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PREVALENCE AND ASSOCIATED FACTORS OF BURNOUT AND STRESS AMONG PROFESSIONALS WORKING WITH AUTISM SPECTRUM DISORDERS' CHILDREN IN KARACHI, PAKISTAN.

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Abstract

Background: *The number of children with autism spectrum disorder has considerably reported in Pakistan over the few years. These children necessitate extra time and effort of professionals working with them. A demanding work with a stressful environment and different factors associated with them can greatly increase an individual's occupational stress and burnout.*

Objective: *This study investigated the prevalence and associated factors of burnout and stress among professionals working with autism spectrum disorders' children in Karachi, Pakistan.*

Methodology: *The sampling of this cross-sectional study was conducted through convenience-based sampling, recruiting 120 professionals (by using open epi calculator) of both genders, aged 22-50 years dealing with autism spectrum disorder and having clinical expertise of more than 6 months in Karachi, Pakistan. A semi-structured questionnaire with standardized scales was administered employing perceived stress scale (PSS) and Copenhagen Burnout Inventory (CBI). It was distributed in a hybrid format comprising participant's voluntary consent and demographics.*

Result*: Frequency of Copenhagen burnout inventory, CBI scores described 56.7% participants with moderate to high burnout whereas Perceived stress scale, PSS reported 90% of moderate to high levels of stress among the participants, exhibiting P value statistically significant ($p \leq 0.05$).*

Conclusion*: The study concludes that burnout and stress have substantial prevalence with professionals dealing with children with autism spectrum disorder. Personal burnout is notably higher than work-related and client-related burnout. Based on study findings, professionals with more experience, working long duty hours, higher qualification and salary dissatisfaction were significantly associated with burnout and stress. Substantial measures should be introduced to alleviate burnout and stress.*

INTRODUCTION:

The number of children with autism spectrum disorder has considerably increased in Pakistan over the past few years. According to the Pakistan Autism Society, over 400,000 children in Pakistan suffer from autism spectrum disorder [(1)]. ASD,

autism spectrum disorder is a neurodevelopmental disorder characterized by markedly disruptive social interaction, weakened communication and restricted and repetitive patterns of behavior, interests, and activities [2]. Autism spectrum disorder has been recently extensively researched globally with its increasing awareness, recognition and increasing number of cases [3]. Children with autism spectrum disorders necessitate extra time and effort from professionals dealing with them, especially those who work directly with them. A demanding work with a stressful environment can greatly increase an individual's occupational stress and burnout. Stress is the body's response to an external potential threat or surroundings, [4] whereas burnout is characterized by a mental state of tiredness brought on by ostensibly demanding professional settings and has three dimensions: emotional exhaustion, depersonalization, and loss of personal accomplishment [5]. According to WHO, occupational burnout is the result of dealing with prolonged stress in one's occupation[6]. It has been associated with a lack of concentration, increased depression and suicide, all of which lead to a poor quality of life [7]. When work and professional environments aren't well systematized and managed, workers may experience negative effects that, instead of elevating them, exhaust them and deplete their mental reserves [8]. Mental health problems are parallel patterns for healthcare workers due to the nature of their job and working constantly in a stressful environment [9]. Due to demanding work schedules and more difficult tasks, healthcare professionals are more likely to experience stress at work. Not only physical but mental exhaustion is also prevalent in most cases. Burnout in professional settings affects overall performance at work. Negative stressors, including low salaries, a negative environment and co-workers, lack of emotional support, lack of resources and overall dysfunctional dynamics at work, have an impact on job satisfaction and contribute to burnout [10]. Taking care of children with autism spectrum disorder (ASD) is incredibly challenging. Caregivers of children with ASD are more vulnerable to increased stress and more significant negative caregiving consequences than those individuals who are taking care of typically developing children [11]. In the past few years, the rate of burnout has been immensely increasing among professionals dealing with children with special needs. The most recent 2026 study shed light on educators of autistic children shows a high level of psycho-emotional exhaustion, irritation and fatigue, which summarizes the state of being in burnout. The majority of burnout was noticed at the start of the day, which indicated its chronicity [12]. According to a cohort study, caregivers of autistic children experience worse caregiver burnout than caregivers of other chronic conditions that can lead to behavioral, psychological and physical health concerns [13]. Caregivers of autism are more substantially prone to stress, anxiety and depressive symptoms with accounts of participants are 3.61 times more likely to report stress, 1.85 times more likely to report anxiety and 1.83 times more likely to report depressive symptoms[14]. Health care workers dealing with autism spectrum disorder children report high levels of burnout and emotional exhaustion with 51.4% stated moderate to high levels of anxiety and 47.8% dealing with depression [15]. High burnout rates among medical professionals are reported with the frequency set up to be over 44.2, 45, and 50 respectively. [16] Other jobs, such as special educators, are even more subject to severe occupational stress, since it affects approximately 88% of all teachers globally. [17]

The recent meta-analysis and systematic review of 2025 highlight the burnout of formal and informal caregivers of children with autism spectrum disorder. The study includes 13,853 caregivers and emphasis global depressive episodes of 45% caregivers globally with accounts of 40% prevalence in the Southeast Asian population[18]. This challenging nature of work increases the risk of physical and emotional distress, leading to burnout [19]. The well-being of professional health care workers and caregivers dealing with children of autism spectrum disorder or any other disorder is widely overlooked and neglected[11, 20, 21]. A study from 2022 explores the elevated levels of burnout along with anxiety and depression in young professionals primarily

working with autistic children. Moderate to high levels of burnout and anxiety were reported in more than half of the population, with elevated levels of depressive symptoms. 51.4% of professionals reported moderate to high anxiety levels and 47.8% reported moderate to very high levels of depression [15].

Professional well-being plays an essential role in healthcare since it directly affects their ability to offer high-quality care to patients. According to WHO, there will be a deficit of 12.9 million health care workers by 2035[22]. One of the primary causes of health professional deficits is turnover. According to researchers, most of the health care workers leave their jobs due to exhausting factors such as negative workplace environment and colleagues, toxicity, lower salaries, lack of commitment and supervision leading to job dissatisfaction, burnout at work and other negative stressors in their work settings [23].

Occupational and physical therapists play a variety of roles in the treatment of children with autism spectrum disorder, making them vulnerable to burnout [24]. Healthcare providers who work with individuals with autism spectrum disorder are more prone to experiencing burnout than other healthcare workers in the same field, even those in mental health who work with different patient populations. [15] Previous research has found that caretakers of children with autism spectrum disorder are more likely to experience psychological stress as compared to children with other developmental disabilities for instance, 45-50% of the physiotherapists had burned out or were at high risk of getting burnout due to their job demands [25]. Parents and other family members frequently provide care for children with autism spectrum disorder (ASD), but those with autism spectrum disorder who live in institutions or community group homes rely on professionals who are hired inclusively to support and take care of their requirements and therapies. Regardless of who provides the care, being repeatedly exposed to the challenging behaviors, pain, and suffering of their care recipients can be challenging and exhausting in all aspects, resulting to stress, anxiety, depression, fatigue and reduced quality of life. The job demands of early childhood special education teachers play a significant role in increasing their levels of burnout and psychological stress. [26] Burnout symptoms differ significantly across various life stages of working men and women. Specifically, according to a 2025 survey based report younger men and women aged 18-24 are particularly vulnerable to experiencing burnout and need a break to cope up with burnout [27] The difficulties that these caregiver face, such as the child's difficulty with self-care, inability to communicate effectively, and unpredictable behavioral traits; social isolation; and a lack of community understanding, may pose additional stressors potentially leading to other negative psychological outcomes such as poor mental health. [15]

During literature review numerous studies were found on caregivers of autism spectrum disorder children but comparatively very limited on professionals dealing with these children diagnosed with autism spectrum disorder and the associated factors contributing to stress and burnout on personal and professional levels. As a result, the purpose of this study is to investigate the prevalence of burnout and stress in Karachi, Pakistan among professionals who work with children of autism spectrum disorder. Professionals include physiotherapists, behavioral therapists, remedial therapists, occupational therapists, speech therapists, and special educators. Therefore, based on literature reviews we predict that burnout levels will be higher in professionals dealing with autism spectrum disorders children among certain independent variables that we have included in our study i.e. age, gender, occupation, professional designation, educational qualification, years of experience, working hours per day, monthly income, and salary satisfaction.

METHODOLOGY:

This is a cross-sectional study. The study is conducted in various institutions and rehab centers in Karachi, Pakistan. The sample size of 120 has been calculated through open epi calculator using prevalence from the previously conducted pilot study and data collected about current professionals dealing with Autism in

Karachi, Pakistan with a 95% confidence level and a 5% margin of error. Convenience Base Sampling was done. A semi-structured questionnaire was administered employing perceived stress, PSS and Copenhagen Burnout Inventory Scale, CBI and was distributed in a hybrid format comprising of participant's voluntary consent and demographics. Sample selection is based on certain criteria. Inclusion criteria include both genders. Participants having job experience in dealing with autistic children for more than 6 months were included and the participant must deal with the majority of patients diagnosed with autism spectrum disorder among all patients they deal with. Participants are excluded from the study if they have a pre-existing diagnosis of mental health illnesses or are currently on heavy medications such as antidepressants or antipsychotics. Additionally, individuals with chronic medical or terminal illnesses will not be included. Exclusion also applies to those who have recently switched jobs, taken a vacation within the last 3 to 4 months, or are planning to travel or change jobs soon.

Data collection was proceeded with approaching pediatric rehabilitation centers and special schools in Karachi dealing with autism spectrum disorder children for fundamental information and consent to collect data in their institution. Psychologists, Physiotherapists, Occupational therapists, Behavioral therapists, speech therapists and special educators. Data collection was done through hybrid models including both online surveys and hard copy of Questionnaires. Informed consent forms were given to every participant after the researcher's complete explanation of the study. The questionnaire included standardized scales to measure personal and occupational Burnout and Stress along with demographics.

Demographics include gender, age, gender, marital status, occupation, professional designation, educational qualification, years of experience, working hours per day, monthly income and salary satisfaction. The following standard questionnaires are used in our study; Copenhagen burnout inventory scale and perceived stress scale.

Copenhagen burnout inventory scale is an easy-accessible public tool with good validity and reliability divided into 3 components. Personal burnout, work related burnout, and client related burnout. Unlike other and older tools, it distinguishes physical and psychological fatigues from professional coping adaptations or strategies, making it accessible in a wide range of occupations. [28, 29] Copenhagen burnout inventory's reliability is consistently remarkable globally with 0.87 to 0.92 in personal burnout section, 0.76 to 0.9 in work related burnout and 0.85 to 0.90 in client related burnout. [30] Perceived Stress Scale, PSS-10 is one the most widely used scale with reliability of 0.7 to 0.9 [31] perceives subjective stress. Unlike other tools to measure stress, the perceived stress scale focuses on subject emotional and personal responses to stress rather than listing only traumatic life experiences. Each question is rated to 5 points on frequency level scale from 0 (never) to 4 (very often). Scores are then categorized in lower, moderate, and high score for result interpretation. [35]

Data was administered and statistically analyzed using SPSS version 22. All the primary data obtained from the questionnaire were evaluated based on primary analysis including the mean, frequency, percentages, and standard deviation. Further, the secondary analysis and hypothesis testing was done by the application of Chi square-test. All the data was presented in graphical form using graphs and pie charts.

Written permission was granted from Institutional review board, Liaquat National School of Physiotherapy, for data collection for research. Informed consent was signed by all professionals prior to their inclusion in the study. Participation was voluntary, and participants were informed about the purpose of study and data collection. Confidentiality and anonymity of all participants were maintained, and data was only used for research purposes.

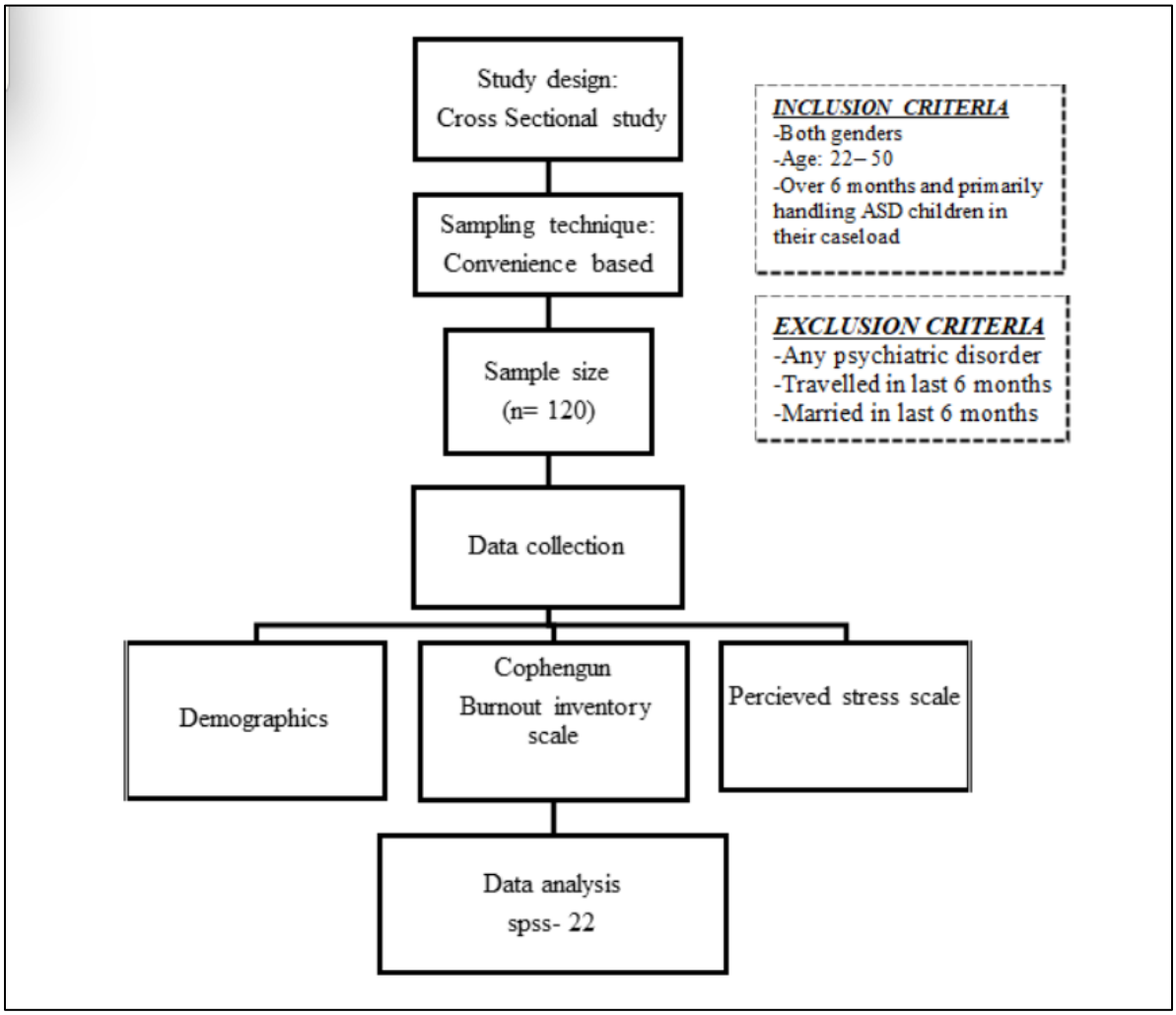

Figure 1; summarizes methodology

RESULTS:

120 professionals participated in our studies. Participants' age ranges from 22-50 years and above. The mean age of participants was 30.46 +/- 8.55 of whom 35% (n = 42) were males and 65% (n = 78) were females. The mean score and SD of perceived stress, PSS is found to be 20.62 +/- 6.76 i.e. in females was 21.45 +/- 6.41 and in males 19.10 +/- 7.91. The mean score and SD of Copenhagen Burnout Inventory, CBI is found to be 38.30 +/- 15.01 i.e in females was 41.23 +/- 13.69 and in males 32.86 +/- 15.98

Table 1; summarizes demographic data of all participants

DEMOGRAPHIC CHARACTERISTICS		%
Age	20 to 30 years	56
	31 to 40 years	30
	41 to 50 years	9
	> 50 years	5
Gender	Male	35
	Female	65

Qualification	Undergraduate	25
	Graduate/MPhil	73
	PhD	2
Experience in dealing with Autistic children	< 1 year	38
	1 to 2 years	35
	3 to 5 years	13
	> 5 years	14
Work Hours	< 6 hours	16
	6 - 8 hours	35
	9 - 10 hours	33
	> 10 hours	16

Out of 120 participants 43.3% (n=52) had a low level of burnout, 40% (n=48) had moderate level of burnout, and 16% (n=20) had a high level of burnout. The mean and SD of CBI score was 38.30 ± 15.01. The prevalence of participants with low perceived stress was 10% (n=12), moderate perceived stress was 69% (n=83), and high perceived stress was 21% (n=25). Copenhagen Burnout Inventory has three components personal burnout, work related burnout and client related burnout. Amongst the three participants personal burnout was comparatively high, showing 41.7% moderate and 25% high level of burnout.

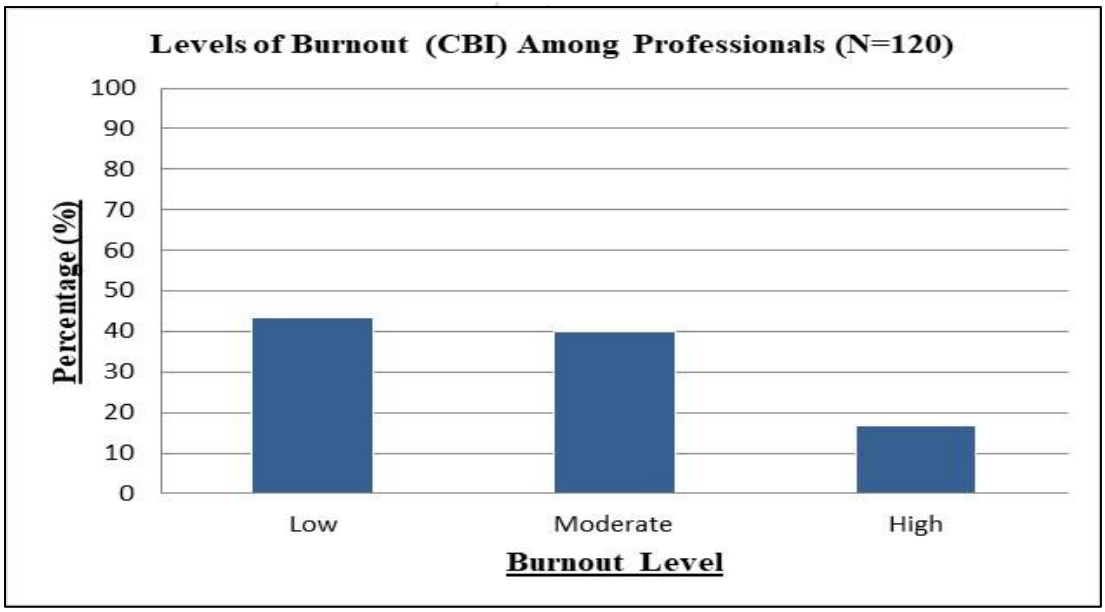

Figure 2; The results of low, moderate and high levels of burnout score in form of bar graph.

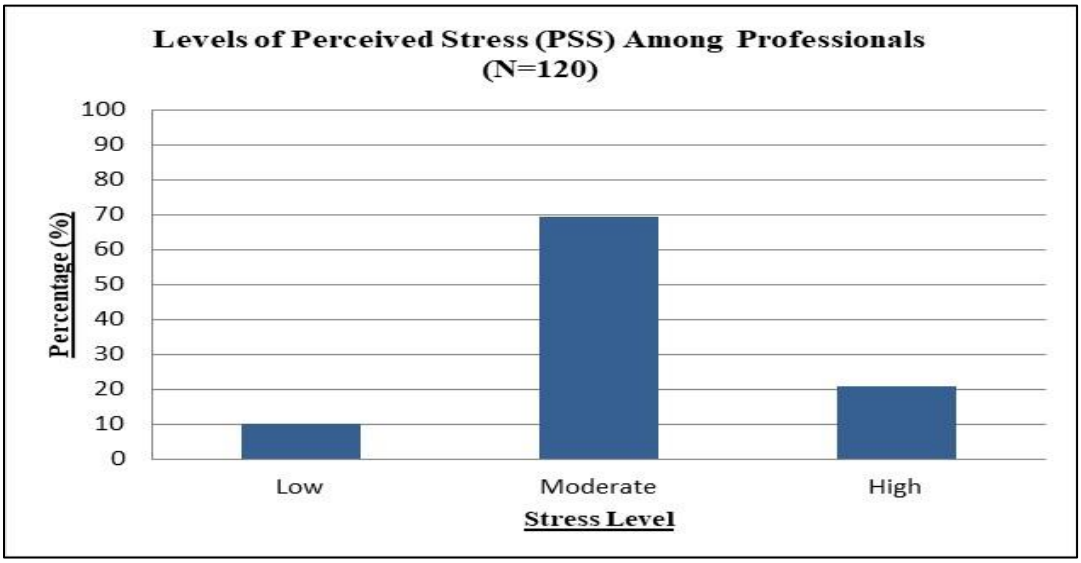

Figure 3; The results of low, moderate and high levels of perceived stress in form of bar graph

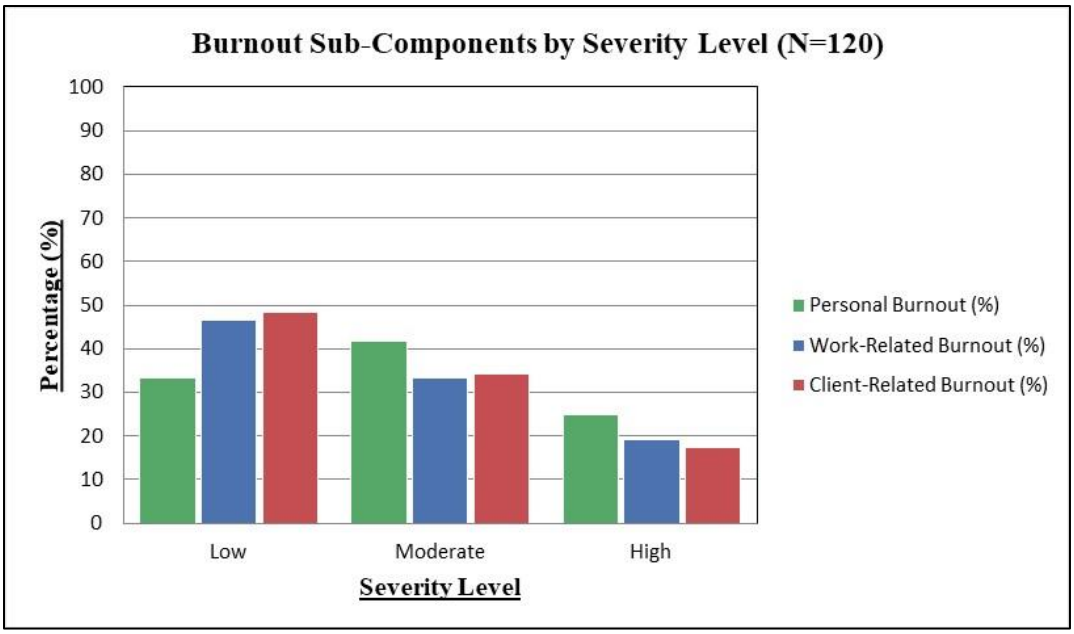

Figure 4; Graphical representation of personal, work-related and client-related burnout levels.

Table 2; illustrates associated factors with stress and burnout and their significance

Associated Factors	Level of Perceived Stress Scale (P-value)	Level of Copenhagen Burnout Score (P-value)
Data analyzed using chi-square test		
Experience dealing with ASD children	0.002	0.046
Working Hours per day	0.05	0.04
Qualification	0.039	0.003
Age	0.059	0.163

Gender	0.083	0.175
Salary dissatisfaction	0.05	0.045

Participants were further divided according to age, gender, qualification, work hours, salary dissatisfaction, and experience with dealing with autistic children, and their association with severity of burnout and stress was analyzed using chi-square tests.

Among participants having more experience in dealing with autism spectrum disorder children is associated with stress and burnout, our findings indicated a significant association between the two variables i.e. burnout having the p value 0.046 and Perceived stress scale 0.002. Similarly, work hours have a significant association with burnout and stress, having p values 0.04 and 0.05 respectively. Qualification is also significantly associated with p values of 0.039 and 0.003 in stress and burnout respectively. People who are not satisfied with their salary has also significant association with burnout and stress, having p values 0.045 and 0.05 respectively. Age and gender had no significant association with burnout and stress.

DISCUSSION:

Our study found a high prevalence of burnout and perceived stress among professionals dealing with autism spectrum disorder children. Specifically, 56.7% of professionals reported moderate to high levels of burnout and 90% reported moderate to high levels of stress. In accounts of these percentages the factors like salary dissatisfaction, working long duty hours, more professional experience and higher education show substantial significance and in contrast age and gender shows no significance.

Parallel to our results, these findings are consistent with international data demonstrating the prevalence of burnout and stress and its effect on professionals which leads to their depressive episodes, psychological, behavioral and physical health concerns. Professionals and caregivers are exposed to high levels of burnout, marking chronicity. Much of the literature is focused on caregivers dealing with autism spectrum disorder children; these findings provide context for professionals. For instance, Meta-analysis in 2025 documented that 45% of caregivers of autism spectrum disorders reported depressive symptoms with 40% of Southeast Asian population accounts for depressive symptoms and stress. [18] Another 2023 research, cohort study highlights that caregivers of children with autism spectrum are more prone to stress, anxiety and burnout than caregivers of any other disorders. It also highlights that these caregivers are 3.61 times more likely to experience stress. [14]

The most recent observational study of 2026 highlights the educators experienced high levels of fatigue, annoyance and psycho-emotional exhaustion with majority of burnout noticeable at early hours of workday.[12] Negative stressors affect professional performance. Factors like work-related stress and negative work environments also contribute to burnout [13] which aligns with our findings.

Working extensive duties in a profession contributes to emotional exhaustion and greater level of burnout. It has a statistically significant association with burnout. Tied up schedule and overburden of work without any ergo break produces a significant effect on a person's health. 2022 research in Saudi Arabia supports our findings that more than half of health care workers working with autism children reporting moderate to high levels of anxiety and depression causing due to burnout and emotional exhaustion by doing extensively long hours of duty, which aligns with our findings. [15]

Our findings showed that professionals who had greater experience in working with autism spectrum disorder children had a greater level of burnout and stress than those who had less experience. A cross-sectional study of 2024 was conducted which highlights more than half of their population; 59.1% reported workplace burnout syndrome in which majority of their population has high school level degree qualification. This study also emphasizes how professionals with more experience, professional

status, and responsibility with higher title accounts for work related burnout syndrome.[9]

Our result also demonstrated that there is a strong association of stress and burnout with the person's satisfaction with his salary. Participants who were not satisfied with their salary had a greater level of stress and burnout. That proves that low wages significantly impact a person's mental health and lead to emotional exhaustion. It contributes to low energy levels at work, which further provides low work efficacy. In accordance with our findings, a study of 2025 on ABA therapists working closely with children of autism spectrum disorder reports high levels of exhaustion and detachment. The increasing workload, inadequate salaries, emotional stress, and interpersonal challenges are leading to burnout.[33]

Our study finds no significance with gender but contrary to our findings another study emphasis that females were reported to have high burnout than in males more likely due to their societal roles and constant proneness to balance home and work life leading to fatigue and emotional exhaustion which accounts for burnout. [9] We did not explore this aspect of gender-based burnout in deep, future research can be done on this insight with more sample size to find out the difference between males and females' burnout and stress levels.

This study about burnout, stress and related stressors among professionals engaged with autism spectrum disorder children offers valuable insights; several limitations have surfaced during the research tenure. The short time span allocated for this research limited the ability to comprehensively collect the large sample size, thereby constraining the study's capacity to capture a diverse and extensive sample. Furthermore, cross-sectional studies are not well-suited for studying dynamic processes or changes over time, as they provide a static snapshot of data at one point in time and affecting the generalizability of the results. This study collected data based only on self-report measures, there could be additional factors influencing burnout and stress in professionals that the study did not measure or control, such as personal mental health issues and external stressors. Also, this study emphasis collectively on professionals including physiotherapist, behavioral therapists, remedial therapists, occupational therapist, speech therapist and special educators, future researchers can study on prevalence of burnout and stress in these professionals independently. Further studies could utilize added qualitative methods with therapy and therapists.

Future researchers should approach for longitudinal studies and prioritize addressing the identified limitations by conducting more extensive studies with prolonged durations by observing fluctuations in burnout levels over time and better understand the progression of burnout among professionals. Various studies emphasize initiating and further research for mental health strategies and non-conservative management to overcome burnout and stress in future. [9, 33, 34]

Future studies could also aim to include a more comprehensive sample size including various regions to improve the generalizability and accuracy of the findings. Experimental studies could also be done by introducing non-conventional interventions to decrease the burnout and stress levels such as counseling and stress management programs, strategies such as mindfulness practices and flexible work arrangements can also be effective. As studies suggest that physical activity along with meditation is emphasized, which proved to have greater impact on participant health, this could also take into consideration for further research.

CONCLUSION:

The study concludes that burnout and stress have substantial prevalence with professionals dealing with children with autism spectrum disorder. A total of 56.7% of professionals reported moderate to high levels of burnout. Similarly, 90% of participants reported moderate to high levels of perceived stress. Personal burnout is notably higher compared to work-related and client-related burnout. Based on study findings, professionals with more experience, working long duty hours, higher qualification and salary dissatisfaction show significant association with burnout and stress. In contrast, no significant association of stress and burnout with age and gender is found.

These findings highlight the need for effective and substantial measures including quality stress management strategies, work -life balance management and professional support programs that should be introduced to reduce burnout and enhance work efficiency in healthcare settings.

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AUTHOR CONTRIBUTION:
All authors made significant contributions to this study. The study was supervised and designed by Dr. Sonya Arshad (SA). Areebah Farooq (AF), Nisman Saleem (NS), Manahil Rizwan (MR), Dr. Sonya Arshad (SA), Sufia Zehra (SZ) and Abia Saleem (AS) contributed to data collection. AF, NS and SA contributed to data analysis and interpretation. AF and MR carried out drafting, writing and editing of manuscript. All authors revised and approved the final version of the manuscript.

CONFLICT OF INTEREST:
All authors affirm no conflict of interest.

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APPENDIX:

PERCEIVED STRESS SCALE

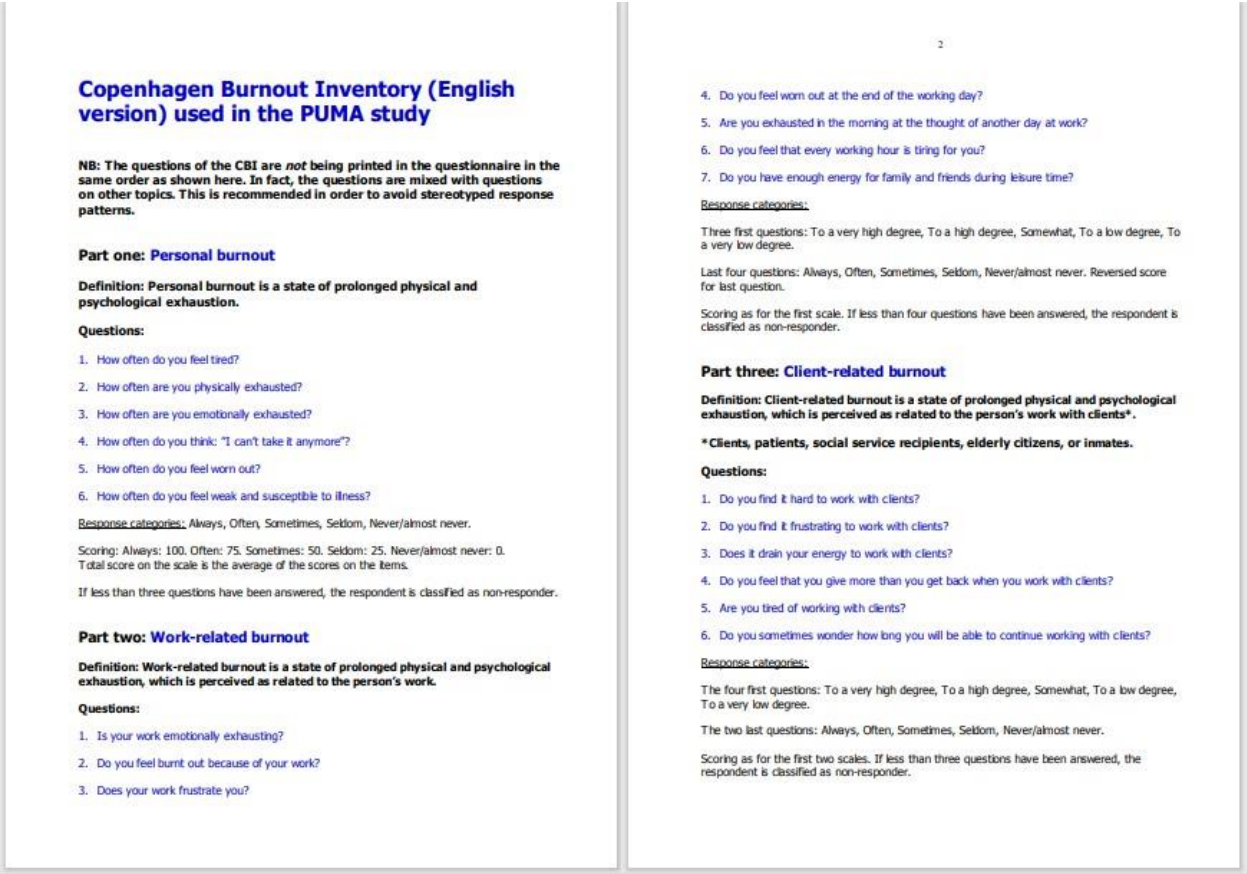
The questions in this scale ask you about your feelings and thoughts during the last month. **In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.**

Name _____ Date _____

Age _____ Gender (*Circle*): **M F** Other _____

	0 = Never	1 = Almost Never	2 = Sometimes	3 = Fairly Often	4 = Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Figure 5; Perceived Stress Scale [35]



Copenhagen Burnout Inventory (English version) used in the PUMA study

NB: The questions of the CBI are *not* being printed in the questionnaire in the same order as shown here. In fact, the questions are mixed with questions on other topics. This is recommended in order to avoid stereotyped response patterns.

Part one: Personal burnout

Definition: Personal burnout is a state of prolonged physical and psychological exhaustion.

Questions:

1. How often do you feel tired?
2. How often are you physically exhausted?
3. How often are you emotionally exhausted?
4. How often do you think: "I can't take it anymore"?
5. How often do you feel worn out?
6. How often do you feel weak and susceptible to illness?

Response categories: Always, Often, Sometimes, Seldom, Never/almost never.

Scoring: Always: 100. Often: 75. Sometimes: 50. Seldom: 25. Never/almost never: 0. Total score on the scale is the average of the scores on the items.

If less than three questions have been answered, the respondent is classified as non-responder.

Part two: Work-related burnout

Definition: Work-related burnout is a state of prolonged physical and psychological exhaustion, which is perceived as related to the person's work.

Questions:

1. Is your work emotionally exhausting?
2. Do you feel burnt out because of your work?
3. Does your work frustrate you?

4. Do you feel worn out at the end of the working day?
5. Are you exhausted in the morning at the thought of another day at work?
6. Do you feel that every working hour is tiring for you?
7. Do you have enough energy for family and friends during leisure time?

Response categories:

Three first questions: To a very high degree, To a high degree, Somewhat, To a low degree, To a very low degree.

Last four questions: Always, Often, Sometimes, Seldom, Never/almost never. Reversed score for last question.

Scoring as for the first scale. If less than four questions have been answered, the respondent is classified as non-responder.

Part three: Client-related burnout

Definition: Client-related burnout is a state of prolonged physical and psychological exhaustion, which is perceived as related to the person's work with clients*.

***Clients, patients, social service recipients, elderly citizens, or inmates.**

Questions:

1. Do you find it hard to work with clients?
2. Do you find it frustrating to work with clients?
3. Does it drain your energy to work with clients?
4. Do you feel that you give more than you get back when you work with clients?
5. Are you tired of working with clients?
6. Do you sometimes wonder how long you will be able to continue working with clients?

Response categories:

The four first questions: To a very high degree, To a high degree, Somewhat, To a low degree, To a very low degree.

The two last questions: Always, Often, Sometimes, Seldom, Never/almost never.

Scoring as for the first two scales. If less than three questions have been answered, the respondent is classified as non-responder.

Figure 6; Copenhagen Burnout Inventory Scale [32]

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