

Factors Associated with Resilience among Patients with Chronic Kidney Disease Receiving Hemodialysis in a Teaching Hospital

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Background and Objective

- About 2.56 million Chronic Kidney disease (CKD) cases (Global Burden of Disease [GBD] Chronic Kidney Disease Collaboration, 2020) in Nepal where stage five is the most common (Shrestha et al. 2021).
- Patients requiring hemodialysis (HD) is increasing in Nepal (Mcgee, 2018) and 5787 patients are receiving HD (Demographic Health Survey, 2022).
- Patients undergoing HD suffers from psychosocial and physical problems such as stress, anxiety, depression, poor sleep quality, and chronic pain (Bello et al., 2022).

Background and Objective Cont'd

- Despite the free HD services available in Nepal, a study in Patan Hospital showed **depression** (71.2%), **anxiety** (62.7%), **stress** (20.3%,) and psychological **distress** (42.4%) among patients receiving HD (Maharjan, 2022).
- **Enhancing patients' resilience** is crucial to coping with the problems caused by disease and treatment (Duran et al., 2020).
- Resilience is the ability to adapt and adjust to challenging life experiences (American Psychological Association, 2022).
- Various protective, and negative factors found to be associated with resilience (Duran et al., 2020; Sriwantha et al., 2018; Timalina et al., 2022).

Background and Objective Cont'd

- Enhancing patients' resilience by incorporating protective factors reduces depression, stress, and anxiety, and improves the quality of life among patients with chronic disease (Kim et al., 2019).
- Many studies conducted in Nepal, focused on negative psychological concepts such as depression, anxiety, and stress rather than positive psychological concepts i.e., resilience among patients with CKD.
- Thus, **this study aimed to assess the factors associated with resilience among patients with CKD receiving HD in a teaching hospital, in Nepal.**

Methodology

- **Place of Study:** Hemodialysis unit of Patan Hospital, Patan Academy of Health Science (PAHS), Lagankhel, Lalitpur.
- **Design of Study:** A Quantitative cross-sectional analytical study
- **Duration of Study:** One and a half years from November 2022 to April 2024.
- **Duration of Data Collection:** 13th August to 23rd September 2023

Methodology Cont'd

Population of Study: All the respondents receiving maintenance HD ($N = 155$).

Inclusion Criteria:
Above 18 years,
diagnosed with
CKD,
Started
maintenance HD in
Patan Hospital.

Exclusion Criteria:
Unable to
comprehend
researchers
instruction and
receiving
emergency HD

Excluded ($n = 12$): Those
respondents included in the
pretesting

Sample Size: $n = 143$ (calculation done
based on Cochrane (1977) formula)

Sampling: Non probability sampling technique

Descriptive and inferential (Correlation)
analysis

Multiple linear regression analysis ($n = 133$)

Excluded:
($n = 10$) to
manage
multivariate
outlier

Methodology Cont'd

Instrument: (Total 58 Questions)

- **Part I:** Six questions related to **socio-demographic** and **clinical** variables
- **Part II:** 10 Questions Related to **Resilience** (CD-RISC-10-NP), 0-4 Likert response
- **Part III:** Five questions Related to **Family Support** (Family APGAR Scale), 0-2 Likert response item
- **Part IV:** 18 questions Related to **Illness Cognition** (ICQ), 1-4 Likert response
- **Part V:** 10 questions Related to **Self Efficacy** (GSES), 1-4 Likert response
- **Part VI:** Nine questions Related to **Self-esteem** (RSES), 0-3 Likert response

Note: CD-RISC-10-NP: Connor and Davidson Resilience Scale- 10 items- in Nepali (Sharma et al., 2018)

ICQ: Illness Cognition Questionnaire (Evers et al., 2001)

GSES: General Self-efficacy Scale (Schwarzer & Jerusalem, 1995)

5/8/2024 *RSES: Rosenberg Self-esteem Scale (Tulachan et al., 2022)*

Methodology Cont'd

Validity



- Standard and valid tools were used.
- Family APGAR scale and Illness Cognition Questionnaire were translated, based on guidelines of Borsa et al. (2012).
- Other tools were found valid in the Nepali version.
- Face validity was ensured by colleagues and advisor.

Reliability



- Pre-testing among 12 respondents with CKD receiving HD.
- Cronbach's alpha (α) for all tools **ranged from .78 to .94 i.e.**, CD-RISC-10-NP, ($\alpha = .94$) Family APGAR Scale ($\alpha = .89$), ICQ ($\alpha = .81$), GSES ($\alpha = .93$) and RSES ($\alpha = .78$) (Polit & Beck, 2021).

Methodology Cont'd

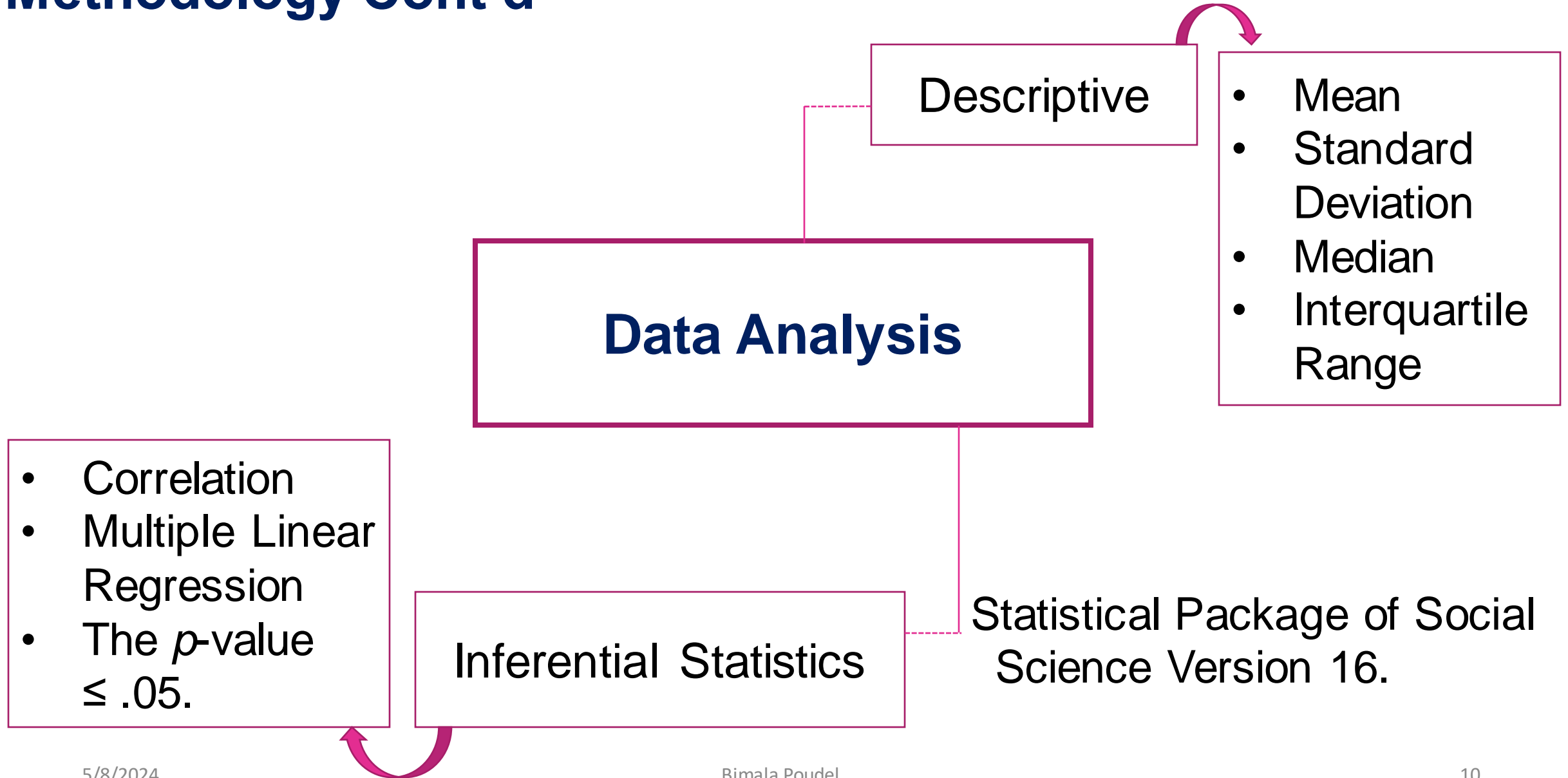
Data Collection Technique:

- Structured face-to-face interview schedule
- By applying all the ethical principles;
 - ✓ Autonomy
 - ✓ Respect
 - ✓ Right to Full Disclosure
 - ✓ Confidentiality
 - ✓ Informed Consent
 - ✓ Privacy
 - ✓ Justice

Ethical Approval: Institutional Review Committee of PAHS

(Ref. PNA2308011785)

Methodology Cont'd



RESULTS

Table 1. Age and Gender of Respondents

<i>N</i> = 143		
Socio-Demographic Characteristics	Frequency (n)	Percentage (%)
Age Group in completed Years*		
Young Adult (18 ≤ 40)	50	35.0
Middle Adult (40 ≤ 65)	69	48.3
Late Adult (> 65)	24	16.7
Minimum to Maximum Age in Years	19-83	
Mean ± SD	49.32±16.24	
Gender		
Male	88	61.5
Female	55	38.5

Note: * Age categorization based on Erik Erikson psychosocial development (Cherry, 2022).

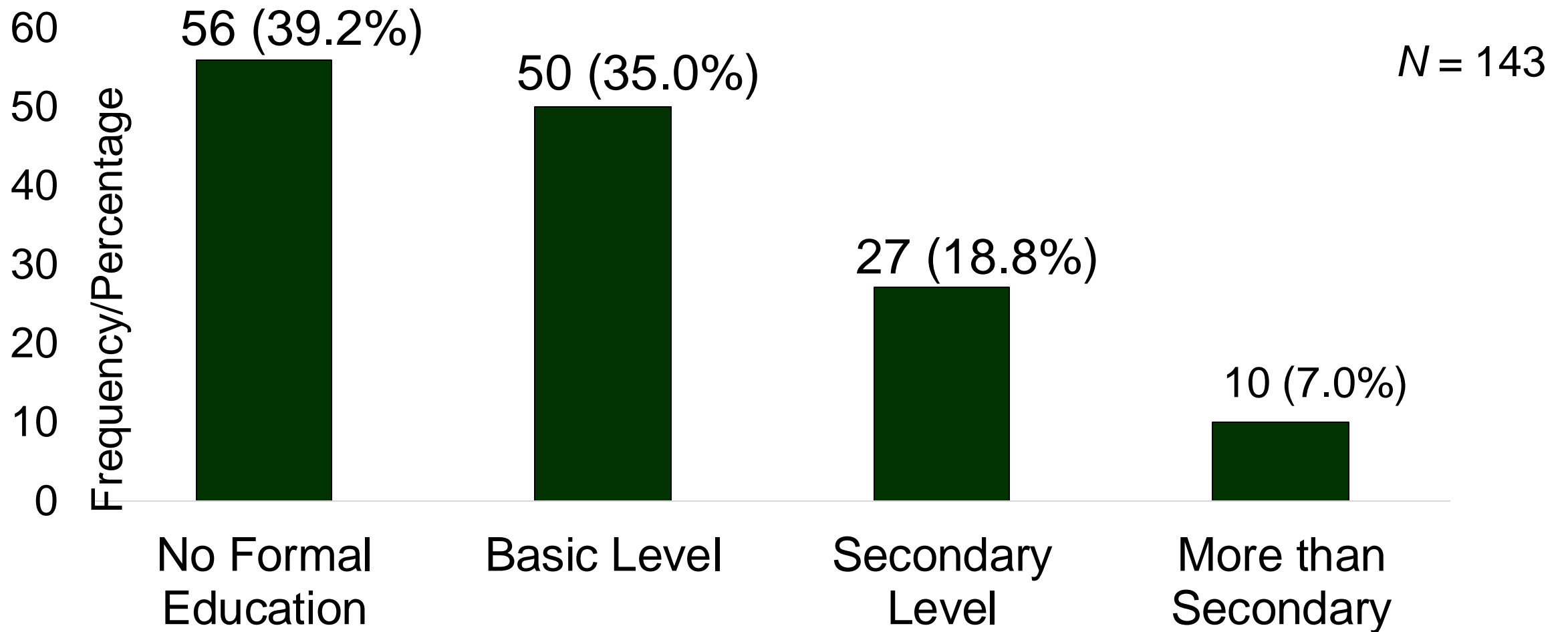


Figure 1. Respondents' Educational Level

Note: Basic level = ≤ 8 class, secondary level = ≤ 12 class education, and More than secondary level = > 12 class education

Educational level categorized based on Nepal Demographic and Health Survey, 2022

N = 143

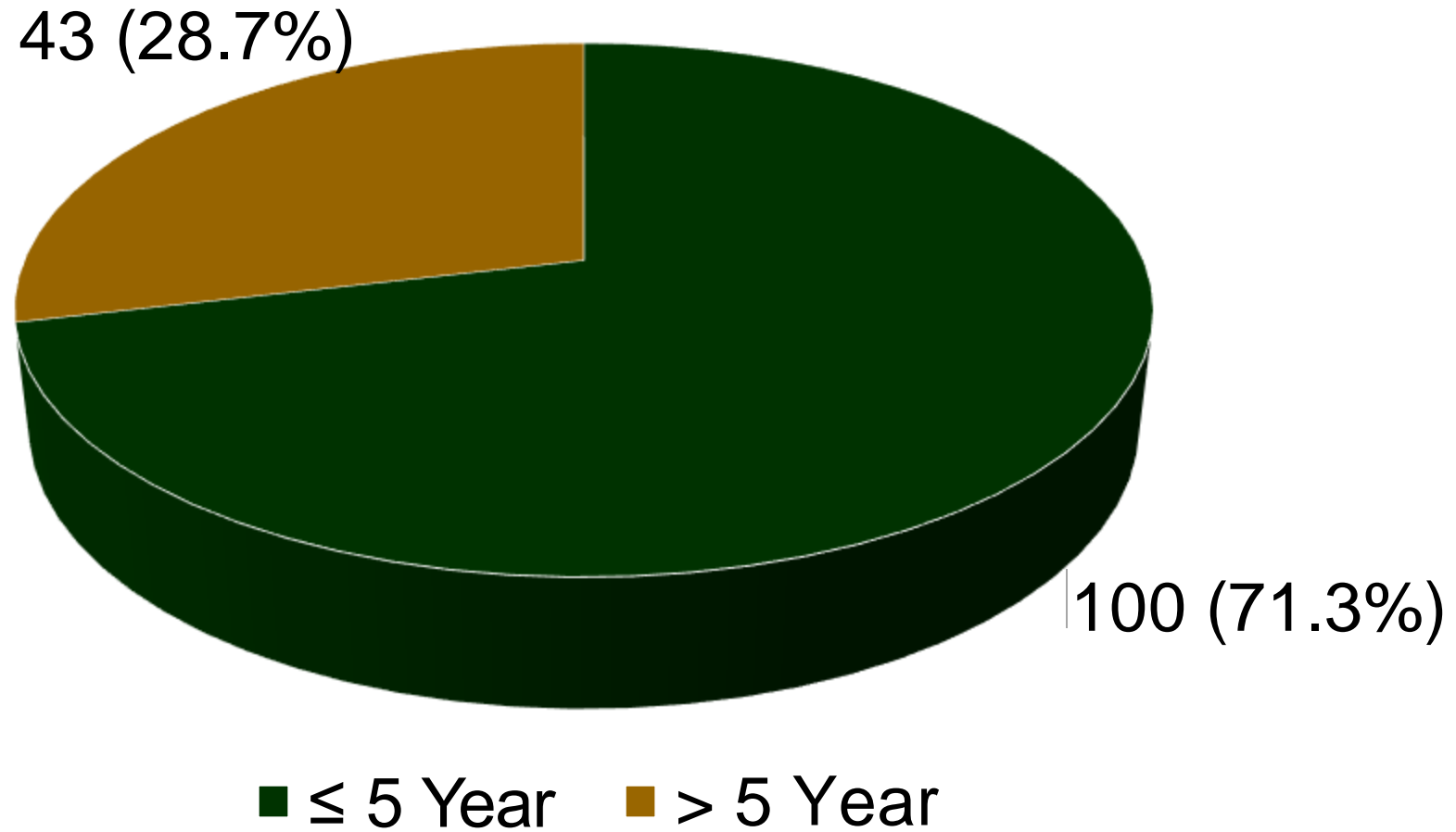


Figure 2. Respondents' Based on Duration of Disease

Table 2. Descriptive Analysis of the Respondents' Resilience, Family Support, Illness Cognition, Self-Efficacy, and Self-esteem

N = 143

Characteristics	Level [Percentage (%)]	Range	M	SD
Resilience ^a	Intermediate (49.0%) Low (27.3%)	3-36	18.85	7.55
Family Support ^b	High (74.8%)	0-10	Median, IQR = 9.00, 4.00	
Illness Cognition ^c	To a Large Extent (67.8%)	24-62	41.53	7.31
Self-Efficacy ^d	Low (53.1%)	12-38	23.37	5.75
Self-esteem ^e	Intermediate (64.3%)	9-27	15.85	3.07

Note: ^a = Levels of resilience were categorized based on the quartile range of the current samples (Low Resilience = 1st Quartile Range i.e., 0 ≤ 13, Intermediate = 2nd & 3rd Quartile Range i.e., 14 ≤ 25, high resilience = 4th Quartile Range i.e., >25)

^b = Family support was categorized as 0-3 = high dysfunctional, 4-6 = moderate dysfunctional, and 7-10 = high functional family (High family support)

^c = Illness cognition based on the mean score (range from 1-4; ≥ 2 = "somewhat" to "completely", <2 = no illness cognition) of the current sample, ^d = Self-efficacy based on the median cut of point of current samples., below ≤23 = low and > 23 = high) ^e = Self-esteem was categorized as 0-15 = Low, 16-25 =

Intermediate, and 26-27 = High-level self-esteem.

Table 3. Correlation of Independent Variables with Resilience

N = 143

Dimension	1	2	3	4	5	6	7	8
1. Age ^a	-							
2. Education (0 = Uneducated, 1 = Educated) ^b	-.26**	-						
3. Duration of Disease ^c	-.01	-.04	-					
4. Family Support ^c	.01	.07	.09	-				
5. Illness Cognition ^a	.27**	.33**	.14	.27**	-			
6. Self-Efficacy ^a	-.40**	.34**	.05	.30**	.66**	-		
7. Self-Esteem ^a	-.03	-.09	-.02	.22**	.55**	.56**	-	
8. Resilience	-.35**	.23**	.16	.24**	.59**	.70**	.59**	-

Note. ^a = Pearson-product-moment correlation, ^b = Point Biserial correlation, ^c = Spearman's Rank, ** = Correlation significant at the p < .01 level (2-tailed).

Normality of data by using graphical presentation (histogram and P-P plot) and statistics (skewness, kurtosis, z-score of skewness and kurtosis):

Family support: -1.36 (.20), 1.20 (.40) and -6.80, 3.00; Illness cognition: .21 (.20), -.05 (.40) and 1.05, -.125;

Self-efficacy: .19 (.20), -0.27(.40) and .95, -.65; Self-esteem: .29 (.20), -.28 (.40) and 1.45, -.70;

Resilience: .19 (.20), -.77 (.40), and .95, -1.93; (all variables except family support) lie within the range of normality of medium samples (N = 50-300) based on prior reference.

Absence of outliers and linear relationships between two variables by using box plot and scatter plot, respectively. Homogeneity of variance by using Leven's test i.e., based on the P-value of mean and median, educational status (.908 and .980) with resilience, achieved assumption based on prior reference (Field, 2009).

Table 4 Multiple Regression Analysis of Factors Associated with Resilience

N = 133

Variables	B	Standard Error	β	P-value	95% CI (LL, UL)
Age	-.08	.03	-.17	.004**	[-.13, -.02]
Education (0 = Uneducated, 1 = Educated)	-.79	.86	.05	.358	[-2.49, .91]
Family Support	-.01	.16	.00	.959	[-.31, .32]
Illness Cognition	.17	.08	.17	.031*	[.02, .32]
Self-Efficacy	.58	.11	.44	.000***	[.35, .80]
Self-Esteem	.58	.17	.25	.001**	[.25, .92]

*Note. Multiple linear regression were done with 133 response sets after meeting all the assumptions of regression analysis based on prior reference (Field, 2009): (a) No missing data, and no multivariate outliers based on Cook's Distance ; for which Cook distance value >.02790 of 10 cases were found from the data set and were removed from the data set based on prior reference and standardized residual value [i.e., -1.99 to 2.91], (b) normality based on histogram and P-P (Probability) plot, Skewness [.25 ± .21] and kurtosis [-.25 ± .42] of the regression model (reference range of z-score should lie between ±1.96 for 95%CI); (c) Homoscedasticity based on scatterplot of standardized residual; (d) bivariate and multivariate linearity based on scatter plots and Normal P–P Plot of Regression Standardized Residual; (e) no Multicollinearity based on correlation test [-.01-.70], tolerance [.37 to .91] and Variance Inflation Factor [1.10 -2.71] and (f) No Autocorrelation based on Durbin Watson (1.82). Adjusted R² = .64, * = Correlation significant at the p < .05 level (2-tailed), ** = Correlation significant at the p < .01 level (2-tailed), *** = Correlation significant at the p < .001 level (2-tailed). One variable: Duration of disease (r_s = .16, p = .054) was not significantly correlated with resilience in correlation, so it was not included in this model.*

B: partial regression coefficient, β : standard partial regression coefficient; 95% CI (LL, UL): 95% confidence interval of lower and upper limits.

Conclusion

- The highest proportion of patients with CKD receiving HD had intermediate levels of resilience.
- Factors significantly associated with resilience: illness cognition, self-efficacy, and self-esteem were positively associated while age had a negative association.

- Higher illness cognition, self-efficacy, and self-esteem may contribute to a higher level of resilience, which enhances disease adaptive ability and ultimately leads to well-being among patients with CKD receiving HD.

The findings suggest to incorporate these factors with special care on older patients during HD sessions to enhance resilience, which ultimately leads to the psychological well-being of patients receiving HD.

Limitations

- Although the findings could be **broadly relevant** to patients with CKD receiving HD, it's **crucial to consider** that the respondents were **solely drawn from Patan Hospital** using convenience sampling.
- Consequently, these results might **not be representative or applicable** to estimating resilience among patients undergoing HD in **different hospital settings**.
- Other factors such as social support, hope, and spirituality have not been included, so the confounding effect of these variables could not be assessed.
- There might be a **presence of response bias** due to the data being gathered via self-reporting, specifically through **face-to-face interviews**.

Recommendations

- Similar studies should be conducted at different hospitals (multicenter) with a large sample size by using probability sampling techniques for better generalization of research findings.
- A qualitative study should be conducted to explore the experiences of patients receiving HD regarding the journey toward promoting resilience.
- The experimental study should be conducted to examine the impact of an intervention that includes protective factors on resilience to reduce the effect of temporal ambiguity between variables.

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Thank you

Have a Good Day