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Transforming Lives: A Study on Risk Reduction Strategies in Battambang's Village Hive Project

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A B S T R A C T

The Village Hive Project, initiated by the local community and Cambodian Children's Trust (CCT), aims to prevent poverty, improve living standards, and reduce reliance on charity by establishing a community-owned public social protection system across Battambang City. Since its launch in 2019, the project has made significant strides, including a 142% increase in family income and a 61% reduction in debt levels. However, there is a notable gap in systematically measuring the project's effectiveness in risk reduction and understanding the factors contributing to these improvements. This study employed a cross-sectional quantitative research design to assess changes in risk levels among 293 families engaged in various support programs, utilizing statistical methods such as Chi-Square tests, mean comparisons, and regression analysis to identify predictors of risk improvement. Findings indicate significant transitions of families from higher to lower risk categories, underscoring the importance of targeted interventions and resource access. The results also reveal that while the predictors explain only a modest portion of variance in risk improvement, they collectively have a meaningful impact on reducing family vulnerabilities. Based on these findings, the study recommends strengthening support systems, enhancing awareness and education on risk management, fostering community engagement, monitoring interventions, and promoting collaboration among local organizations to further improve family well-being and mitigate risk levels.

Keywords: Village Hive Project, Risk Reduction, Child Welfare, Sustainability, Stakeholder Engagement, Vulnerability

1. Introduction

Approximately 1 in 5 children, or 385 million, live in extreme poverty, defined as living on less than $1.90 a day. Additionally, nearly 1 in 2 children, totaling 689 million, reside in multi-dimensionally poor households. Alarmingly, children are twice as likely to experience poverty compared to adults across both measures. Despite these stark realities, only 35 percent of children globally receive social protection benefits, with even lower coverage in Asia, where only 28 percent of children benefit from such support (ILO, & UNICEF, 2019).

The youngest children need essential services and a safe, nurturing environment, which requires families and caregivers to have adequate resources, time, and support for their growth. Social protection programs play a crucial role in addressing economic and social vulnerability, promoting and protecting the rights of children and their caregivers while contributing to gender equality. These programs are particularly vital for families in poverty, as they directly impact children's access to education, healthcare, and nutritious food. Insufficient access can lead to malnutrition and stunting, hindering developmental potential and trapping children in a cycle of hardship. By strengthening families' economic stability, social protection programs significantly enhance young children's development, enabling them to survive and thrive (ECDAN, 2024).

1.1 Problem Statement

The Village Hive Project undertaken by the local community and Cambodian Children's Trust (CCT) is an innovative initiative aimed at preventing poverty, improving living standards, and reducing reliance on charity. It involves establishing a network of Village Hives to create a community-owned public social protection system across all ten sangkats (communes) and 62 villages in Battambang City. The project aims to be completed by 2032, with the intention of developing a blueprint for national implementation (CCT, 2024a).

The Village Hive Project began in 2019 with the establishment of financial frameworks and policies aimed at promoting transparency and preventing corruption. In 2020, local leaders across Battambang District held the first Village Hive meeting, resulting in a unanimous decision to integrate community services into the public sector. By 2021, plans were co-created for the rollout of the first Village Hive, which was successfully launched in Ou Char Commune in 2022. The second Village Hive was established in Svay Pao Commune in 2023, and the third Village Hive is set to launch in Rotanak Commune in 2024. This project reflects a commitment to community-driven development and social protection across the region (CCT, 2024a).

While the Village Hive Project has showcased significant positive outcomes for families, including a 142% increase in income and a 61% reduction in debt levels, there is a notable lack of measurement regarding its effectiveness in risk reduction and the influencing factors behind these

improvements (CCT, 2024b). Although families report enhanced emotional well-being and stronger relationships, the absence of systematic evaluation limits the understanding of how effectively the initiative mitigates risks associated with poverty and vulnerability. Furthermore, without identifying the specific factors that contribute to the observed improvements, it becomes challenging to assess the overall impact of the Village Hive Project and to replicate its successes in other communities. Thus, further research is needed to gauge the effectiveness of risk reduction strategies and the underlying drivers of change within this transformative initiative.

1.2 Objectives of the Study

The objectives of this study focus primarily on assessing the changes in risk levels among families over time and identifying the factors that contribute to these changes. Through a detailed analysis of the initial and current risk levels using a contingency table, the study evaluates the transitions of families from higher risk categories (Red) to lower risk categories (Yellow and Green). The analysis utilizes statistical methods, including Chi-Square tests and mean comparisons, to ascertain the significance of these changes and to understand the relationships between initial and current risk statuses.

Additionally, the study explores the overall trends in risk levels, emphasizing how various factors, such as home visits, food support, shelter, healthcare, and educational assistance, influence risk reduction. By employing regression analysis, the study quantifies the contribution of these independent variables to the observed improvements in risk levels, providing insights into which supports are most effective. Ultimately, the study aims not only to demonstrate a statistically significant improvement in risk levels but also to understand the underlying dynamics and factors that facilitate this improvement.

The findings from this research hold significant implications for policy and intervention strategies, guiding future efforts to enhance support for families at risk and ensuring that resources are effectively allocated to achieve meaningful risk reduction.

2. Literature Review

2.1 Theoretical Framework

Universalism vs. Selectivism: The term "universal basic services" (UBS) was introduced as an alternative to "universal basic income" (UBI). While UBI involves providing regular, unconditional cash payments to all individuals, UBS focuses on enhancing and expanding collectively provided services that are free for all who need them, irrespective of their financial situation. Both concepts aim to reduce poverty and inequality while improving overall well-being (Coote, A., Kasliwal, P., & Percy, A., 2019). Universalism in social benefits refers to offering these benefits to everyone as a basic right, promoting equal access to social policy provisions, whereas selectivism provides benefits only to those who qualify based on income or need (Gilbert, 2002). A significant drawback of selectivism is that it creates a divide between "haves" and "have-nots," often leading to stigma for those reliant on selective benefits (Hultqvist, S., & Hollertz, K., 2021). The debate over universality and selectivity raises questions about whether it is more beneficial for individuals to receive goods and services directly or to be provided with funds to purchase them (Scottish Left Review, 2014).

Welfare State Theory: The welfare state is a system where the government or social institutions play a key role in ensuring the economic and social welfare of citizens. It provides basic support through programs like unemployment insurance, welfare payments, and essential services such as education, healthcare, and housing, often at low or no cost (Britannica, 2024). Central to this system are principles of equal opportunity, fair wealth distribution, and public responsibility for those unable to secure basic necessities (Andersen, 2019). While welfare states aim to reduce poverty and address social risks, the concept is often debated, with critics concerned about excessive government intervention in citizens' lives (Kenton, 2024).

Ecological System Theory: The theory of human development is explained through four interconnected systems: microsystems, mesosystems, exosystems, and macrosystems, all of which influence individual growth. It emphasizes the reciprocal relationship between individuals and their environments. Later, the chronosystem was introduced to account for changes over time and the influence of historical context on development. For instance, parental discipline may vary based on a child's age and cultural norms, with the expectation that behavior improves over time (Adrian V. Rus, et al., 2010). The bioecological model offers a valuable framework for understanding how various factors impact children and families within child welfare systems, which function as adaptive networks that provide access to services and support. These systems reflect dynamic, interconnected influences on development, though their focus may differ—sometimes prioritizing the child, the parent, or the entire family (Adrian V. Rus, et al., 2010). Additionally, the existing literature highlights that the core goals of Family Support include protecting children, promoting their well-being, and ensuring their rights (Hidalgo, V., et al, 2018).

2.2 Review of the Village Hives Project's Impact

The Village Hive employs a three-tiered upstream model of social protection to address the multifaceted dimensions of poverty by emphasizing Universal Prevention and Early Intervention, which aim to prevent individuals from entering crises and reduce the reliance on costly crisis services. Universal Prevention involves community-wide services that enhance well-being, elevate living standards, and foster safe environments, focusing on public education and health care, including strengthening village health clinics and public schools. Early Intervention targets children, youth, and families identified as vulnerable, addressing their needs to avert crises by ensuring access to education, quality nutrition, child care, health care support, and safe housing. By meeting these basic needs and providing support payments, families gain the ability to achieve financial self-reliance through programs like financial literacy, vocational training, and income generation assistance. In cases where crises do occur, specialized Crisis Response services are available

to support families in crisis, including child protection, safety planning, counseling, emergency accommodation, and disaster relief, thereby minimizing the long-term impacts of trauma (CCT, 2024a).

The Village Hive Project has significantly impacted families within the community, demonstrating substantial improvements in various aspects of their financial and emotional well-being. Families have increased their income by an impressive 142%, with 88% of households continuing to see income growth after completing the early intervention journey. Additionally, families have reduced their debt levels by 61% and now save an average of 14% of their income each month. The initiative has also fostered stronger family relationships, with 100% of families reporting a positive impact on their interactions. Furthermore, 47% of families express feeling less worried or anxious, indicating improved overall mental well-being. These outcomes highlight the transformative effects of the Village Hive Project on family life in the community (CCT, 2024b).

3. Methodology

3.1 Research Design

A cross-sectional quantitative research design was employed to systematically collect and analyze existing data on active cases from October 2023 to 2024, focusing on risk levels and predictors of risk improvement among families. This design facilitated the assessment of the current risk statuses of families, capturing a comprehensive snapshot of their conditions. By utilizing existing data, the study aimed to quantify the prevalence of various risk levels across the sample population. Furthermore, the quantitative nature of the research enabled statistical analysis to identify significant predictors influencing risk improvement. This approach provided a robust framework for understanding the dynamics of risk levels and the effectiveness of interventions implemented to support families, offering valuable insights into potential areas for enhancement in future support programs.

The sample consisted of 293 families who underwent both initial and current risk assessments, enabling a comprehensive evaluation of their risk levels over time. These families were selected based on their active engagement with various support programs, including financial literacy training, business setup assistance, income generation activities, saving support groups, and safety support networks, all specifically designed to facilitate risk reduction. This targeted approach ensured that the families in the sample had direct experience with the interventions being studied, providing valuable insights into the effectiveness of these programs. By focusing on families who had participated in these initiatives, the study aimed to capture a diverse range of risk profiles and assess how different levels of program engagement influenced overall risk improvement. This selection criterion not only enhanced the validity of the findings but also underscored the significance of active participation in support programs as a crucial factor in promoting family well-being and mitigating risk levels.

The variables utilized in this study included the Initial Risk Level and Current Risk Level, both categorized as Red, Yellow, or Green. This classification provided a baseline understanding of each family's risk status prior to intervention and the subsequent changes following the implementation of support programs. Additionally, key variables related to the support received were incorporated, such as the number of home visits, food assistance, shelter support, healthcare provisions, and educational resources. Demographic information, including household size and income level, was also collected to contextualize the findings and examine how these factors might influence risk levels. This comprehensive approach ensured that the gathered data not only reflected the effectiveness of the interventions but also provided valuable insights into the broader socioeconomic context affecting the families' risk statuses.

3.2 Data Analysis

All statistical analyses for this study were conducted using SPSS (Statistical Package for the Social Sciences), a widely recognized software tool for data analysis in social science research. SPSS was utilized to perform a range of statistical tests, including crosstabulation, Chi-Square tests, mean comparisons, paired samples t-tests, multiple regression analysis, and ANOVA. The software facilitated the organization and management of the dataset, ensuring accurate calculations and reliable outputs. By employing SPSS, the analysis was conducted efficiently, allowing for comprehensive insights into the risk levels and predictors of risk improvement among families, ultimately enhancing the robustness and credibility of the findings.

The relationship between initial and current risk levels was examined using crosstabulation, which allowed for a visual representation of the data and the exploration of potential associations between different categories of risk. By employing Chi-Square tests, the analysis assessed the statistical significance of these relationships, determining whether changes in risk levels were likely due to random chance or influenced by the interventions implemented. This analysis provided critical insights into how families transitioned between risk categories, revealing patterns of improvement or stability and underscoring the effectiveness of support programs in addressing family risk factors.

A mean comparison was conducted to analyze the average risk levels before and after the intervention. This involved calculating the mean values for both initial and current risk levels, accompanied by standard deviations and coefficients of variation to assess the variability of the data. By comparing these means, the analysis highlighted the extent of change in risk levels over time and provided a quantitative measure of the overall impact of the support programs. This comparison not only illustrated the effectiveness of the interventions but also allowed for a deeper understanding of the distribution and consistency of risk levels among the families.

To evaluate the significance of differences in risk levels before and after the intervention, a paired samples t-test was also conducted. This statistical test compared the means of two related groups—in this case, the initial and current risk levels of the same families—to determine whether there was a statistically significant change due to the interventions. By assessing the t-value and associated p-value, the analysis provided evidence for the

effectiveness of the support programs in improving the risk statuses of families. This test was crucial for establishing the reliability of the findings and reinforcing the positive outcomes associated with the interventions.

Multiple regression analysis was employed to identify predictors of risk improvement among the families studied. This technique allowed for the examination of the relationships between various independent variables—such as the number of home visits and types of support received—and the dependent variable of risk improvement. Key metrics such as R, R^2, and adjusted R^2 were computed to evaluate the model fit and explanatory power, helping to ascertain how well the selected predictors accounted for variations in risk levels. This analysis provided a deeper understanding of the factors contributing to risk improvement and highlighted the specific interventions that were most effective in supporting families.

ANOVA (Analysis of Variance) was utilized to evaluate the overall significance of the regression model. This statistical technique assessed whether there were any statistically significant differences between the means of the dependent variable across different groups defined by the independent variables. By examining the F-statistic and corresponding p-value, ANOVA helped to confirm whether the predictors included in the regression model collectively had a significant impact on risk improvement. This analysis reinforced the validity of the regression findings, indicating the effectiveness of the interventions implemented to reduce risk levels among families.

4. Results

4.1 Analysis of Risk Level Changes and Statistical Summary

4.1.1 Analysis of Risk Level Changes and Statistical Associations

According to the data analysis with the contingency table through Crosstabs in SPSS, the finding illustrates how risk levels, represented by colors, have shifted from their initial state to the current state. For cases that initially started at Red, 40 remained in the Red category, 85 improved to Yellow, and 15 further improved to Green. For those that began at Yellow, 10 worsened to Red, 120 remained in Yellow, and 21 improved to Green. Notably, no cases that started at Green worsened to Red, but two cases remained at Yellow.

This data reveals an overall trend of improvement in risk categories, with many cases initially classified as Red or Yellow transitioning to safer categories, such as Yellow or Green. Specifically, a majority of Red cases have shown improvement, while a significant portion of Yellow cases remained unchanged, although some did improve to Green. Only two cases, which started at Green, saw a minor decline to Yellow.

Table 1: Initial Risk Colour * Current Risk Colour Crosstabulation

		Current Risk Colour			
		Red	Yellow	Green	Total
Initial Risk Colour	Red	40	85	15	140
	Yellow	10	120	21	151
	Green	0	2	0	2
Total		50	207	36	293

The Chi-Square tests provide more insight into the relationship between the variables. The Pearson Chi-Square test yields a value of 25.565 with 4 degrees of freedom and an asymptotic significance (p-value) of 0.000, indicating a statistically significant association between the variables. Similarly, the Likelihood Ratio test shows a value of 27.264 with 4 degrees of freedom and a p-value of 0.000, further reinforcing the presence of a significant association. Additionally, the Linear-by-Linear Association test reports a value of 15.055 with 1 degree of freedom and a p-value of 0.000, suggesting a significant linear relationship between the variables.

The dataset consists of 293 valid cases. However, it's important to note that 3 cells (33.3%) have an expected count of less than 5, with the minimum expected count being 0.25. This could indicate potential limitations in the interpretation of the Chi-Square test due to the small expected counts in some cells, which may affect the test's robustness.

Table 2: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.565[a]	4	0.000***
Likelihood Ratio	27.264	4	0.000***
Linear-by-Linear Association	15.055	1	0.000***
N of Valid Cases	293		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .25.

The changes in risk levels from the initial state to the current state are not random but follow a significant pattern, indicating that the initial risk level has a strong influence on the current risk level. The improvements observed, such as cases moving from Red to Yellow or Green, occur systematically rather than by chance. This suggests that the progression in risk categories is driven by underlying factors rather than random variation, highlighting a meaningful relationship between the initial and current risk statuses.

4.1.2 Analysis of Risk Level Changes and Statistical Summary

Based on the mean comparison, the analysis reveals several key statistics regarding the risk levels of families. The mean value for the Current Risk Colour is 1.95 (1 = Red, 2 Yellow, 3 = Green), indicating an average risk level at the current time, while the mean value for the Initial Risk Colour is 1.53, representing the average risk level before any changes occurred.

In terms of variation, the standard deviation for the Current Risk Colour is 0.541, reflecting the amount of dispersion from the mean risk level. Similarly, the standard deviation for the Initial Risk Colour is 0.514, indicating a comparable level of variation for the initial risk scores. The standard error mean (SEM) for the Current Risk Colour is 0.032, suggesting that the sample mean is relatively precise, with the actual population mean expected to fall within this range around the mean. Likewise, the SEM for the Initial Risk Colour is 0.030, indicating a similar level of precision for the initial risk mean.

The analysis of the risk levels also includes the coefficient of variation for both Current and Initial Risk Colour. For the Current Risk Colour, the coefficient of variation is 27.69%, calculated as the ratio of the standard deviation to the mean. This indicates a moderate level of relative variability in the current risk levels. In contrast, the Initial Risk Colour exhibits a higher coefficient of variation at 33.59%, suggesting greater relative variability in the initial risk levels compared to the current levels.

Table 3: Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean	Coefficient of Variation
Current Risk Colour	1.95	293	0.541	0.032	27.69%
Initial Risk Colour	1.53	293	0.514	0.030	33.59%

The mean for Current Risk Colour is significantly higher than that for Initial Risk Colour, indicating an overall improvement in risk levels among families. The standard deviations for both assessments are relatively low, suggesting that the families' risk levels are closely clustered around their respective means. Additionally, the coefficients of variation reveal that while there is variability in both groups, the initial risk levels exhibit greater relative variability compared to the current risk levels. This implies that, although initial risk levels varied more significantly, the current risk levels are more consistently aligned, reflecting a stabilization in risk status as families transitioned from their initial assessments to the current evaluations.

4.1.3 Significance of Paired Samples Test and Risk Level Improvement

The analysis of the paired differences between Current Risk Colour and Initial Risk Colour reveals several important components. The mean difference is 0.423, indicating that, on average, the current risk level is 0.423 units higher than the initial risk level. Additionally, the standard deviation of the differences is 0.656, reflecting considerable variability in how individual risk levels changed between the two assessments. This suggests that not all participants experienced the same degree of change in their risk levels.

The standard error mean (SEM) of the paired differences is 0.038, providing an estimate of the precision of the mean difference; a smaller SEM indicates greater confidence in this estimate. The 95% confidence interval for the difference ranges from 0.348 to 0.499, suggesting that the true mean difference in risk levels is likely to fall within this range. Since both bounds are positive, this indicates a statistically significant increase in the current risk level compared to the initial risk level.

Moreover, the t-statistic is 11.049, signifying the ratio of the mean difference to the standard error. A high t-value suggests that the observed difference is much larger than the variability of the differences, reinforcing the significance of the result. The degrees of freedom (df) for this test is 292, calculated based on the number of paired observations minus one (N - 1). Finally, the significance (2-tailed) p-value is 0.000, which is less than the common alpha level of 0.05, providing strong evidence to conclude that the current risk level is significantly different from the initial risk level.

The paired samples test shows a statistically significant increase in the mean risk level from the initial assessment to the current assessment, with an average increase of 0.423 units. The results suggest that changes made between the initial and current assessments have resulted in a meaningful improvement in risk levels. The confidence interval reinforces that the true mean difference is likely positive, further supporting the conclusion that the current risk level is significantly higher than the initial risk level.

Table 4: Paired Samples Test (Paired Differences)								
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Current Risk Colour - Initial Risk Colour	0.423	0.656	0.038	0.348	0.499	11.049	292	0.000 ***

4.2 Regression Analysis and Model Evaluation for Risk Reduction

4.2 1 Model Summary and Regression Analysis of Risk Reduction Factors

The Model Summary of the regression analysis provides important information regarding the relationship between the independent variables and the dependent variable. The model includes several predictors, such as whether the family has an ID Poor Card, the number of home visits, family size, the number of months the case has been in the program, and various forms of support (legal, income generation, educational, shelter, healthcare, financial, and food support). The correlation coefficient (R) is 0.325, indicating a moderate positive relationship between these predictors and the outcome. The R Square value of 0.106 shows that 10.6% of the variance in the dependent variable is explained by the predictors. The Adjusted R Square, which accounts for the number of predictors in the model, is 0.071, reflecting a slight reduction in the model's explanatory power after adjusting for its complexity.

The standard error of the estimate, at 0.632, provides valuable insight into the accuracy of the model's predictions. It represents the average distance between the observed data points and the predicted values from the regression model. In simpler terms, on average, the actual outcomes differ from the predicted outcomes by approximately 0.632 units. A smaller standard error would indicate that the model's predictions are more precise, with less variability in the residuals, or the differences between observed and predicted values. In this case, the value of 0.632 suggests a moderate level of prediction error, indicating that while the model does capture some of the relationship between the independent variables and the dependent variable, there is still a noticeable degree of variation that the model does not account for. This level of error highlights that the model has room for improvement in terms of its predictive accuracy.

Table 5: Model Summary of the Regression Line				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.325	0.106	0.071	0.632

4.2.2 ANOVA Results and Interpretation of the Regression Model for Risk Improvement

The ANOVA (Analysis of Variance) table provides a deeper understanding of the overall significance of the regression model used to predict Risk Improvement. The Sum of Squares for the Regression is 13.280, representing the portion of the total variation in Risk Improvement that is explained by the predictors included in the model. The Residual Sum of Squares is 112.242, which indicates the amount of variation that remains unexplained by the model. Combined, the Total Sum of Squares is 125.522, representing the entire variation in the dependent variable, Risk Improvement.

The degrees of freedom (df) for the regression is 11, which corresponds to the number of predictors used in the model. The residual degrees of freedom is 281, calculated as the total number of observations minus the number of predictors and the constant. The Mean Square for the regression is 1.207, which is obtained by dividing the regression sum of squares by its degrees of freedom, while the Mean Square for the residual is 0.399.

The F-statistic is 3.023, which assesses whether the overall regression model is a better fit to the data than a model with no predictors. With a p-value (Sig.) of 0.001, which is well below the conventional significance level of 0.05, the model is statistically significant. This indicates that the predictors—such as whether the family has an ID Poor Card, the number of home visits, family size, the length of time the family has been in the program, and various forms of support (legal, financial, healthcare, educational, and food)—collectively have a significant impact on predicting Risk Improvement. This suggests that the model explains a meaningful portion of the variance in Risk Improvement, although other factors not included in this model may further improve its predictive ability.

Table 6: ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.280	11	1.207	3.023	0.001**
Residual	112.242	281	0.399		
Total	125.522	292			

4.2.3 Analysis of Predictor Contributions to Risk Improvement: Coefficients Table Summary

The Coefficients table from the regression analysis reveals the contributions of various predictors to Risk Improvement. The constant (intercept) of the model is 3.407, with a standard error of 0.118 and a highly significant t-value of 28.853 (p = 0.000), indicating that the constant is significantly different from zero. Regarding the predictors, the variable *Number of Visits* has an unstandardized coefficient of 0.002, a standard error of 0.004, and a standardized coefficient (Beta) of 0.055. However, with a t-value of 0.646 and a p-value of 0.519, this variable does not significantly impact Risk Improvement.

Family Size also shows no significant effect, with an unstandardized coefficient of -0.001, a t-value of -0.043, and a p-value of 0.966. In contrast, *Duration in the Program* is a significant predictor, with an unstandardized coefficient of 0.005, a standard error of 0.001, a Beta of 0.224, a t-value of 3.368, and a p-value of 0.001, indicating that longer participation in the program is associated with improved outcomes.

Food Support has a negative and significant effect, with an unstandardized coefficient of -0.027, a t-value of -2.102, and a p-value of 0.036, suggesting that receiving food support is associated with a slight decrease in Risk Improvement. Other predictors like *Shelter Support* (p = 0.592), *Healthcare Support* (p = 0.365), and *Educational Package Support* show varying degrees of influence. Notably, *Educational Package Support* has a significant negative impact, with an unstandardized coefficient of -0.087, a t-value of -3.742, and a p-value of 0.000, indicating that families receiving educational support tend to have lower improvements in risk reduction.

Predictors such as *Legal Support* (p = 0.610), *Financial Support* (p = 0.366), *Income Generation Support* (p = 0.902), and whether the family had an *ID Poor Card* (p = 0.803) do not have statistically significant effects on Risk Improvement. In summary, significant predictors in this model include the duration of time in the program and educational and food support, while other factors like family size, legal, financial, and income generation support do not exhibit meaningful impact on Risk Improvement.

Table 7: Coefficients of the Predictors

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.407	0.118		28.853	0.000***
Number of Visits	0.002	0.004	0.055	0.646	0.519
How many people are in the family?	-0.001	0.017	-0.002	-0.043	0.966
How many months has the case been in the program?	0.005	0.001	0.224	3.368	0.001**
Has the family receive any food support?	-0.027	0.013	-0.147	-2.102	0.036*
Has the family received shelter support?	-0.011	0.020	-0.036	-0.536	0.592
Has the family received healthcare support?	0.011	0.012	0.063	0.907	0.365
Has any child in the family received educational package support?	-0.087	0.023	-0.248	-3.742	0.000***
Has the family received legal support?	0.038	0.074	0.031	0.511	0.610
Has the family received financial support?	-0.023	0.025	-0.063	-0.906	0.366
Has the family received any income generation support?	0.002	0.017	0.008	0.123	0.902
Has the family had an ID Poor Card?	-0.013	0.052	-0.015	-0.249	0.803

5. Conclusion and Recommendation

5.1 Conclusion

The analysis presented in section 4 offers key insights into the shifting levels of risk and the contributing factors that influence risk reduction among families. These findings highlight important patterns in how risk levels have evolved over time, revealing specific elements that have played a critical role in mitigating these risks.

Firstly, the analysis of risk level changes reveals a substantial improvement over time. A significant number of families initially categorized in high-risk groups (Red or Yellow) have transitioned to lower-risk categories (Yellow or Green), as evidenced by the contingency table results. The Chi-Square tests confirm that this shift is not random, with statistically significant associations between initial and current risk levels, indicating that the initial risk status strongly influences subsequent outcomes.

In the statistical summary of risk levels, the mean increase from 1.53 to 1.95 suggests an overall reduction in risk. The paired samples test further reinforces this finding, showing a statistically significant increase of 0.423 units in the average risk level from the initial to the current state. This demonstrates a meaningful improvement in risk levels across the sample, supported by the high t-value and low p-value, indicating that the improvement is not due to chance.

Secondly, the regression analysis provides insight into the factors contributing to risk reduction. Although the model's R Square value (0.106) suggests that the predictors explain only a modest portion of the variance in risk improvement, the ANOVA results show that the model is statistically significant ($p = 0.001$). This implies that factors such as family characteristics, program involvement (e.g., number of home visits), and the provision of various forms of support have a meaningful impact on reducing family risk. However, the standard error of the estimate (0.632) suggests moderate prediction accuracy, indicating that the model captures some relationships but has room for improvement.

In conclusion, the study demonstrates significant progress in reducing family risk levels, with the majority of high-risk families transitioning to lower-risk categories. The regression model highlights several factors that contribute to risk reduction, though further refinement is needed to improve the model's explanatory power. The findings provide a strong foundation for understanding risk dynamics and the effectiveness of interventions aimed at reducing family vulnerability.

5.2 Recommendation

Based on the findings from the analysis, the following recommendations can enhance the project's effectiveness in reducing risk levels among families:

- **Strengthen Support Systems**: Develop and implement programs that provide families with access to essential resources, such as financial assistance, education, and healthcare services. This could include partnerships with local organizations to facilitate support networks that address specific family needs.
- **Enhance Awareness and Education**: Conduct workshops and informational sessions that focus on risk management strategies and promote awareness of available resources. Educating families on how to identify and mitigate risks can empower them to take proactive measures.
- **Foster Community Engagement**: Encourage community involvement through events and initiatives that bring families together. Building a sense of community can enhance social support and create a collective approach to addressing risks.
- **Monitor and Evaluate Interventions**: Establish a framework for ongoing monitoring and evaluation of the implemented strategies to assess their impact on risk levels. This will help identify successful initiatives and areas that require further attention or adjustment.
- **Promote Collaboration**: Collaborate with local government agencies, non-profits, and community organizations to create comprehensive programs that address multifaceted issues related to family risk. Collaborative efforts can lead to more effective solutions and resource sharing.

By adopting these recommendations, the project can further its mission to reduce risk levels among families and improve their overall well-being.

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