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Ramya Koneru

Department of Human
Development and Family
Studies, College of Community
Science, Dharwad, Karnataka,
India

Ganga V Yenagi

Department of Agricultural
Extension Education, College of
Agriculture University of
Agricultural Sciences, Dharwad,
Karnataka, India

A study on relationship between resilience and general intelligence among rural and urban adolescents

Ramya Koneru and Ganga V Yenagi

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Abstract

Adolescence is a transition stage from childhood to adulthood, with unique developmental milestones. The thoughts, ideas, and concepts developed during adolescent stage of life hugely influence one's future life as well as play a major role in the formation of personality and character. The study investigates the relationship of resilience with general intelligence among adolescents. A random sampling technique was employed to select 192 adolescents studying in private and government schools. The study reveals that majority of rural adolescents possessed with average resilience level and most of the adolescents from urban area had below average resilience level. Interestingly, both rural and urban adolescents achieved similar mean scores on general intelligence. However, there is no significant association between general intelligence and resilience among rural adolescents. Nevertheless, a statistically significant correlation exists between resilience and general intelligence, as well as general intelligence found to be a significant predicting factor of adolescents resilience.

Keywords: Adolescence, resilience, general intelligence, rural, urban

Introduction

The period of life between childhood and adulthood, known as adolescence, lasts from the ages of 10 to 19 years. It is a unique phase in human development and a crucial moment to establish the foundation for long-term health. Adolescents grow quickly in all areas—physical, cognitive, and psychological. This has an impact on their emotions, thoughts, decision-making, and interactions with the outside environment (WHO, 2022) ^[1].

The transition of cognitive function to higher levels is generally responsible for adolescents' ability to think logically, make sense of the world around them, perform abstract thought processing, derive meaning from real-life experiences, and understand the subtleties of metaphors. However, young adolescents were found to exhibit increased analytical thought, introspection, and reflection, which characterizes a relationship existing between intellectual and moral development. Therefore, young adolescents were found to have an idealistic and strong sense of fairness.

To manage and combat stressors and challenges in challenging circumstances, researchers have discovered a novel strategy known as "Resilience." Resilience is the process and result of effectively adjusting to demanding or tough life circumstances, particularly by exhibiting flexibility in thought, emotion, and behavior and adjusting to challenges from both the inside and within (American Psychological Association, 2024) ^[2].

Garmezey *et al.* (1984) ^[4] identified that children with high IQs, which is an internal asset, were better able to adapt or engage socially. Higher intelligence levels have been linked to resilience, and intelligence is thought to be an individual component. According to Garza *et al.* (2014) ^[5], general intelligence is one of the most significant predictors of an adolescent's resilience. This suggests that clever individuals are capable of actively facing stress or hardship and are able to deal by applying their knowledge and self-help abilities (Cederblad *et al.*, 1995) ^[3]. Thus, the study aimed:

- To assess resilience level among urban and rural adolescents
- To examine general intelligence in urban and rural adolescents
- To analyse the relationship between resilience and general intelligence in adolescents

Materials and Methods

The study sample involves the adolescents attending 8th, 9th and 10th classes of government and private schools of Dharwad district in Karnataka state.

Corresponding Author:**Ramya Koneru**

Department of Human
Development and Family
Studies, College of Community
Science, Dharwad, Karnataka,
India

192 adolescents were selected through random sampling technique. Through general information questionnaire demographic details were collected. Resiliency among participants analysed by employing Prince-Embury (2006) [7] Resiliency scale. It consists of total 64 items under three domains such as sense of mastery, sense of relatedness and emotional reactivity. Responses are rated on four-point likert scale i.e., never '0', rarely '1', sometimes '2', often '3' and almost always '4'. Summing up raw score to achieve total score and converted into T scores, the score ranges from ≤ 40 to ≥ 60 , where higher scores indicate higher resiliency levels. The general intelligence was assessed by Standard Raven's Progressive matrices (2001) [8] consists of 60 problems, which is self-administered untimed activity. The raw score is summed up and it is converted into percentile, further categorized into grade I, grade II, grade II+, grade III, grade III+, grade IV and grade V. The correlation study design is employed to investigate the relationship between resilience and general intelligence among adolescents.

The study participants were in the age range of 12-14 (rural=42.3%; urban=47.4%) and 15-17 years (rural=57.7%; urban=52.6%), studying in private (rural=30.9%; urban=68.4%) and government schools (rural=69.1%; urban=31.6%) of Dharwad district. Majority were first (rural=36.1%; urban=47.4%) and second borns (rural=37.1%; urban=33.7%) and remaining were later borns. Sample comprises of both male (rural=52.6%; urban=52.6%) and female (rural=47.4%; urban=47.4%) participants.

Statistical tools

Frequency, percentage, mean, standard deviation, chi square, t-test, correlation and linear regression were the statistical tools employed in the present study.

Table 3: Association of resilience with general intelligence of rural adolescents

| Variables | Levels of resilience | | | χ^2 | Mean \pm SD | t-value |
|---------------|----------------------|---------------|----------|---------------------|-------------------|--------------------|
| | Average | Below average | Total | | | |
| Average | 46 (82.1) | 10 (17.9) | 56 (100) | 2.510 ^{NS} | 52.98 \pm 9.89 | .905 ^{NS} |
| Below average | 28 (68.3) | 13 (31.7) | 41 (100) | | 49.65 \pm 11.90 | |
| Total | 74 (76.3) | 23 (23.7) | 97 (100) | | 51.21 \pm 9.83 | |

Figures in parenthesis indicates percentages, NS indicates Non-significance

Table 3 presents association of resilience level with general intelligence of rural adolescents. There was no significant association between adolescents resilience and general intelligence ($\chi^2=2.510$). Similarly, the mean scores of

Results and Discussion

Table 1: Rural and urban adolescents' resiliency levels (N=192)

| Levels of resilience | Rural n (%) | Urban n (%) |
|----------------------|-------------|-------------|
| Above average | 34 (35.05) | 5 (5.26) |
| Average | 40 (41.23) | 34 (35.78) |
| Below average | 23 (23.71) | 56 (58.94) |
| Total | 97 (100) | 95 (100) |

Figures in parenthesis indicates percentages

Table 1 presents distribution of rural and urban adolescents resiliency levels. The results indicates that in rural area majority of them with average (41.23%) levels of resiliency, followed by above average (35.05%) and below average (23.71%). Where as in urban area more than half of the adolescents were in below average (58.94%) resiliency levels, 35.78 per cent were in average resiliency level and only 5.26 per cent of adolescents were in above average resiliency level.

Table 2: Means and standard deviation scores of general intelligence of rural and urban adolescents

| Rural | | Urban | |
|-------|------|-------|------|
| Mean | SD | Mean | SD |
| 36.65 | 5.53 | 36.75 | 6.15 |

NS indicates non-significant

Table 2 shows results of compared mean scores of general intelligence between rural and urban adolescents. Where rural and urban adolescents achieved same mean scores (i.e. M=36.65 and M=36.75 respectively).

Table 4: Association of resilience with general intelligence of urban adolescents

| Variables | Levels of resilience | | | χ^2 | Mean \pm SD | t-value |
|---------------|----------------------|---------------|----------|----------|------------------|---------|
| | Average | Below average | Total | | | |
| Average | 27 (50.9) | 26 (49.1) | 53 (100) | 4.846* | 53.66 \pm 8.11 | 5.799** |
| Below average | 12 (28.6) | 30 (71.4) | 42 (100) | | 39.04 \pm 9.43 | |
| Total | 39 (41.1) | 56 (58.9) | 95 (100) | | 42.17 \pm 9.21 | |

Figures in parenthesis indicates percentages, *Significant at 0.05 level, **Significant at 0.01 level

However, in urban region a significant association found between levels of resilience and general intelligence ($\chi^2=4.846$ significance at 5% level) presented in table 4. A significant difference also observed between adolescents with average and below average general intelligence, where majority of adolescents with average general intelligence exhibited better resiliency levels (M=53.66, t=5.799).

Higher emotional reactivity, sense of relatedness, and sense of mastery were all present in adolescents with higher general intelligence. As a protective element on its own, general

resilience were also not statistically significantly different (t=.905). Nevertheless, majority of adolescents with average general intelligence had better resiliency levels.

intelligence helps adolescents solve problems and rationally resolve conflicts. The majority of teenagers in rural areas attended government schools, where they showed lower levels of general intelligence. This could be because of a combination of personal variables, parental work status, and inadequate exposure to cognitive skills in the classroom. The current findings are corroborated by a study by Ttofi *et al.* (2016) [9], which found that intelligence is a personal protective factor that distinguishes resilient people from non-resilient people. The study also found that adolescents with

high intelligence show higher levels of resilience, while those with low intelligence show lower levels of resilience when they exposed to similar risk levels.

Table 5: Relationship between general intelligence and resilience

| Independent variables | Resilience (r) |
|-----------------------|----------------|
| General intelligence | 0.225** |

**Significant at 0.01 level

Table 5 represents relationship between general intelligence and resilience among adolescents. A significant positive correlation exists between general intelligence and adolescents resilience ($r=0.225^{**}$). With the increase in general intelligence level there is a significant increase of adolescents resilience level.

Table 6: Linear regression coefficient of factors influencing resilience among adolescents of Dharwad

| Variable | Beta | t-value | F value | Sig. |
|----------------------|-------|---------|---------|-------|
| General intelligence | 0.197 | 3.048 | 6.897** | 0.003 |

**Significant at 0.01 level

The linear regression coefficient represents predicting factors of resilience in table 6. General intelligence among adolescents found to be significant independent predicting factor of adolescents resilience ($B=0.197$; $F=6.897$; $p=0.003$). Adolescents with higher intelligence level can tackle adverse conditions and they were also possessed with higher resilience levels.

Conclusion

Adolescence as a transition period includes several developmental challenges, which makes them ready to deal with further hurdles in life. Resilience as a personal factor helps individuals to face the adversity and cope up efficiently to get into normal life. In the current study, rural adolescents had better resiliency levels. As well as a significant relationship observed between resilience and adolescent's general intelligence, which indicates that individuals with higher intelligence level can cross adversities better than with others.

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