The KiVa Kāhui Ako project

A brief statistical analysis of bullying trends

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1. Introduction

Aotearoa New Zealand continues to face persistently high levels of bullying among tamariki and rangatahi (Lawes & Boyd, 2018). TIMSS reports highlight Aotearoa New Zealand's comparatively high rates of bullying and the association between frequent bullying and lower achievement (Mullis et al., 2020; TIMSS & PIRLS International Study Center, 2020), while ERO's 2019 review judged bullying prevalence "intolerably high" across primary and secondary levels and identified weak evaluation and monitoring in many schools (Education Review Office, 2019, p. 23; Gerritsen, 2019). These findings underline the need for coherent, whole-school approaches supported by robust data use.

KiVa is a research-based, whole-school programme developed in Finland that addresses bullying through three integrated strands: prevention (regular, age-targeted lessons, and school-wide culture-building to shift norms), intervention (clear, consistent procedures led by a trained staff team), and monitoring (ongoing feedback—typically via student surveys—to inform practice and celebrate progress) (Herkama et al., 2017; KiVa Program, n.d.).

Because bullying dynamics can extend beyond individual classrooms and even beyond single schools—into peer networks, sports teams, and neighbourhoods—interventions are more likely to take hold when messages and practices are consistent across a locality. Implementing a shared, evidence-based approach within a Kāhui Ako (Community of Learning) was therefore intended to create ripple effects across the wider community, creating and reinforcing common expectations for inclusion and defending others.

The KiVa Kāhui Ako project began in 2021 with funding from the Rātā Foundation and delivery led in partnership with Wellington UniVentures (a subsidiary of Te Herenga Waka—Victoria University of Wellington), the Ministry of Education, and participating schools. In 2023, The Elephant Trust[1] assumed ongoing management of the study. The New Zealand Council for Educational Research (NZCER) undertook an independent evaluation tracking student survey data from baseline over 2 years.

Given Aotearoa New Zealand's high need for anti-bullying initiatives and the advantages of a coordinated, community-wide approach, the project's aim was to introduce KiVa across one Kāhui Ako and evaluate impacts on bullying and victimisation over time—providing a tested model that others might adapt.

The participating Kāhui Ako was selected using a methodology developed by regional Ministry of Education staff familiar with Kāhui Ako readiness and capacity. Selection considered factors such as an explicit wellbeing (hauora) focus, leadership stability, timing of refreshed achievement challenges, and overall capacity given other commitments (e.g., regionally allocated PLD, Education Renewal, partnerships with mana whenua, Healthy Active Learning, and Urgent Response Funding initiatives).

The evaluation consisted of a standard survey administered by the Elephant Trust which was provided by the KiVa programme. NZCER was contracted to analyse a subset of this data most relevant to the research questions. The evaluation tracked student survey responses from baseline through 2 years of implementation. After 2 years of implementation, the evaluation found statistically significant

1 The Elephant Trust is a non-profit organisation whose mission is to reduce bullying in schools in Aotearoa New Zealand, primarily through the implementation of the KiVa programme.

reductions in victimisation at school, cyberbullying, and self-reported perpetration. Patterns varied by gender, with reductions in victimisation and cyberbullying evident for both boys and girls. Divergent trends were observed in self-reported bullying of others, with statistically significant reductions only for girls. A supplementary analysis explored the relationship between students' perceptions of teacher attitudes toward bullying and reported victimisation, providing evidence that students' belief that their teacher did not approve of bullying was associated with lower reported bullying.

This report presents limited statistical findings from the 2-year KiVa trial in six schools from one urban Kāhui Ako. It situates the results in the Aotearoa New Zealand context, summarises overall and subgroup trends, and discusses implications for future implementation and research on programme effectiveness and equity.

Research questions

Research questions were specified in advance of the study and reflected the project's theory of change:

1. *Change in student bullying experience (as perpetrators or targets): Is the introduction of KiVa in the schools within the Kāhui Ako associated with changes in the bullying experiences of students at Year 1 or Year 2 compared to baseline? Subgroups of students will also be explored.*
2. *Staff fidelity to KiVa: Is higher fidelity to KiVa among school staff associated with different student bullying experiences after the introduction of KiVa?*

Four self-reported items served as the outcome measures for the two research questions:

- frequency of being bullied at school
- frequency of cyber-victimisation
- frequency of bullying others
- student perception of teacher attitudes toward bullying.

Together, these items allowed us to explore outcomes for students as well as considering implementation quality. Results were interpreted with attention to statistical significance and practical importance, and with recognition of the study's design and data limitations. Where possible, subgroup patterns and equity implications are highlighted to inform future implementation and research.

Analysis methodology

Student-level data were gathered at three timepoints: a baseline survey in Term 1, 2021 (prior to KiVa), a follow-up after 1 full year of KiVa implementation in 2022, and a second follow-up after 2 years in 2023. Two of the Kāhui Ako's eight schools which initially began the KiVa programme withdrew during the evaluation period, which meant that students who were in Year 8 or higher were not present across all timepoints. To retain comparability over time, this analysis includes only students who were Year 7 or below at the time of data collection. Such data was available from 2,063 students at baseline, 1,519 students after 1 year, and 1,483 students after 2 years. Less data was available for some questions as not all respondents answered all questions. In addition, only students in Year 5 or above were asked about the frequency of cyber-victimisation, so less data was available for this question (see outputs for this variable).

Raw responses collected by The Elephant Trust were transferred to NZCER, where standard data-cleaning procedures were applied (e.g., data review, coding missing data, variable harmonisation across cycles).

Because the study's objective was to detect change during the period in which KiVa was implemented, each item's Year 2 response distribution was compared with its baseline and Year 1 distributions using chi-squared tests of independence.[2] Where the chi-squared approximation was poor, Fisher's Exact Test (or its $n \times m$ extension) was substituted. In a small number of interpretively important cases, direct comparisons were made between Year 2 and either baseline or Year 1 to help establish the trajectory of change.

Given that multiple hypothesis tests were conducted across the three core variables (and across selected subgroups such as gender), p-values were adjusted using the False Discovery Rate (FDR) method. This approach controls the proportion of statistically significant findings that could arise simply by chance, while maintaining greater statistical power than more conservative family-wise procedures. Throughout the report, an adjusted $p < 0.05$ is taken to indicate a statistically significant difference.

2 Chi-squared testing is a type of statistical hypothesis testing. Hypothesis testing begins with a default assumption that there is no real difference or effect (the null hypothesis) and asks whether the study's results for that item would be unlikely to arise by chance if the null hypothesis were true. If the probability (p-value) of obtaining results at least as unusual as the ones in the study falls below a pre-specified cutoff (the significance level, commonly set by convention across many fields at 0.05 or 5%), we reject the null hypothesis; otherwise, we fail to reject it. This does not prove that no effect exists, only that our data are insufficient to establish one.

2. Key findings

Change in student bullying experience

NZCER analysed three questions in the KiVa survey it believed were most suitable for comparison across years to explore changes in student bullying experience:

- How often have you been bullied at school during the past few months (being bullied)?
- Have you been bullied through the Internet during the past few months (being cyberbullied)?
- How often have you bullied another student at school during the past few months (bullying others)?

After 2 years of KiVa implementation, changes in all three variables were statistically significant after adjusting for multiple comparisons. The adjusted p-values for being bullied, being cyberbullied, and bullying others were 2.90e-07, 5.53e-06, and 4.55e-03, respectively. This indicates that the differences observed in bullying, cyberbullying, and bullying others before and after the implementation of KiVa are unlikely to be due to chance.

Being bullied

The low p-value from the chi-squared test provides statistical evidence for a change in the distribution of being bullied at school after the introduction of the KiVa programme. Observed proportions indicate a reduction 2 years after implementation.

While this study was not designed to establish causality, the consistent decrease in reported bullying over both the first and second years of KiVa suggests a sustained positive impact. However, further research is needed to determine whether this trend continues over a longer period and to distinguish between the effect of KiVa and any external factors that may have contributed to the change.

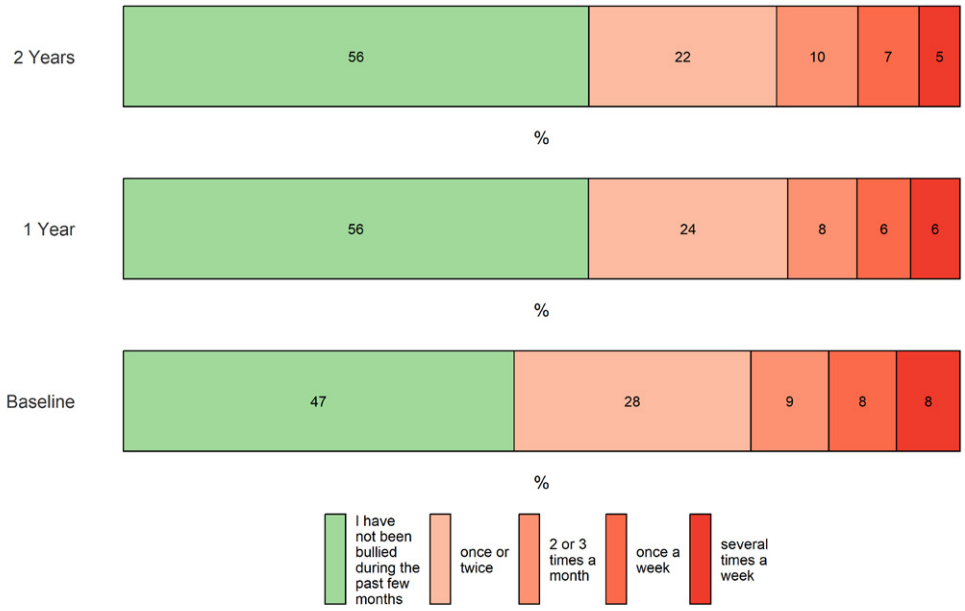

FIGURE 1 **How often have you been bullied at school during the past few months? N = 1470 (2 Years), 1510 (1 Year), 2063 (baseline)**

Being cyberbullied

Chi-squared tests indicated a statistically significant change in the distribution of cyberbullying frequency across baseline, 1 year, and 2 years. Observed proportions show a reduction in students reporting cyberbullying by 2 years. This suggests the programme may mitigate online bullying in addition to physical and verbal bullying in schools.

Sustained statistical significance on chi-squared tests at both 1 and 2 years of follow-up highlights the potential role of KiVa's intervention strategies—such as fostering a supportive school climate and promoting active bystander behaviours—in influencing student interactions beyond the physical school environment. Further research is needed to explore the specific mechanisms driving this reduction, including whether KiVa's effects on school culture extend to online spaces or if other external factors are contributing to the decline.

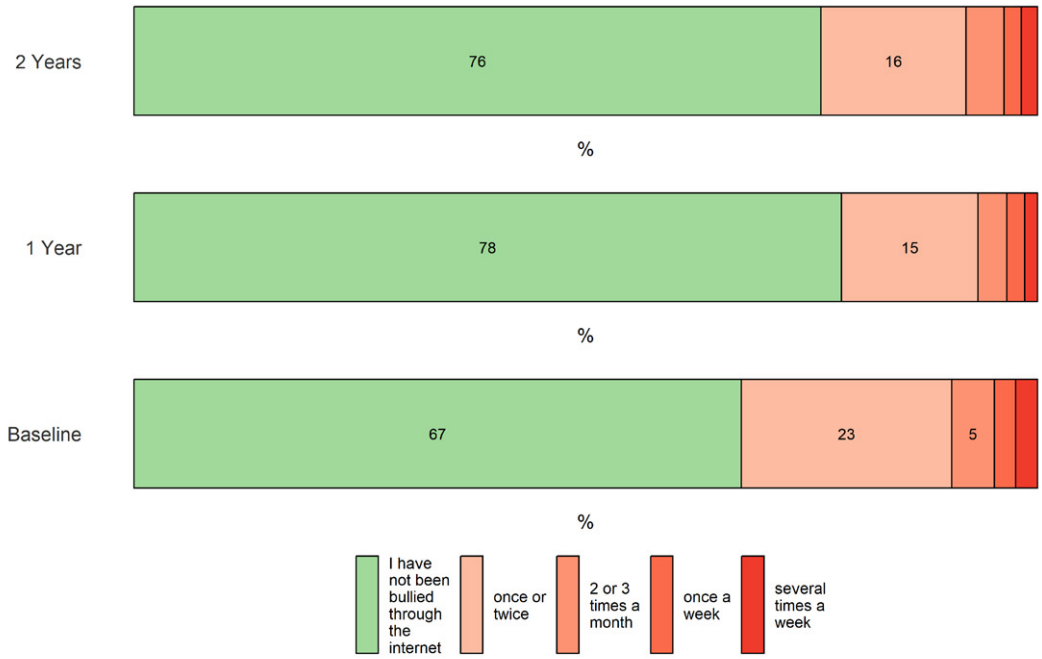

FIGURE 2 **Have you been bullied through the Internet during the past few months? N = 1018 (2 Years), 913 (1 Year), 1225 (baseline)**

Bullying others

The p-value for bullying others indicated a statistically significant change in the frequency of students bullying others after 2 years of KiVa implementation. However, the magnitude of the distributional shift was small. As this measure relies on self-report, some of the observed change could reflect increased reluctance to admit bullying after KiVa's introduction (social-desirability bias).

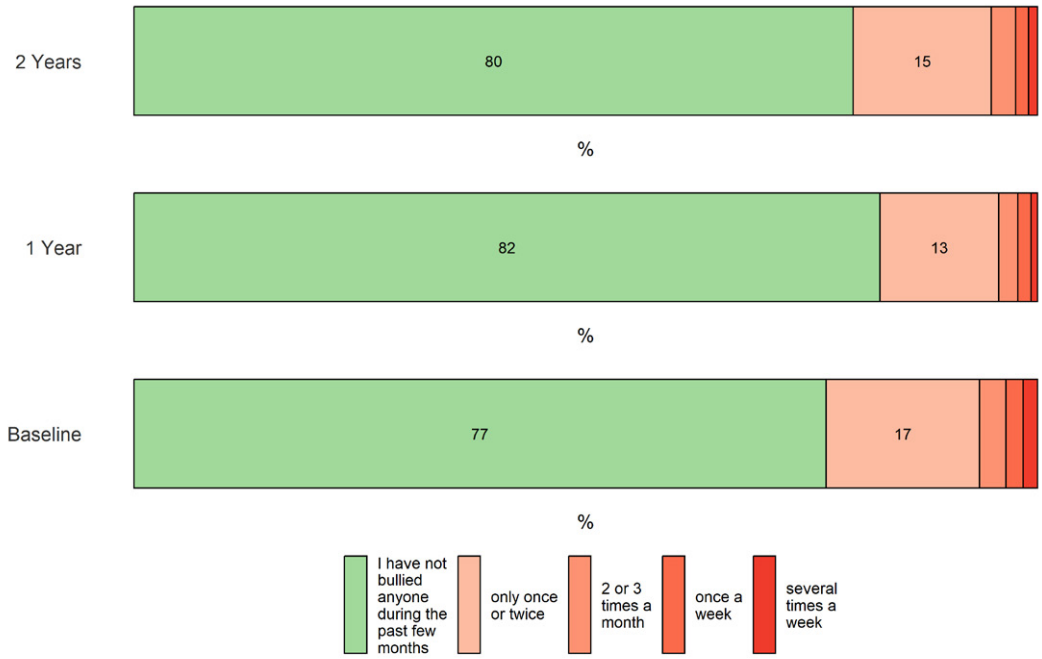

FIGURE 3 **How often have you bullied another student at school during the past few months? N = 1463 (2 Years), 1501 (1 Year), 2063 (baseline)**

The reduced overall rates of being bullied and being cyberbullied and more limited reduction in self-reported bullying others suggest that broader school environments improved after the introduction of the KiVa programme. Future monitoring, including methods designed to limit social desirability bias (e.g., list experiments), is needed to determine whether additional interventions are needed to sustain long-term behavioural change among students who engage in bullying.

Gender subgroup analysis

The overall balance of boys, girls, and students identifying as another gender remained approximately static from baseline to Year 2 (49%, 49%, 2%). While gender was not exactly balanced at all participating schools, it was nearly so, with the most extreme gender gap at any participating school being 56% male and 44% female.

After 2 years of KiVa implementation, both boys and girls showed statistically significant changes in bullying behaviour, though these differed in direction, with boys reporting more frequent bullying of others, while girls reported bullying others less often. Reductions in being bullied and being cyberbullied remained more pronounced in boys than in girls. This suggests that the programme's impact differs based on gender, potentially due to variations in how boys and girls experience and report bullying or how they respond to the specific interventions embedded within KiVa.

- Being bullied: The adjusted p-values for boys and girls were 1.73e-06 and 2.62e-02, respectively. This indicates a statistically significant reduction in being bullied for both boys and girls, although the effect was stronger in boys.
- Being cyberbullied: The adjusted p-values for boys and girls were 2.90e-07 and 1.85e-02, respectively. Similar to school bullying, both boys and girls reported statistically significant reductions in cyberbullying after 2 years.

- Bullying others: The adjusted p-values for boys (1.90e-01) and girls (1.54e-11) indicate a statistically significant change in bullying behaviour for girls but not for boys. Notably, boys showed a slight (though not significant) increase in self-reported bullying behaviour, while girls exhibited a significant decrease. Further investigation is needed to understand the underlying factors behind these differences.

Results for students identifying as another gender were not graphed or included in the hypothesis testing, as the small number of responses provided inadequate statistical power to detect differences.

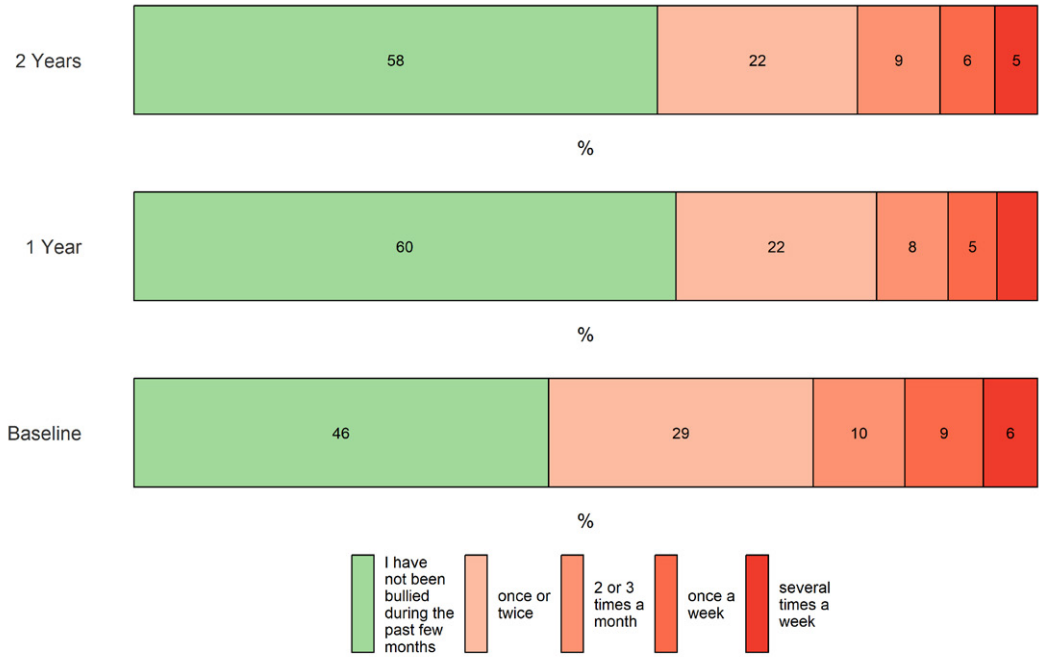

FIGURE 4 **How often have you been bullied at school during the past few months? (Boys, N = 721, 742, 1021)**

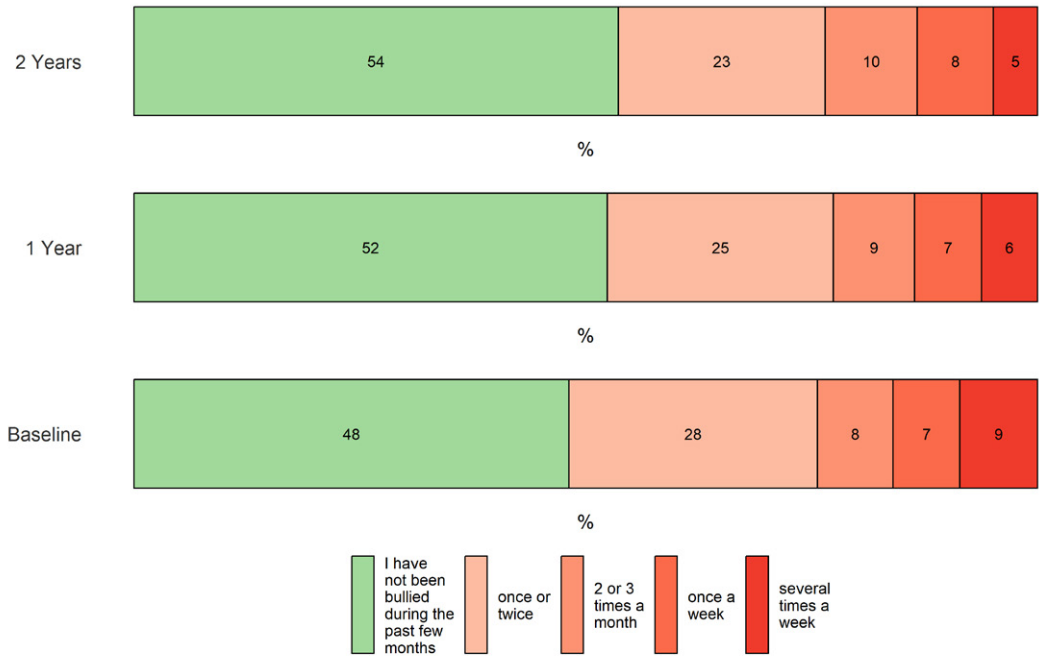

FIGURE 5 **How often have you been bullied at school during the past few months? (Girls, N = 717, 745, 1017)**

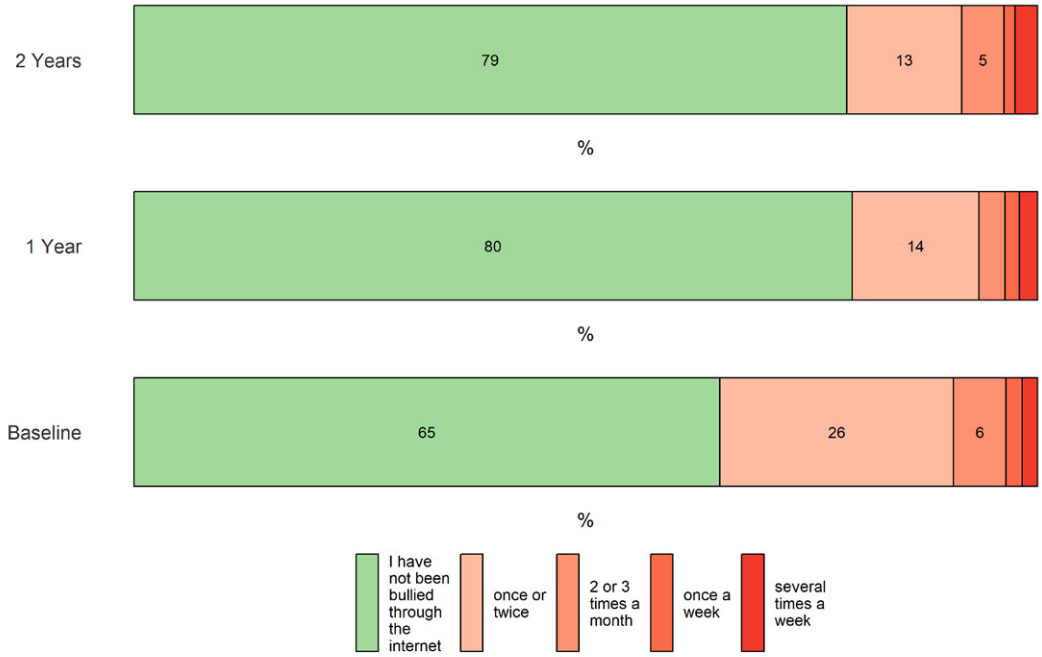

FIGURE 6 **Have you been bullied through the Internet during the past few months? (Boys, N = 486, 448, 606)**

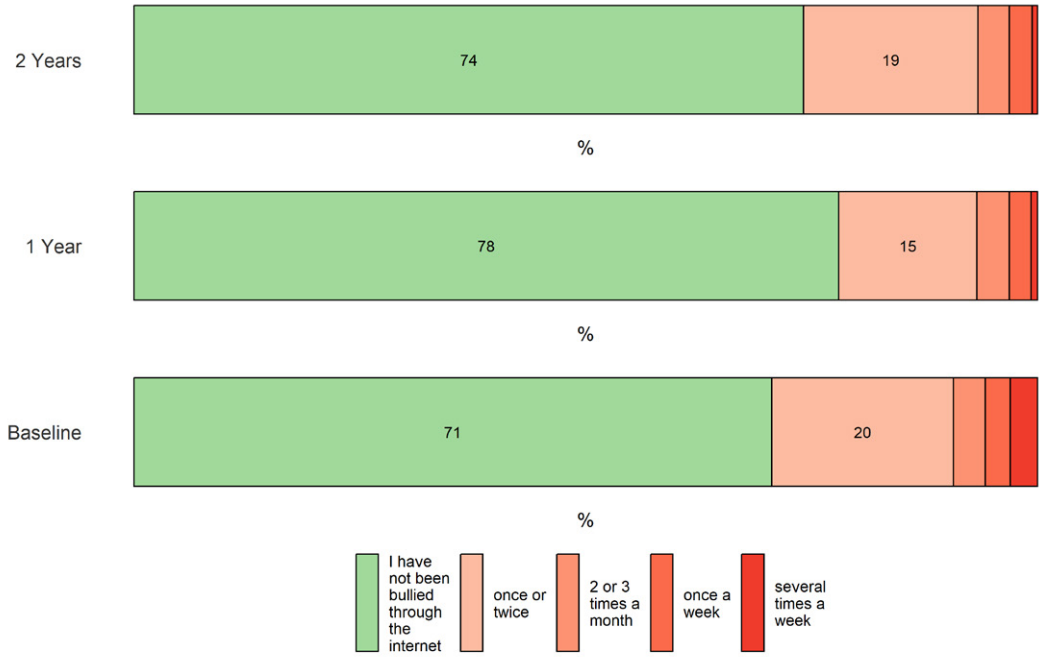

FIGURE 7 **Have you been bullied through the Internet during the past few months? (Girls, N = 512, 449, 598)**

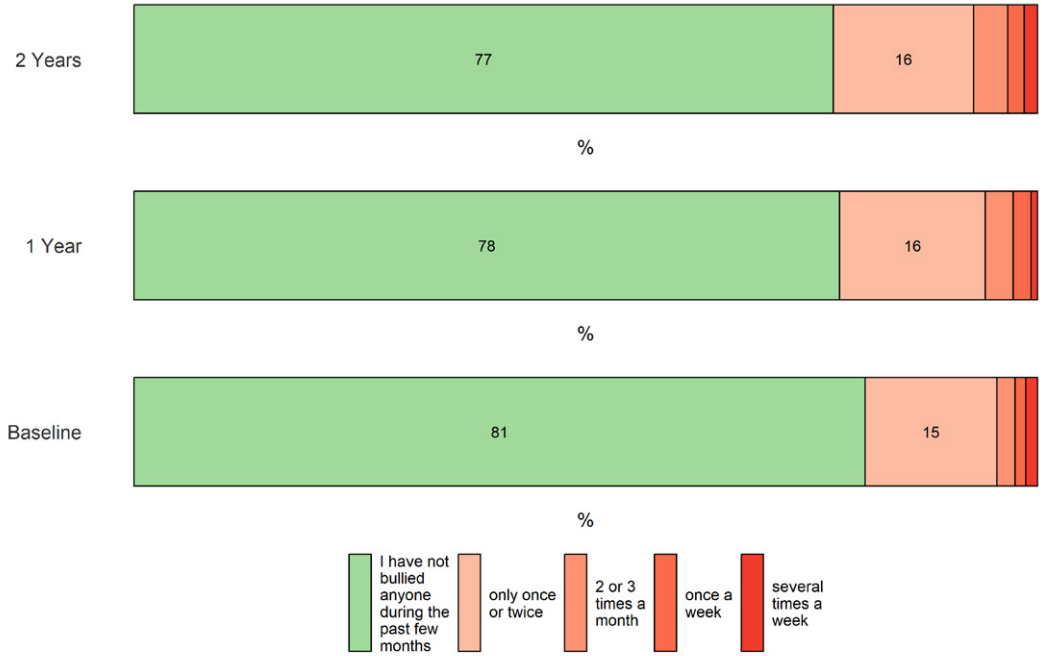

FIGURE 8 **How often have you bullied another student at school during the past few months? (Boys, N = 718, 735, 1021)**

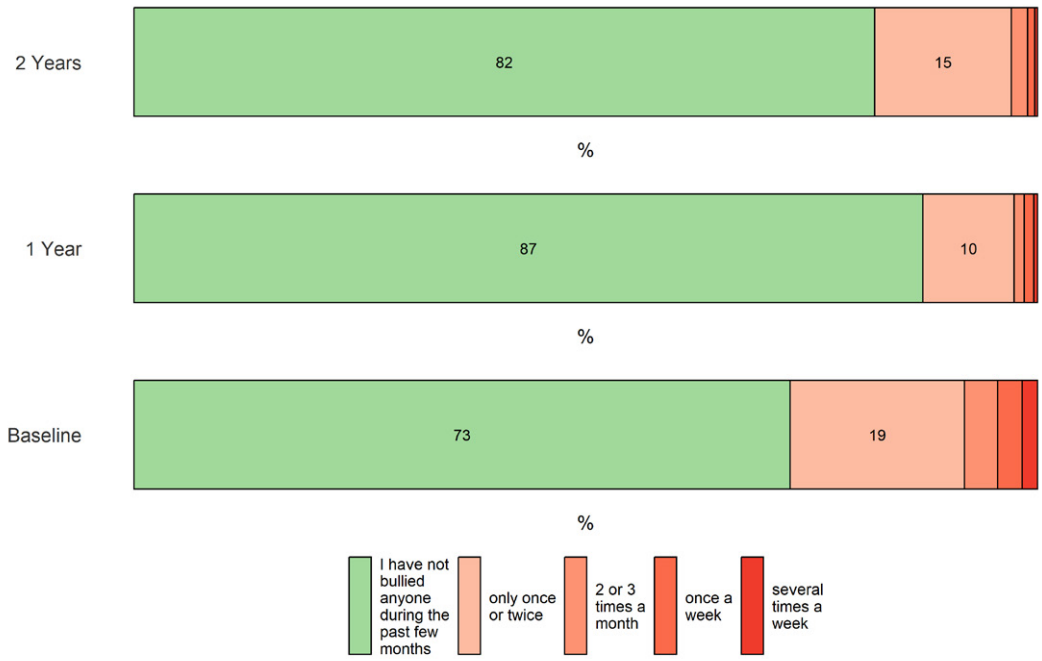

FIGURE 9 **How often have you bullied another student at school during the past few months? (Girls, N = 713, 743, 1017)**

NZCER examined student age as a variable of interest based on previous research linking lower student wellbeing with age. Although the analysis revealed some differences between year levels at baseline and during follow-up, these differences did not exhibit a simple age-related pattern and are not presented here. This may in part be a consequence of the elimination of the data from the oldest children after their schools withdrew from the study. NZCER recommends exploration of age in more detail in any future research about KiVa's efficacy in Aotearoa New Zealand.

Staff fidelity to the KiVa programme

Fidelity to KiVa was not directly measured. However, it can be reasonably assumed that teacher fidelity to KiVa is likely to be positively correlated with student perceptions of their teacher's attitude toward bullying. For example, if a teacher is perceived to tolerate bullying, this teacher is likely not following the KiVa programme.

Teacher attitudes toward bullying

Ordinal logistic regression was used to examine how changes in time and teacher attitudes toward bullying related to students' reported frequency of being bullied. This method is useful in situations where both the outcome and the predictors are measured on Likert scales (ordered categorical data). Time (Baseline, Year 1, and Year 2) and students' perception of their teacher's attitude toward bullying were modelled using orthogonal polynomial contrasts to allow for the possibility of non-linear trends. The analysis was conducted using the polr() function from the MASS package in R, with p-values obtained from Wald tests (normal approximation). Model parameters are presented below in Table 1.

TABLE 1 **Ordinal Logistic Regression Model Values**

Parameter	Estimate	Standard Error	p-value
Time Effects			
time.L (Linear)	-0.1612	0.08173	4.9e-02
time.Q (Quadratic)	0.2197	0.07335	2.7e-03
Teacher Attitude Effects			
predictor.L (Linear)	-0.4866	0.11206	1.4e-05
predictor.Q (Quadratic)	-0.6736	0.08978	6.2e-14
predictor.C (Cubic)	0.6911	0.15273	6.0e-06
predictor^4 (Quartic)	-0.3054	0.12470	1.4e-02

The analysis indicates that both time and students' perceptions of their teachers' attitudes are statistically significant predictors of how often students report being bullied (higher values = higher frequencies).

Over the study period, there is evidence that reported bullying decreased: the linear time contrast is negative (estimate = –0.16, p = 0.049), indicating lower odds of reporting more frequent bullying at later waves. The quadratic time contrast is positive (estimate = 0.22, p = 0.0027), suggesting curvature—i.e., the rate of change differs across waves (consistent with slightly weaker improvements at Year 2 in some measures).

Students' perception of their teacher's attitude toward bullying shows a strong association with reports of being bullied. The linear effect is negative (estimate = –0.49, p = 1.4e-05), indicating that when teachers are perceived as more opposed to bullying, students have lower odds of reporting frequent bullying. Significant non-linear components—the quadratic (–0.67, p = 6.2e-14), cubic (0.69, p = 6.0e-06), and quartic (–0.31, p = 0.014) contrasts—indicate that this relationship is not purely linear and may intensify at more extreme levels of perceived opposition. This complexity warrants further investigation in future KiVa research in Aotearoa New Zealand.

3. Limitations

While promising, this research on the KiVa anti-bullying programme has several limitations that reduce our ability to draw conclusions from the results. The reliance on self-reported data introduces potential biases, as students' perceptions and willingness to report bullying incidents may vary and may be influenced by classroom and school dynamics not captured by the survey. Moreover, the sample size, while comprising a large number of students, is limited to six schools, which may not generalise to the broader population of Aotearoa New Zealand schools.

While the Year 2 results demonstrate that the introduction of KiVa was associated with an improvement in bullying experiences, it is not possible to establish conclusively that the KiVa programme was the cause of this improvement. To establish causality, it would be ideal to randomise students to either receiving the KiVa programme or not receiving it. While this may not be practical to do at the student level, it could likely be done at the school level (which would likely require more schools to participate) or classroom level. Moreover, whether randomised or not, following the same students through multiple years of the KiVa programme would permit analyses that could better control for student effects and more strongly suggest that the introduction of KiVa was causally associated with an improvement in bullying experiences. While it can be difficult to randomise students within a school setting, in any future research, NZCER recommends following a stable group of students across multiple timepoints if possible. Building in an additional qualitative, evaluative component would also be helpful in establishing KiVa as causally responsible for the changes in bullying seen in schools.

Demographic information beyond age and gender—such as ethnicity, socioeconomic status, and student achievement—was not collected. In particular, the absence of ethnicity data (consistent with typical KiVa data collection) means we could not examine whether bullying experiences differ across ethnic groups at baseline or after implementation. Prior research indicates that bullying can vary by ethnic identity (Galan, 2021; Kljakovic et al., 2015), including differences in its forms. Without ethnicity data, we cannot assess whether such disparities existed in participating schools or whether KiVa operated similarly across groups.

Including ethnicity in future Aotearoa New Zealand evaluations would allow a more nuanced understanding of who benefits, help identify any groups experiencing disproportionately high rates of bullying, and support monitoring that any reductions are occurring equitably across student populations.

Future Aotearoa New Zealand evaluations should include ethnicity and other key demographics (e.g., socioeconomic status, achievement) to provide a more nuanced understanding of who benefits, identify any groups experiencing disproportionately high rates of bullying, and monitor whether reductions are occurring equitably across student populations.

4. Conclusions

The Year 2 analysis indicates that the KiVa programme was associated with sustained reductions in being bullied and being cyberbullied, suggesting a role in fostering safer, more inclusive school environments in Aotearoa New Zealand. However, findings for self-reported bullying of other students are mixed: girls reported significant reductions, while boys showed a non-significant increase. This gender divergence warrants further investigation to determine whether differences reflect variations in programme engagement, developmental trends, or shifts in reporting behaviour.

Future research on the KiVa programme in the Aotearoa New Zealand context should address these limitations and extend the current study methodology by:

- Using a mixed methods approach—quantitative analyses and qualitative methods (e.g., focus groups or interviews)—to explore how boys and girls respond differently to KiVa, and to identify strategies that can enhance the programme's effectiveness among boys.
- Implementing studies that follow a stable cohort of students over multiple years.
- Collecting and analysing a range of demographic variables, most importantly ethnicity, socioeconomic status (if possible), and any available measures of academic achievement. This would allow exploration of whether the KiVa programme is equally effective across Aotearoa New Zealand's diverse population and has the potential to inform future adjustments to better target KiVa to various groups of students in Aotearoa New Zealand.
- Integrating measures of programme fidelity. Detailed tracking of teacher training, classroom delivery, and adherence to KiVa protocols would help disentangle whether mixed outcomes arise from the programme's design or differences in its implementation across schools and classrooms.

Overall, the current findings provide promising evidence of KiVa's impact on reducing bullying and cyberbullying, while also highlighting areas where further research would be helpful. Addressing these methodological and contextual gaps could refine the KiVa model to ensure equitable, sustainable anti-bullying benefits across all Aotearoa New Zealand schools.

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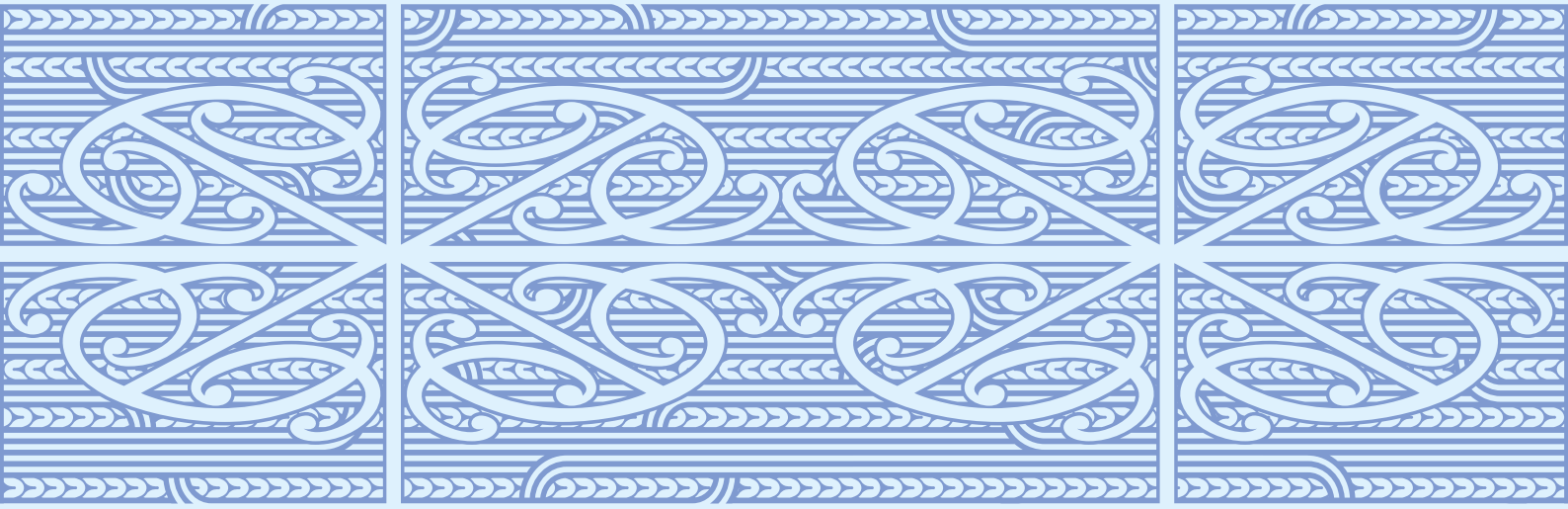

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