoretical Framework

This study is based on Albert Bandura's Social Learning Theory, which emphasizes that individuals acquire new behaviors through observation, interpretation, and replication of modeled actions (Khozin et al., 2024). The theory posits that learning occurs in a social context, where individuals observe others, internalize what they see, and attempt to replicate these behaviors (Rumjaun and Narod, 2020). This approach is particularly relevant for individuals with cognitive challenges, as it leverages structured observation, demonstration, and feedback to facilitate skill acquisition.

In this study, Behavioral Skills Training (BST) serves as a practical application of Social Learning Theory (Amoyedo-Peter, 2023). BST involves participants observing and imitating modeled self-help skills, followed by reinforcement through positive feedback and encouragement (Erhard et al., 2021). This process allows the study to evaluate the effectiveness of observational learning and reinforcement in enabling participants to independently perform self-help tasks (Robinson and Idle, 2023).

The BST framework integrates four key components modeling, instruction, practice, and feedback that work together in a structured sequence to facilitate learning. Modeling provides visual demonstrations of the desired behavior, offering a

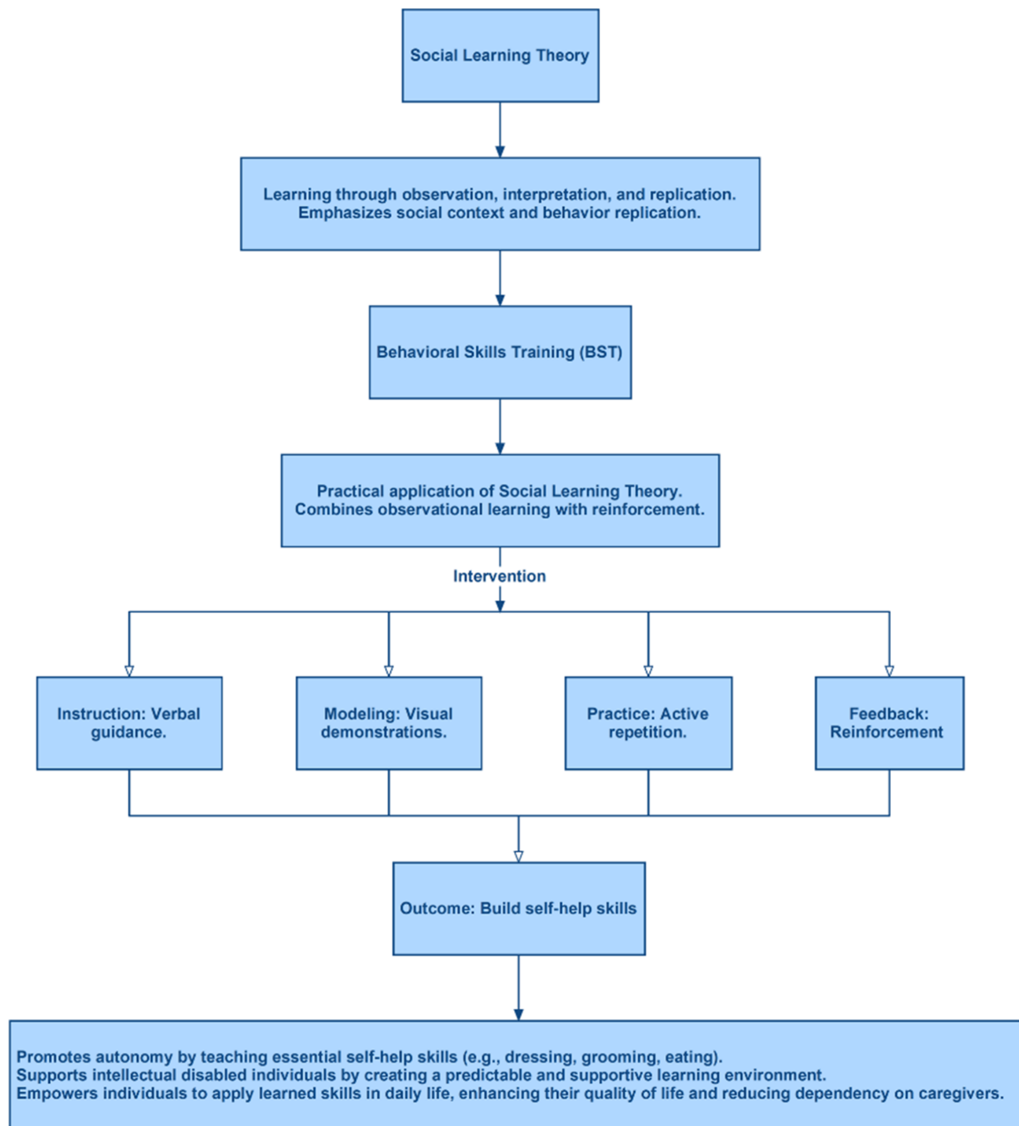

FIGURE 1.2: Model

clear example for participants to emulate. Instruction offers verbal guidance and explanations to help participants understand the steps and rationale behind the behavior. Together, these components act as antecedents that prompt the emergence of appropriate behaviors. Practice allows participants to actively perform the behavior demonstrated during the modeling and instruction phases, ensuring that learners internalize the demonstrated skills through supervised repetition and refinement. Feedback involves a dual approach: positive reinforcement strengthens correct behaviors by rewarding successful performance, while corrective feedback addresses errors and guides participants to improve and refine their behavior. This ensures continuous improvement and shapes future performance. The integration of Social Learning Theory and BST in this study aims to enhance participants'

independence by teaching self-help skills through observation, practice, and reinforcement. This framework is particularly valuable for promoting skill development and fostering autonomy in individuals with cognitive challenges (Cooper, 2007).

1.12 Research Questions

This research addresses the following questions:

1. **Research Question 1:** What is the effect of Behavioral Skills Training (BST) on the self-help skills among intellectually disabled Individuals ?

1.13 Objectives

The present study aims to evaluate the effectiveness of Behavioral Skills Training (BST) in enhancing self-help skills among individuals with intellectual disabilities. Self-help skills, including cloth management, eating etiquette, hygiene, and general cleanliness, are essential for independent living and overall well-being. By examining changes before and after the BST intervention, this research seeks to identify improvements across various demographic groups, such as gender, age, and levels of intellectual disability. The specific objectives of this study are as follows:

1. To assess the improvement in the development self-help skills behavior between pre- intervention and post-intervention among individuals with intellectual disabilities.

2. To evaluate the improvement in the development of subcategories of self-help skills (cloth management, eating etiquette, hygiene, and general cleanliness) between pre- intervention and post-intervention among individuals with intellectual disabilities.

3. To compare the difference in self-help skills across genders, disability levels, and age groups at pre- and post-intervention.

4. To compare the difference in self-help skills (cloth management, eating etiquette, hygiene, and general cleanliness) across genders, disability levels, and age groups at pre- and post-intervention.

5. To develop and assess the feasibility of a Behavioral Skill Training program aimed at enhancing self-help skills among individuals with intellectual disabilities.

6. To develop and evaluate the feasibility of Self-Help Skill Assessment Checklist for evaluating self-help skills in individuals with intellectual disabilities.

1.14 Hypotheses

The present study aims to investigate the effectiveness of Behavioral Skills Training (BST) in improving self-help skills among individuals with intellectual disabilities. These skills, which include cloth management, eating etiquette, hygiene, and general cleanliness, are essential for independent living and overall well-being. To evaluate the impact of BST, the following hypotheses have been formulated:

H1: There is a significant improvement in the development of self-help skills between pre-intervention and post-intervention among individuals with intellectual disabilities.

H2: Individuals with intellectual disabilities will show significant improvement in cloth management skills (a subcategory of the Self-Help Skills Assessment Checklist) from pre- to post-intervention.

H3: Individuals with intellectual disabilities will show significant improvement in use of utensils and eating etiquette (a subcategory of the Self-Help Skills Assessment Checklist) from pre- to post-intervention.

H4: Individuals with intellectual disabilities will show significant improvement in Hygiene (Cloth, Hand, Hair, and Nail) skills (a subcategory of the Self-Help Skills Assessment Checklist) from pre- to post-intervention.

H5: There is a significant improvement in the development of general cleanliness, coughing, and sneezing hygiene skills between pre-intervention and post-intervention among individuals with intellectual disabilities.

H6: There is a significant difference in the development of self-help skills between between genders at pre- and post-intervention.

H7: There is a significant difference in the categories of self-help skills (cloth management, eating etiquette, hygiene, and general cleanliness)between genders at pre- and post-intervention.

H8: There is a significant difference in the development of self-help skills between different levels of intellectual disability at pre- and post-intervention.

H9: There is a significant difference in the categories of self-help skills (cloth management, eating etiquette, hygiene, and general cleanliness) across different levels of intellectual disability at pre- and post-intervention.

H10: There is a significant difference in the ranks of self-help skills across different age groups at pre- and post-intervention.

H11: There is a significant difference in the ranks of self-help skills categories (cloth management, eating etiquette, hygiene, and general cleanliness) across different age groups at pre- and post-intervention.

1.15 Thesis Organization

This thesis is structured to systematically explore the effectiveness of Behavioral Skills Training (BST) in enhancing self-help skills among individuals with intellectual developmental disabilities (IDD) in Pakistan. The organization of chapters is as follows:

- **Chapter 1 Introduction:** This chapter establishes the foundation of the study by defining intellectual disability (ID), its diagnostic criteria, and prevalence in Pakistan. It underscores the importance of self-help skills for independence and quality of life, identifies gaps in existing interventions, and

positions BST as a culturally relevant solution. The theoretical framework, rooted in Bandura's Social Learning Theory, is introduced, alongside clear research objectives and hypotheses.

- **Chapter 2 Literature Review:** A comprehensive review of historical and contemporary perspectives on intellectual developmental disabilities (IDD) is presented, emphasizing evolving societal attitudes and interventions. The chapter critiques the limited access to skill development programs in Pakistan and synthesizes global evidence on BST's efficacy. It highlights the urgency of integrating BST into Pakistan's educational and therapeutic frameworks to address systemic gaps.

- **Chapter 3: Research Methodology:** This chapter details the pre-post within-subjects design, participant selection (50 individuals with mild/moderate IDD), and the development of the culturally adapted Self-Help Skills Assessment Checklist (SHSC). The BST intervention protocol—48 sessions targeting clothing management, hygiene, utensil use, and cleanliness—is outlined. Ethical considerations, pilot testing, and statistical methods (non-parametric tests for non-normal data) are rigorously described.

- **Chapter 4 Results:** Quantitative findings reveal statistically significant improvements across all self-help domains (p ¡ .001), with notable reductions in skill disparities between mild and moderate IDD groups. Gender and age-related trends are analyzed, supplemented by behavioral observation data highlighting engagement patterns. Tables and figures systematically present demographic characteristics, pre-post comparisons, and subgroup analyses.

- **Chapter 5 Discussion:** The results are contextualized within existing literature, emphasizing BST's effectiveness in fostering independence. Persistent challenges in complex tasks for moderate IDD and gender differences (linked to disability severity distribution) are critically examined. Age-related trends, though non-significant, suggest developmental maturity's role. Limitations, including sample size and cultural constraints, are addressed, with recommendations for longitudinal studies and caregiver training.

- **Chapter 6 Conclusion**: The study concludes that BST is a viable intervention for improving self-help skills in IDD populations, particularly in resource-limited settings like Pakistan. It advocates for tailored strategies, policy reforms, and community-based programs to sustain skill gains. The SHSC and BST manual are highlighted as practical tools for educators and caregivers, bridging research and practice.

Chapter 2

Literature Review

Intellectual Developmental Disability (IDD), historically known as mental retardation, has evolved significantly over time, reflecting shifting societal attitudes, medical advancements, and educational theories (Gopalan, 2022). This progression highlights the dynamic interaction between scientific research, social perception, and policy, influencing how individuals with ID are understood and treated within society.

2.1 Historical and Contemporary Perspectives on Intellectual Disability

The earliest recorded reference to intellectual disability dates back to ancient Egyptian medical texts, such as the Ebers Papyrus, circa 1550 B.C (Harris, 2006). In ancient Greek and Roman societies, intellectual disability was often attributed to divine punishment, with the belief that children born with such impairments were the result of the gods' anger (NGUYEN-FINN, 2023). As a consequence, infants with severe intellectual disabilities were frequently abandoned or left to die due to exposure. However, Roman society exhibited some protection for individuals with intellectual disabilities, particularly among the wealthier class. These individuals were granted certain rights, including property rights and guardianship, which provided them with some degree of protection and care (Harris, 2006).

Prior to the 18th century, societal conceptualizations of intellectual disability varied significantly across cultures. Individuals with mild intellectual disabilities who exhibited social competence often received no special recognition or care. In contrast, those with more severe intellectual impairments were typically cared for by their families or placed in religious institutions, such as monasteries. Additionally, some cultures viewed individuals with severe intellectual disabilities as capable of receiving divine revelations, further linking their condition to spiritual or religious beliefs (Beirne-Smith, 2006). It was not until the Renaissance and Enlightenment eras that intellectual disability began to be studied from a medical perspective, although advancements in treatment remained minimal (Trent Jr, 2021).

The 18th and 19th centuries marked a critical turning point in the understanding and treatment of intellectual disabilities. Influential figures such as Jean-Marc Itard challenged traditional perspectives by emphasizing the potential for education and rehabilitation in individuals with cognitive impairments (Cilione and Gazzaniga, 2023). Itard's systematic approach, particularly his work with Victor, a child found living in isolation, underscored the importance of structured teaching that incorporated both physiological and moral development (Reynolds et al., 2013). Building on Itard's foundational work, Edouard Séguin expanded educational methodologies aimed at improving intellectual, motor, and social skills in individuals with intellectual disabilities, setting the stage for modern special education practices (Shoychet, 2021).

However, the late 19th and early 20th centuries witnessed the rise of the eugenics movement, which significantly hindered progress in the equitable treatment of individuals with intellectual disabilities (Burack et al., 2021). Proponents of eugenics considered individuals with intellectual disabilities to be genetically inferior, advocating for their institutionalization and forced sterilization. In the United States, this movement resulted in the sterilization of thousands of individuals with intellectual disabilities and reinforced their systemic exclusion from society (Ilyes, 2020). Concurrently, the development of intelligence testing by figures such as Alfred Binet and Theodore Simon, while initially intended to identify educational needs, was misused to categorize and stigmatize individuals with intellectual disabilities, further perpetuating discriminatory practices (Kanaya, 2019).

The mid-20th century marked a shift toward more inclusive approaches with the emergence of the normalization movement (Hodapp, 2021). Originating in Scandinavian countries during the 1950s and 1960s, normalization emphasized equal rights and opportunities for individuals with disabilities, advocating for community-based care as an alternative to institutionalization (Turnpenny, 2011). This movement significantly contributed to the deinstitutionalization of individuals with intellectual disabilities, promoting their integration into society (Burack et al., 2021). Despite these advancements, challenges such as social stigma, limited access to employment, and barriers to full societal inclusion persisted, necessitating ongoing advocacy for the rights of individuals with intellectual disabilities (Vaghela and Bodla, 2024).

As societal attitudes evolved, so did the terminology used to describe intellectual disability. The term "mental retardation," widely used in the mid-20th century, became increasingly recognized as pejorative by the 1960s and 1970s (Harris, 2013). In response, "intellectual disability" emerged as a more neutral and respectful term, reflecting a paradigm shift in both academic and policy contexts (Carulla et al., 2011). This linguistic change paralleled a broader reconceptualization of intellectual disability, emphasizing adaptive functioning and the capacity for meaningful societal engagement, as outlined in contemporary diagnostic frameworks like the DSM-5 and ICD-11 (Girimaji et al., 2018).

Now, intellectual disability is understood as a multifaceted condition encompassing limitations in intellectual functioning and deficits in adaptive behavior, influenced by developmental and environmental factors (Conrad, 2020). Contemporary perspectives highlight the importance of early intervention, individualized support, and community integration (Hodapp, 2021). Research increasingly underscores the value of inclusive education, vocational training, and social participation in promoting the full inclusion of individuals with intellectual disabilities (Doherty et al., 2020). This evolution reflects not only advancements in medical and educational practices but also a broader societal commitment to equity and inclusion for individuals with disabilities.

2.2 Treatments and Interventions for Individuals with Intellectual Disabilities

Two well-established treatment approaches for teaching skills in individuals with intellectual disabilities (ID) are personalized interventions based on Applied Behavior Analysis (ABA) and group parent training programs. Both approaches have a strong evidence base, demonstrating their efficacy in reducing behavioral problems and improving adaptive skills.

2.2.1 Personalized Interventions Based on Applied Behavior Analysis (ABA)

Applied Behavior Analysis (ABA) is a widely used approach for addressing issues and teach new skills in individuals with intellectual disabilities. This intervention involves assessing the underlying function of a specific behavior (e.g., head banging may serve the function of avoiding or escaping aversive interactions with caregivers) and developing a personalized plan to reduce this behavior (Zelinsky and Shadish, 2018). The ABA framework includes modifying environmental variables before and after the behavior to prevent it and introducing alternative skills to allow the individual to communicate their needs more effectively (Jennett and Hagopian, 2008). ABA-based treatments have been shown to result in substantial reductions in challenging behaviors, such as self-injury and phobias, across various settings and populations (Erturk et al., 2018).

Key components of ABA, including the use of alternative communication methods, reinforcement (both positive and alternative), and offering the individual choices, have been found to be highly effective (Muharib et al., 2021). BST is integrated into ABA interventions to teach new, functional behaviors as alternatives to challenging behaviors (Shayne and Miltenberger, 2013). It involves four key components: instruction, modeling, rehearsal, and feedback. BST interventions, is particularly effective in teaching individuals how to perform new behaviors and communicating their needs effectively (Miltenberger et al., 2017). By combining these approaches, individuals are empowered to learn new skills, enhancing

their ability to engage in appropriate behaviors and reducing the occurrence of challenging behaviors over time (Shayne and Miltenberger, 2013). This comprehensive approach promotes overall skill development and increases the individual's autonomy in different settings.

2.2.2 Group Parent Training Programs

Group parent training, grounded in principles derived from behavior analytic and social learning theory, has demonstrated efficacy in reducing behavioral problems and teaching new skills in individuals with developmental disabilities, including intellectual disabilities (Ruane and Carr, 2019). Empirical evidence indicates that structured, manualized, or disability-adapted parenting programs, such as Incredible Years and Stepping Stones Triple P, result in a reduction of behavioral problems (Tellegen and Sanders, 2013). These programs not only address behavioral issues but also aim to enhance parenting skills, thereby increasing parental competence and confidence in managing their children's behavioral challenges and teaching new skills (Skotarczak and Lee, 2015). Importantly, these group-based interventions are associated with improvements in the parent-child relationship and contribute to the creation of a more supportive and positive home environment (Hohlfeld et al., 2018). This holistic approach fosters the development of effective parenting strategies, which, in turn, support the behavioral and emotional well-being of children with intellectual disabilities.

2.3 Access to Skill Development for Individuals with Intellectual Disabilities in Pakistan

Access to treatments and therapies for individuals with intellectual disabilities in Pakistan is a significant challenge, not only for families in low- and middle-income regions but also in urban areas with better healthcare infrastructure (Hussain et al., 2022). While Pakistan has some healthcare services that align with international guidelines, there remains a substantial gap between the needs of the

population and the available services (Shaukat, 2023). This gap is particularly noticeable in the context of individuals with intellectual disabilities and co-occurring mental health problems.

In Pakistan, there is limited availability of specialized mental health services for children with intellectual disabilities (Ayub, 2022). Although the World Health Organization (WHO) and National Health Authorities have outlined general guidelines for addressing mental health problems in individuals, such as the need for personalized behavioral treatments, early interventions, and parent training programs, the implementation of these guidelines remains inadequate (Hussain et al., 2022). In practice, access to specialized mental health services is highly limited, and families often struggle to find appropriate care (Hamdani et al., 2020). Even in urban centers like Islamabad and Karachi, mental health services for children with intellectual disabilities are few and far between, and many families are unable to afford the costs of private services (Shaukat, 2023). This gap is exacerbated in rural and underserved areas where resources and trained professionals are scarce (Hamdani et al., 2020).

The stigma associated with intellectual disabilities and mental health issues continues to be a significant barrier to accessing formal care. In addressing this issue, Lakhani et al. (2024) conducted a qualitative exploratory study to examine the experiences of families caring for children with intellectual disabilities (ID) in Karachi, Pakistan. The study, included five families, revealed significant challenges such as parental anxiety, emotional distress, lack of communication and assistance from extended family, and societal stigma. Despite these difficulties, positive influences were identified, including the role of religious beliefs, sibling involvement, and support from close friends in fostering caregiver resilience.

The findings highlighted the critical need for coordinated support systems to address these challenges. Recommendations included enhancing familial caregiving skills, fostering intimacy within households, and implementing governmental interventions such as assistance programs, support groups, and community-based initiatives aligned with cultural and religious values. Future research should focus on the implementation and evaluation of intervention, with an emphasis on diverse cultural and socioeconomic contexts (Lakhani et al., 2024).

Families often hesitate to seek help due to fear of social ostracism or the misconception that such disabilities are a result of personal or familial shortcomings (Hussain et al., 2022). Moreover, many parents may not recognize the early signs of mental health issues in children with intellectual disabilities, which delays intervention and treatment (Ayub, 2022). This lack of awareness, coupled with limited public education about intellectual disabilities, contributes to the persistence of stigma (Batool et al., 2024).

As a study by Patka et al. (2020) explores significant challenges faced by individuals with ID and their caretakers in Pakistan, emphasizing the intersection of disability status and cultural beliefs. Cultural beliefs lead to stigma, misconceptions, and negative attitudes towards individuals with IDs, while the cultural expectation for families to provide care places a heavy burden on caregivers, who often sacrifice personal and professional goals. Additionally, there is a lack of formal support systems and resources, making it difficult for guardians to access appropriate education, healthcare, and social services, which exacerbates the social isolation experienced by individuals with IDs and their families. Caretakers also express concerns and uncertainty about the long-term care and support for their family members with IDs, especially as they age or pass away, adding to the overall stress and burden they already face. The study highlights the need for a comprehensive understanding of these unique challenges and the development of culturally appropriate support systems and interventions to address them.

Poverty and social exclusion further compound the problem. Many families living in poverty cannot afford the necessary therapies or treatments for their children, and those in rural or remote areas have little access to specialized care (Rizvi Jafree and Burhan, 2020). The absence of universal healthcare in Pakistan means that many families are left to navigate the system on their own, relying on charitable organizations or non-governmental organizations (NGOs) for support (Ahmad and Bano, 2020). However, the availability of such services is inconsistent, and the level of care may not always meet the needs of children with intellectual disabilities and mental health problems.

In Pakistan, the diagnosis of intellectual disabilities is hindered by several factors,

including social stigma, inadequate access to appropriate diagnostic services, financial limitations, and a shortage of trained professionals (Munawar et al., 2020). These barriers often lead to delayed identification and intervention, compromising the provision of timely and effective support for individuals with intellectual disabilities.

2.4 Behavioral Skills Training (BST) in Developing Daily Living and Social Skills

To address the challenges faced by IDD individuals, Behavioral Skills Training (BST) has emerged as a structured and evidence-based intervention (Vladescu and Marano, 2021). BST is a systematic approach comprising four key components: modeling, instructions, rehearsal, and feedback (Miltenberger et al., 2021). This framework has been effectively applied to enhance self-help, social, and vocational skills in individuals with developmental disabilities, including autism spectrum disorder (ASD) and intellectual disabilities (Kirkpatrick et al., 2019).

Self-help skills are crucial for promoting their independence, enhancing their quality of life, and fostering a sense of dignity and self-worth among IDD individuals (Burns et al., 2019). By acquiring these skills, individuals can reduce their dependence on caregivers, which can alleviate caregiver burden and improve family dynamics (Chafouleas et al., 2020). Mastering these skills helps individuals with IDD gain confidence and autonomy, which are essential for their social and emotional well-being. It also enables them to participate more fully in school, work, and social settings, promoting greater integration into society (Konuk Sener et al., 2019).

Tincher (2018) evaluated BST's effectiveness in teaching self-instructional skills to elementary students with intellectual disabilities and ASD. The study utilized a multiple-probe design with four participants aged 9 to 11 years. Incorporating BST elements like instruction, modeling, rehearsal, and feedback alongside visual activity schedules (VAS) and video modeling (VM), three students achieved

mastery and generalized the skills to novel tasks. One participant required modifications, underscoring variability in intervention outcomes. Although promising, the study's small sample size and limited exploration of long-term maintenance highlighted the need for further research.

The study conducted by Yıldız and Cavkaytar (2020) aimed to explore the independent living needs of young adults with intellectual disabilities as they prepare for adulthood and entry into the workforce. Utilizing a phenomenological design, the study involved the observation of 10 young adults with intellectual disabilities, skill assessments, and semi-structured interviews with a total of 30 participants, including parents, employers, and teachers involved in employment education courses. The findings indicated that these young adults encountered difficulties not in employment-related skills but in independent living skills and adapting to the demands of work life. Key areas of need in preparing for adulthood and employment included personal care and hygiene, interpersonal communication, self-determination, employability skills, sexual education, and safety awareness. The difficulties identified were primarily attributed to gaps in knowledge and skills, underscoring the necessity for targeted interventions to support young adults with intellectual disabilities in these areas to facilitate a successful transition into adulthood and the workforce.

Roberts et al. (2021) addressed social integration challenges by employing BST to teach interview skills to young adults with autism. Using a multiple baseline design, simulated interviews combined role-playing, feedback, and rehearsal to improve participants' ability to ask and answer questions and maintain appropriate body language. Two participants achieved desired outcomes through BST alone, while one required additional textual cues and reinforcement. Social validation further confirmed the relevance of these improvements, though limitations included the simulated nature of the interviews and the small sample size.

Selau et al. (2022) conducted systematic review and meta-analysis on interventions to improve adaptive behavior in children and adolescents with intellectual disabilities found that behavioral skills training significantly enhanced adaptive skills such as communication and social interaction. Based on 12 studies involving

159 participants, BST showed a large positive effect on adaptive behavior outcomes compared to control conditions. The review highlights BST's effectiveness in promoting functional independence and quality of life in this population, while noting the need for more longitudinal research to assess long-term outcomes.

The study by Du et al. (2024) aimed to examine the effectiveness of Applied Behavior Analysis (ABA) in enhancing emotional and social skills in children with autism spectrum disorder (ASD). The research utilized a quasi-experimental design, involving 60 institutionalized boys aged 4 to 11, who were divided into a control group and an experimental group. The experimental group received ABA intervention in eight one-hour sessions, twice a week. Data was collected using the Kindergarten Inventory of Social/Emotional Tendencies (KIST), and analyzed using SPSS software. Results showed that ABA significantly improved the social, communicative, and daily life skills of children in the experimental group. The study concluded that ABA is an effective therapeutic approach for enhancing emotional and social development in children with ASD, particularly in institutional care settings, highlighting its potential as a beneficial intervention for fostering emotional-social growth.

2.5 Peer and Parent Training Through BST

Peer and parent training through Behavior Skills Training (BST) has emerged as an effective approach to enhancing the support and skill development of individuals with intellectual disabilities. By equipping both peers and parents with evidence-based strategies, BST fosters the consistent application of interventions in naturalistic settings, promoting the acquisition of social, communication, and self-management skills. The structured nature of BST ensures that both parties are adequately trained to support individuals with intellectual disabilities in a manner that is both practical and sustainable. This approach is particularly important in the context of supporting individuals with intellectual disabilities in their daily interactions and routines, as it facilitates the generalization of learned behaviors across various environments.

Schaefer and Andzik (2021) conducted a systematic review of 20 single-subject studies to evaluate BST's effectiveness in training parents to implement evidence-based practices (EBPs). Results revealed significant improvements in child behaviors across interventions, reinforcing BST's reliability. However, limitations included the focus on single-subject designs and a lack of participant diversity.

Sun (2022) conducted a systematic review to examine the effectiveness of Behavioral Skills Training (BST) for family caregivers of individuals with intellectual or developmental disabilities (IDDs). The review analyzed seventeen studies that utilized BST to train caregivers in various skills, such as self-care, learning, and socializing. Data was extracted based on factors like participant demographics, training focus, intervention details, and outcomes. Most studies showed positive improvements in both caregivers' skills and the individuals' outcomes, although some studies did not yield desired results for the individuals. The review recommends further research to refine BST interventions, considering factors like caregiver training intensity, individualized support, and strategies to enhance the effectiveness of skill development for individuals with IDDs.

A study by Covey et al. (2021) demonstrated BST's utility in training peer models to facilitate interactive play for children with moderate to severe developmental disabilities. Peer models achieved high procedural accuracy, and target students maintained increased engagement in interactive play for up to 13 weeks post-intervention. While the findings highlight BST's potential in promoting inclusive interactions, the study's controlled environment posed challenges for generalization to naturalistic settings

2.6 Need for BST Integration in Pakistan's Education and Therapy

Incorporating Behavioral Skills Training (BST) into Pakistan's education and therapy practices is crucial for enhancing skill acquisition among individuals with intellectual developmental disability. Research highlights BST's efficacy in teaching essential self-help and social skills, which are often underdeveloped due to limited

intervention options in Pakistan. The structured, step-by-step approach of BST could address this gap, promoting practical skill development and independence.

Asif and Fazil (2020) highlights significant gaps in the social skills curriculum for children with intellectual disabilities in Punjab, as evidenced by teachers' low satisfaction levels. The research, which surveyed 100 teachers from various schools across Punjab, revealed that the current curriculum fails to effectively teach essential social skills. These skills are crucial for children's ability to interact with peers and teachers, as well as for their overall academic and social development. The dissatisfaction expressed by teachers signals the need for a targeted intervention to address these gaps. The study's findings strongly suggest the necessity of a revised curriculum that includes focused interventions to teach both social and self-care skills. These interventions could help children develop the independence needed for daily activities like feeding, dressing, and toileting, while also improving their social interactions. The researchers recommend revising the curriculum to better meet the needs of children with intellectual disabilities, alongside implementing teacher training programs to ensure these skills are effectively taught.

A report by UNICEF (2021)on disability-inclusive education in Pakistan emphasizes the need for a more comprehensive educational system that addresses the diverse needs of children with disabilities. It highlights key areas such as teacher training, accessible infrastructure, and the implementation of supportive policies as essential for fostering an inclusive educational environment. Despite these recommendations, the report also highlighted lack of empirical evidence or detailed interventions to substantiate how these goals can be effectively implemented in practice(UNICEF, 2021). This gap points to a need for further research and evidence-based strategies to guide the improvement of disability-inclusive education in Pakistan.

UNICEF (2021) findings on disability-inclusive education in Pakistan align with study Hussain et al. (2020), both highlighting critical gaps in resources and interventions for children and adolescents with ID. Both studies underscore the urgent need for targeted strategies, including teacher training and supportive policies, to enhance independence and well-being of ID individuals within the Pakistani context.

Arif et al. (2022) conducted an assessment of early intervention programs for children with intellectual disabilities in Lahore, Pakistan. The study found that dietary interventions were the most commonly used, comprising 41% of the total interventions, followed by medical interventions at 23%. Behavioral interventions accounted for 19%, while educational interventions made up 17% of the total. The research highlighted initiating interventions at ages 3-4 led to significant improvements in both cognitive functioning and adaptive behaviors. Notably, behavioral interventions were emphasized as particularly effective in enhancing daily functioning. Parents reported substantial developmental progress, underscoring the importance of comprehensive, early interventions in fostering positive outcomes for children with intellectual disabilities

Batool et al. (2024) investigated the use of behavioral modification techniques, including applied behavior analysis (ABA) and positive behavior support (PBS), in Pakistan's special education sector. ABA proved effective in improving social skills and behavior regulation, while PBS excelled in creating supportive environments. Challenges such as limited parental involvement and individual differences highlighted the need for tailored interventions and interdisciplinary collaboration.

Chapter 3

Research Methodology

3.1 Research Design

This study employed a within-subjects design, an experimental research method that evaluates the impact of an intervention on skill acquisition by having each participant experience both the baseline (pre-intervention) and intervention phases. This design allows for a direct comparison of each participant's performance under different conditions, which helps assess the effect of the intervention on their skills. Since each participant acted as their own control, this design minimized the influence of confounding variables. The within-subjects design offers a controlled, and efficient method for evaluating the effectiveness of behavioral interventions in the development of self-help skills in individuals with intellectual disabilities.

3.1.1 Participants

Participants included individuals diagnosed with intellectual disabilities (ID).

3.1.2 Sample Size

The total sample size consisted of 50 individuals with mild to moderate intellectual disabilities. The sample included both male and female participants to ensure gender diversity.

3.1.3 Sampling Technique

Participants were recruited using a convenience sampling technique, a non probability method in which researchers select participants based on their accessibility, availability, and willingness to participate. This approach was chosen due to its practicality, as individuals with intellectual disabilities (ID) often require specialized support, making random or purposive sampling challenging (Etikan et al., 2016). Convenience sampling allowed to prioritize participants who were already engaged with local care facilities or educational programs, reducing logistical barriers Bryman (Bryman, 2016).

Additionally, this method ensured accessibility by drawing participants from organizations and institutions that serve individuals with ID, providing a readily available pool of candidates who met the study's inclusion criteria. Given the study's focus on behavioral interventions and skill acquisition, convenience sampling also offered a time and cost-effective way to gather data without compromising the research objectives (Liamputtong and Rice, 2021). it is widely used in disability research where ethical and practical constraints make randomized sampling difficult (Emerson and Hatton, 2014).

3.1.4 Site

Data were gathered from Government Special School Center kahuta, Rawalpindi.

3.1.5 Access to Participants

Approval was obtained from the special school to involve their students in the research study. Once this approval was secured, ethical clearance was sought from CUST University's Ethical Research Committee to ensure the study complied with institutional and ethical standards. Following these approvals, informed consent was obtained from the parents or guardians of the participants, who were provided with a clear explanation of the study's purpose, procedures, potential risks, and benefits.

Additionally, assent consent was obtained from the participants themselves, based on their cognitive ability to understand the study. Assent ensured that participants, in age-appropriate terms, agreed to participate after being provided with a simplified explanation of the study. This process ensured that both the parents or guardians and the participants (to the extent possible) provided their consent for involvement in the study, respecting their autonomy and rights.

3.1.6 Characteristics of the Sample

The individuals involved in the study had mild to moderate intellectual disabilities. Most of them came from low or lower-middle-class backgrounds. The majority of their parents had not received education beyond the primary level. Most of the fathers were employed as daily wage workers, while the mothers were housewives.

These individuals often had sisters and other siblings, and due to limited resources, their parents were unable to provide focused care. The parents were so occupied with meeting the basic needs of the family that they could not give adequate attention to the upbringing of the child with a disability.

3.2 Sampling Selection Criteria

3.2.1 Inclusion Criteria

1. Participants should have been able to comprehend and follow basic rules and guidelines.

2. Participants should have possessed functional communication skills, enabling them to express themselves, either verbally or non-verbally.

3. Participants must have a disability certificate issued by the District Assessment Board (DAB), confirming their diagnosis and classification as individuals with intellectual disabilities to ensure accurate participant selection.

3.2.2 Exclusion Criteria

1. Individuals with any major physical disabilities or other severe psychological disorders.

2. Individuals with severe and profound intellectual disability due to significant cognitive impairment and limited ability to communicate effectively.

3.3 Material and Instruments

3.3.1 Demographic Sheet

Background information from study participants was gathered using a demographic sheet (Appendix D), which recorded essential details such as name, age, gender, and level of intellectual developmental disorder (IDD). Additionally, the sheet included the guardian's name, socioeconomic status, and any known food allergies to ensure the well-being of participants. A section for additional relevant information was also provided to capture any other factors that might influence the study's outcomes, allowing for a more comprehensive understanding of each participant's background.

3.3.2 Checklist for Assessment of Baseline or Maintenance Phase

The Self-help Skills Assessment Checklist Scale was used to measure self-help skills. The self-help skills activities required items such as clothing (shirts, pants, socks, shoes), fasteners (buttons, zippers), utensils (spoon, knife if appropriate), personal hygiene products (soap, shampoo), care tools (nail clippers, comb), household cleaning supplies, tissues, hand sanitizer, and trash disposal containers.

3.3.3 Development of the Self-Help Skills Checklist (SHSC)

The development of the Self-Help Skills Assesment Checklist (SHSC) was a systematic and research-driven approach to ensure its validity, reliability, and cultural

relevance. The process was carried out in several stages, beginning with an extensive literature review, followed by observational studies, expert consultations, and adaptation based on cultural needs. For detailed information about the development of the checklist, please refer to the manual.

3.3.3.1 History and Theoretical Grounding

The first step in developing the self-help skills assessment checklist (SHSC) involved conducting a comprehensive review of existing literature on adaptive behavior and self-help skills in individuals with intellectual disabilities. This review focused on well-established assessment tools such as the Vineland Adaptive Behavior Scales (VABS) (de Bildt et al., 2005; Sparrow and Cicchetti, 1985), and the Scales of Independent Behavior-Revised (Bruininks et al., 1996). These tools provided a foundational understanding of how self-help skills are evaluated across different populations and developmental stages. The literature review also explored studies on behavioral interventions that enhance self-care skills in individuals with intellectual disabilities, providing insights into essential domains to include in the checklist.

3.3.3.2 Observation and Identification of Challenges Faced by Children with Intellectual Disabilities

To ensure the Checklist addressed real-world challenges, researcher observed children with intellectual disabilities in schools setting for 6-7 months, to identify the specific self-help skills they struggled with. These observations revealed significant difficulties in areas such as personal hygiene (e.g., nail, cloth, hair care, washing hands), dressing (e.g., buttoning shirts, tying shoelaces), and meal-related behaviors (e.g., using utensils, feeding independently, bit size) and general cleanliness. These findings highlighted the need for a targeted assessment tool to evaluate and support the development of these skills and allowed to identify common barriers to independence and assess the extent of variability in skill acquisition among children with different levels of intellectual functioning.

3.3.3.3 Expert Consultations

To ensure the checklist addressed practical challenges and was aligned with best practices in special education and behavioral training, researcher engaged in consultations with professionals working in the field. Researcher held discussions with special education teachers, educational psychologists, occupational therapists, and caregivers who regularly work with children with intellectual disabilities.

Teachers and family members shared their experiences regarding the most common areas of difficulty and provided perspectives on the cultural and environmental factors that influence skill acquisition. These discussions ensured that the SHSC was not only theoretically sound but also practical and relevant to the needs of the target population.

3.3.3.4 Cultural Adaptation and Objective Formulation

A key aspect of the self-help skills assessment checklist (SHSC) development was its adaptation to the cultural and environmental contexts of the target population. Researcher considered cultural norms, family dynamics, and the availability of resources that influence how self-help skills are taught and practiced. The checklist was structured to be practical, easy to administer, and suitable for use by teachers, therapists, and caregivers. Based on the insights gathered from the previous stages, we formulated the objectives of the self-help skills assessment checklist (SHSC), ensuring that it:

1. Assesses self-help skills in children with intellectual disabilities.

2. To determine the psychometric properties of the checklist.

3. Provides a structured yet flexible assessment framework adaptable to different educational and home settings.

4. It can serves as a tool for both baseline assessment and progress monitoring.

3.4 Scoring and Reporting Progress

3.4.1 Scoring for the Self-Help Skills Assessment Scale and BST Intervention

The Self-Help Skills Assessment Scale (SHSAS) was employed to evaluate each child's ability to perform daily living activities independently. The scale was designed to measure the level of support required across various domains of self-help skills. Its scoring system facilitated the determination of whether a child was progressing toward greater independence or continued to require significant assistance.

3.4.2 Scoring Instructions

3.4.2.1 Observation-Based Assessment

1. Each child's performance in the tasks listed on the checklist was observed.

2. Tasks were evaluated based on the level of assistance the child required to complete the activity.

3. Higher scores corresponded to increased independence, indicating less need for support.

3.4.2.2 Scoring Scale

1. **Good (Highest Score):** The child was able to complete the task independently with minimal or no assistance.

2. **Sufficient:** The child was able to perform the task but required some support or guidance.

3. **Less (Lowest Score):** The child needed considerable assistance or was unable to complete the task independently.

3.4.3 Initial Baseline Measurement

Before implementing the Behavioral Skills Training (BST) intervention, an initial baseline measurement was conducted using a standardized checklist to assess the individual's existing level of performance. This checklist served as a tool to evaluate how well the individual performed specific self-help tasks without any prior intervention. Each task on the checklist was carefully observed and rated based on the individual's ability to perform it independently or with minimal assistance. The performance was categorized under three levels: "Good," indicating a high level of independence and accuracy; "Sufficient," reflecting moderate ability with some errors or need for prompts; and "Less," indicating limited or no ability to perform the task. These baseline scores provided a clear reference point for comparing the individual's progress following the implementation of the BST program.

3.4.4 Post-Intervention Evaluation

After the implementation of the Behavioral Skills Training (BST) interventions, each individual was reassessed using the same checklist employed during the baseline phase. This post-intervention evaluation aimed to measure any changes in the individual's performance and determine the effectiveness of the BST program. The scores obtained after the intervention were directly compared to the baseline scores to assess improvements in self-help skills and reductions in dependency. A shift in performance from the “Less” category to either “Sufficient” or “Good” was regarded as a clear indicator of progress, reflecting enhanced independence and a decreased need for support in completing daily tasks.

3.4.5 Behavioral Session Record Form

To complement the quantitative data, a Behavioral Session Record Form was utilized during intervention sessions. This form provided qualitative insights into each child's task performance, behavior, and emotional responses. The integration of quantitative scores with behavioral observations offered a more comprehensive

understanding of each child's progress and the areas requiring further development. This qualitative report yielded deeper insights into each child's emotional, cognitive, and behavioral development throughout the intervention process.

3.5 Development of Behavioral Skills Training (BST) Components to Teach Self-Help Skills to Individuals with Intellectual Disabilities

The origins of Behavioral Skills Training (BST) are rooted in foundational psychological research, where pioneering figures established principles that underpin modern practices. Ivan Pavlov's discovery of respondent conditioning in the early 1900s demonstrated how behaviors could be influenced by associating stimuli (Pavlov, 2023). Edward Thorndike's law of effect, introduced in 1911, highlighted the role of consequences in shaping behavior (Thorndike, 2017). In 1913, John B. Watson introduced behaviorism (Watson, 1913), emphasizing observable behaviors and stimulus-response relationships (Watson and Rayner, 1920). B. F. Skinner, starting in the 1930s, expanded these ideas through operant conditioning, explaining how reinforcement and punishment govern behavior (Skinner and Two, 1948). Together, these contributions formed the basis for behavior modification, emphasizing evidence-based techniques to promote behavioral change (Skinner, 1938).

After B.F. Skinner laid the foundation of operant conditioning in the 1930s, researchers continued studying operant behavior in laboratories (Catania, 1968; Honig, 1966). By the 1950s, behavioral principles were being applied and evaluated in humans. Early researchers examined behaviors in individual children (Azrin and Lindsley, 1956), adults (Goldiamond, 1965; Verplanck, 1955) and mental illnesses (Ayllon and Azrin, 1964) or intellectual disabilities (Fuller, 1949; Ferster, 1964). Since then, extensive research has confirmed the efficacy of behavior modification techniques.

BST is a structured, systematic approach that incorporates four key components: instruction, modeling, rehearsal, and feedback. These components are designed

to teach functional life skills, such as dressing, feeding, and grooming, and ensure their generalization across various contexts, which is particularly important for individuals with IDD. Several studies have contributed to refining and supporting the use of BST in this context. DeZayas (2022) demonstrated the effectiveness of BST in teaching communication skills to adolescents with Autism Spectrum Disorder (ASD), highlighting the importance of clear, step-by-step instruction, modeling of appropriate behaviors, and allowing opportunities for rehearsal. These principles are applied in teaching self-help skills, where individuals learn specific tasks through systematic instruction, observation of modeled behaviors, and repeated practice. This process is essential for individuals with IDD who often benefit from visual cues and structured guidance.

Covey et al. (2021) explored the role of modeling and rehearsal in teaching play behaviors, demonstrating that these strategies are effective for skill acquisition across different domains. Though the focus of their study was on play, the principles of modeling the correct behavior and allowing learners to practice and receive feedback are equally important when teaching self-help skills. By incorporating rehearsal opportunities in a controlled environment, learners can refine their abilities and prepare for real-life situations.

In addition, Ethington et al. (2022) contributed to the development of BST by focusing on self-instruction skills for individuals with IDD. Their research emphasizes the importance of self-instruction as a tool for fostering independence, allowing learners to regulate their behavior and apply learned skills in diverse environments.

The development of the current intervention to teach self-help skills to individuals with intellectual developmental disability (IDD) is based on the work of researchers such as (DeZayas, 2022; Covey et al., 2021; Ethington et al., 2022). These studies have demonstrated the effectiveness of Behavioral Skills Training (BST), incorporating key components such as instruction, modeling, rehearsal, and feedback. The intervention utilizes these findings, integrating these strategies to ensure that individuals with IDD acquire essential self-help skills and can generalize them across various contexts. This approach aims to foster independence and improve

the ability to perform daily tasks autonomously, reinforcing BST as a systematic and effective method for skill development in this population.

3.5.1 Procedures for Implementing Behavioral Skills Training (BST)

Behavioral Skills Training (BST) is a structured methodology designed to teach selfhelp and adaptive behaviors effectively, as outlined in the Self-Help Skills Assessment Checklist. The procedure comprises four essential steps: Instruction, Modeling, Rehearsal, and Feedback.

3.5.1.1 Instruction

This phase involved a clear and concise explanation of the task to the individual. Instructions were designed to be simple, direct, and concrete to enhance comprehension, especially for individuals with intellectual disabilities. Verbal or visual cues were used as necessary. Its objective is to lay the foundational understanding required for performing the self-help task independently. The goal was to ensure the individual grasped what was expected before moving on to the next learning phase. For examaple, "Look at each piece of clothing. Say the name of the clothing item (shirt, pants, socks, etc.). Match each item to a picture of it." This instruction was intended to build awareness and understanding of each clothing item.

3.5.1.2 Modeling

After instruction, modeling consisted of demonstrating the correct way to perform the desired task. This was especially crucial for individuals who might find verbal instruction abstract. Visual demonstration acted as a reference point. Its objective is to provide a visual example of the desired behavior, enabling the individual to observe and understand the correct procedure. The aim was to bridge the gap between instruction and independent task performance. For example, The

researcher demonstrated how to zip a zipper or button a button slowly, clearly showing each step in sequence.

3.5.1.3 Behavioral Rehearsal

This phase provided the individual with repeated opportunities to practice the task in a supportive environment. Emphasis was placed on active participation and repetition to develop coordination and muscle memory. Its objective is to facilitate skill acquisition through active engagement and repetition. Behavioral rehearsal helped the individual become more proficient and confident in performing the task independently, aiding in motor skill development and task generalization. For Example, The individual practiced using utensils (spoon or fork) during mealtime. They were guided to hold the utensil properly and perform the task slowly and accurately, reinforcing correct behavior through repetition.

3.5.1.4 Feedback and Reinforcement

This phase involved immediate and specific feedback on the individual's performance. Correct responses were reinforced with praise or rewards, while errors were addressed through constructive correction. Its objective is to refine the individual's performance by reinforcing correct behavior and correcting errors. This phase aimed to strengthen skill mastery, promote generalization across settings, and increase independent task performance. For Example, Positive feedback like "Great job washing your hands," or corrective guidance such as "Remember to dry your hands completely." Praise or small rewards were used to motivate further practice.

The importance of positive reinforcement in developing self-help skills cannot be overstated. Positive reinforcement strategies, such as appraisal (verbal praise), giving fruits or food, and providing stickers, play a crucial role in motivating and encouraging individual children to engage in behaviors that promote independence.

3.6 Operational Definitions

3.6.1 Self-help skills

Self-help skills, also referred to as daily living skills, encompassed behaviors that enabled individuals to independently manage their personal needs, such as eating, dressing, toileting, and maintaining personal hygiene and are essential for maintaining health, well-being, and independent living (Matson and Hong, 2019). These practical abilities allowed individuals with ID to independently manage daily personal needs (Lessor, 2013). For this study, these self-help skills included tasks such as identifying and naming clothing items, fastening and unfastening zippers and buttons, putting on and taking off clothes, using and holding utensils for eating, cleaning up items and surfaces, chewing and swallowing food properly, sitting with correct posture, nail and hair care, and maintaining general cleanliness and hygiene. Each task was evaluated to determine the individual's level of independence and the extent of support required.

3.6.2 Cloth Management Skills

Cloth Management refers to a set of self-help skills that involve an individual's ability to independently identify, put on, take off, and fold clothing items. This includes tasks such as naming common clothing items (e.g., shirts, pants, socks, shoes, sweaters, ties, and abayas), as well as fastening and unfastening buttons and zippers. It also involves the individual's ability to independently put on and take off various clothing items, such as shirts, pants, socks, and shoes. Additionally, cloth management includes the ability to independently fold clothing items like shirts, pants, and socks. These tasks are essential for promoting independence in daily living and self-care routines.

3.6.3 Using Utensils and Eating Etiquette

Using Utensils refers to the set of fine motor and self-help skills that involve an individual's ability to properly hold and use eating utensils during mealtimes. This

includes the ability to use a spoon and, where age-appropriate, a knife correctly, demonstrating appropriate grip and steady control while eating. Skills assessed under this category focus on the individual's ability to manage utensils independently to promote functional eating habits and greater autonomy during meals. Eating Etiquette refers to the set of self-help and social skills that involve appropriate behaviors and physical coordination during mealtimes. This includes the ability to chew food thoroughly before swallowing, taking appropriately sized bites to ensure safe swallowing, and maintaining proper posture by sitting upright at the table with feet on the floor. It also involves the ability to remain seated throughout the meal without frequent disruptions.

3.6.4 Hygiene Skills

Hygiene Skills refer to the set of self-help abilities that enable an individual to maintain personal cleanliness and grooming independently. This category includes skills such as recognizing the need for and properly performing handwashing with soap and water, brushing or combing hair, understanding the importance of hair washing, and managing nail care by trimming nails safely and keeping them clean. It also involves cloth hygiene practices, including wearing clean clothes daily and identifying when clothes are dirty and require washing. Developing hygiene skills is crucial for promoting health, self-care, and social acceptance.

3.6.5 General Cleanliness, Coughing and Sneezing Hygiene

General Cleanliness refers to the set of self-help and responsibility skills that involve maintaining a clean and organized personal and shared environment. This includes an individual's ability to assist with simple household cleaning tasks, such as wiping down surfaces, properly disposing of trash, and understanding the importance of keeping shared spaces clean. Developing general cleanliness skills supports the promotion of hygiene, responsibility, and active participation in maintaining a healthy living environment. Coughing and Sneezing Hygiene refers to an individual's ability to cover their mouth and nose properly when coughing or

sneezing, preferably using their elbow, and understanding the importance of preventing the spread of germs to others. It also involves practicing proper hand hygiene after coughing or sneezing, either by washing hands with soap and water or using hand sanitizer when handwashing facilities are unavailable. Developing these skills is essential for maintaining personal health and ensuring the safety of others in shared environments

3.6.6 Behavioral Skill Training (BST)

Behavioral Skill Training (BST) is a behaviorist technique designed to enhance skills through a structured process. It encompasses four key components: instruction, where the desired behavior is clearly explained; modeling, where the trainer demonstrates the behavior; rehearsal, where the individual practices the behavior; and feedback, where the trainer offers corrective guidance and reinforcement to refine performance (Ethington et al., 2022). BST was implemented in this study to effectively teach self-help skills to adolescents with ID, ensuring a systematic approach to skill development and behavior modification.

In this study, BST was implemented as a behavioral theory-based training program aimed at improving self-care skills in adolescents with intellectual disabilities (ID). By following a structured framework, BST ensured an effective and systematic approach to skill development and behavior modification (Rizqi and Siti, 2018).

3.7 Intervention Preparation

The Behavioral Skill Training (BST) intervention was carefully designed to enhance self-help skills among individuals with intellectual disabilities (ID). The intervention activities were tailored to address the unique needs of the individuals, guided by an extensive literature review and documented in a comprehensive intervention manual. Trained professionals conducted the sessions, ensuring the appropriate delivery of the intervention.

Instructions during the sessions were delivered in simple, straightforward language to ensure clarity and facilitate comprehension. Each BST session focused on a

Table 3.1: Self-Help Skills Categories and Subcategories

Category	**Subcategory**
Clothing Management Skills	Identifying Clothing Items Fastening Skills/ Unfastening Skills Putting On Clothing/ Taking Off Clothing Clothes Folding
Hygiene Skills	Hand Washing Hair Care Nail Care Clothing Hygiene
Using Utensils and Eating Etiquette	Using Utensils Holding Utensils Chewing Food Swallowing Sitting Properly
General Cleanliness, Coughing, and Sneezing Hygiene	General Cleanliness Effective Coughing Habits Hand Hygiene After Coughing Maintaining a Clean Space

specific self-help skill, aiming to foster greater independence and improve daily functioning. These self-help skills were categorized into four main areas: Clothing Management Skills, Hygiene Skills, Using Utensils and Chewing and Swallowing Skills, and General Cleanliness, Coughing, and Sneezing Hygiene (Table 3.1). Each category was further divided into subcategories to comprehensively address the essential daily living skills required for independent functioning.

The intervention consisted of 48 sessions, with one session conducted daily, each tailored to the individual needs of the participants. Sessions were conducted in group settings or individual sessions, depending on the specific needs and preferences of the individuals.

Special accommodations were made to address individual challenges. If a participant was absent, the missed session was repeated to ensure they did not fall behind. Additionally, for individuals struggling to understand or perform a specific skill during group sessions, individual sessions were arranged to provide them with personalized guidance and support.

Feedback was collected verbally after each session to evaluate the individuals' experiences and satisfaction. This feedback played a crucial role in making adjustments to the intervention, ensuring its effectiveness and alignment with the participants' needs.

3.8 Procedure

Prior to initiating the intervention, 50 individuals diagnosed with intellectual disabilities underwent a pre-assessment to evaluate their existing self-help skill levels. The Self-Help Skills Checklist Scale was utilized as the primary assessment tool. Each participant was given the opportunity to perform specific self-help tasks, and their performance was systematically documented. To ensure the accuracy of the baseline data and gain a comprehensive understanding of each individual's abilities, additional information was obtained from class instructors, psychologists, and, when necessary, parents. This triangulated approach facilitated the identification of areas requiring targeted intervention. After baseline data collection, the

FIGURE 3.1: Behavioral Skills Training (BST)

intervention was systematically introduced using the Behavioral Skills Training (BST) framework, which consists of four core components: instruction, modeling, rehearsal, and feedback. As illustrated in Figure 3.1, these components were integrated into a strategic plan to facilitate skill acquisition. Trained professionals conducted each session, ensuring that participants progressed through each stage effectively. Researchers observed and documented participants' performance throughout the intervention to maintain fidelity and effectiveness.

The intervention consisted of 48 sessions, each tailored to address the specific needs of the participants. Provisions were made to accommodate absences or challenges

in comprehension. If a participant missed a session due to absence, the session was repeated to ensure continuity in learning. For individuals experiencing difficulties in understanding or acquiring a skill in group sessions, supplementary one-on-one sessions were conducted to provide personalized instruction and support.

At the conclusion of the 48 sessions, a post-intervention assessment was conducted using the Self-Help Skills Checklist Scale, identical to the pre-assessment. This enabled a direct comparison between baseline and post-intervention data to evaluate the effectiveness of the BST intervention in enhancing self-help skills. Additionally, participants were encouraged to demonstrate the acquired skills in practical, real-world settings, such as at home or school, to assess the generalization and sustainability of these skills in their daily lives.

3.9 Ethical Considerations

The study adhered to strict ethical standards, commencing with the approval of the Ethical Research Committee at Capital University of Science and Technology (CUST) and subsequent authorization from the Government Special School. An information sheet and consent form were developed following the guidelines of the American Psychological Association (APA). These documents outlined the study's objectives, procedures, and participants' rights comprehensively. The information was communicated to parents or guardians both verbally and in written form, providing ample opportunity for them to ask questions before giving informed consent. Assent was also obtained from participants using simplified language suitable for their cognitive abilities, ensuring that their participation was informed and voluntary.

Strict measures were implemented to maintain the confidentiality of participant data. Physical records, such as consent forms and assessment documents, were securely stored with access restricted to the researcher, supervisor, and school principal. Electronic data were encrypted with password protection. To minimize risks, participants were continuously monitored throughout the study, and immediate intervention measures were available to address any unforeseen harm.

Furthermore, the intervention process was monitored by the school principal to ensure transparency and adherence to ethical protocols.

The intervention sessions were delivered by a trained professional with extensive experience in working with individuals with intellectual disabilities. The researcher observed each session, systematically recorded participants' performance, and documented the baseline and pre-intervention phases to ensure consistency and reliability in data collection. This division of roles ensured the use of evidence-based strategies and effective behavioral management throughout the study. Both male and female adolescents participated in the study, with a higher proportion of males reflecting demographic trends within the selected population. The intervention was culturally sensitive, incorporating local values and practices to ensure its relevance and appropriateness. Flexibility in the study design allowed for individualized adjustments to meet the specific needs and challenges of participants.

3.10 Pilot Study

The draft version of the Self-Help Skills Checklist was pilot-tested with a small group of individuals with intellectual disabilities. The sample for the pilot study consisted of 10 (N = 10) individuals, and data were collected using the Self-Help Skills Checklist. Feedback obtained during this pilot phase was used to ensure that the checklist items were clear, relevant, and easy to administer in practical settings.

Educators involved in the pilot testing process provided valuable input regarding the language, structure, and applicability of each item. Based on their observations and suggestions, several modifications were made to improve the checklist's accuracy and usability. This process helped ensure that the final version of the checklist would be more effective in assessing and monitoring the development of self-help skills among individuals with intellectual disabilities in both educational and therapeutic environments.

3.10.1 Reliability of Self-Help Skills Checklist (SHSC) and Its Subscales

A reliability analysis was conducted to assess the internal consistency of the Self-Help Skills Checklist (SHSC) and its subscales using Cronbach's Alpha (α). This analysis aimed to determine the reliability of the administered checklist and categories, ensuring their consistency in measuring self-help skills. Table 3.2 presents the Cronbach's Alpha (α) reliability for the Self-Help Skills Assessment (SHSA) and its subscales. The overall internal consistency of the SHSA was found to be highly reliable ($\alpha = .978$). Among the subscales, Cloth Management exhibited the highest reliability ($\alpha = .983$), followed by Hygiene Skills (hand, hair, cloth, and nail) ($\alpha = .899$), Using Utensils and Eating Etiquette ($\alpha = .873$) and General Cleanliness, Coughing, and Sneezing Hygiene reliability ($\alpha = .643$).

Table 3.2: Cronbach's Alpha Reliabilities for the Self-Help Skills Assessment Checklist (SHSAC) and Its Subscales

Scale	**Subscale**	**N**	**M**	**SD**	α	**Range**		**S**
						P	**A**	
SHSC		47	93	18.4	0.978	47-141	52-116	-0.97
	Cloth Management	20	50.2	10.4	0.983	20-60	23-59	-0.22
	Using Utensils and Eating Etiquette	8	14.5	3.03	0.873	8-24	8-18	-0.90
	Hygiene (Hand, Hair, Cloth, and Nail) Skills	10	16.9	4.75	0.90	10-30	11-25	0.70
	General Cleanliness, Coughing, and Sneezing Hygiene	9	11.4	1.58	0.643	9-27	9-14	0.23

Note. N = Total number of items, M = Mean, SD = Standard Deviation, α = Cronbach's Alpha, P= Potential, A= Actual, S= Skewness, SHSAC = Self-Help Skills Assessment Checklist.

3.11 Analyses

Quantitative analysis was conducted using statistical procedures to evaluate the effectiveness of behavioral skills training in enhancing self-help skills among intellectually disabled individuals. In addition, behavior observations were systematically recorded during each session for each child using a Behavior Record Form. This provided qualitative and supplementary quantitative data to monitor progress and evaluate session-wise behavioral changes.

3.11.1 Analysis of Quantitative Data

The Self-Help Skills Checklist Scale was utilized to measure self-help skills at baseline and after the intervention. The dataset was cleaned, processed, and analyzed using the Software Package for Social Science-21 (SPSS-21). There were no missing values, ensuring the reliability and completeness of the dataset.

The distribution and variance of the data were calculated through descriptive statistics. Frequency and percentages were computed for categorical variables, while measures such as mean, median, mode, standard deviation, skewness, and kurtosis were used for continuous variables. The normality of the data distribution was assessed using the test, which indicated that the data was non-normal and asymmetric.

Given the non-normal distribution of the data, non-parametric statistical tests were employed to ensure accurate analysis. The Sign Test was applied to compare differences between baseline and post-intervention scores, providing insight into the overall impact of behavioral skills training on self-help skills.

To analyze differences based on gender and disability status, the Mann-Whitney U Test was conducted for both baseline and post-intervention data. Furthermore, the Kruskal-Wallis Test was employed to examine differences across age groups (early childhood, middle childhood, early adolescence, middle adolescence, and late adolescence) before and after the intervention.

3.12 Behavioral Observations

Behavioral observations were systematically documented during each training session using a Behavior Record Form for every child. This form tracked the frequency, consistency, and improvement of targeted self-help behaviors during the sessions. Observational data provided supplementary evidence to the quantitative findings, enabling a comprehensive evaluation of the behavioral changes achieved through the intervention. The consistent use of the Behavior Record Form across sessions allowed for detailed progress monitoring and ensured that individual differences and session-specific outcomes were captured effectively.

Chapter 4

Results

4.1 Data Analysis

The present study was conducted to evaluate the effectiveness of a behavioral skills intervention aimed at enhancing self-help skills among individuals with intellectual disabilities. This chapter presents the results of the intervention's effectiveness across several dimensions. First, the overall impact of the intervention on self-help skills, as measured by the Self-Help Skills Checklist Scale (Full Scale), is discussed. Following this, the results are analyzed across major categories of self-help skills, providing a detailed examination of specific areas of improvement. The analysis explores the intervention's effectiveness across demographic variables, including age, gender, and disability type, to identify potential differences in outcomes among subgroups.

4.2 Demographic Characteristics of the Sample

In the present study, a total sample of 50 school-going individuals was included. All participants (n = 50) were assessed using a within-subjects design in the experimental group. The demographic characteristics of the participants in the study are presented in Table 4.1.

A frequency table was generated to describe the distribution of gender, disability type, food allergy, socioeconomic status (SES), and age groups in the sample. As

TABLE 4.1: Descriptive Statistics for Gender, Disability Type, Food Allergy, Socioeconomic Status (SES), and Age Groups

Variable	N	%
Gender		
Male	37	74.0%
Female	13	26.0%
Disability Type		
Mild	13	26.0%
Moderate	37	74.0%
Food Allergy		
Nil	50	100.0%
Socioeconomic Status		
Low SES	7	14.0%
Lower-Middle SES	22	44.0%
Middle SES	21	42.0%
Age Groups		
Early Childhood	13	26.0%
Middle Childhood	8	16.0%
Early Adolescence	14	28.0%
Middle Adolescence	9	18.0%
Late Adolescence	6	12.0%

Note. N = 50 for all variables. N = total number of participants, and % = Percentage.

shown in Table 4.1, the majority of participants were male (n = 37, 74.0%), while female participants comprised 26.0% (n = 13). Regarding disability type, most participants had a moderate disability (n = 37, 74.0%), whereas 26.0% (n = 13) had a mild disability.

Descriptive statistics were also calculated for socioeconomic status (SES). The largest group fell into the lower-middle SES category (n = 22, 44.0%), followed closely by those in the middle SES category (n = 21, 42.0%). The low SES category comprised the smallest proportion of participants (n = 7, 14.0%).

In terms of age distribution, the most common age group was early adolescence (n = 14, 28.0%), followed by early childhood (n = 13, 26.0%) and middle adolescence (n = 9, 18.0%). The least represented age group was late adolescence (n = 6, 12.0%).

The entire sample reported no food allergies (n = 50, 100.0%). The complete distribution of gender, disability type, SES, and age groups is presented in Table 4.1.

4.3 Reliability of the Self-Help Skills Assessment Checklist (SHSAC) and Its Subscales

A reliability analysis was conducted to assess the internal consistency of the Self-Help Skills Assessment Checklist (SHSAC) and its subscales using Cronbach's Alpha (α). This analysis aimed to determine the reliability of the administered checklist and categories, ensuring their consistency in measuring self-help skills. The results are presented in the table below.

Table 4.2: Cronbach's Alpha Reliabilities for the Self-Help Skills Assessment Checklist (SHSAC) and Its Subscales

Scale	Subscale	N	M	SD	α	Range		S
						P	A	
SHSAC		47	91.2	17.7	0.98	47-141	51-117	-0.77
	Cloth Management	20	49.3	10.3	0.97	20-60	23-59	-0.15
	Using Utensils and Eating Etiquette	8	14.3	2.73	0.88	8-24	8-20	-0.31
	Hygiene (Hand, Hair, Cloth, and Nail) Skills	10	16.4	4.37	0.91	10-30	10-25	0.44
	General Cleanliness, Coughing, and Sneezing Hygiene	9	11.3	1.74	0.68	9-27	9-15	0.423

Note. N = Total number of items, M = Mean, SD = Standard Deviation, α = Cronbach's Alpha, P= Potential, A= Actual, S= Skewness, SHSAC = Self-Help Skills Assessment Checklist.

Table 4.2 presents the Cronbach's Alpha (α) reliability for the Self-Help Skills Assessment Checklist (SHSAC) and its subscales. The overall internal consistency of the Self-Help Skills Assessment Checklist was found to be highly reliable ($\alpha = .975$). Among the subscales, Cloth Management exhibited the highest reliability ($\alpha = .974$), followed by Hygiene Skills (hand, hair, cloth, and nail) ($\alpha = .906$), Using Utensils and Eating Etiquette ($\alpha = .879$), and General Cleanliness, Coughing, and Sneezing Hygiene, which had the lowest reliability ($\alpha = .680$).

4.4 Descriptive Statistics of Checklist

Descriptive statistics were conducted to examine the distribution of scores during both the pre-intervention and post intervention. The Table 4.3 summarizes the mean, median, standard deviation, skewness, kurtosis, and results from the Shapiro Wilk test for normality.

TABLE 4.3: Descriptive Statistics and Tests of Normality for Self-help skills checklist (Pre and Post Intervention)

Scales	M	Median	Mode	SD	S	K	SW	*p*
Self-help skills checklist (Pre-Intervention)	91.2	90	51	17.7	-0.77	0.49	0.9	<.001
Self-help skills checklist (Post Intervention)	136	138	138	6.33	-2.31	5.17	0.66	<.001

Note. M = Mean, SD = Standard Deviation, S= Skewness, K= Kurtosis, SW = Shapiro-Wilk, p = significance value (*p*¿.05).

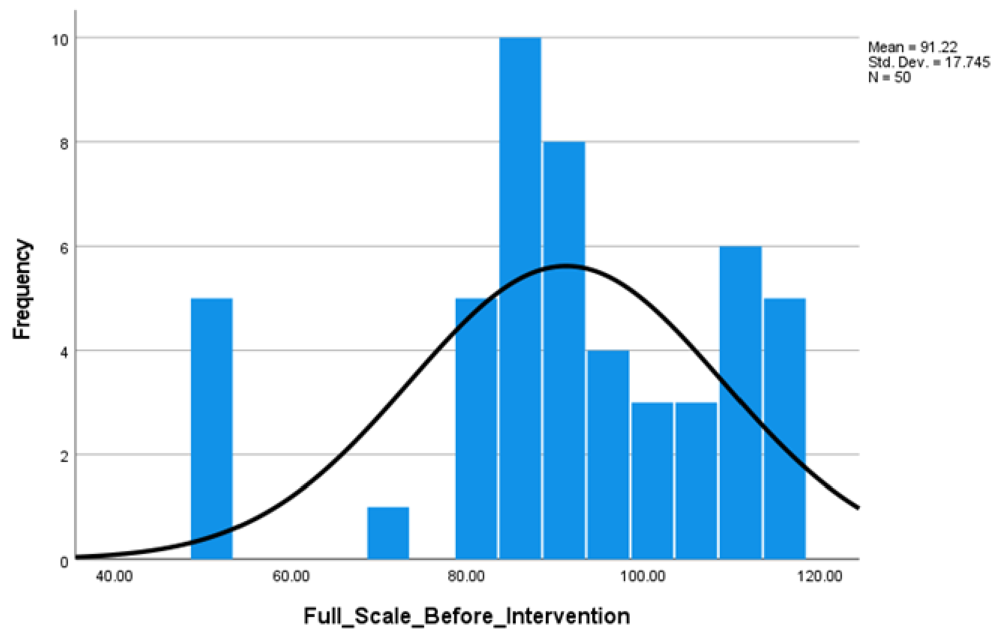

FIGURE 4.1: Distribution of scores across Self-help skills checklist at pre-intervention (n=50)

Table 4.3 presents the descriptive statistics for the Self-help skills checklist. For the pre-intervention scores, the Shapiro-Wilk (SW) test result indicates significant deviation from normality (*p* ¡ .001), with a skewness of -0.77 and kurtosis of 0.49,

which, in combination with the histogram, suggests that the distribution of scores is slightly negatively skewed but relatively normal.

For the post-intervention scores, the distribution is significantly skewed with a much steeper negative skew (-2.31) and a high kurtosis value of 5.17. The Shapiro-Wilk test (p ¡ .001) further confirms the significant deviation from normality, indicating that the post-intervention scores have a more pronounced peak and are not normally distributed.

Figures 4.1 and 4.2 illustrate the distribution of pre- intervention and post- intervention scores for the Self-help skills checklist. The histograms show a normal distribution for the pre-intervention, and a more leptokurtic (peaked) distribution for the post- intervention.

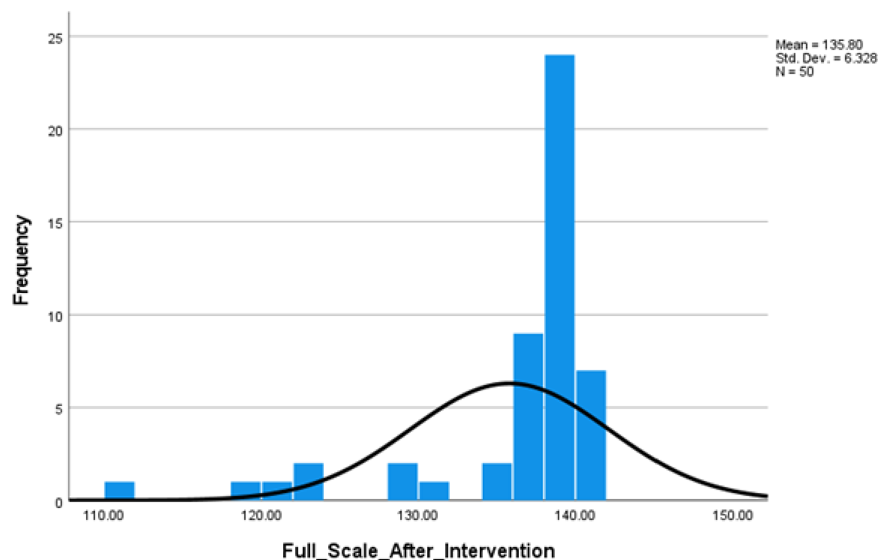

FIGURE 4.2: Distribution of scores across Self-help skills checklist at post-intervention (n=50)

4.5 Hypothesis Testing

Hypothesis 1 (H1): There is a significant improvement in the development of self-help skills between pre-intervention and post-intervention among individuals with intellectual disabilities.

The Sign Test is a non-parametric statistical method used to assess whether there is a significant difference between paired observations. It is particularly useful

when the data are non-normal and asymmetrically distributed, as it evaluates the direction of change rather than the magnitude of differences.

Given the non-normality and asymmetric distribution of the data, Sign Test was conducted to evaluate the effect of a behavioral skills intervention on self-help skills among individuals with intellectual disabilities, using the Self-Help Skills Checklist as the measurement tool. The test compared the pre-intervention and post-intervention self-help skills scores of 50 participants.

TABLE 4.4: Sign Test for Pre-Post difference in "Self-Help Skills"

	Pre-intervention-Post-intervention	**N**	***z***	***p***
Self-help skills	Negative Differences	0	-6.93	<.001
	Positive Differences	50		
	Ties	0		

Note. N= Sample Number, z = Test Statistic for the Sign Test, p = Significance Value (p ¡ .05).

The results in Table 4.4 revealed that all 50 participants exhibited positive differences (i.e., post-intervention scores ¿ pre-intervention scores), with no negative differences or ties observed. It indicated a statistically significant improvement in self-help skills following the behavioral skills intervention, z = -6.930, p¡.001. This result (p ¡ 0.05) indicates a statistically significant improvement in self-help skills following the intervention. The Z-value for the test was -6.930, further supporting the significance of the intervention. A negative Z-value also suggests that the participants' self-help skills significantly improved after the intervention, as their post-test scores were higher than their pre-test scores.

Hypothesis 2 (H2): Individuals with intellectual disabilities will show significant improvement in cloth management skills (a subcategory of the Self-Help Skills Assessment Checklist) from pre- to post-intervention.

The results in Table 4.5 revealed that all 50 participants exhibited positive differences (i.e., post-intervention scores ¿ pre-intervention scores), with no negative differences or ties observed. It indicated a statistically significant improvement in self-help skills following the behavioral skills intervention, z = -6.930, p ¡ .001. This

TABLE 4.5: Sign Test for Pre-Post difference in "Cloth management skills"

	Pre-intervention-Post-intervention	**N**	z	p
Cloth management skills	Negative Differences	0	-6.93	<.001
	Positive Differences	50		
	Ties	0		

Note. N= Sample Number, z = Test Statistic for the Sign Test, p = Significance Value (p ¡ .05).

result (p ¡ 0.05) indicates a statistically significant improvement in self-help skills following the intervention. The Z-value for the test was -6.930, further supporting the significance of the intervention. A negative Z-value also suggests that the participants' self-help skills significantly improved after the intervention, as their post-test scores were higher than their pre-test scores. These findings suggest that the behavioral skills intervention effectively enhanced self-help skills among individuals with intellectual disabilities. The substantial improvement in self-help skills, as reflected by the positive differences across all participants, underscores the efficacy of the intervention. Therefore, it can be concluded that the behavioral skills intervention led to a significant improvement in self-help skills for the participants, demonstrating the success of the intervention.

Hypothesis 3 (H3): Individuals with intellectual disabilities will show significant improvement in use of utensils and eating etiquette (a subcategory of the Self-Help Skills Assessment Checklist) from pre- to post-intervention.

TABLE 4.6: Sign Test for Pre-Post Difference in "Using Utensils and Eating Etiquette"

	Pre-intervention-Post-intervention	**N**	z	p
Using Utensils and Eating Etiquette	Negative Differences	0	-6.93	<.001
	Positive Differences	50		
	Ties	0		

Note. N = Sample Number, z = Test Statistic for the Sign Test, p = Significance Value (p ¡ .05).

The Sign Test for Using Utensils and Eating Etiquette in Table 4.6 showed that all 50 participants displayed positive changes in their scores after the intervention, with no negative differences or ties. The Sign Test indicated a statistically significant improvement in using utensils and following proper eating etiquette following the intervention, z = -6.930, p ¡ .001. Given that the p ¡ .05, these results suggest a statistically significant improvement in using utensils and eating etiquette following the intervention among individuals with intellectual disabilities.

Hypothesis 4 (H4): Individuals with intellectual disabilities will show significant improvement in Hygiene (Cloth, Hand, Hair, and Nail) skills (a subcategory of the Self-Help Skills Assessment Checklist) from pre- to post-intervention.

Table 4.7: Sign Test for Pre-Post difference in "Hygiene (Cloth, Hand, Hair, and Nail) skills"

	Pre-intervention-Post-intervention	**N**	z	p
Hygiene skills	Negative Differences	0	-6.93	<.001
	Positive Differences	50		
	Ties	0		

Note. N = Sample Number, z = Test Statistic for the Sign Test, p = Significance Value (p ¡ .05).

For Hygiene (Cloth, Hand, Hair, and Nail) Skills, the Sign Test in Table 4.7 revealed that all 50 participants showed positive differences in their post-intervention scores, with no ties or negative differences. The Sign Test indicated a statistically significant improvement in hygiene practices related to clothing, hands, hair, and nails following the intervention, z = -6.930, p ¡.001. Given that the p ¡ .05, confirming that the intervention was effective in improving these hygiene-related skills.

Hypothesis 5 (H5): There is a significant improvement in the development of general cleanliness, coughing, and sneezing hygiene skills between pre-intervention and post-intervention among individuals with intellectual disabilities.

TABLE 4.8: Sign Test for Pre-Post difference in "General Cleanliness, Coughing, and Sneezing Hygiene skills"

	Pre-intervention-Post-intervention	**N**	***z***	***p***
General cleanliness, coughing, and sneezing hygiene	Negative Differences	0	-6.93	<.001
	Positive Differences	50		
	Ties	0		

Note. N = Sample Number, z = Test Statistic for the Sign Test, p = Significance Value (p ¡ .05).

The Sign Test for General Cleanliness, Coughing, and Sneezing Hygiene in Table 4.8 demonstrated that all 50 participants showed positive differences in their post-intervention scores, with no negative differences or ties. The Sign Test indicated a statistically significant improvement in cleanliness, including proper hygiene for coughing and sneezing, following the intervention, z = -6.930, p ¡ .001. The p ¡ .05, indicating that the intervention had a significant impact on enhancing general cleanliness, coughing, and sneezing hygiene practices.

Hypothesis 6 (H6): There is a significant difference in the development of self-help skills between between genders at pre- and post-intervention.

TABLE 4.9: Mann-Whitney U Test for Gender Differences in Self-Help Skills at Pre- and Post-Intervention

	Groups	***n***	**Mean Rank**	**Sum of Ranks**	***U***	***Z***	***p***
Pre-intervention	Male	37	26.45	978.5	205.5	-0.775	0.438
	Female	13	22.81	296.5			
Post-intervention	Male	37	28.12	1040.5	143.5	-2.187	0.029
	Female	13	18.04	234.5			

Note. n = Sample size, U = Mann-Whitney U value, Z = Standardized test statistic, p = Significance Value (p ¡ .05).

The Mann-Whitney U test was performed to assess gender differences in self-help skills (measured by the Self-Help Skills Checklist Scale) before and after the

behavioral skills intervention among individuals with intellectual disabilities. The sample included 37 males and 13 females.

The results in Table 4.9 indicated that there was no significant difference between the self-help skills of males and females before the intervention, z = -0.775, p = 0.438. This suggests that both genders had comparable levels of self-help skills prior to receiving the behavioral skills training.

However, after the intervention, males had significantly higher self-help skills than females, z = -2.187, p = 0.029. The mean rank for males (28.12) was higher than that for females (18.04), indicating that the behavioral skills training was more effective for males, leading to greater improvements in their self-help skills compared to females.

Hypothesis 7 (H7): There is a significant difference in the categories of self-help skills (cloth management, eating etiquette, hygiene, and general cleanliness)between genders at pre- and post-intervention.

The results in Table 4.12 indicated that there was no significant difference between the cloth management skills of males and females, z = -0.548, p = 0.583. Similarly, there was no significant difference in the use of utensils and eating etiquette between males and females, z = -0.830, p = 0.407. Additionally, the difference in hygiene skills between males and females was not significant, z = -0.611, p = 0.541. Lastly, there was no significant difference in general cleanliness, coughing, and sneezing hygiene between males and females, z = -1.085, p = 0.278. These findings suggest that before the intervention, gender did not significantly impact self-help skills among individuals with intellectual disabilities.

The results in Table 4.12 indicated that there was no significant difference between the cloth management skills of males and females, z = -0.529, p = 0.597. Likewise, no significant difference was found in the use of utensils and eating etiquette between males and females, z = -0.374, p = 0.708. Additionally, there was no significant difference in general cleanliness, coughing, and sneezing hygiene between males and females, z = 0.340, p = 0.340. However, males had significantly higher mean rank hygiene skills (Mean Rank = 28.12) than females (Mean Rank = 18.04), z = -2.247, p = 0.025. These results suggest that the behavioral skills

TABLE 4.10: Mann-Whitney U Test for Gender Differences in Self-Help Skills at Pre- and Post-Intervention

Categories		**Groups**	***n***	**Mean Rank**	**Sum of Ranks**	***U***	***z***	***p***
Cloth Management Skills	Pre Intervention	Male	37	26.45	978.5	205.5	-0.548	0.583
		Female	13	22.81	296.5			
	Post Intervention	Male	37	28.12	1040.5	143.5	-0.529	0.597
		Female	13	18.04	234.5			
Using Utensils and Eating Etiquette	Pre Intervention	Male	37	26.5	980.5	203.5	-0.830	0.407
		Female	13	22.65	294.5			
	Post Intervention	Male	37	25.88	957.5	226.5	-0.374	0.708
		Female	13	24.42	317.5			
Hygiene Skills	Pre Intervention	Male	37	26.24	971	213	-0.611	0.541
		Female	13	23.38	304			
	Post Intervention	Male	37	28.12	1040.5	143.5	-2.247	0.025
		Female	13	18.04	234.5			
General Cleanliness, Coughing, and Sneezing Hygiene	Pre Intervention	Male	37	26.8	991.5	192.5	-1.085	0.278
		Female	13	21.81	283.5			
	Post Intervention	Male	37	26.24	971	213	-0.954	0.340
		Female	13	23.38	304			

Note. n = Sample size, U = Mann-Whitney U value, z = Standardized test statistic, *p* = Significance Value (*p* ¡ .05).

intervention had a greater impact on improving hygiene skills in males compared to females. These findings suggest that while the intervention generally did not lead to gender differences in most measures, it did show a notable difference in the area of Cloth Hand, Hair, and Nail Hygiene, where males had significantly greater improvement compared to females.

Hypothesis 8 (H8): There is a significant difference in the development of self-help skills between different levels of intellectual disability at pre- and post-intervention.

A Mann-Whitney U test was conducted to assess whether there was a difference

Table 4.11: Mann-Whitney U Test for different levels of disability in Self-Help Skills at Pre- and Post-Intervention

	Disability Type	***N***	**Mean Rank**	**Sum of Ranks**	***U***	***Z***	***p***
Pre-Intervention	Mild	13	35.23	458.00	114.000	-2.800	0.005
	Moderate	37	22.08	817.00			
Post-Intervention	Mild	13	31.96	415.50	156.500	-1.894	0.058
	Moderate	37	23.23	859.50			

Note. N = Sample size, U = Mann-Whitney U value, Z = Standardized test statistic, p = Significance Value (p ¡ .05).

in the self-help skills checklist scores before the intervention between individuals with mild and moderate disabilities. The results in Table 4.11 indicated that individuals with mild intellectual disabilities had significantly higher self-help skills than those with moderate intellectual disabilities before the intervention, z = -2.800, p = 0.005. The mean rank for individuals with mild intellectual disabilities (Mean Rank = 35.23) was higher than that for individuals with moderate intellectual disabilities (Mean Rank = 22.08), suggesting that those with milder impairments demonstrated better self-help skills before the intervention. However, there was no significant difference in self-help skills after the intervention between individuals with mild and moderate intellectual disabilities, z = -1.894, p = 0.058. This suggests that the behavioral skills intervention had a comparable impact on both groups, leading to similar levels of self-help skill development regardless of disability severity.

Hypothesis 9 (H9): There is a significant difference in the categories of self-help skills (cloth management, eating etiquette, hygiene, and general cleanliness) across different levels of intellectual disability at pre- and post-intervention.

The Mann-Whitney U test was used to assess differences in self-help skills (Cloth Management, Using Utensils and Eating Etiquette, Hygiene, and General Cleanliness) between individuals with mild and moderate disabilities both before and after the behavioral skill intervention. Table **??** shows that before the intervention, individuals with mild intellectual disabilities had significantly higher self-help

Table 4.12: Mann-Whitney U Test for Disability Levels in Self-Help Skills at Pre- and Post-Intervention

Categories		**Disability Type**	***n***	**Mean Rank**	**Sum of Ranks**	***U***	***z***	***p***
Cloth Management Skills	Pre Intervention	Mild	13	34.46	448	124	-2.608	0.009
		Moderate	37	22.35	827			
	Post Intervention	Mild	13	26.58	345.5	226.5	-0.549	0.583
		Moderate	37	25.12	929.5			
Using Utensils and Eating Etiquette	Pre Intervention	Mild	13	32.69	425	147	-2.096	0.036
		Moderate	37	22.97	850			
	Post Intervention	Mild	13	32.85	427	145	-2.554	0.011
		Moderate	37	22.95	848			
Hygiene Skills	Pre Intervention	Mild	13	34.46	448	124	-2.589	0.010
		Moderate	37	22.35	827			
	Post Intervention	Mild	13	32.00	416	156	-1.958	0.050
		Moderate	37	23.22	859			
General Cleanliness, Coughing, and Sneezing Hygiene	Pre Intervention	Mild	13	33.73	438.5	133.5	-2.419	0.016
		Moderate	37	22.61	836.5			
	Post Intervention	Mild	13	29.50	383.5	188.5	-1.804	0.071
		Moderate	37	24.09	891.5			

Note. n = Sample size, U = Mann-Whitney U value, z = Standardized test statistic, *p* = Significance Value (*p* ¡ .05).

skills than those with moderate intellectual disabilities in various domains. Specifically, individuals with mild intellectual disabilities (Mean Rank = 34.46) had significantly higher mean rank cloth management skills than those with moderate intellectual disabilities (Mean Rank = 22.35), z = -2.608, p = 0.009. Similarly, individuals with mild intellectual disabilities (Mean Rank = 32.69) had significantly higher mean rank using utensils and eating etiquette than those with moderate intellectual disabilities (Mean Rank = 22.97), z = -2.096, p = 0.036. Additionally, individuals with mild intellectual disabilities (Mean Rank = 34.46) had significantly higher mean rank cloth hand, hair, and nail hygiene than those with

moderate intellectual disabilities (Mean Rank = 22.35), z = -2.589, p = 0.010. Furthermore, individuals with mild intellectual disabilities (Mean Rank = 33.73) had significantly higher mean rank general cleanliness, coughing, and sneezing hygiene than those with moderate intellectual disabilities (Mean Rank = 22.61), z = -2.419, p = 0.016. These findings indicate that individuals with mild disabilities had stronger baseline self-help skills compared to those with moderate disabilities. After the intervention, individuals with mild intellectual disabilities (Mean Rank = 32.85) had significantly higher mean rank using utensils and eating etiquette than those with moderate intellectual disabilities (Mean Rank = 22.92), z = -2.554, p = 0.011. Additionally, individuals with mild intellectual disabilities (Mean Rank = 32.00) had significantly higher mean rank cloth hand, hair, and nail hygiene than those with moderate intellectual disabilities (Mean Rank = 23.22), z = -1.958, p = 0.050. However, there was no significant difference in cloth management skills, z = -0.549, p = 0.583, or general cleanliness, coughing, and sneezing hygiene, z = -1.804, p = 0.071, suggesting that the intervention have helped bridge the gap between the two groups in these specific areas.

Hypothesis 10 (H10): There is a significant difference in the ranks of self-help skills across different age groups at pre- and post-intervention.

The Kruskal-Wallis H test was used to examine whether the behavioral skills intervention, designed to enhance self-help skills among intellectually disabled individuals, led to significant improvements in self-help skills across different age groups. The Self-Help Skills Checklist Full Scale was used to measure participants' self-help skills both before and after the intervention. The test aimed to determine if there were any age-based variations in the effectiveness of the intervention, with groups (Early Childhood, Middle Childhood, Early Adolescence, Middle Adolescence, and Late Adolescence).

A Kruskal-Wallis test in Table 4.13 indicated that there was no significant difference in self-help skills across the five age groups, $\chi^2(4, N = 50) = 7.160$, $p = 0.128$, before the intervention. The mean ranks of self-help skills before the intervention were 23.54 for Early Childhood (6–8 years), 18.50 for Middle Childhood (9–11 years), 23.82 for Early Adolescence (12–14 years), 28.83 for Middle Adolescence (15–17 years), and 38.00 for Late Adolescence (18–19 years).

Table 4.13: Kruskal-Wallis Test for Differences in Ranks of Self-Help Skills Across Age Groups at Pre- and Post-Intervention

Age Groups	n	df	**Pre-Intervention**			**Post-Intervention**		
			Mean Ranks	χ^2	p	**Mean Ranks**	χ^2	p
Early Childhood (6–8 years)	13	4	23.54			21.65		
Middle Childhood (9–11 years)	8	4	18.5	7.16	6.946	17.75	0.128	0.139
Early Adolescence (12–14 years)	14	4	23.82			26.11		
Middle Adolescence (15–17 years)	9	4	28.83			31.28		
Late Adolescence (18–19 years)	6	4	38			34.08		

Note. n = Sample size; df = Degrees of freedom; χ^2 = Chi-square value; p = Significance value ($p < .05$).

Similarly, there was no significant difference in self-help skills across the five age groups after the intervention, $\chi^2(4, N = 50) = 6.946$, $p = 0.139$. The mean ranks of self-help skills after the intervention were 21.65 for Early Childhood (6–8 years), 17.75 for Middle Childhood (9–11 years), 26.11 for Early Adolescence (12–14 years), 31.28 for Middle Adolescence (15–17 years), and 34.08 for Late Adolescence (18–19 years).

This indicates that while the intervention was implemented across various age groups, it did not significantly impact the self-help skills scores in any specific

age group. Although there are differences in the mean ranks for the before and after intervention scores, these differences are not statistically significant. Therefore, the effectiveness of the intervention across the different age groups does not show conclusive evidence of improvement in self-help skills based on the statistical analysis.

Hypothesis 11 (H11): There is a significant difference in the ranks of self-help skills categories (cloth management, eating etiquette, hygiene, and general cleanliness) across different age groups at pre- and post-intervention.

The Kruskal-Wallis H test is a non-parametric method used to compare more than two groups when the data does not meet the assumptions for parametric tests, such as normal distribution. In this case, the test was used to assess whether there were any significant differences in self-help skills before and after the intervention across various age groups based on the WHO guidelines.

- **Before Intervention**

  A Kruskal-Wallis test in Table 4.14 indicated that there was no significant difference in Cloth Management across the five age groups, $\chi^2(4, N = 50) = 5.456$, $p = 0.244$. The mean ranks for Cloth Management were 23.96 for Early Childhood (6–8 years), 20.00 for Middle Childhood (9–11 years), 23.43 for Early Adolescence (12–14 years), 28.56 for Middle Adolescence (15–17 years), and 36.42 for Late Adolescence (18–19 years).

  There was no significant difference in Using Utensils and Eating Etiquette across the five age groups, $\chi^2(4, N = 50) = 5.341$, $p = 0.254$. The mean ranks were 23.65 for Early Childhood (6–8 years), 18.88 for Middle Childhood (9–11 years), 24.96 for Early Adolescence (12–14 years), 27.94 for Middle Adolescence (15–17 years), and 35.92 for Late Adolescence (18–19 years).

  For Cloth Hand, Hair, and Nail Hygiene, no significant difference was observed across the five age groups, $\chi^2(4, N = 50) = 7.269$, $p = 0.122$. The mean ranks were 21.62 for Early Childhood (6–8 years), 17.63 for Middle Childhood (9–11 years), 26.68 for Early Adolescence (12–14 years), 29.06 for

Middle Adolescence (15–17 years), and 36.33 for Late Adolescence (18–19 years).

For General Cleanliness, Coughing, and Sneezing Hygiene, there was no significant difference across the five age groups, $\chi^2(4, N = 50) = 8.622$, $p = 0.071$. The mean ranks were 20.62 for Early Childhood (6–8 years), 18.38 for Middle Childhood (9–11 years), 25.89 for Early Adolescence (12–14 years), 30.56 for Middle Adolescence (15–17 years), and 37.08 for Late Adolescence (18–19 years).

- **After Intervention**

A Kruskal-Wallis test in Table 4.14 indicated that there was no significant difference in Cloth Management across the five age groups, $\chi^2(4, N = 50) = 1.931$, $p = 0.748$. The mean ranks for Cloth Management were 26.58 for Early Childhood (6–8 years), 25.06 for Middle Childhood (9–11 years), 23.43 for Early Adolescence (12–14 years), 25.56 for Middle Adolescence (15–17 years), and 28.50 for Late Adolescence (18–19 years).

For Using Utensils and Eating Etiquette, there was no significant difference across the five age groups, $\chi^2(4, N = 50) = 7.429$, $p = 0.115$. The mean ranks were 26.50 for Early Childhood (6–8 years), 15.38 for Middle Childhood (9–11 years), 26.18 for Early Adolescence (12–14 years), 28.67 for Middle Adolescence (15–17 years), and 30.50 for Late Adolescence (18–19 years).

For Cloth Hand, Hair, and Nail Hygiene, no significant difference was observed across the five age groups, $\chi^2(4, N = 50) = 5.300$, $p = 0.258$. The mean ranks were 22.42 for Early Childhood (6–8 years), 18.81 for Middle Childhood (9–11 years), 25.96 for Early Adolescence (12–14 years), 30.00 for Middle Adolescence (15–17 years), and 33.25 for Late Adolescence (18–19 years).

For General Cleanliness, Coughing, and Sneezing Hygiene, there was no significant difference across the five age groups, $\chi^2(4, N = 50) = 5.287$, $p = 0.259$. The mean ranks were 27.69 for Early Childhood (6–8 years), 19.56 for

Middle Childhood (9–11 years), 25.93 for Early Adolescence (12–14 years), 24.28 for Middle Adolescence (15–17 years), and 29.50 for Late Adolescence (18–19 years).

This means that the intervention, which aimed to improve self-help skills, was equally effective across the different age groups, as there were no measurable differences in how the children from the age groups (Early Childhood, Middle Childhood, Early Adolescence, Middle Adolescence, and Late Adolescence) performed before and after the intervention. Therefore, age did not significantly influence the results, and the intervention seemed to have a uniform impact on participants' self-help skills regardless of their age.

Table 4.14: Kruskal-Wallis Test for Differences in Ranks of Self-Help Skills categories Across Age Groups at Pre- and Post-Intervention

Variable	**N**	**Early Childhood (6–8 years)**	**Middle Childhood (9–11 years)**	**Early Adolescence (12–14 years)**	**Middle Adolescence (15–17 years)**	**Late Adolescence (18–19 years)**	**Kruskal-Wallis H**	**p**
Cloth Management (Pre-Intervention)	50	23.96	20.00	23.43	28.56	36.42	5.456	0.244
Using Utensils and Eating Etiquette (Pre-Intervention)	50	23.65	18.88	24.96	27.94	35.92	5.341	0.254
Cloth Hand, Hair, and Nail Hygiene (Pre-Intervention)	50	21.62	17.63	26.68	29.06	36.33	7.269	0.122
General Cleanliness, Coughing, and Sneezing Hygiene (Pre-Intervention)	50	20.62	18.38	25.89	30.56	37.08	8.622	0.071
Cloth Management (Post-Intervention)	50	26.58	25.06	23.43	25.56	28.50	1.931	0.748
Using Utensils and Eating Etiquette (Post-Intervention)	50	26.50	15.38	26.18	28.67	30.50	7.429	0.115
Cloth Hand, Hair, and Nail Hygiene (Post-Intervention)	50	22.42	18.81	25.96	30.00	33.25	5.300	0.258
General Cleanliness, Coughing, and Sneezing Hygiene (Post-Intervention)	50	27.69	19.56	25.93	24.28	29.50	5.287	0.259
Full Scale (Pre-Intervention)	50	23.54	18.50	23.82	28.83	38.00	7.160	0.128
Full Scale (Post-Intervention)	50	21.65	17.75	26.11	31.28	34.08	6.946	0.139

4.6 Behavioral Observation

Table 4.15 presents the engagement levels observed across various age groups during the intervention. In the Childhood age group, children demonstrated lower levels of concentration, were easily distracted, and struggled to maintain focus during structured tasks, often requiring additional assistance to stay engaged. These children were more likely to disengage or struggle with longer periods of attention. On the other hand, Adolescents exhibited a higher degree of concentration and the ability to maintain sustained focus with fewer distractions, allowing them to engage in tasks for longer durations without as much difficulty. This indicates that age plays a role in how well individuals are able to concentrate and engage in structured tasks. In the context of Individual Sessions, all age groups showed an improvement in engagement and focus, particularly during one-on-one interactions. These sessions allowed for more personalized attention and support, fostering increased engagement. However, younger children, especially those in Early and Middle Childhood, required more individualized attention and frequent guidance to remain focused and engaged. They benefited significantly from immediate feedback and instruction, which helped them process and replicate the tasks at hand. Thus, while the individual sessions enhanced engagement across age groups, younger children showed a higher dependency on personalized interaction for successful task completion.

The table 4.16 outlines the varying engagement levels, behaviors, and indicators of participation observed in individuals with different disability levels. Those with Mild Disabilities exhibit interactive engagement and verbal participation, displaying higher cognitive involvement during the intervention. These individuals often verbalize their understanding, such as confirming steps verbally, and tend to mimic the instructor's actions. Their engagement is generally more active, and they are able to process and replicate tasks more readily. On the other hand, individuals with Moderate Disabilities show a more passive level of engagement, often with minimal verbal interaction. They tend to observe the instructor with neutral expressions and require more time and repetition to process and replicate skills. These individuals struggle to engage immediately and may need additional

Table 4.15: Engagement Levels Across Age Groups During Intervention

Age Group	Engagement Level	Challenges	Effective Strategies
Childhood	Lower concentration, distracted, disengaged	Difficulty maintaining focus during structured tasks due to developmental delays	One-on-one guidance, personalized attention, immediate feedback
Adolescence	Higher concentration, better sustained focus	Fewer distractions, easier to maintain attention for longer periods	Less individualized attention required; can focus longer on structured tasks
Individual Sessions (All Age Groups)	Better engagement, increased focus during one-on-one sessions	Younger children (Early & Middle Childhood) require more assistance	Personalized instruction, immediate feedback, and guidance

support to stay focused and involved. This table highlights the differing levels of engagement and participation based on disability severity, underscoring the need for tailored instructional approaches to meet the unique needs of each group.

Table 4.16: Instruction and Participation During Skill Demonstration Across Disability Levels

Disability Level	Engagement Level	Behavior During Demonstration	Indicators of Engagement
Mild Disabilities	Interactive engagement, verbal participation	Verbalized understanding ("We know how to do this skill"), confirmed steps verbally	Ready to engage, higher cognitive engagement, tendency to mimic instructor immediately
Moderate Disabilities	Passive engagement, minimal verbal participation	Observed instructor with neutral expressions, did not participate in verbal exchanges	Difficulty processing and replicating skills, need for more time and repetition

The table 4.17 provides an overview of the modeling phase across different age groups and disability levels. For Childhood participants with Mild Disabilities,

engagement was active with some verbal participation, though they struggled with immediate skill replication and required additional processing time. Those with Moderate Disabilities showed passive observation with neutral expressions, experiencing difficulty processing the skill and limited interaction during the demonstration. In Adolescence, participants with Mild Disabilities were actively engaged, confirming steps verbally and occasionally requiring clarification, while those with Moderate Disabilities exhibited mostly passive engagement, mimicking actions only occasionally and struggling to maintain attention without prompts.

TABLE 4.17: Modeling Phase Across Age Groups and Disability Levels

Age Group	**Disability Level**	**Engagement During Modeling Phase**	**Challenges During Modeling**
Childhood	Mild Disabilities	Actively observed, ready to engage, some verbal participation	Struggled with immediate replication, required time to process
Childhood	Moderate Disabilities	Passive observation, neutral expressions, minimal participation	Difficulty processing the skill immediately, lacked interaction during demonstration
Adolescence	Mild Disabilities	Actively engaged, confirmed steps verbally	Ready to engage, occasional clarification needed
Adolescence	Moderate Disabilities	Mostly passive, only occasionally mimicked actions	Struggled to maintain attention and follow modeling without prompts

The table 4.18 outlines the engagement and challenges faced during the rehearsal phase across various age groups and disability levels. In Childhood, individuals with Mild Disabilities often required frequent repetition of instructions and struggled with execution, mainly due to attention span and motor sequence retention issues. Those with Moderate Disabilities needed continuous guidance, as mistakes required multiple corrections, and faced challenges with lower attention span. In Adolescence, participants with Mild Disabilities showed quick grasp of tasks, needing occasional guidance and corrections for refinement, while those with Moderate

Disabilities required regular corrections and exhibited inconsistent engagement due to task complexity and attention issues.

TABLE 4.18: Rehearsal Phase Across Age Groups and Disability Levels

Age Group	**Disability Level**	**Engagement During Rehearsal Phase**	**Challenges During Rehearsal**
Childhood	Mild Disabilities	Frequent repetition of instructions, struggled with execution	Attention span issues, motor sequence retention difficulties
Childhood	Moderate Disabilities	Frequent guidance needed; mistakes required multiple corrections	Lower attention span, required continuous correction for successful task completion
Adolescence	Mild Disabilities	Less repetition needed; occasional guidance required	Quick grasp of task, but required occasional corrections for refinement
Adolescence	Moderate Disabilities	Regular corrections, engagement inconsistent	Required consistent feedback, struggled with task complexity and attention issues

The table 4.19 illustrates the effects of positive reinforcement on engagement across various age groups and disability levels. In the Childhood group, children with Mild Disabilities demonstrated a positive response to rewards, which enhanced their participation and engagement. Children with Moderate Disabilities, initially passive, exhibited a notable increase in engagement upon receiving rewards, as the rewards served as a strong motivator to focus and participate. Moving to Adolescence, those with Mild Disabilities responded effectively to verbal praise, which helped them maintain focus, particularly during challenging tasks. Individuals with Moderate Disabilities were initially slower to engage but showed improved motivation when rewards were offered for progress or successful task completion, further highlighting the importance of reinforcement in fostering sustained participation. This table emphasizes how positive reinforcement tailored to disability

level and developmental stage can significantly boost engagement and motivation during tasks.

TABLE 4.19: Reinforcement: Impact of Positive Reinforcement on Engagement Across Age Groups and Disability Levels

Age Group	**Disability Level**	**Response to Reinforcement**	**Effectiveness of Reinforcement**
Childhood	Mild Disabilities	Responded positively, became more active after receiving rewards	Reinforcement increased participation and engagement
Childhood	Moderate Disabilities	Initially passive but showed increased engagement with rewards	Rewards acted as a strong motivator for children to focus and engage
Adolescence	Mild Disabilities	Reinforced correct task completion, responded well to verbal praise	Reinforcement helped maintain focus, especially for difficult tasks
Adolescence	Moderate Disabilities	Somewhat slow to engage but motivated by rewards	Motivation improved when rewards were given for progress or successful task completion

Chapter 5

Discussion

5.1 Effectiveness of the Behavioral Skills Intervention on Self-Help Skills

The present study provides strong evidence supporting the effectiveness of Behavioral Skills Training (BST) in enhancing self-help skills among individuals with intellectual disabilities (ID). The results of the Sign Test revealed statistically significant improvements across all targeted skill areas, including overall self-help skills, clothing management, eating etiquette, hygiene maintenance (clothing, hands, hair, and nails), general cleanliness, and coughing and sneezing hygiene. These findings align with previous research demonstrating the efficacy of structured behavioral interventions in promoting adaptive skills and independent functioning in individuals with ID (Kurtz et al., 2020). The substantial improvements observed in all self-help domains suggest that structured skill acquisition, modeling, and reinforcement strategies play a crucial role in fostering autonomy and daily functioning in this population.

The intervention led to a statistically significant improvement in overall self-help skills (z = -6.930, p ¡ .001), with all participants showing positive differences between pre- and post-intervention scores. This comprehensive improvement aligns with findings from prior studies indicating that behavioral interventions employing modeling, prompting, and reinforcement are effective in teaching self-help and

daily living skills (Mounzer et al., 2024). Research has shown that structured and repeated practice, combined with positive reinforcement, enhances learning retention in individuals with ID, leading to significant gains in independent living skills (Kim et al., 2021).

5.1.1 Cloth Management Skills

Cloth management skills also significantly improved post-intervention (z = -6.930, p ¡ .001), with all participants demonstrating positive changes. This finding is consistent with previous studies indicating that task analysis and behavioral modeling effectively enhance dressing and grooming skills in individuals with ID (McLay et al., 2021).

5.1.2 Using Utensils and Eating Etiquette

The study also demonstrated significant improvements in participants' ability to use utensils and follow appropriate eating etiquette (z = -6.930, p ¡ .001). These findings align with research emphasizing the importance of behavioral interventions in improving fine motor skills and social behaviors related to mealtime (Juan, 2023). Studies have found that modeling and reinforcement-based training are particularly effective in promoting the correct use of utensils, increasing mealtime independence, and reducing disruptive eating behaviors (Kanfush and Jaffe, 2019).

5.1.3 Hygiene Skills (Cloth, Hand, Hair, and Nail Maintenance)

Significant improvements were also observed in hygiene-related skills (z = -6.930, p ¡ .001), with all participants demonstrating better self-care routines in clothing hygiene, handwashing, hair grooming, and nail maintenance. These findings are consistent with previous research emphasizing that systematic hygiene training improves self-care behaviors in individuals with ID, leading to better health outcomes and increased social acceptance (Pesau et al., 2020).

5.1.4 General Cleanliness, Coughing, and Sneezing Hygiene

The intervention also resulted in significant gains in general cleanliness, coughing, and sneezing hygiene (z = -6.930, p ¡ .001). These improvements align with research suggesting that explicit instruction and reinforcement-based hygiene programs effectively enhance personal and public health behaviors in individuals with developmental disabilities (Rojo et al., 2024). Previous studies have emphasized the critical role of hygiene education in preventing illness, reducing the risk of infections, and promoting community integration (McLay et al., 2021). Given the heightened vulnerability of individuals with ID to communicable diseases, teaching proper hygiene practices is crucial for both individual well-being and broader public health (Carmeli and Imam, 2014).

5.2 Development of Self-Help Skills Across Different Disability Levels

This study highlights significant differences in self-help skills between individuals with mild and moderate intellectual disabilities, both before and after the implementation of Behavioral Skills Training (BST). The findings underscore the impact of disability severity on skill acquisition and the effectiveness of interventions in addressing these disparities.

5.2.1 Pre- and Post-Intervention Differences by Disability Level

Before the BST intervention, individuals with mild intellectual disabilities demonstrated significantly better self-help skills compared to those with moderate intellectual disabilities. The Mann-Whitney U test revealed a statistically significant difference between the two groups (z = -2.800, p = 0.005), with the mild group (Mean Rank = 35.23) outperforming the moderate group (Mean Rank = 22.08).

This finding is consistent with existing literature, which suggests that the severity of intellectual disability is a key determinant of functional independence and adaptive behavior (Hronis et al., 2017). Individuals with mild disabilities often have greater cognitive and adaptive capacities, enabling them to perform self-help tasks more effectively than those with moderate disabilities.

Following the BST intervention, improvements were observed in both groups, but the gap between individuals with mild and moderate intellectual disabilities narrowed significantly. The post-intervention difference between the two groups was no longer statistically significant at the conventional level (z = -1.894, p = 0.058). This suggests that BST was particularly effective in enhancing self-help skills for individuals with moderate disabilities, allowing them to progress toward skill levels closer to their peers with mild disabilities. The reduction in the skill gap highlights the potential of BST to address the unique needs of individuals with moderate intellectual disabilities, who often face greater challenges in acquiring and generalizing adaptive behaviors.

5.2.2 Variability in Outcomes Across Self-Help Skill Categories

The analysis of specific self-help skill areas revealed that BST was particularly effective in bridging the gap in certain categories of self-help skills. As, the post-intervention differences between the mild and moderate groups were minimal in cloth management (z = -0.549, p = 0.583) and general cleanliness, coughing, and sneezing hygiene (z = -1.804, p = 0.071). These tasks, which consist of routine-based and concrete actions, have shown greater adaptability to the structured and repetitive approach of BST.

However, significant differences persisted in more complex skill areas, such as using utensils and eating etiquette (z = -2.554, p = 0.011) and personal hygiene, including hand, hair, and nail care (z = -1.958, p = 0.050). The findings suggest that these tasks require higher levels of fine motor coordination, cognitive processing, and social understanding, posing greater challenges for individuals with moderate intellectual disabilities. Research indicates that fine motor deficits are

more pronounced in individuals with moderate intellectual disabilities, impacting their ability to perform tasks that require dexterity and hand-eye coordination (Jeoung, 2018). The severity of intellectual disability may influence the rate at which individuals acquire new skills. Participants with mild intellectual disabilities have better cognitive abilities, allowing them to acquire new skills more quickly and with less support. As study conducted by Douglas and Bigby (2020), stated that individuals with mild intellectual disabilities are typically more capable of learning and generalizing new skills due to their higher cognitive abilities.

In contrast, those with moderate intellectual disabilities often require more targeted and intensive intervention strategies to achieve similar developmental milestones. This is further corroborated by Selau et al. (2022), who found that individuals with moderate intellectual disabilities face greater challenges in adaptive behavior acquisition and may require more tailored, resource-intensive interventions.

A key contributing factor may be the extent of parental involvement in daily self-care routines. Many parents of children with moderate disabilities tend to perform these tasks for them, such as feeding, bathing, combing their hair, and trimming their nails, rather than encouraging independent practice. Studies have shown that overprotective parenting styles can limit opportunities for children with disabilities to develop self-help skills (Pesau et al., 2020), as parents often intervene to minimize challenges rather than promoting gradual skill acquisition (Meral et al., 2023). As a result, these individuals may have had limited opportunities to develop the necessary skills before the intervention.

This lack of prior exposure could explain why, despite BST, they faced persistent difficulties in mastering these self-help skills (Matson and Hong, 2019). Prior research supports the notion that consistent, hands-on practice is critical for skill mastery among individuals with intellectual disabilities (Vasilakopoulou, 2022), and the absence of such opportunities can result in delayed development of adaptive behaviors (Minshawi et al., 2009).

The behavioral observation data supported this finding, as individual with mild disabilities generally demonstrated more independence during tasks and required

fewer prompts and reinforcements (Sappok et al., 2022). On the other hand, individual with moderate intellectual disabilities needed more frequent interventions and sometimes showed signs of frustration when they struggled to complete tasks. This underscores the importance of adjusting the level of support in BST depending on the severity of the disability, ensuring that all individual can progress at their own pace. Overall, BST is effective in improving many self-help skills, individuals with moderate disabilities may require additional support and tailored interventions to achieve proficiency in more complex domains.

5.3 Development of Self-Help Skills Across Different Genders

The findings of this study provide valuable insights into the role of gender in the development of self-help skills among individuals with intellectual disabilities, both before and after the implementation of a behavioral intervention. The results highlight areas of similarity and divergence between males and females, offering important implications for practice and future research.

5.3.1 Pre- and Post-Intervention Differences by Gender

Before the intervention, there were no significant gender differences in self-help skills, as indicated by the Mann-Whitney U test (z = -0.775, p = 0.438). Males (Mean Rank = 26.45) and females (Mean Rank = 22.81) demonstrated comparable levels of proficiency in self-help tasks. This finding aligns with previous research suggesting that gender does not play a significant role in baseline adaptive functioning among individuals with intellectual disabilities (Gregori et al., 2021). Following the intervention, a significant gender difference emerged in self-help skills. Males (Mean Rank = 28.12) showed greater improvement compared to females (Mean Rank = 18.04), as evidenced by the Mann-Whitney U test (z = -2.187, p = 0.029). This suggests that the intervention was more effective for males than females in enhancing overall self-help skills. These findings align with prior research as, Ioannakis (2022), examined gender-based variability in adaptive

abilities among adolescents and adults with intellectual disabilities. The study found that while gender significantly influenced certain skill domains of adoptive functioning.

5.3.2 Differential Outcomes Across Self-help Skill category

Prior to the intervention, the Mann-Whitney U test revealed no significant gender differences in self-help skills across the domains of cloth management, eating etiquette, hygiene, and general cleanliness. This suggests that males and females with intellectual disabilities exhibited comparable baseline levels of proficiency in these areas.

Following the intervention, the results continued to show no significant gender differences in most self-help skill areas, including cloth management, eating etiquette, and general cleanliness. The result stated that the intervention was equally effective for males and females in these domains, reinforcing the utility of behavioral interventions for skill development across genders. However, a notable exception was observed in the domain of hygiene skills, where males demonstrated significantly greater improvement compared to females (Mean Rank = 28.12 vs. 18.04, z = -2.247, p = 0.025). This finding indicates that the intervention had a differential impact on hygiene-related behaviors, with males benefiting more than females.

However, these findings contrast with previous studies suggesting that gender does not play a significant role in the effectiveness of behavioral interventions for individuals with intellectual disabilities (Ryan et al., 2019; Gregori et al., 2021). A possible reason for this discrepancy lies in the distribution of disability severity among male and female participants in the present study. Specifically, 11 out of 13 female participants had moderate intellectual disabilities, whereas males were more evenly distributed between mild (n = 11) and moderate (n = 26) levels.

Individuals with moderate intellectual disabilities typically require more time to learn and retain self-help skills due to challenges in cognitive processing, working memory, and adaptive learning (Douglas and Bigby, 2020). As a result, the majority of female participants, having moderate intellectual disabilities, may have exhibited slower progress in skill acquisition compared to males. This difference in

disability severity likely contributed to the lower post-intervention scores among females, rather than gender itself being a determining factor in skill acquisition. Conversely, males in the study had a more balanced representation across mild and moderate disability levels. Those with mild intellectual disabilities may have been able to adapt more quickly to the structured training provided in BST, leading to a higher overall improvement in self-help skills. These findings highlight the importance of considering disability severity when evaluating intervention effectiveness, as variations in baseline cognitive abilities and learning rates can significantly influence outcomes across gender groups.

5.4 Development of Self-Help Skills Across Different Age Groups

5.4.1 Effect of Intervention on Self-Help Skills Across Age Groups

Before the intervention, the Kruskal-Wallis test revealed no significant differences in self-help skills across the five age groups ($\chi^2 = 7.160$, $p = 0.139$). This suggests that baseline self-help skills were relatively consistent across early childhood (6–8 years), middle childhood (9–11 years), early adolescence (12–14 years), middle adolescence (15–17 years), and late adolescence (18–19 years). While there were slight variations in mean ranks, with late adolescence showing the highest mean rank (38.00) and middle childhood the lowest (18.50), these differences were not statistically significant.

Following the intervention, the Kruskal-Wallis test again indicated no significant differences in self-help skills across the age groups ($\chi^2 = 0.128$, $p = 0.139$). This suggests that the intervention was equally effective across all age groups, with no single age group showing significantly greater improvement than the others. However, it is worth noting that the mean ranks for middle adolescence (31.28) and late adolescence (34.08) were higher than those for early childhood (21.65) and middle childhood (17.75), indicating a trend toward greater skill improvement in older

age groups. While this did not reach statistical significance, it may reflect developmental differences in responsiveness to interventions, such as greater cognitive maturity or motivation in older individuals.

The trend toward greater improvement in older age groups, though not statistically significant, may be attributed to several factors. First, older individuals may have greater cognitive and emotional maturity, enabling them to better understand and apply the skills taught during the intervention. Second, adolescents may have more opportunities to practice self-help skills in real-world settings, such as school or community environments, compared to younger children. Third, older individuals may be more motivated to improve their independence, particularly as they approach adulthood and face increased expectations for self-care and autonomy.

5.4.2 Differences in Self-Help Skill Categories Across Age Groups

Before the intervention, the Kruskal-Wallis test revealed no significant differences in self-help skills across the five age groups ($\chi^2 = 7.160$, $p = 0.139$). This indicates that baseline self-help skills were relatively similar across early childhood (6–8 years), middle childhood (9–11 years), early adolescence (12–14 years), middle adolescence (15–17 years), and late adolescence (18–19 years). While late adolescents had the highest mean rank (38.00) and middle childhood had the lowest (18.50), these differences were not statistically significant, suggesting that any variations in initial self-help abilities were likely due to individual differences rather than age-related trends.

After the intervention, the Kruskal-Wallis test again showed no significant differences in post-intervention self-help skills across age groups ($\chi^2 = 0.128$, $p = 0.139$). This suggests that the intervention was equally effective across all age groups, with no single group demonstrating significantly greater improvement. However, mean ranks indicated a possible trend, with middle adolescents (31.28) and late adolescents (34.08) showing higher improvement than early childhood (21.65) and middle childhood (17.75). Although this trend was not statistically significant,

it aligns with previous research suggesting that older individuals tend to demonstrate greater adaptive skill acquisition due to increased cognitive development, real-world practice opportunities, and higher motivation (Smith et al., 2024).

The observed (but not statistically significant) trend of greater improvement among older participants may be influenced by several factors. Several possible explanations support this trend. Studies indicate that older individuals tend to exhibit better executive functioning and problem-solving skills, which can facilitate greater retention and application of self-help training (Hill et al., 2015). Additionally, adolescence is a period where individuals experience increased autonomy and may be more motivated to acquire self-help skills, particularly as they prepare for adult responsibilities (Downs et al., 2024). Furthermore, real-world exposure plays a key role in skill acquisition older children and adolescents encounter more opportunities to practice self-help skills in diverse environments, including school, social settings, and home life, which may contribute to greater practical application of the intervention (Carter et al., 2012).

5.5 Limitations and Implications for Future Research

While this study offers valuable insights into the effectiveness of Behavioral Skills Training (BST) in enhancing self-help skills among individuals with intellectual disabilities, several limitations must be acknowledged. Addressing these limitations can guide future research and improve the generalizability, applicability, and sustainability of interventions.

1. The study utilized a convenient sampling technique with a relatively small sample size, which may limit the generalizability of the findings. A more balanced and representative sample, achieved through random sampling methods, would strengthen the validity of future research.

2. The study did not assess the long-term maintenance of skill gains post-intervention. Longitudinal studies are necessary to determine whether improvements in self-help skills are sustained over time and to identify factors that contribute to skill retention or regression.

3. The intervention was conducted over a specific time frame, which may not reflect the time required for optimal skill acquisition in real-world settings.

4. The Self-Help Skills Checklist was utilized as a structured tool for assessing self-help skills. While it effectively guided skill evaluation, further research is recommended to strengthen its psychometric properties, ensuring continued accuracy and consistency in diverse populations.

5. Future researchers should implement this intervention using a control and experimental group design. Such a design would provide a more rigorous evaluation of the intervention's effectiveness, allowing for clearer comparisons.

Future studies should consider longer intervention periods and assess their impact on skill development and generalization. It should aim to include larger and more diverse samples, encompassing individuals with varying levels of intellectual disabilities, cultural backgrounds, and socioeconomic statuses. Tracking participants over extended periods can provide insights into the sustainability of improvements and the need for ongoing support. They should explore the impact of BST on additional functional outcomes, such as social skills, financial management, and academic performance. This would broaden the scope of BST's applicability and highlight its potential to address a wider range of challenges faced by individuals with intellectual disabilities.

Chapter 6

Conclusion

The present study aimed to explore the effect of Behavioral Skills Training (BST) on enhancing self-help skills among individuals with intellectual disabilities, using a pre- and post-test within-subjects design. The findings revealed significant improvements in self-help skills, as evidenced by the difference in mean scores between pre-test and post-test assessments. This supports the notion that BST is an effective intervention for improving self-help skills in adolescents with intellectual disabilities.

The observed improvements in self-help skills, including tasks related to personal care, hygiene, and daily living, suggest that BST can be a valuable tool in fostering greater independence among individuals with ID. These results are consistent with existing literature that emphasizes the benefits of structured and systematic training programs for individuals with intellectual disabilities. The systematic, step-by-step approach of BST appears to be particularly beneficial in enabling individuals to master complex self-help tasks, which are crucial for enhancing their quality of life and promoting autonomy.

Moreover, the positive outcomes observed in this study underline the importance of evidence-based interventions in the field of special education and disability services. BST, with its structured methodology and focus on skill acquisition, proves to be an effective approach for addressing the skill development needs of individuals with intellectual disabilities. This intervention not only facilitates the development

of self-help skills but also promotes the overall growth and well-being of individuals with ID, contributing to their social inclusion and increased participation in daily activities.

Given the promising results, it is essential to pursue further research to refine and standardize BST implementation. The positive impact of BST on self-help skills underscores the importance of evidence-based interventions in fostering independence and improving the quality of life for individuals with intellectual disabilities.

6.1 Future Implications

This study provides valuable insights into enhancing self-help skills among adolescents with intellectual disabilities (ID) through Behavioral Skills Training (BST). The findings highlight BST as an effective intervention for promoting autonomy and skill development in individuals with ID. These results lay the foundation for future research to further explore the intervention's scope, impact, and applicability across intellectual disability.

One key implication is the potential for developing targeted training programs for caregivers and parents. By integrating BST principles, these programs can equip caregivers with evidence-based strategies to reinforce self-help skills in daily life. Given the importance of fostering independence in individuals with ID, systematic caregiver training can play a crucial role in sustaining and generalizing these skills across home and community settings.

This study also addresses a critical gap in the literature by providing empirical evidence on BST's effectiveness in self-help skill development. The results contribute to the growing body of knowledge on best practices for supporting individuals with ID, reinforcing the importance of structured behavioral interventions. Future research can build upon these findings by examining the long-term effects of BST and its adaptability to various cultural and educational contexts.

A significant contribution of this study is the Self-Help Skills Checklist and the Behavioral Skills Training for Self-Help Skills Manual. These resources offer a structured framework for implementing BST and tracking skill acquisition over

time. The checklist serves as a monitoring, while the manual provides step-by-step guidance for effective BST application. Their integration into practice can help standardize interventions, ensuring consistency and effectiveness across different settings. Additionally, these can serve as valuable resources for both families and professionals, facilitating the broader adoption of BST in educational and therapeutic environments. By raising awareness of the capabilities and needs of adolescents with ID, the study can underscore the importance of developing culturally relevant assessment tools and intervention strategies tailored to specific populations.

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Appendix A

Information Sheet

I, Asfa Zamir, a student of the Department of Psychology at Capital University of Science and Technology, would like to invite your child to participate in a research study. Before making a decision, it is important that you understand the purpose of the research and what it will involve.

Please read the following information carefully. If you have any questions, feel free to ask. You may take one day to decide whether to give consent for participation in the research.

Purpose of the Research

The aim of this research is to enhance self-help skills among individuals with intellectual disabilities using Behavioral Skills Training. A total of 48 sessions will be conducted over a period of 8 weeks.

What Will Be Required from You and Your Child?

To participate in the research, consent from both the child and their parents is required. After providing consent, you will need to complete a Demographic Sheet. Behavioral Skills Training will be provided in group and individual sessions, where the child will be instructed on specific activities.

How Will the Information from the Research Be Used?

The responses from participants will be kept strictly confidential and anonymous. Additionally, your identity will not be revealed in any published results.

What Are the Benefits or Risks of Participating?

There are no personal or educational benefits or risks associated with participating in this research. By participating, your child may develop improved self-care abilities and become more capable of independently managing their needs.

It is important to note that participation is voluntary, and you or your child may withdraw from the study at any time without any negative consequences.

Who Should You Contact for Questions or More Information?

For any questions or concerns, you can contact:

Email: asfazamir1@gmail.com

Institution: Capital University of Science and Technology, Department of Psychology

Phone No: 0336 ******

Address: Government Special School, Kahuta Road, Islamabad

You can contact us between 9:00 AM and 2:00 PM.

Appendix B

Consent Form

I confirm that I have read and understood the information sheet. I have been given the opportunity to ask questions. I give consent for my child to participate in the research aimed at enhancing self-help skills among individuals with intellectual disabilities through behavioral skills training. I understand that my child has the right to withdraw from the research at any time without affecting their educational services. I understand that the information obtained during the research will be kept anonymous and used only for research purposes. I give permission for my child to participate in this research study.

Appendix C

Assent Form

The following instructions will be communicated orally to ensure that the Individual understands the research and its procedures. Listen carefully to the researcher. If you agree, tick the box.

☐ I know what the program is about and what I will do.

☐ I can stop anytime if I want to.

☐ My information will be kept secret.

☐ My name will not be shown in the study.

☐ I want to join the program.

Appendix D

Demographic Sheet

Serial No.	Detail	Response
1	ID	
3	Age	
4	Gender	
5	IDD (Disability Level)	
6	Social Economic Status	
7	Any Food Allergy	
8	Additional Information (if any)	

Appendix E

Self-help Skills Assessment checklist for baseline and maintenance phase

1. **Good Value,** if the ability to do social activities are not too dependent on others and have compliance when it is directed.
2. **Sufficient Value,** if the ability to do self-care activities are still much dependent on the actions of others, the guidance of his self-care attitude still needs to be repeated given.
3. **Less value,** if the ability to perform self-care activities is very dependent on the actions of others and still difficult to adjust social behavior.

Instructions:

1. For each assessment, observe the participants performance and tick the appropriate value based on the observed behavior.
2. If necessary, information is not provided by the child, gather relevant details from the participant's parents, class teacher, or psychologist.
3. Provide the participants with an opportunity to perform the activities to ensure accurate information is collected.

Task	Category	Less	Sufficient	Good
Identifying Clothing Items	Can the child name shirts/ kameez?			
	Can the child name pants/ shalwar?			
	Can the child name socks?			
	Can the child name shoes?			
	Can the child name sweater?			
	Can the child name tie?			
	Can the child name abaya?			
Fastening Skills	Can the child fasten buttons?			
	Can the child fasten zippers?			
Unfastening Skills	Can the child unfasten buttons?			
	Can the child unfasten zippers?			
Putting On Clothing	Can the child independently put on shirts?			
	Can the child independently put on pants?			
	Can the child independently put on socks?			
	Can the child independently put on shoes?			
Taking Off Clothing	Can the child independently take off shirts?			
	Can the child independently take off pants?			
	Can the child independently take off socks?			

Task	**Category**	**Less**	**Sufficient**	**Good**
	Can the child independently take off shoes?			
Clothing Folding	Can the child independently fold clothes?			
Using Utensils	Can the child use a spoon properly? Can the child use a knife properly (if appropriate for their age and skill level)?			
Holding Utensils	Does the child hold utensils with a proper grip? Can the child hold utensils steadily while eating?			
Chewing Food	Does the child chew food thoroughly before swallowing?			
Swallowing	Does the child take appropriate-sized bites to facilitate swallowing?			
Sitting Properly	Does the child sit properly at the table while eating (e.g., sitting upright, feet on the floor)? Does the child remain seated during the meal without getting up frequently?			
Hand Washing	Does the child know when it's necessary to wash their hands? Can the child properly apply soap and water to their hands while washing? Does the child wash their hands for an appropriate duration?			

Task	Category	Less	Sufficient	Good
Hair Care	Can the child brush or comb their hair independently? Does the child know when it's necessary to wash their hair?			
Nail Care	Does the child know when it's necessary to trim their nails? Does the child know when it's necessary to trim their nails? Can the child safely use nail clippers or scissors to trim their nails? Does the child understand the importance of keeping nails clean?			
Clothing Hygiene	Does the child wear clean clothes every day? Can the child identify when clothes are dirty and need to be washed?			
General Cleanliness	Can the child assist with simple household cleaning tasks? Does the child know how to dispose of trash properly?			
Effective Coughing Habits	Does the child know to cover their mouth and nose when coughing? Can the child cough or sneeze into their elbow consistently? Does the child understand the importance of not coughing or sneezing directly onto others?			

Task	Category	Less	Sufficient	Good
Hand Hygiene After Coughing	Does the child wash their hands after coughing or sneezing? Can the child use hand sanitizer if handwashing facilities are not available?			
Maintaining a Clean Space	Does the child understand the importance of keeping shared spaces clean? Can the child participate in simple cleaning tasks, such as wiping down surfaces?			

Appendix F

Implementing the behavioral skills training (BST) components to teach self-help skills to individuals with intellectual disabilities

The table provides a structured and comprehensive overview of how Behavioral Skills Training (BST) components were systematically implemented to teach a wide range of essential self-help skills to individuals with intellectual disabilities. Each skill—ranging from basic personal hygiene and grooming tasks to more complex activities like clothing management, meal etiquette, and table manners—was carefully broken down into four core BST components: instruction, modeling, behavioral rehearsal, and feedback/reinforcement. This methodical approach allows for a step-by-step teaching process, ensuring that learners not only receive clear and concise verbal instructions but also observe correct demonstrations of the tasks. Additionally, they are given the opportunity to engage in active practice, which reinforces the learning experience. The inclusion of immediate, constructive feedback helps solidify learning and correct any errors, ensuring that progress is made in real time.

Such an approach is grounded in best practices for skill acquisition in individuals with cognitive challenges. It promotes an environment where learners can internalize the steps required for each task through repetition, active participation, and positive reinforcement. These elements work synergistically to improve both comprehension and retention, which are often challenging for individuals with intellectual disabilities.

Self-help Skill	Instruction	Modeling	Behavioral Rehearsal	Feedback and Reinforcement
Identifying Clothing Items	Look at each piece of clothing, say the name, and match it to a picture.	Researcher shows how to identify and name clothing.	Practice identifying clothing by picking, naming items and matching with pictures.	Praise for correct answers, gentle correction for mistakes.
Fastening and Unfastening	Hold the zipper/button/snap, zip up/down, button/unbutton.	Researcher demonstrates zipping and buttoning.	Children practice with jackets and shirts.	Positive feedback and guidance for corrections.
Putting On/Off Shirts	Hold the shirt, pull over head, slide arms through sleeves.	Researcher demonstrates the steps.	Children practice putting on/taking off shirts.	Praise for success, gentle correction for missed steps.
Putting On/Off Pants	Hold waistband, step into leg holes, pull up/down.	Researcher demonstrates putting on and removing trousers.	Children practice putting on/taking off pants.	Praise for correct steps, guidance for improvement.
Putting On/Off Socks and Shoes	Hold sock, put toes inside, pull over heel; open shoe, slide foot in, fasten straps.	Researcher demonstrates step by step.	Children practice putting on/removing socks and shoes.	Positive reinforcement, encouragement for progress.
Folding Clothes	Lay flat, fold sleeves, fold in half, smooth wrinkles.	Researcher demonstrates folding techniques.	Children practice folding different clothing items.	Praise for correct folds, assistance as needed.
Using and Holding Utensils	Pick up spoon/fork, hold properly, scoop/stab food.	Researcher demonstrates proper utensil use.	Practice during snack or mealtime.	Positive reinforcement, gentle guidance.
Chewing Food	Take small bite, chew with mouth closed, chew thoroughly.	Researcher models proper chewing habits.	Practice during meals.	Praise for proper chewing, gentle reminders.
Sitting Properly	Sit upright, feet flat, hands on lap, stay seated.	Researcher shows proper sitting posture.	Practice during group activities or meals.	Praise for sitting properly, reminders as needed.

Self-help Skill	Instruction	Modeling	Behavioral Rehearsal	Feedback and Reinforcement
Hand Washing	Recognize when to wash, apply soap, wash for 20 seconds.	Researcher demonstrates proper handwashing.	Practice recognizing when and how to wash hands.	Praise for good handwashing habits, gentle correction.
Hair Care	Brush/comb hair, know when to wash, apply/rinse shampoo.	Researcher models brushing and hair washing.	Practice hair brushing and shampooing.	Praise for proper hair care, gentle corrections.
Nail Care	Know when to trim, use clippers safely, maintain clean nails.	Researcher demonstrates trimming and hygiene.	Practice trimming nails with supervision.	Praise for safe trimming, emphasize hygiene.
Clothing Hygiene	Wear clean clothes, identify dirty clothing.	Researcher models selecting clean clothes.	Practice choosing and recognizing dirty clothes.	Praise for clean clothing, guidance for improvement.
General Cleanliness	Assist with cleaning tasks, dispose of trash properly.	Researcher demonstrates cleaning up.	Practice picking up toys, wiping surfaces, disposing of trash.	Praise for helping, corrections if needed.
Effective Coughing Habits	Cover mouth with tissue/elbow, avoid sneezing on others.	Researcher models proper etiquette.	Practice covering mouth/nose and avoiding direct coughing.	Praise for correct behavior, gentle correction.
Hand Hygiene After Coughing	Wash hands after coughing, use sanitizer when needed.	Researcher demonstrates proper hand hygiene.	Practice washing hands after coughing/sneezing.	Praise for hygiene, gentle reminders.
Maintaining a Clean Space	Keep shared spaces clean, participate in cleaning tasks.	Researcher models tidying up and disposing of waste.	Practice cleaning tasks and organization.	Praise for maintaining cleanliness, provide guidance.
Swallowing	Take appropriately sized bites to aid swallowing.	Researcher demonstrates correct bite size.	Practice taking safe bites during meals.	Praise for proper bites, gentle correction if needed.

Appendix G

Behavioral Skill Training (BST) Session Record Form

Date: ______________________

Participant ID No: ______________________

Skill Being Taught: ______________________

Session Number: ______________________

Session Overview

1. Objective of the Session

____

____

____

Instruction

1. Method of Delivery

- Verbal
- Visual
- Demonstration

- Written
- Other: ______________________

2. Participant's Initial Response

- Engaged
- Neutral
- Resistant
- Confused
- Uncertain

3. Notes:

Modeling

1. Participant's Observation

- Attentive
- Observing
- Distracted
- Inattentive
- Engaged

2. Notes:

Rehearsal

1. Participant's Performance

- Excellent
- Good
- Fair
- Needs Improvement
- Unsuccessful

2. Assistance Provided

- Verbal Cues
- Physical Guidance
- Additional Demonstration
- Prompting
- Other: ______________________

3. Notes:

Feedback

1. Participant's Reaction

- Positive
- Neutral
- Defensive
- Unresponsive

- Confused

2. Adjustments Made

- Changed Instructional Methods
- Provided Additional Support
- Modified Feedback Approach

3. Notes:

Appendix H

Capital University of Science & Technology
Your Journey Awaits

Islamabad Expressway,
Kahuta Road Zone V,
Islamabad Pakistan

T +92 (51) 111 555 666
+92 (51) 448 6700
F +92 (51) 448 6705
E info@cust.edu.pk
W www.cust.edu.pk

Ref: CUST/FMSS/REC/1285

October 24, 2024

RESEARCH ETHICS COMMITTEE CERTIFICATE OF REVIEW AND SUPPORT

This is to certify that Project titled: ***"From dependence to independence: A feasibility testing of behavioral skills training to improve self-help skills among intellectually disabled individuals in Pakistan"*** submitted by Scholar: **Asfa Zamir MSP231004** and supervised by: **Dr. Uzma Rani** reviewed by the Research Ethics Committee of Faculty of Management and Social Science, meets the requirements of the American Psychological Association's Ethical guidelines for Human Research and is **REVIEWED** and **APPROVED** by Research Ethics Committee of Faculty of Management and Social Sciences.

It is the Scholar's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

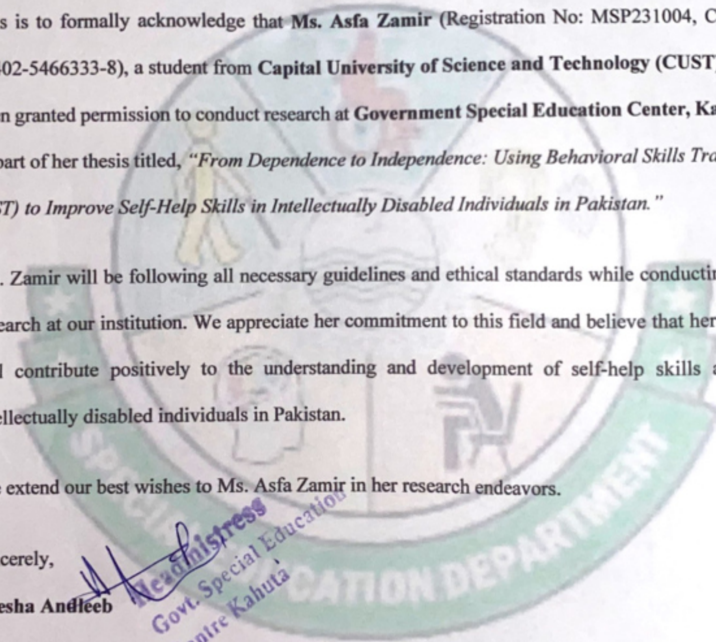
The Scholar is required to notify the Research Ethics Committee in case of any amendment in the project, specifically:

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any)
- Serious adverse effects on participants and the actions taken to address those effects
- Any other unforeseen events or unexpected developments that merit notification
- The inability of the Principal Investigator to continue in that role, or any other change in research personnel involved in the project
- A delay of more than 12 months in the commencement of the project; and,
- Termination or closure of the project.

Dr. Sabahat Haqqani

Convener, Research Ethics Committee
Faculty of Management and Social Sciences
Capital University of Science and Technology
Islamabad

Appendix I



Government Special Education Center, Kahuta

Principal's Office

Date: October 25, 2024.

To Whom It May Concern,

This is to formally acknowledge that **Ms. Asfa Zamir** (Registration No: MSP231004, CNIC: 37402-5466333-8), a student from **Capital University of Science and Technology (CUST)**, has been granted permission to conduct research at **Government Special Education Center, Kahuta** as part of her thesis titled, *"From Dependence to Independence: Using Behavioral Skills Training (BST) to Improve Self-Help Skills in Intellectually Disabled Individuals in Pakistan."*

Ms. Zamir will be following all necessary guidelines and ethical standards while conducting her research at our institution. We appreciate her commitment to this field and believe that her study will contribute positively to the understanding and development of self-help skills among intellectually disabled individuals in Pakistan.

We extend our best wishes to Ms. Asfa Zamir in her research endeavors.

Sincerely,

Ayesha Andleeb

Principal

Government Special Education Center, Kahuta