

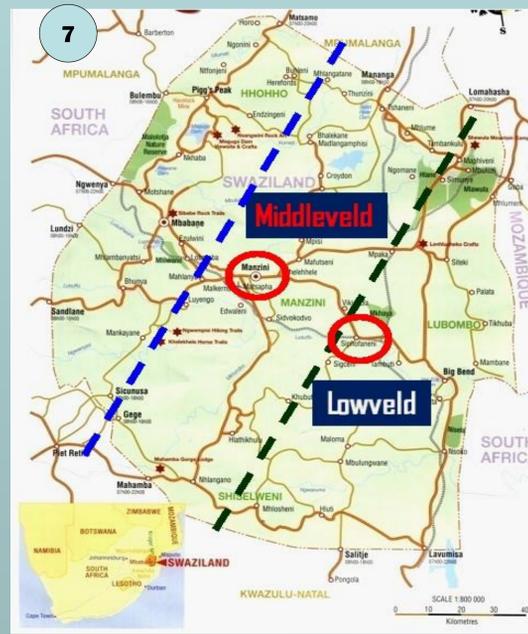
Seroprevalence of *Toxoplasma gondii* infection among children in Swaziland, Southern Africa

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Introduction

Toxoplasma gondii is a widespread protozoan parasite whose natural host is the cat. Human infection usually occurs via the accidental ingestion of water, food or soil that has been contaminated with the parasite's oocysts, from cat feces (Fayer *et al.*, 2004). Post-infection, adults and children with normal immune function remain asymptomatic or develop only mild symptoms (Montoya and Liesenfeld, 2004). In a subject who is immunocompromised (e.g. as the result of AIDS), however, *T. gondii* can cause severe encephalitis (Hung *et al.*, 2005). In pregnant women, infection with *T. gondii* can be transmitted to the fetus and lead to stillbirth or to mental retardation, blindness and/or epilepsy in the infant (Petersen, 2007). As the direct detection of the causative parasite is very difficult, the diagnosis of human toxoplasmosis is usually based on the serological detection of antibodies against *T. gondii*, using latex agglutination, ELISA and/or IFAT. In developed countries, the seroprevalence of *Toxoplasma* infection among young children (aged <5 years) tends to be low, with values of 0.0% reported in Japan (Suzuki *et al.*, 1988) and 6.3% in Ireland (Tayler *et al.*, 1997). Higher values — of 8.9% in Somalia (Ahmed *et al.*, 1988), 21.5% in São Tomé and Príncipe (Fan *et al.*, 2006), 30.7% in Iran (Ghorbani *et al.*, 1978) and 47.8% in Bolivia (Paradisi *et al.*, 1989) — have been recorded among the young children (aged ≤5 years) living in the less developed areas of the world. Apart from the studies in Somalia (Ahmed *et al.*, 1988) and São Tomé and Príncipe (Fan *et al.*, 2006), little is known about the prevalence of *T. gondii* infection in young African children. The aim of the present study, which was based on latex-agglutination tests, was to determine the seroprevalence of such infection among the children living in two areas of the Kingdom of Swaziland, southern Africa. Swaziland is a developing country where the climatic and living conditions favor many parasites (Logan, 1983).



Figures 1-4 . Blood samples collection , from Siphofaneni and Manzini ; 5-6. The examination results of the Latex-agglutination Test giving a titer of 1 : 32 or higher was considered positive.; 7.Location of studied district in Swaziland; 8. Certificate of IRB obtained from Department of Social Welfare & Health, Swaziland

Results

Table 1.

Seroprevalence of *Toxoplasma gondii* infection among children living in the towns of Siphofaneni and Manzini, in Swaziland, southern Africa.

Study town	Variable	Mean (s.d.) age (years)	No. and (%) of subjects		No. of subjects giving a latex-agglutination titre of:								χ^2	P
			Examined	Found seropositive	1:32	1:64	1:128	1:256	1:512	1:1024	1:2048	1:4096		
Siphofaneni	All subjects	7.5 (5.7)	38	2 (5.3)	0	0	0	1	0	1	0	0	0.83*	0.45*
	GENDER													
	Male	5.8 (5.2)	22	2 (9.1)	0	0	0	1	0	1	0	0	ND	ND
	Female	3.8 (1.2)	16	0 (0.0)	0	0	0	0	0	0	0	0		
Manzini	AGE (years)													
	≥5	3.5 (1.1)	31	2 (6.5)	0	0	0	1	0	1	0	0	ND	ND
	6-10	7.0 (1.4)	4	0 (0.0)	0	0	0	0	0	0	0	0		
	>10	17.7 (3.2)	3	0 (0.0)	0	0	0	0	0	0	0	0		
All subjects	6.9 (3.3)	75	7 (9.3)	0	1	0	1	1	2	0	0	0.80†	0.80†	
GENDER														
Male	7.3 (3.0)	36	3 (8.3)	0	0	0	0	1	1	0	1	1.12‡	0.03‡	
Female	7.4 (3.1)	39	4 (10.3)	0	1	0	1	0	1	0	1			
Both	AGE (years)													
	≥5	4.6 (0.8)	30	1 (3.3)	0	0	0	0	0	0	0	1	0.70†	0.79†
	6-10	7.6 (1.6)	28	6 (21.4)	0	1	0	1	1	2	0	1		
	>10	11.8 (1.3)	17	0 (0.0)	0	0	0	0	0	0	0	0		
All subjects	7.2 (3.8)	113	9 (8.0)	0	1	0	2	1	3	0	2			
GENDER														
Male	6.6 (1.0)	58	5 (8.6)	0	0	0	1	1	2	0	1	0.70†	0.79†	
Female	5.6 (2.6)	55	4 (7.3)	0	1	0	1	0	1	0	1			
Both	AGE (years)													
	≥5	4.0 (0.8)	61	3 (4.9)	0	0	0	1	0	1	0	1	0.75‡	0.03‡
	6-10	7.3 (0.4)	32	6 (18.8)	0	1	0	1	1	2	0	1		
	>10	14.8 (4.2)	20	0 (0.0)	0	0	0	0	0	0	0	0		

ND, Not determined.

*Compared with the corresponding seroprevalence for the subjects from Manzini.

†Compared with the seroprevalence among the female subjects from the same town.

‡Compared with the seroprevalence among the subjects aged 6–10 years from the same town.

Conclusion

Preventive measures against *Toxoplasma* infection in the children of Swaziland, including public education about infection sources and the prevention of soil or water contamination by cat feces, especially in areas where children play, need to be improved and enforced. Future studies will target on *Toxoplasma* infection of the school children, pregnant women and then the general population.

Reference

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SUBJECTS AND METHODS

