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RESEARCH ARTICLE

Persistent focal onchocerciasis transmission near the Maridi Dam, South Sudan, despite intensified elimination interventions: Repeated Ov16 serosurveys in young children, 2019–2026

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Abstract

Background

Maridi County in South Sudan is an onchocerciasis hotspot with a high burden of onchocerciasis-associated epilepsy. Elimination activities were strengthened through slash-and-clear vector control from 2019 and biannual community-directed treatment with ivermectin from 2021. We assessed Ov16 seropositivity in young untreated children and its temporal and geographical distribution following these interventions.

Methodology/Principal findings

Repeated cross-sectional Ov16 rapid diagnostic test surveys were conducted in 2019, 2023, and 2026 using the same field approach. For direct temporal comparison, analyses were restricted to children aged 3–4 years from the four sites surveyed in 2026. Overall Ov16 seroprevalence was 18.5% (36/195; 95% CI 13.4–24.8). Combined seroprevalence was 33.3% (35/105) in the two frontline villages near the Maridi Dam, Kazana 1 and Kazana 2, versus 1.1% (1/90) in the two more distant villages of Hai-Tarawa and Hai-Gabat ($p < 0.001$); seroprevalence reached 49.1% (26/53) in Kazana 2. Seroprevalence was 11.5% (10/87) among 3-year-olds and 24.1% (26/108) among 4-year-olds ($p = 0.024$). Across the same four villages and age range, overall prevalence was 14.3% (6/42) in 2019, 20.0% (14/70) in 2023, and 18.5% (36/195) in 2026 ($p = 0.744$). To account for unequal village representation across surveys, village-standardized prevalence estimates were also calculated by assigning equal weight to each village and closely paralleled the crude estimates. A generalized

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linear mixed model with village as a random intercept was fitted, adjusting for age and sex. Compared with 2019, there was no evidence of a temporal difference in seropositivity in 2023 (OR 1.32, 95% CI 0.40–4.40; p = 0.652) or 2026 (OR 1.24, 95% CI 0.43–3.60; p = 0.686).

Conclusions/Significance

Repeated Ov16 surveys identified continued substantial seropositivity among children aged 3–4 years, particularly in Kazana 2 near the Maridi Dam, consistent with recent *O. volvulus* exposure and ongoing local transmission. The findings support improving ivermectin coverage among eligible residents, sustained entomologically monitored vector control, and geographically targeted surveillance. Safe paediatric antifilarial options could help close the protection gap in children at risk of onchocerciasis-associated epilepsy.

Author summary

Onchocerciasis is transmitted by blackflies and remains highly endemic in parts of South Sudan. Monitoring of Ov16 seropositivity among children below the age of 5 years is particularly useful as a marker of recent exposure and transmission because they have had only a short period in which to become infected and do not receive ivermectin during mass treatment campaigns. We compared Ov16 antibody results from young children tested in Maridi in 2019, 2023, and 2026. We found that seropositivity was not evenly distributed. About one-third of children aged 3–4 years in Kazana 1 and Kazana 2, the village closest to the Maridi Dam were Ov16-positive, compared with about one in ninety children in two more distant villages. Kazana 2 remained the clearest hotspot. Seropositivity across the same four villages did not change significantly between 2019 and 2026, consistent with continuing local transmission has not been interrupted. We conclude that Maridi needs consistently high ivermectin coverage and targeted vector control at the dam. Developing safe treatment options for young children could provide protection against infection and its complications, including onchocerciasis-associated epilepsy.

Introduction

Onchocerciasis is a neglected tropical disease caused by the filarial nematode *Onchocerca volvulus* and transmitted by *Simulium* blackflies. In addition to dermatological and ocular disease, intense *O. volvulus* transmission is associated with a spectrum of epileptic disorders grouped as onchocerciasis-associated epilepsy (OAE) [1–4]. OAE typically begins in previously healthy children and adolescents living in areas with high ongoing transmission and includes nodding syndrome and other convulsive and non-convulsive seizure phenotypes [2–4].

Maridi County in Western Equatoria, South Sudan, is a well-characterised OAE hotspot. A population-based survey in 2018 documented an epilepsy prevalence of 4.4%, rising to almost 12% in Kazana 2 near the Maridi Dam [5]. Entomological and serological work subsequently identified the dam spillway as the only known local blackfly breeding site [6]. Strengthening of onchocerciasis elimination measures was subsequently followed by a marked decline in epilepsy and nodding syndrome incidence [7], and epilepsy-related mortality also decreased after free epilepsy care and strengthened onchocerciasis control were introduced [8].

Interruption of parasite transmission has proved more difficult. In a follow-up Ov16 survey in 2023, conducted in the villages Kazana 1, Kazana 2, Hai-Gabat, Hai-Matara and Hai-Tawara, overall seroprevalence among children aged 3–9 years was 30.7% (76/248), compared with 24.3% (35/144) in 2019; the difference was not statistically significant [9]. Three-year-old children had an Ov16 seroprevalence of 12.5% (3/24) in 2019 and 8.8% (3/34) in 2023 [9]. The same study showed a strong geographical gradient, with substantially higher seroprevalence in villages close to the dam compared to the more distant villages Hai-Tarawa and Hai-Gabat [9]. Ov16 antibodies can appear early after infection and are therefore useful for detecting exposure before patent infection is readily demonstrable [10].

Ov16 seropositivity among young children is especially informative for transmission surveillance because they have a short exposure window. Routine ivermectin mass drug administration generally excludes children weighing less than 15 kg, which in practice includes many children younger than five years. Persistent Ov16 seropositivity in this group is consistent with exposure during early childhood and is not attributable to failure of the child's own ivermectin treatment; seropositivity does not itself establish active infection. This is of particular concern in an OAE-endemic focus, where preventing intense early-life exposure to *O. volvulus* is a plausible component of OAE prevention [2–4].

The present study updates the previous Maridi Ov16 work with 2026 serological data from two villages near the dam, Kazana 1 and Kazana 2, and two more distant villages, Hai-Tarawa and Hai-Gabat. We aimed to compare Ov16 seropositivity before and after strengthening the onchocerciasis elimination programme using the same villages and a directly comparable young age group, and to determine whether transmission remained spatially concentrated near the Maridi Dam.

Methods

Ethics statement

The 2019 survey protocol was approved by the ethics committees of the Ministry of Health of South Sudan (MOH/ERB 3/2018) and the University of Antwerp, Belgium (B300201940004) [6]. The 2023 follow-up received ethical approval from the Ministry of Health of South Sudan (MOH/RERB/56/2022) and the University of Antwerp (BUN B300201940004) [9]. The 2026 survey received approval from the ethics committee of the Ministry of Health of the Republic of South Sudan (MOH/RERB/P/208/19/12/2025-MOH/RERB/A/208/7/01/2026) and the ethics committee of the University of Antwerp, Belgium (BUN B3002025000103). Written informed consent was obtained from parents or guardians before participation. All procedures were conducted in accordance with the Declaration of Helsinki.

Use of generative artificial intelligence: OpenAI ChatGPT was used during manuscript preparation to assist with language editing, organisation, and presentation of the manuscript. All AI-assisted output was critically reviewed and verified by the authors, who take full responsibility for the final manuscript.

Study design and setting

Cross-sectional Ov16 serosurveys were conducted in Maridi County in December 2019, February 2023, and in February and July 2026. In 2019 and 2023, children aged 3–9 years were recruited from five settlements at different distances from

the Maridi Dam: Kazana 1, Kazana 2, Hai-Matara, Hai-Tarawa, and Hai-Gabat [9]. In 2026, data were collected in Kazana 1, Kazana 2, Hai-Tarawa, and Hai-Gabat (Fig 1). Children born in and who had lived continuously in the selected villages were eligible for enrolment in the study. Nurses from Maridi Hospital were selected and trained to conduct the Ov16 rapid diagnostic tests (RDTs), administer the questionnaires, and record the test results on the paper-based study forms. In 2019, the test results were checked and verified by Dr. Stephen Jada and Dr. Joseph Siewe. In 2023, verification was conducted by Dr. Amber Hadermann and Dr. Stephen Jada, while in 2026, the results were checked and verified by Dr.

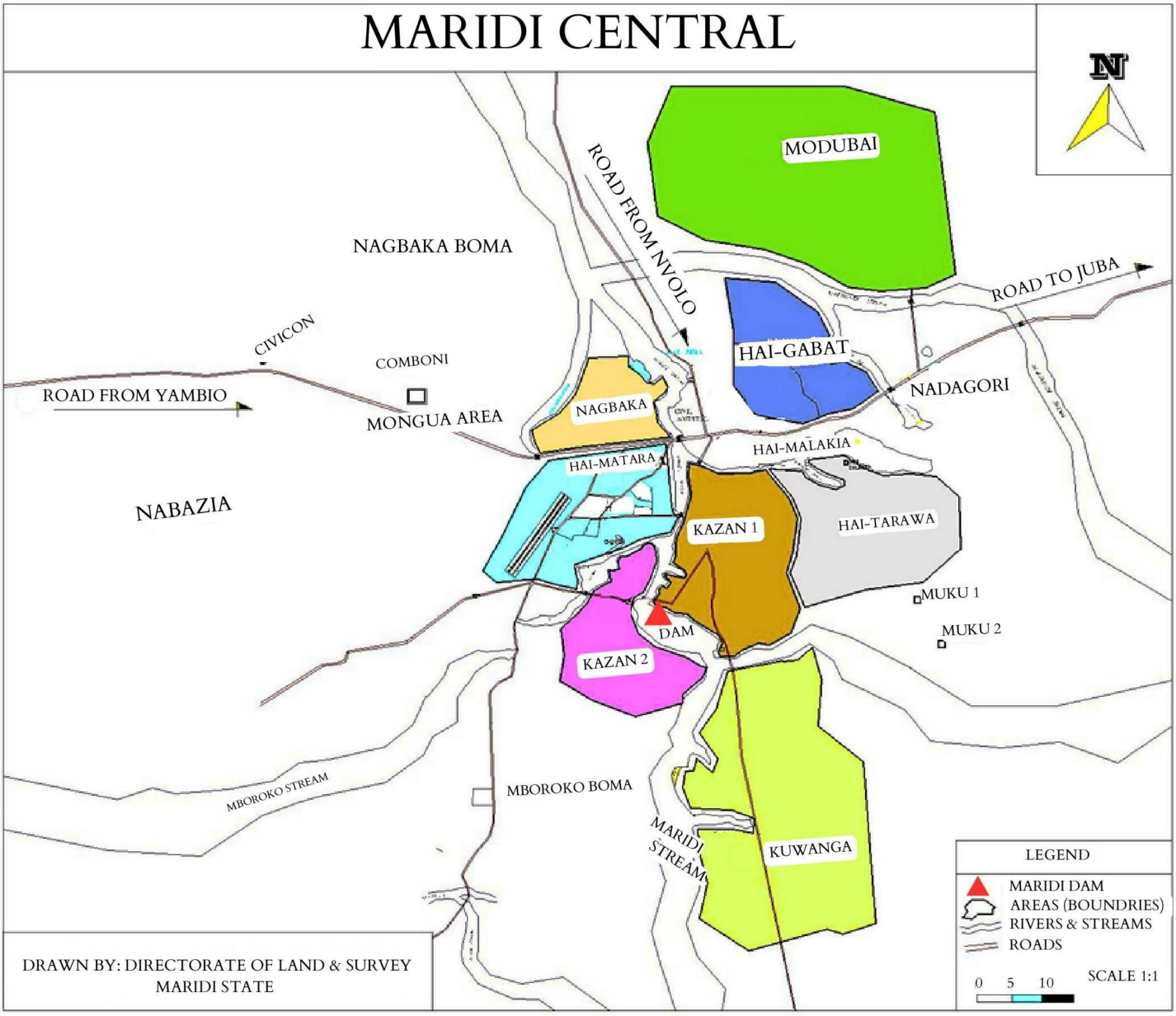

Fig 1. The Maridi central area with the location of high- (Kazana 1 and Kazana 2 and Hai-Matara) and low-onchocerciasis transmission zones (Hai-Tarawa and Hai-Gabat) and the Maridi Dam (adapted from Hadermann et al. [9]).

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Stephen Jada. Kazana 1 and Kazana 2 are frontline settlements around the dam, with most households reportedly within approximately 5 km; Hai-Gabat is a second-line settlement approximately 15 km from the dam. Precise distances for all sampled households and village population denominators were not available.

For the directly comparable four-site analyses, Kazana 1 and Kazana 2 were grouped as the near-dam zone and Hai-Tarawa and Hai-Gabat the distant zone; historical serological gradients identified near-dam as high-transmission and distant as low-transmission zones [9]. Hai-Matara was excluded from temporal comparisons because it was not surveyed in 2026.

Control context

Annual community-directed treatment with ivermectin (CDTi) was reintroduced in Maridi in 2017 after earlier interruptions. Distribution was interrupted in 2020 during the COVID-19 pandemic and resumed in 2021 with biannual treatment. Slash-and-clear vector control was introduced at the Maridi Dam in December 2019 and subsequently repeated [7,11]. Reported ivermectin therapeutic coverage improved after awareness activities and biannual delivery, reaching 70.3% in 2023, but remained heterogeneous and below the 80% level considered desirable for elimination in a hyperendemic focus [12].

Participants and procedures

The same general field procedures as in the previous Maridi surveys were used [9]. Community mobilisation preceded data collection. After written informed consent from a parent or guardian, a short questionnaire recorded age, sex, village of residence, previous ivermectin intake, itching or skin symptoms, onchocerciasis nodules, and epilepsy or recurrent seizures. Whole blood obtained by finger-prick was tested using the SD BIOLINE Ov16 RDT according to the manufacturer's instructions. Dried blood spots were also collected in 2026 for possible additional analyses. For the primary 2026 analysis, records were restricted to children aged 3–4 years with a valid Ov16 RDT result. The 3–4-year age group was selected for cross-survey comparability and to provide an untreated, short-exposure-window sentinel population.

Outcome and statistical analysis

The primary outcome was Ov16 RDT seropositivity. Continuous variables were summarised as medians with interquartile ranges (IQR), and categorical variables as counts and percentages. Ninety-five percent confidence intervals (CI) for proportions were calculated using the Wilson score method with continuity correction, consistent with the previous Maridi analysis [9]. Group differences were assessed using chi-square tests or Fisher's exact tests when expected cell counts were small. The main temporal analysis restricted all three survey years to children aged 3–4 years from Kazana 1, Kazana 2, Hai-Tarawa, and Hai-Gabat. Overall heterogeneity in seroprevalence across the three survey years was assessed by chi-square test, with pairwise comparisons reported descriptively. Three-year-olds were analysed separately as the youngest comparable sentinel group. Because the surveys were repeated cross-sectional convenience samples rather than longitudinal cohorts, temporal findings were interpreted as population-level serological patterns rather than individual seroconversion or seroreversion.

Village-standardized Ov16 seroprevalence was estimated for each survey year to account for differences in the number and proportion of participants sampled from each village across surveys. Village-specific prevalence estimates were first calculated separately within each survey year and were then averaged assigning equal weight to each of the four villages (25% per village), irrespective of village-specific sample size. The standardized estimates represent the prevalence that would have been observed if all four villages had contributed equally to each survey. Ninety-five percent confidence intervals for the standardized prevalence were obtained using stratified bootstrap resampling of individuals within each survey-year-by-village stratum. Both crude and village-standardized prevalence estimates were reported to assess the extent to which temporal differences were influenced by changes in village sampling composition.

To further assess the temporal differences in Ov16 seropositivity while accounting for clustering of participants within villages, a generalized linear mixed-effects model (GLMM) with a binomial distribution and logit link was fitted. Ov16 seropositivity was modelled as a binary outcome, with survey year, age, and sex included as fixed effects and village included as a random intercept to account for between-village heterogeneity and within-village correlation. Survey year was treated as a categorical variable, with 2019 as the reference category. Associations were expressed as odds ratios (ORs) with 95% CIs and p-values.

Results

Characteristics of the 2026 study population

The primary 2026 analysis included 195 children aged 3–4 years: 87 (44.6%) were 3 years old and 108 (55.4%) were 4 years old. Ninety-three (47.7%) were male and 102 (52.3%) were female. By village, 52 children were enrolled in Kazana 1, 53 in Kazana 2, 41 in Hai-Tarawa, and 49 in Hai-Gabat (Table 1). Skin itching was reported by the mothers of 60 children (30.8%) skin itching was reported by the mother. No child in the analysed age group was recorded as having onchocerciasis nodules or epilepsy/recurrent seizures. All were recorded as having no previous ivermectin intake, consistent with their young age and size.

Ov16 seroprevalence in 2026

Overall Ov16 seroprevalence among children aged 3–4 years was 18.5% (36/195; 95% CI 13.4–24.8) (Table 1). Seroprevalence differed strongly between villages ($p < 0.001$): 49.1% (26/53) in Kazana 2, 17.3% (9/52) in Kazana 1, 2.0% (1/49) in Hai-Gabat, and 0% (0/41) in Hai-Tarawa. Combining villages by distance from the dam, prevalence was 33.3% (35/105) in Kazana 1 and Kazana 2 (near-dam, frontline villages) compared with 1.1% (1/90) in Hai-Tarawa and Hai-Gabat (distant, second-line villages) ($p < 0.001$).

Seroprevalence was lower among 3-year-olds than 4-year-olds: 11.5% (10/87) versus 24.1% (26/108), respectively ($p = 0.024$). This age difference was concentrated in the near-dam high-transmission villages: prevalence increased from 18.8% (9/48) among 3-year-olds to 45.6% (26/57) among 4-year-olds in Kazana 1 and Kazana 2. In the distant lower-transmission villages, prevalence was 2.6% (1/39) among 3-year-olds and 0% (0/51) among 4-year-olds. Ov16

Table 1. Ov16 RDT seroprevalence among children aged 3–4 years in Maridi, 2026.

Variable	Category	Ov16 positive/ total	Seroprevalence, % (95% CI)	p-value
Overall	—	36/195	18.5 (13.4–24.8)	—
Village	Kazana 1	9/52	17.3 (8.7–30.8)	<0.001
Village	Kazana 2	26/53	49.1 (35.3–63.0)	
Village	Hai-Tarawa	0/41	0.0 (0.0–10.7)	
Village	Hai-Gabat	1/49	2.0 (0.1–12.2)	
Distance from dam zone	Near (Kazana 1 & 2)	35/105	33.3 (24.6–43.3)	<0.001
Distance from dam zone	Distant (Hai-Tarawa & Hai-Gabat)	1/90	1.1 (0.1–6.9)	
Age	3 years	10/87	11.5 (5.9–20.6)	0.024
Age	4 years	26/108	24.1 (16.6–33.4)	
Sex	Male	18/93	19.4 (12.2–29.1)	0.759
Sex	Female	18/102	17.6 (11.1–26.7)	
Skin itching	Yes	15/60	25.0 (15.1–38.1)	0.117
Skin itching	No	21/135	15.6 (10.1–23.0)	

CI, confidence interval. P-values compare categories within each variable using chi-square or Fisher's exact tests, as appropriate.

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seroprevalence was similar in males and females (19.4%, 18/93 vs 17.6%, 18/102; p = 0.759). Children with reported skin itching had higher seroprevalence than those without itching (25.0%, 15/60 vs 15.6%, 21/135), although the difference was not statistically significant (p = 0.117).

Ov16 seroprevalence over time in comparable sites and ages

To improve comparability, all three survey years were restricted to children aged 3–4 years from Kazana 1, Kazana 2, Hai-Tarawa, and Hai-Gabat. Overall seroprevalence was 14.3% (6/42) in 2019, 20.0% (14/70) in 2023, and 18.5% (36/195) in 2026 (Table 2). There was no evidence of overall heterogeneity across survey years (p = 0.744), and none of the pairwise differences was statistically significant (2019 vs 2023, p = 0.445; 2023 vs 2026, p = 0.778; 2019 vs 2026, p = 0.520).

The spatial gradient persisted across survey years. Combined prevalence in Kazana 1 and Kazana 2 was 25.0% (5/20) in 2019, 37.1% (13/35) in 2023, and 33.3% (35/105) in 2026. In Hai-Tarawa and Hai-Gabat, prevalence was 4.5% (1/22), 2.9% (1/35), and 1.1% (1/90), respectively. Kazana 2 remained the clearest seropositivity hotspot, with prevalence among 3–4-year-olds of 33.3% (3/9) in 2019, 42.9% (9/21) in 2023, and 49.1% (26/53) in 2026.

Among 3-year-old children in the same four villages, Ov16 seroprevalence was 11.1% (2/18) in 2019, 7.4% (2/27) in 2023, and 11.5% (10/87) in 2026. None of the pairwise differences was statistically significant. Persistent seropositivity in this untreated sentinel age group nevertheless is consistent with recent *O. volvulus* exposure and continuing local transmission.

Village-standardized Ov16 seroprevalence was 15.2% (95% CI 5.0–25.7) in 2019, 19.6% (13.1–28.6) in 2023, and 17.1% (12.7–21.4) in 2026. These estimates were close to the corresponding crude prevalences, suggesting that differences in village sampling composition had little influence on the observed temporal pattern (Table 2).

Adjusted analysis of Ov16 seroprevalence across survey years

In the mixed-effects logistic regression (Table 3), with village included as a random intercept, there was no evidence of a temporal change in Ov16 seropositivity. Compared with 2019, the odds of seropositivity were not significantly different in 2023 (OR 1.32, 95% CI 0.40–4.40; p = 0.652) or 2026 (OR 1.24, 95% CI 0.43–3.60; p = 0.686). Village-level clustering was observed, with a random-intercept variance of 2.87. The corresponding approximate intraclass correlation coefficient (ICC) was 0.47, suggesting that about 47% of the residual variation in the underlying propensity for Ov16 seropositivity was attributable to differences between villages.

Table 2. Ov16 RDT seroprevalence among children aged 3–4 years in the four repeatedly surveyed villages, 2019–2026.

Site/group	2019, % (n/N)	2023, % (n/N)	2026, % (n/N)
Kazana 1	18.2 (2/11)	28.6 (4/14)	17.3 (9/52)
Kazana 2	33.3 (3/9)	42.9 (9/21)	49.1 (26/53)
Hai-Tarawa	9.1 (1/11)	7.1 (1/14)	0.0 (0/41)
Hai-Gabat	0.0 (0/11)	0.0 (0/21)	2.0 (1/49)
Near-dam zone	25.0 (5/20)	37.1 (13/35)	33.3 (35/105)
Distant zone	4.5 (1/22)	2.9 (1/35)	1.1 (1/90)
Overall (crude prevalence)	14.3 (6/42)	20.0 (14/70)	18.5 (36/195)
Three-year-olds only	11.1 (2/18)	7.4 (2/27)	11.5 (10/87)
Village-Standardized Prevalence % (95% CI)	15.2 (5.0; 25.7)	19.6 (13.1; 28.6)	17.1 (12.7; 21.4)

The four-site temporal comparison excludes Hai-Matara because no 2026 data were available. The 2019 and 2023 values were recalculated from the source datasets after restriction to ages 3–4 years and the four villages surveyed in 2026.

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Table 3. Generalized linear mixed model (GLMM) of Ov16 seropositivity, adjusted for age and sex, with village as a random intercept.

Variables	OR[1]	95% CI[1]	p-value
Year (ref: 2019)			
2023	1.32	0.40, 4.40	0.652
2026	1.24	0.43, 3.60	0.686
Age (Ref: 3 years old)			
4 years old	3.56	1.72, 7.39	**<0.001**
Sex (ref: Female)			
Male	0.91	0.46, 1.79	0.791

[1] OR = odds ratio; CI = confidence interval.

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Discussion

The principal finding of these repeated cross-sectional surveys is that persistent, highly focal Ov16 seropositivity was observed among young children in Maridi, suggesting persistent exposure and transmission after several years of elimination interventions. In 2026, about one-third of children aged 3–4 years in the two frontline villages near the Maridi Dam were Ov16-positive, compared with only 1.1% in the two more distant second-line villages. The four-site age-restricted comparison did not show a significant change in overall seroprevalence between 2019, 2023, and 2026.

This interpretation is consistent with the known focal ecology of onchocerciasis transmission in Maridi. The dam spillway is the only identified local blackfly breeding site, and both the 2019 and 2023 studies documented higher Ov16 seroprevalence in nearby settlements [6,9]. The 2026 data sharpen this picture: prevalence was almost absent in the two more distant sites but remained extremely high in Kazana 2. These findings support village-level rather than county-wide interpretation of programme performance and suggest that intervention monitoring should explicitly identify persistent transmission micro-foci. In 2019, biting rates at the dam spillway reportedly reached 202 flies per person-hour [6]. Slash-and-clear interventions subsequently reduced biting rates [11], but no comparable 2026 village-specific biting-rate or vector-infection estimates were available for this analysis.

Persistent transmission near the dam is biologically plausible in the context of incomplete CDTi coverage. Therapeutic coverage increased substantially after awareness activities and the transition to biannual treatment, reaching 70.3% in 2023 [12]. However, children aged 3–4 years do not receive ivermectin, and their exposure is determined by the community reservoir in older eligible residents. If a substantial proportion of eligible residents are repeatedly missed or do not participate in treatment rounds, sufficient microfilariae may remain available in these hosts for blackfly uptake to sustain transmission. The programme priority is therefore not simply to maintain biannual distribution, but to achieve consistently high and homogeneous coverage, particularly in the areas of Kazana 1 and Kazana 2 near the dam.

The geographical pattern also strengthens the rationale for intensifying vector control at the Maridi Dam. Slash and clear initially produced a major reduction in blackfly biting and is particularly attractive in Maridi because transmission is linked to a well-defined breeding site [11]. The sustained high Ov16 seroprevalence among young untreated children in Kazana 2 suggests that the frequency, timing, or consistency of current implementation may be insufficient to maintain suppression throughout the transmission season. A pragmatic next step would be to evaluate twice-yearly slash-and-clear timed to local vector ecology, with entomological measurements before and after each intervention. The optimal schedule should be determined operationally rather than assuming that a fixed twice-yearly schedule will be appropriate every year. Implementing a community-based slash and clear vector control method without interruption and without external funding is difficult [13]. Moreover this method is difficult to implement in large rivers and at breeding sites on rocks [13,14].

The persistent exposure of very young children is also clinically relevant in an OAE-endemic setting. Among 3-year-olds in the four comparable villages, 11.5% (10/87) were Ov16-positive in 2026, not significantly different from 2019 or 2023. Epidemiological and intervention studies support a relationship between high *O. volvulus* infection and subsequent epilepsy risk [2–4,7,15]. Preventing intense early-life exposure should therefore be considered an explicit component of OAE prevention.

There is a strong rationale for accelerating safe paediatric antifilarial options. Current CDTi programmes exclude children weighing less than 15 kg because dosing, formulation, and regulatory evidence remain incomplete, although observational and meta-analytic safety data in smaller children are reassuring [16]. Dedicated paediatric formulation, pharmacokinetic, safety, and acceptability studies have also been undertaken, including the EPIC-15 trial in children weighing 5 to less than 15 kg [17]. If these data support regulatory and programme use, age-appropriate ivermectin formulations could close an important protection gap for children too small for current mass treatment.

Moxidectin is another relevant development. In February 2025, the US Food and Drug Administration expanded the indication for moxidectin to patients aged 4 years and older who weigh at least 13 kg [18]; Ghana had authorised moxidectin for adults and children aged 4 years and older in December 2024 [19]. Moxidectin produces more prolonged suppression of skin microfilariae than ivermectin after a single dose [20] but is costly and not currently available for large-scale CDTi use.

This study has several strengths. The same general field approach and Ov16 RDT platform were used across surveys, and the primary repeated cross-sectional analysis restricted the data to the same four villages and the same 3–4-year age range, improving comparability across survey years. Ov16 seroprevalence studies among children to assess *O. volvulus* exposure and inform transmission surveillance have been conducted in other endemic areas [21–23] but mainly among 5–10-year-old children and were also used to guide decisions to stop mass drug administration and during post-treatment surveillance surveys [24–27] and for modeling studies to predict time to onchocerciasis elimination [28,29].

The study also has limitations. The surveys were convenience-based repeated cross-sectional samples rather than probability samples or longitudinal cohorts, and the 2026 sample was larger than the comparable 2019 and 2023 samples. No contemporaneous village-specific CDTi coverage, blackfly biting-rate, or vector infection data were available to link the 2026 serological pattern directly to programme delivery or entomological transmission intensity. Hai-Matara was not surveyed in 2026 and could not be included in the directly comparable analysis. The Ov16 RDTs were read in the field and the results were not confirmed in the laboratory. However, in a study in 2023 conducted at Maridi Hospital among pregnant women, the seroprevalence derived from the Ov16 RDT performed in the laboratory at the University of Antwerp did not differ significantly from the Ov16 RDT results read in the field by the health care workers [30], Finaly, no skin-snip or blackfly PCR data were collected to confirm active infection or quantify transmission. These limitations warrant caution in interpreting temporal percentages, but they do not diminish the large spatial contrast observed in 2026.

In conclusion, the repeated Ov16 serosurveys identified continued high seropositivity in young children living near the Maridi Dam, particularly in Kazana 2, consistent with recent exposure and ongoing local *O. volvulus* transmission. The findings support a targeted intensification package: consistently high biannual CDTi coverage in eligible residents, intensified and entomologically monitored slash-and-clear vector control, and standardised Ov16 surveillance in young sentinel children. Development and regulatory adoption of safe paediatric antifilarial formulations could further strengthen protection of children at risk of OAE and accelerate progress towards elimination.

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