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Original Research Article

Assessment of the level of resilience among children (10–12 years) with epilepsy attending an epilepsy clinic in a tertiary care hospital: a cross-sectional analytical study

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ABSTRACT

Background: Epilepsy is a common chronic neurological disorder in children that may affect emotional well-being and quality of life. Resilience helps children adapt positively to the challenges associated with epilepsy. This study aimed to assess the level of resilience among children aged 10–12 years with epilepsy and its association with selected socio-demographic and clinical characteristics.
Methods: A cross-sectional analytical study was carried out among 97 children aged 10–12 years with epilepsy attending the epilepsy clinic at the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India. Convenience sampling technique was used to enroll the children who met the inclusion criteria. Socio-demographic and clinical characteristics of the children were collected from the parents by interviewing them and also from the medical records. The level of resilience of children was assessed through the Connor–Davidson Resilience Scale (CD-RISC-25) by interview. Data were analysed using frequency, percentage, mean, standard deviation, and the chi-square test with SPSS software, version 20.
Results: Most of the children had moderate level of resilience (71.1%). The mean resilience score was 62.56±12.91. Family income (p=0.003) and type of epilepsy (p=0.002) were significantly associated with resilience. The item wise analysis showed that high agreement was particularly observed in items related to goal achievement, giving best effort, strong life purpose and pride in achievements.
Conclusions: Children with epilepsy had a moderate level of resilience (71.1%). Family income and type of epilepsy were significantly associated with resilience.

Keywords: Epilepsy, Children, Level of resilience, Connor-Davidson resilience scale, Cross-sectional study

INTRODUCTION

Epilepsy is one of the most common chronic neurological disorders affecting children worldwide and is characterized by recurrent unprovoked seizures resulting from abnormal electrical activity in the brain. According to the World Health Organization, approximately 50 million people are living with epilepsy globally, with a substantial proportion of cases occurring during childhood. Childhood epilepsy affects nearly one in every 100 children and remains a major public health concern because of its impact on physical health, psychological well-being, educational achievement and social functioning. Recurrent seizures, prolonged treatment, and

uncertainty regarding disease progression often interfere with the normal developmental milestones of affected children.[1]

Children aged 10–12 years represent an important developmental stage during which they develop independence, self-esteem, emotional maturity, and stronger peer relationships. Living with epilepsy during this period may expose children to repeated hospital visits, medication-related adverse effects, activity restrictions, fear of seizure recurrence, social discrimination and stigma. These experiences can adversely influence their emotional health, academic performance, interpersonal relationships, and overall quality of life.[2] Consequently, children with epilepsy are more vulnerable to anxiety, depression, poor self-esteem, and psychosocial maladjustment than healthy children.[3]

Resilience refers to the ability to adapt positively and recover successfully from adversity, stress, or challenging life experiences. In children with chronic illnesses such as epilepsy, resilience is an important protective factor that promotes emotional stability, effective coping, self-confidence, optimism and successful adaptation. Children with higher resilience are more likely to maintain positive relationships, participate actively in school and social activities and demonstrate better psychological well-being despite the challenges associated with epilepsy. Conversely, inadequate resilience may contribute to poor coping, emotional distress, behavioural problems and reduced quality of life.[4]

The development of resilience is influenced by several interacting factors, including individual characteristics and family relationships.[5] Socioeconomic status, social support, educational environment, and disease-related factors also play an important role in the development of resilience.[6] Supportive family relationships and positive parenting are recognized as important protective factors that strengthen resilience.[7] Similarly, effective coping strategies and healthy peer interactions contribute to positive adaptation among children.[8]

Although considerable progress has been made in the medical management of epilepsy, psychosocial aspects such as resilience have received comparatively less attention, particularly in developing countries. Most available studies have focused on seizure control, treatment outcomes and quality of life, while evidence regarding resilience among children with epilepsy remains limited in the Indian context. Furthermore, little is known about the relationship between resilience and socio-demographic or clinical characteristics among school-aged children with epilepsy.

Only few studies have been conducted to assess resilience among children with epilepsy. Arslan et al conducted a case-control study among 57 children (10-18years) with well-controlled epilepsy and 46 healthy controls and reported a mean resilience score of 61.0±17.7 among children with epilepsy.[9] Karadağ et al conducted a cross-sectional comparative study among 46 children (8-17 years) with epilepsy and 54 healthy controls and reported a mean resilience score of 44.57±7.57 among children with epilepsy.[10]

So far studies conducted to assess resilience among children with epilepsy have mainly focused on emotional resilience and psychological adaptation during challenging circumstances. Kwok et al reported that their cohort of 50 children and adolescents with epilepsy demonstrated emotional resilience during the COVID-19 pandemic.[11] Most of the studies were done among adolescents, only in our study children aged 10–12 years with epilepsy were included.

Assessing resilience during this age group can help healthcare professionals identify children who may require additional psychosocial support and resilience-building interventions. Children aged 10–12 years are in an important developmental period involving increasing independence, emotional development, self-confidence, and peer relationships. Living with epilepsy during this period may present challenges that can affect their psychological and social adaptation. Hence, this study aims to assess the level of resilience among children aged 10–12 years with epilepsy attending an epilepsy clinic in a tertiary care hospital and to determine its association with selected socio-demographic and clinical characteristics.

METHODS

A cross-sectional analytical study was adopted to assess the level of resilience among children aged 10–12 years with epilepsy attending the epilepsy clinic of Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India. The study was conducted from September 2025 to October 2025. The epilepsy clinic functions twice a week, on Tuesdays and Fridays, between 11.00 a.m. and 1.00 p.m. Children from birth to adolescents (0–18 years) with epilepsy attend the clinic for regular monthly follow-up.

The sample size was estimated with an anticipated standard deviation (SD) of level of resilience among children with epilepsy as 25 at 5% level of significance and absolute precision of 5, 97 children with epilepsy were enrolled in the study. A total of 97 eligible children were recruited using convenience sampling. Children with epilepsy (10–12 years) of both genders who understood Tamil or English and attending epilepsy clinic for more than one year were included in the study. Children with epilepsy (10–12 years) having other chronic medical illnesses or cognitive disability were excluded from the study.

Children aged 10–12 years who met the inclusion criteria were selected through convenience sampling method. Informed consent was obtained from the parents or

legally authorized representatives, and verbal assent was obtained from the children.

Socio-demographic characteristics of the children were collected through an interview with the parents, and clinical characteristics were obtained from the medical records. Resilience among children with epilepsy was assessed through a structured interview using the Connor–Davidson Resilience Scale (CD-RISC-25). It took 45 minutes to collect the data from each child.

Data collection instrument had three sections. The first section included socio-demographic characteristics such as age, gender, domicile, educational status, type of family, number of family members, number of siblings, birth order, father's educational status, mother's educational status, father's occupation, mother's occupation, monthly family income and religion.

second section had data on clinical characteristics of the child. It comprised of age at onset of epilepsy, type of epilepsy, duration of epilepsy, number of seizure episodes during the previous month, hospital admission during the previous six months, family history of epilepsy and associated comorbid illness.

Third section had data on level of resilience of children with epilepsy which was assessed by Connor–Davidson Resilience Scale (CD-RISC-25). It comprised of 25 items with each item scored on a five-point Likert scale ranging from 0 ("Not true at all"), 1 ("Rarely true''), 2 ("Sometimes true''), 3 ("Often true") and 4 ("True nearly all the time").[12] The total score ranged from 0 to 100, with higher scores indicating greater resilience. Maximum score is 100 and minimum score is 0. A score of 0–40 indicated low resilience, 41–70 indicated moderate resilience and 71–100 indicated high resilience.[13] This scale has well-established reliability value (r = 0.87).[14]

The study was approved by Nursing Research Monitoring Committee(NRMC), JIP/CON/NRMC/M.Sc./2024/PN/3) and the Institute Ethics Committee (Human Studies), JIP/CON/NRMC/M.Sc./2024/PN/3). Informed consent was obtained from the parents or legally authorized representatives, and verbal assent was obtained from the children under the study. Confidentiality of the data, right to withdraw from the study and anonymity of the subjects were explained prior. The content validity of the three sections of the tool was obtained from the experts of pediatric department and nursing department.

Data were analysed using SPSS version 20 (SPSS Inc., Chicago, Ill., USA). Both Descriptive and inferential statistics were used for analysis of data. Descriptive statistics (frequency, percentage, mean and standard deviation) were used to describe the socio-demographic and clinical characteristics and level of resilience. Inferential statistics(chi-square test) was used to identify the association between the level of resilience with socio-demographic variables and clinical characteristics of children aged 10-12 years.

RESULTS

Most of the children were 12 years old female and residing in urban areas. The majority had secondary educational status, belonged to nuclear family, had two siblings and were first-born. Most of the child fathers had secondary education, whereas the majority of child mothers had primary education. Most of the children fathers employment was professional, while half the mothers were working women. The majority of families had monthly income of less than Rs 10,000 and most children were from Hindu religion (Table 1).

Among clinical characteristics most of the children were an age of onset of epilepsy was between 9–12 years. Majority had generalized epilepsy and most of the children had duration of epilepsy for more than four years. Majority of children had 1–2 times episode of epilepsy per month. Majority of children had no family history of epilepsy and most of them had no admission for last six months (Table 2). Most of the children showed moderate level of resilience. The mean resilience score among children with epilepsy was 62.56±12.91 (Table 3).

The item-wise analysis showed that higher resilience responses were observed for items related to giving their best effort, achieving goals, having a strong sense of purpose and pride in achievements. Comparatively lower responses were observed for items related to making difficult decisions, handling unpleasant feelings, and acting on intuition (Table 4). Among the socio-demographic variables, a statistically significant association was found between monthly family income and level of resilience (Table 5). Among the clinical characteristics, type of epilepsy showed a statistically significant association with level of resilience (Table 6).

Table 1: Socio-demographic variables of children with epilepsy (n=97).

Variables	Categories	N (%)
Age (years)	10	17 (17.5)
	11	26 (26.8)
	12	54 (55.7)
Gender	Male	45 (46.4)
	Female	52 (53.6)

Continued.

Variables	Categories	N (%)
Domicile	Urban	78 (80.4)
	Rural	19 (19.6)
Educational status	Primary	6 (6.2)
	Upper primary	29 (29.9)
	Secondary	62 (63.9)
Type of family	Nuclear	58 (59.8)
	Joint	39 (40.2)
Number of siblings	One	7 (7.2)
	Two	50 (51.5)
	>2	40 (41.2)
Order of birth	First	50 (51.5)
	Second	35 (36.1)
	Third and above	12 (12.4)
Father's education	Illiterate	16 (16.5)
	Primary	9 (9.3)
	Secondary	57 (58.8)
	Graduate	15 (15.5)
Mother's education	Illiterate	5 (5.2)
	Primary	73 (75.3)
	Graduate	19 (19.6)
Father's occupation	Skilled	6 (6.2)
	Unskilled	10 (10.3)
	Professional	73 (75.3)
Mother's occupation	Homemaker	43 (44.3)
	Working	54 (55.7)
Family income (₹/month)	<10,000	76 (78.4)
	10,001–20,000	19 (19.6)
	>20,000	2 (2.1)
Religion	Hindu	93 (95.9)
	Muslim	3 (3.1)
	Christian	1 (1.0)

Table 2: Clinical characteristics of children with epilepsy (n=97).

Variables	Categories	N (%)
Age at onset (years)	<5	35 (36.1)
	5–8	24 (24.7)
	9–12	38 (39.2)
Type of epilepsy	Generalized	84 (86.6)
	Focal	13 (13.4)
Duration of epilepsy	<2 years	27 (27.8)
	2–4 years	23 (23.7)
	>4 years	47 (48.5)
Episodes in last month	1–2	56 (57.7)
	3–4	23 (23.7)
	>4	6 (6.2)
	None	12 (12.4)
Family history	Yes	18 (18.6)
	No	79 (81.4)
Admission in last 6 months	Yes	12 (12.4)
	No	85 (87.6)

Table 3: Level of resilience among children with epilepsy according to CD-RISC-25 (n=97).

Level of resilience	Score range	N (%)	Mean±SD
Low	0–40	5 (5.2)	62.56±12.91
Moderate	41–70	69 (71.1)	
High	71–100	23 (23.7)	
Total		97 (100)	

Table 4: Distribution of responses to the Connor–Davidson Resilience Scale (CD-RISC-25) among children with epilepsy (n=97).

Item	Not true at all N (%)	Rarely true N (%)	Sometimes true N (%)	Often true N (%)	True nearly all the time N (%)
Adapt to change	31 (32.0)	12 (12.4)	16 (16.5)	11 (11.3)	27 (27.8)
Close relationship support	8 (8.2)	18 (18.6)	18 (18.6)	6 (6.2)	47 (48.5)
Faith/God helps	15 (15.5)	23 (23.7)	26 (26.8)	9 (9.3)	24 (24.7)
Deal with whatever comes	11 (11.3)	17 (17.5)	22 (22.7)	6 (6.2)	41 (42.3)
Past success confidence	15 (15.5)	12 (12.4)	22 (22.7)	14 (14.4)	34 (35.1)
Humor in problems	31 (32.0)	14 (14.4)	20 (20.6)	14 (14.4)	18 (18.6)
Stress makes stronger	5 (5.2)	17 (17.5)	20 (20.6)	14 (14.4)	41 (42.3)
Bounce back after illness	9 (9.3)	6 (6.2)	23 (23.7)	14 (14.4)	45 (46.4)
Things happen for reason	11 (11.3)	18 (18.6)	23 (23.7)	14 (14.4)	31 (32.0)
Give best effort	4 (4.1)	7 (7.2)	15 (15.5)	11 (11.3)	60 (61.9)
Achieve goals	4 (4.1)	5 (5.2)	14 (14.4)	14 (14.4)	60 (61.9)
Do not give up	13 (13.4)	15 (15.5)	17 (17.5)	23 (23.7)	29 (29.9)
Know where to seek help	9 (9.3)	14 (14.4)	22 (22.7)	9 (9.3)	43 (44.3)
Focus under pressure	16 (16.5)	9 (9.3)	21 (21.6)	18 (18.6)	33 (34.0)
Take leadership	14 (14.4)	11 (11.3)	25 (25.8)	16 (16.5)	31 (32.0)
Not discouraged	19 (19.6)	5 (5.2)	13 (13.4)	13 (13.4)	47 (48.5)
Think self-strong	6 (6.2)	12 (12.4)	22 (22.7)	20 (20.6)	37 (38.1)
Make difficult decisions	42 (43.3)	5 (5.2)	10 (10.3)	15 (15.5)	25 (25.8)
Handle painful feelings	35 (36.1)	9 (9.3)	26 (26.8)	8 (8.2)	19 (19.6)
Act on intuition	34 (35.1)	8 (8.2)	21 (21.6)	15 (15.5)	19 (19.6)
Strong life purpose	6 (6.2)	7 (7.2)	16 (16.5)	13 (13.4)	55 (56.7)
Control of life	20 (20.6)	8 (8.2)	29 (29.9)	18 (18.6)	22 (22.7)
Like challenges	11 (11.3)	9 (9.3)	21 (21.6)	13 (13.4)	43 (44.3)
Work to achieve goals	4 (4.1)	7 (7.2)	14 (14.4)	17 (17.5)	55 (56.7)
Pride in achievements	3 (3.1)	1 (1.0)	13 (13.4)	18 (18.6)	62 (63.9)

Note: Values are presented as frequency (N) and percentage (%).

Table 5: Association of children's level of resilience with socio-demographic variables of children. (n=97).

Variables	χ^2 (df)	P value
Age (years)	4.131 (4)	0.389
Gender	2.525 (2)	0.283
Domicile	4.509 (2)	0.105
Educational status	11.068 (8)	0.198
Type of family	0.015 (2)	0.992
Number of siblings	4.267 (6)	0.641
Order of birth	5.054 (4)	0.282
Father's education	8.253 (6)	0.220
Mother's education	5.067 (4)	0.280
Father's occupation	5.901 (6)	0.434
Mother's occupation	0.525 (2)	0.769
Family income	19.859 (6)	0.003*
Religion	0.695 (4)	0.952

Significant at $p<0.05$*.

Table 6: Association of children's level of resilience with clinical variables of school age children (n=97).

Variables	χ^2 (df)	P value
Age at onset	6.278 (4)	0.179
Type of epilepsy	12.086 (2)	0.002*
Duration of epilepsy	4.063 (4)	0.398
Number of episodes in last month	5.490 (8)	0.704
Family history of epilepsy	5.900 (2)	0.052
Admission in last 6 months	0.744 (2)	0.689

Significant at p<0.05*.

DISCUSSION

This cross-sectional analytical study included 97 children (aged 10–12 years) with epilepsy. In our study majority of children demonstrated moderate resilience. Similarly, Arslan et al, conducted a cross-sectional case-control study in Turkey among children aged (10–18 years) and reported a mean resilience score of 61.0±17.7.9 In contrast Karadağ et al in a single-centre prospective cohort study conducted among children and adolescents aged 8–17 years in Pediatric Neurology Clinic of Gaziantep University Medical Faculty Hospital, reported a lower mean resilience score of 44.57±7.57 among children with epilepsy.[10]

In this present study a significant association was observed between family income and the level of resilience. In contrast Karadağ et al reported no significant association between family income and resilience (p=0.694).[10] In this study there was no significant association between level of resilience and mothers educational status (p=0.280). In contrary to this a study by Karadağ et al found a significant association between mother's education and resilience (p=0.039).[10]

In this study there was no significant association between the level of resilience and socio-demographic variables, like age, gender, educational status, number of siblings and father's educational status. Similar findings were reported by Karadağ et al who found no significant association between resilience and age (p=0.136), gender (p=0.241), educational status (p=0.073), number of siblings (p=0.462), and father's educational status (p=0.443).[10]

In this study a significant association was observed between the level of resilience and type of epilepsy. In contrast Arslan et al found no significant association between seizure type and resilience (p=0.92) among children with well-controlled epilepsy.[9] Likewise Karadağ et al also reported no significant association between seizure type and resilience (p=0.756).[10]

In this study, there was no significant association between the level of resilience and the clinical characteristics like age at onset of epilepsy and duration of epilepsy. A similar finding was reported by Arslan et al, who found no significant association between age at onset and resilience (p=0.91) and duration of epilepsy and resilience (p=0.88).[9] Likewise Karadağ et al also reported no significant association between age at onset and resilience (p=0.814) and duration of epilepsy and resilience (p=0.717).[10]

In future a similar study can be conducted among children with epilepsy in different age groups and in different healthcare settings to improve the generalizability of the findings. Extreme caution should be exercised while generalizing the findings of the study to other populations because the present study was conducted among children aged 10–12 years attending a selected tertiary care epilepsy clinic only. Moreover, the study relied on self-reported responses, which may have been influenced by recall bias, social desirability bias, or misunderstanding of the questionnaire items. Pediatric nurses play a major role in assessing resilience and psychological well-being among children with epilepsy and thus they can identify children who require additional psychosocial support and can plan appropriate interventions.

CONCLUSION

The findings of the study showed that the majority of children with epilepsy had a moderate level of resilience. Family income and type of epilepsy were significantly associated with resilience. Health care providers have a significant role in identifying children with lower resilience and providing appropriate psychosocial support through family-centred counselling, strengthening coping skills, and promoting resilience among children with epilepsy.

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