



# IMPACT OF SOCIO-ECONOMIC STATUS OF NIGERIAN PREGNANT WOMEN ON SUSCEPTIBILITY TO MALARIA AND HELMINTHIASIS

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# BACKGROUND

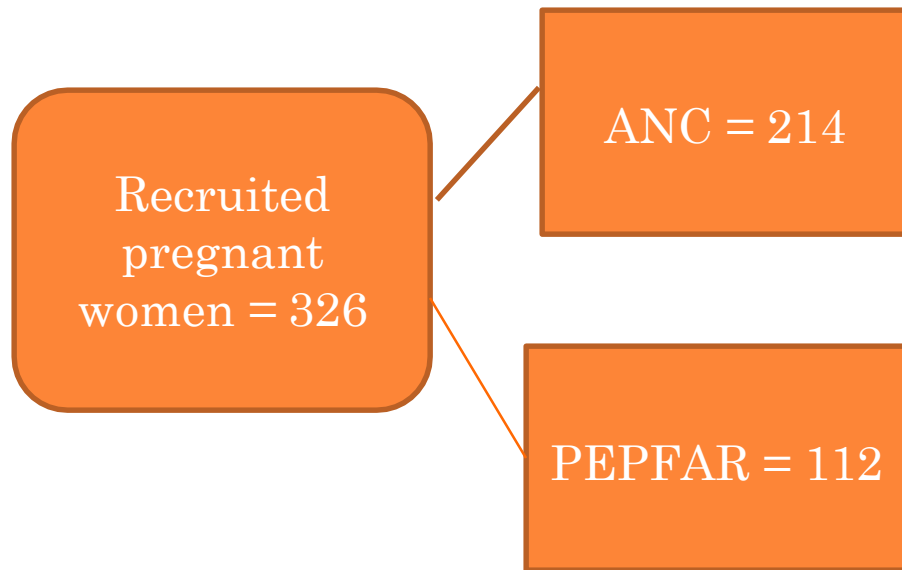
- Malaria and heminthiasis are diseases of public health importance.
- Burden of the diseases is high amongst children and pregnant women.
- In Nigeria, 72% and 43.4% prevalence rates of malaria and helminthiasis among pregnant women have been reported respectively (Adefioye et al. 2007, Alli et al. 2011).
- Different control measures are developed to combat this menace.
- Control measures focus on improved personal hygiene, good sanitation and adequate living conditions.

# BACKGROUND

- “Helminthiasis is reportedly high among people living in rural or deprived urban settings with low socio-economic status, lack of clean water and poor sanitation” (Hotez et al., 2006).
- “In areas where there is no latrine systems the soil and water around the villages and communities are contaminated with faeces or urine containing worm eggs from infected individuals” (Tchunte, 2012).
- Hence, the need to evaluate the association between socio-economic status cum living conditions of pregnant women and their susceptibility to infections.



# METHODOLOGY



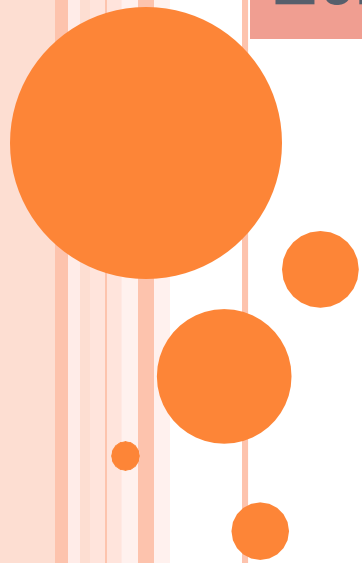
- Geimsa-stained thick blood smears were prepared for malaria microscopy
- Helminthes in stool samples were identified and quantified using direct and Katokatz method respectively.

# METHODOLOGY CONTD.

- Questionnaires were administered to obtain information on
  - demographic characteristics
  - socio-economic details
  - living conditions.
  - sanitary practices
- Data analyzed using SPSS version 16.0 software package.
  - Descriptive statistics for demographic data.
  - Point estimation of prevalence of malaria and helminth infections.
  - Odds ratios (OR) with a 95% confidence interval were computed to test for susceptibility to infection.



# RESULTS



# TABLE 1 – DEMOGRAPHIC DETAILS

		Frequency (n)	Percentage (%)
<b>MEAN</b>	<b>GESTATION AGE</b>		
Age = 29yrs	First trimester	10	3.3
Weight = 65.1±11.55kg	Second trimester	117	38.1
Height = 158.1±6.65cm	Third trimester	180	58.6
	<b>GRAVIDITY</b>		
	Primigravidae	91	28.8
	Secundigravidae	80	25.3
	Multigravidae	145	45.9
	<b>PARITY</b>		
	None	92	29.4
	≤ 4 children	198	63.2
	> 4 children	23	7.4

# TABLE 2 – SOCIO-ECONOMIC STATUS

	Number (%)	Number (%)
<b>LEVEL OF EDUCATION</b>	Self	Spouse
None	4 (1.2)	1 (0.3)
Primary	47 (14.6)	18 (5.6)
Secondary	159 (49.4)	146 (45.8)
Post secondary	112 (34.8)	154 (48.3)
<b>OCCUPATION</b>		
Unemployed	34 (10.6)	7 (2.2)
Petty trading	151 (47.0)	90 (27.8)
Low level income earners	76 (23.7)	80 (24.7)
Middle level income earners	48 (15.0)	92 (28.4)
Professionals	12 (3.7)	54 (16.7)
Others		1 (0.3)



# TABLE 3 – LIVING CONDITIONS

	Frequency (n)	Percentage (%)
<b>TYPE OF TOILET FACILITY</b>		
None	6	1.8
Pit latrine	105	32.2
Water system	211	64.7
Others	4	1.2
<b>POTABLE WATER</b>		
Well with pump	19	5.8
Well with bucket and rope	212	65
Pipe borne water	38	11.7
Borehole	57	17.5

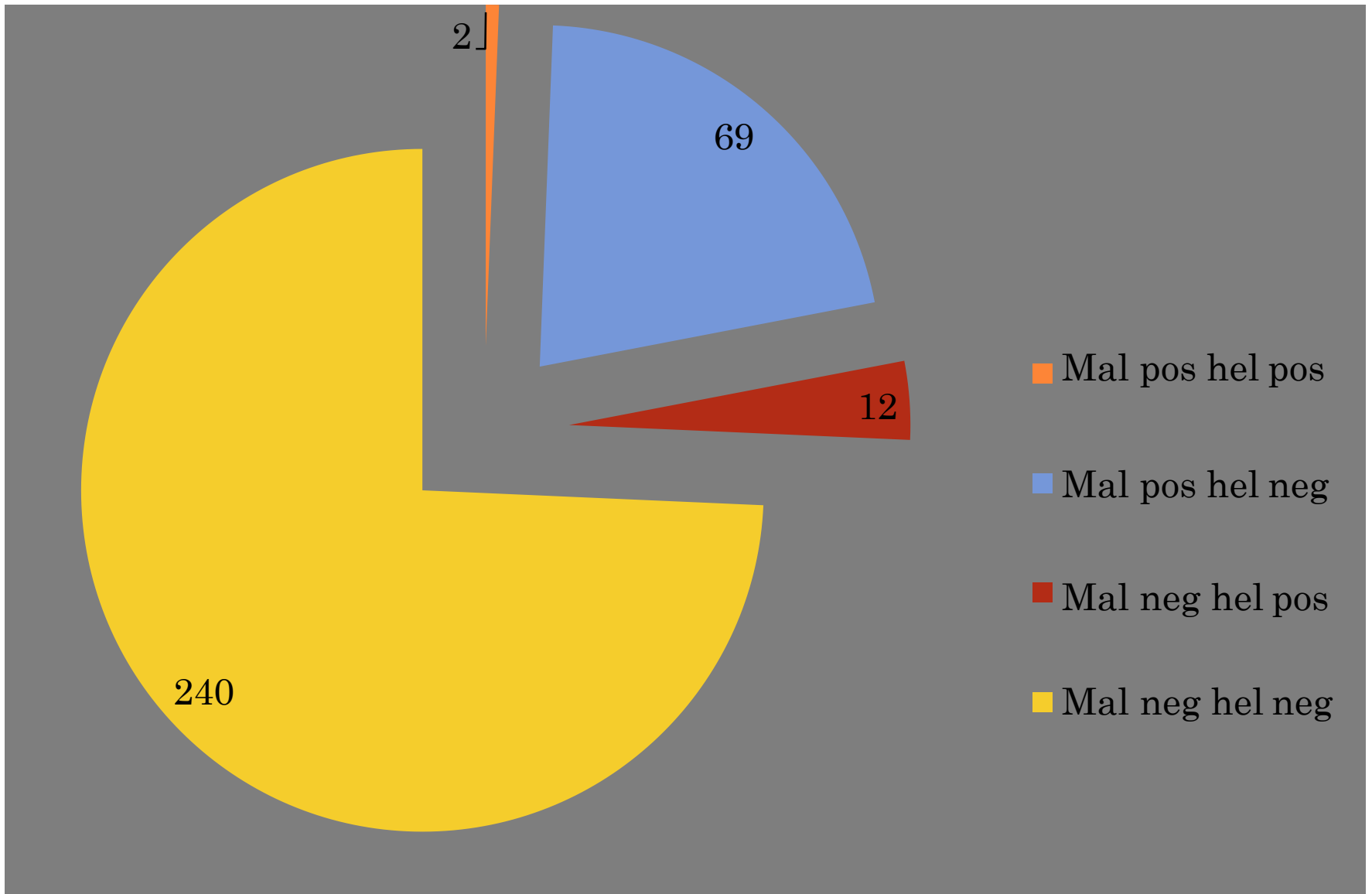


# TABLE 4 – LIVING CONDITIONS CONTD.

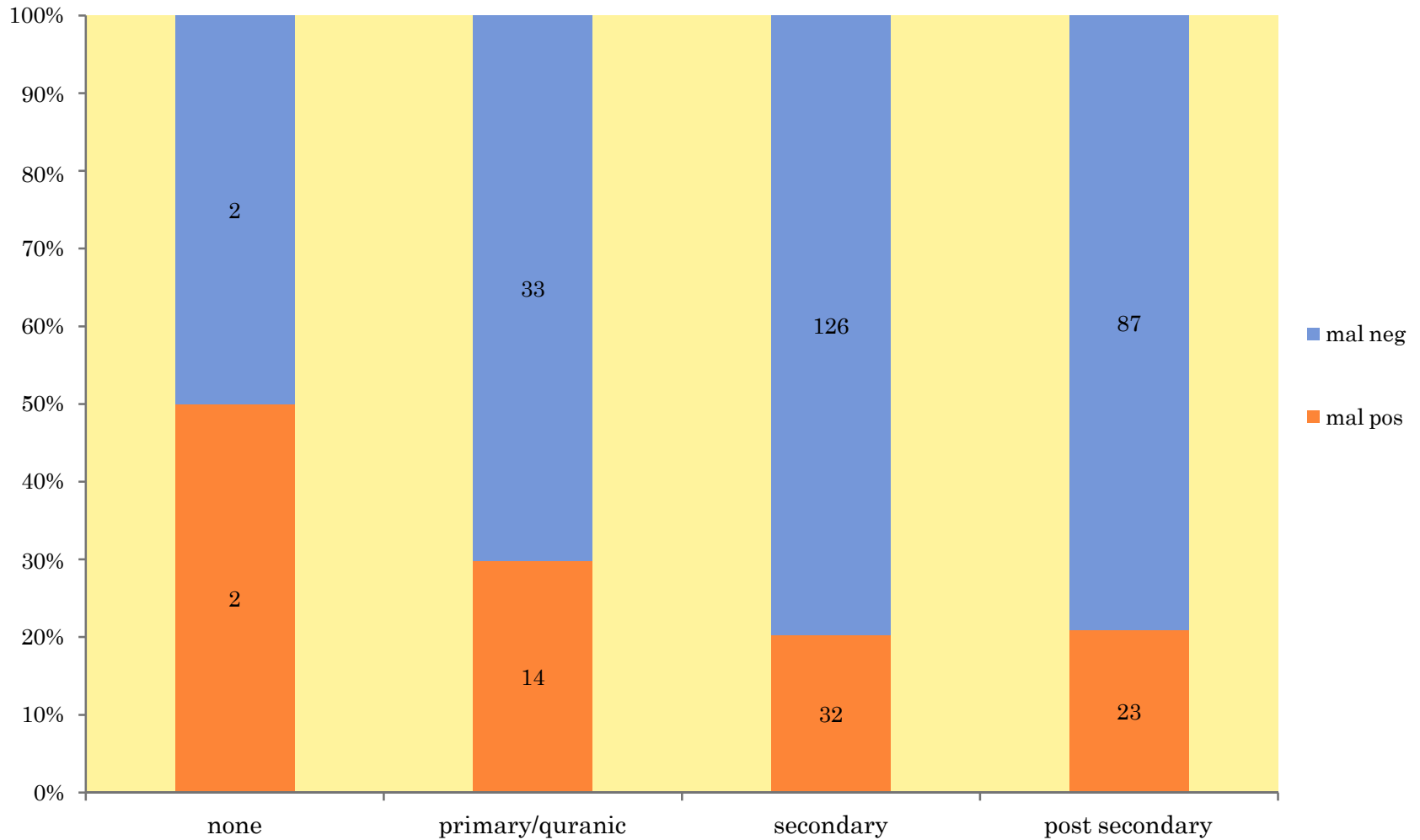
	Frequency (n)	Percentage (%)
<b>WINDOW/DOOR SCREEN</b>		
Yes	256	87.4
No	37	12.6
<b>STAGNANT WATER</b>		
Yes	71	22
No	251	78
<b>OPEN DRAINAGE</b>		
Yes	212	66
No	109	34

# TABLE 5 – SANITARY PRACTICES

	Frequency (n)	Percentage (%)
<b>HAND WASHING</b>		
Never	3	0.9
Occasionally	121	37.5
Always	199	61.6
<b>WALK BAREFOOT</b>		
Yes	109	33.5
No	213	65.5
Occasionally	3	1.0
<b>COVERED WATER CONTAINERS</b>		
Yes	283	87.1
No	42	12.9

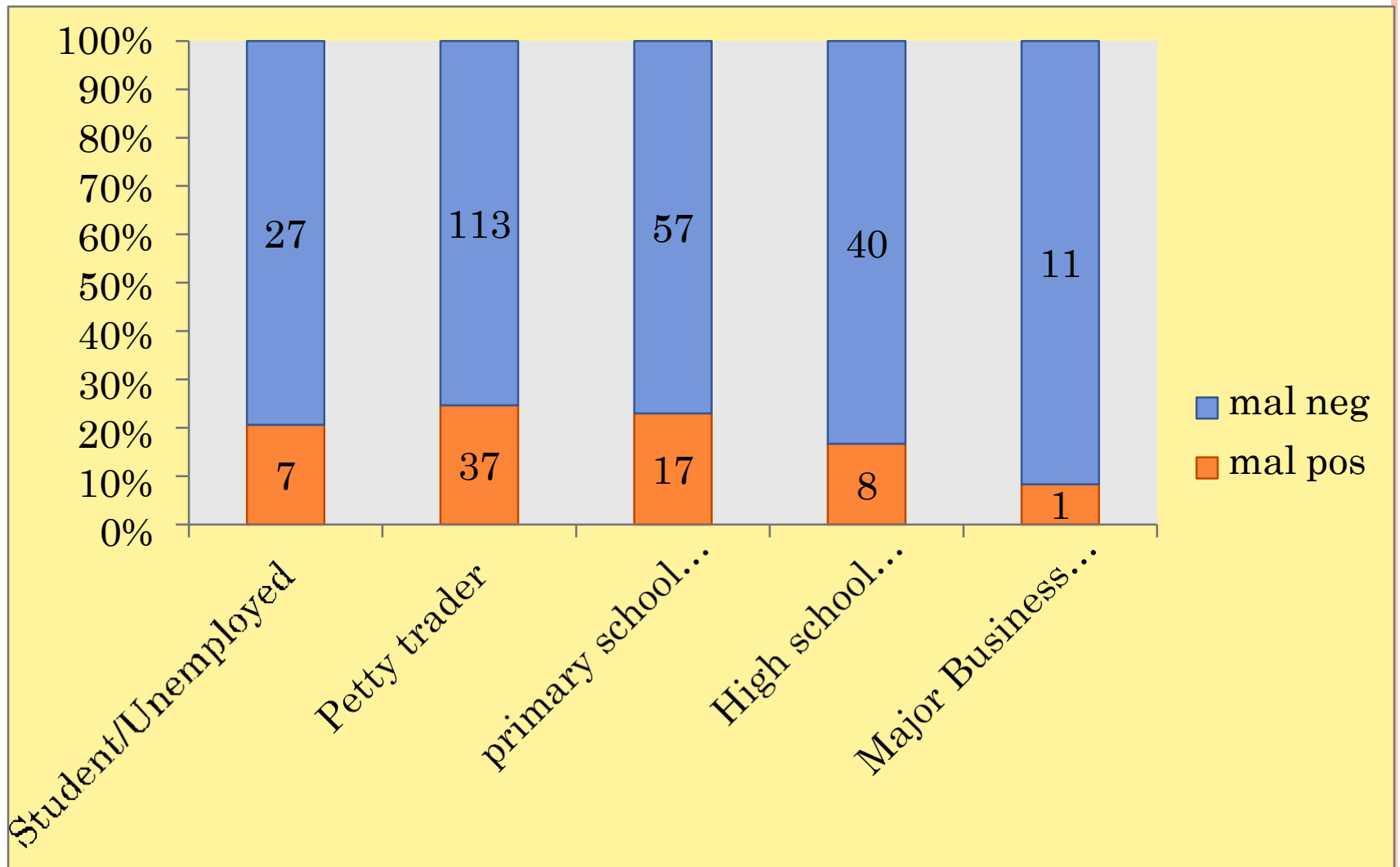


**Fig. 1:** Infection status



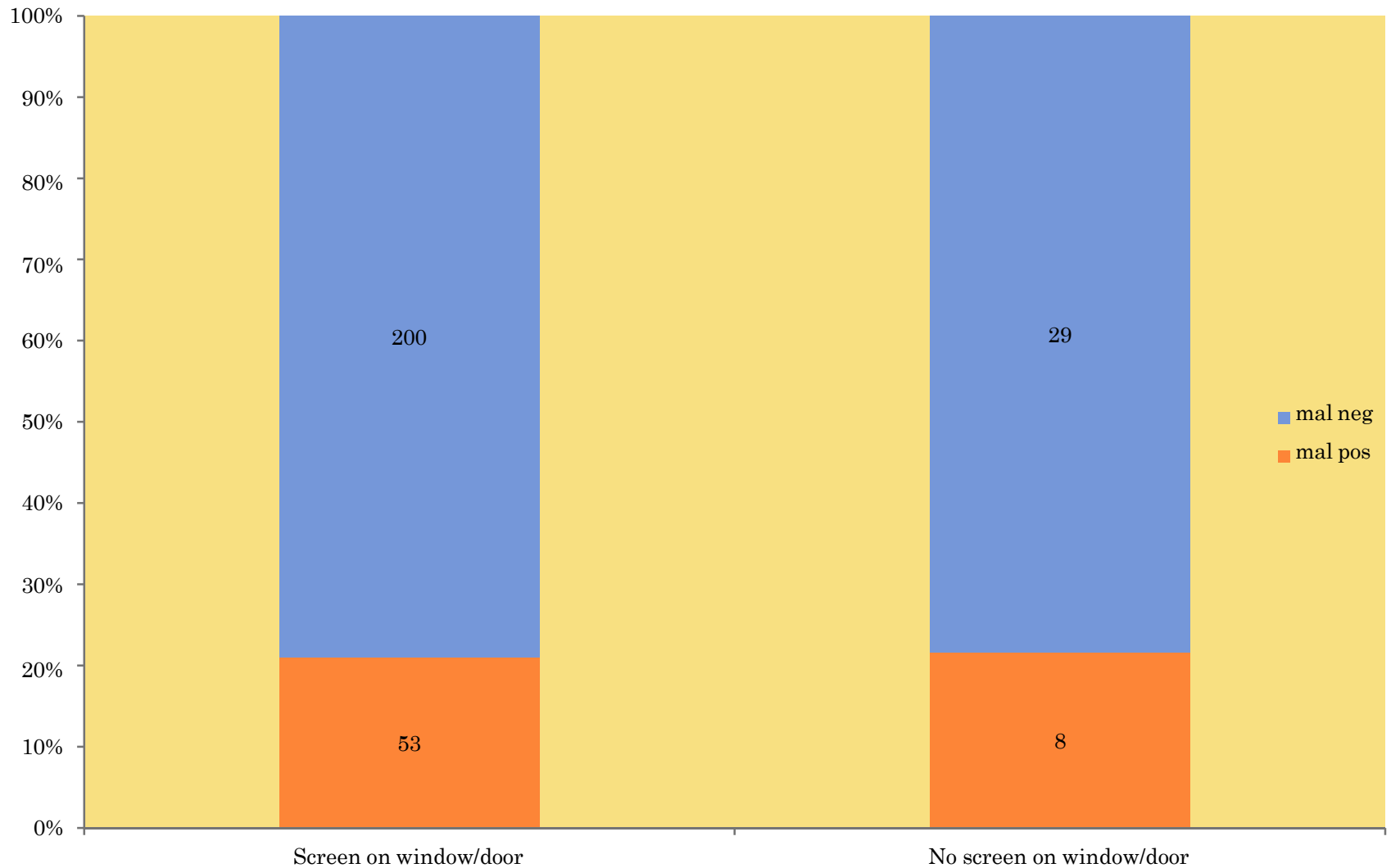
**Fig. 2: Malaria prevalence based on level of education**





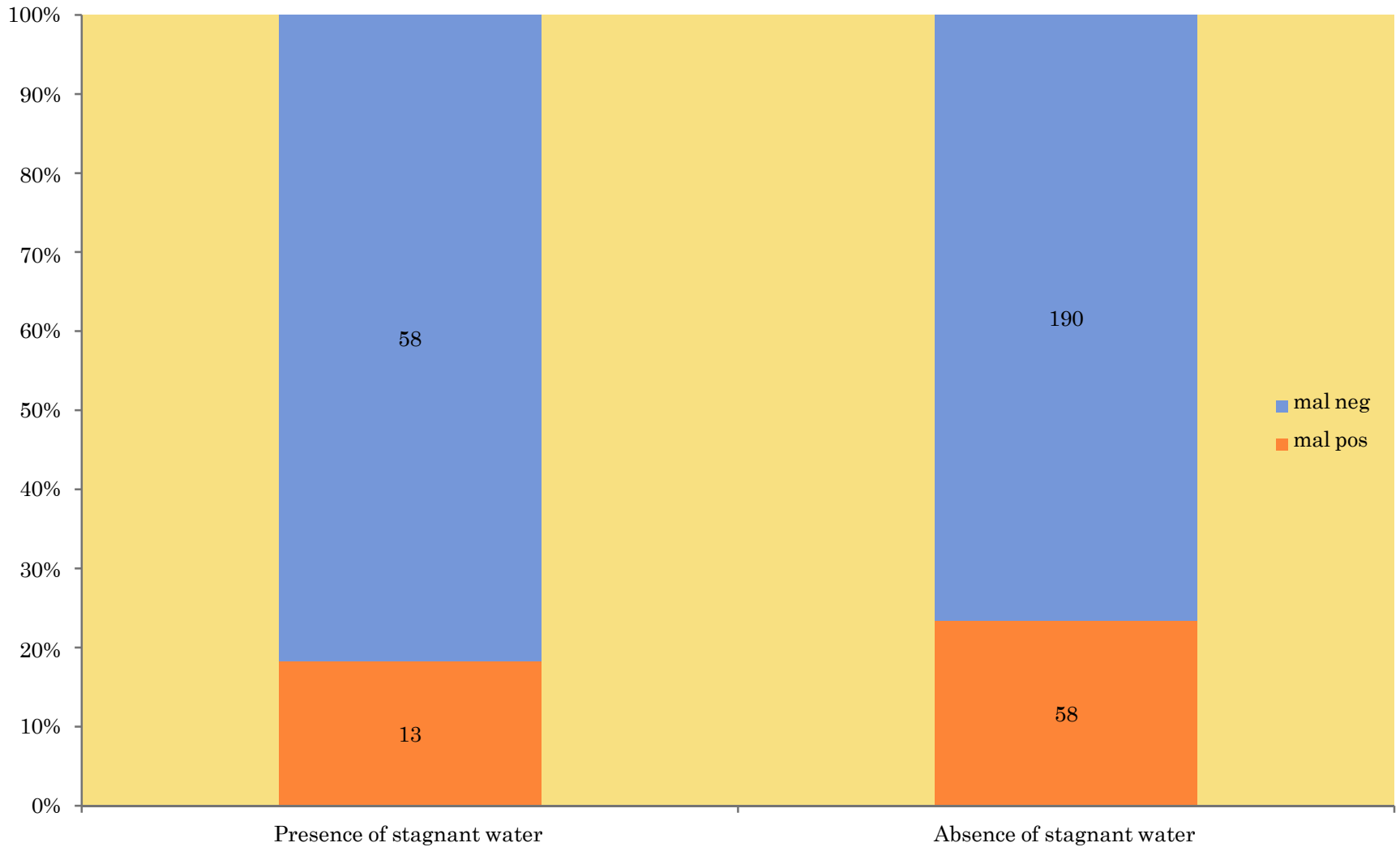
**Fig 3: Malaria prevalence based on occupation**





**Fig. 4a: Malaria prevalence based on living conditions**

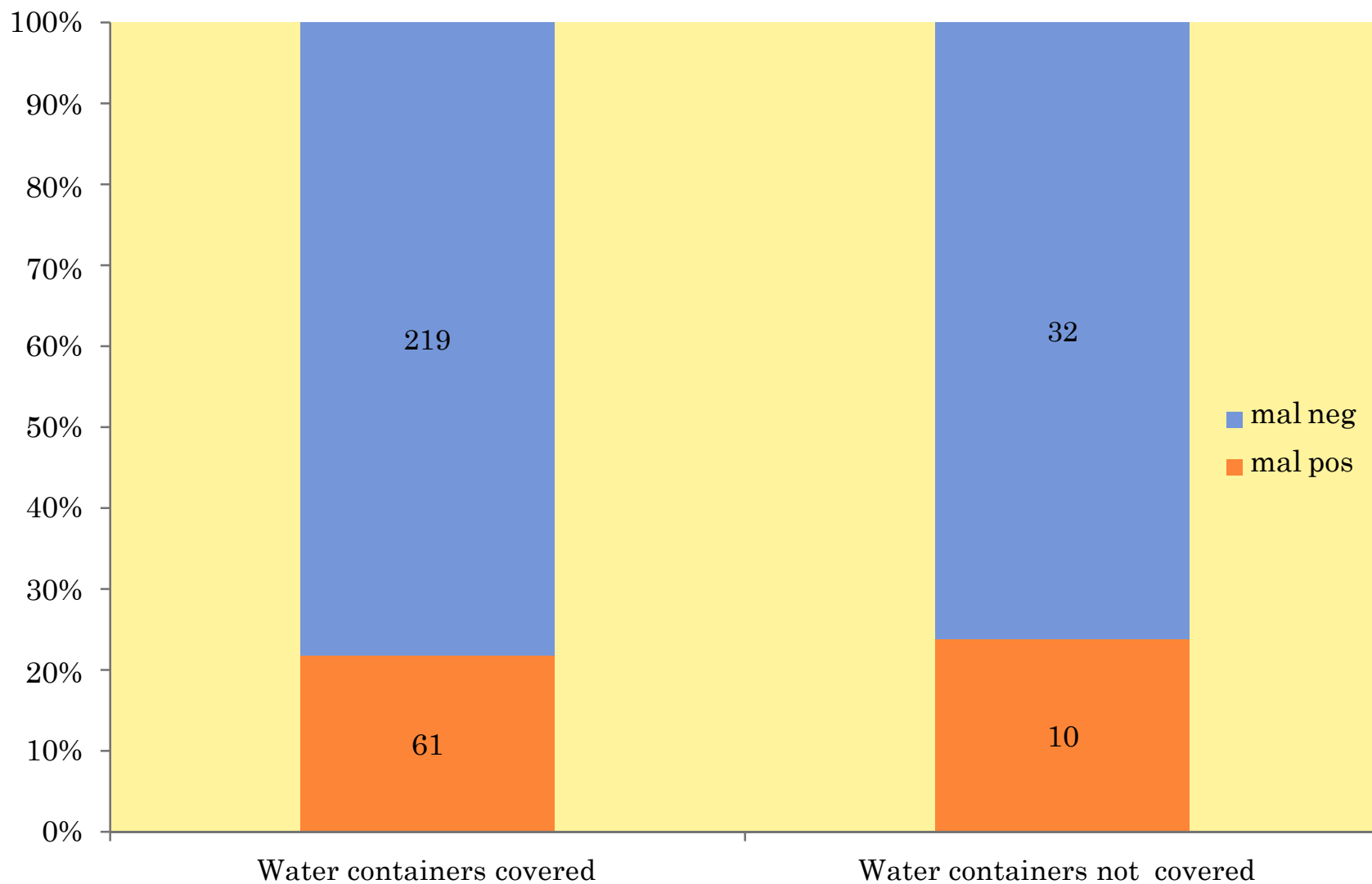




**Fig. 4b: Malaria prevalence based on living conditions**

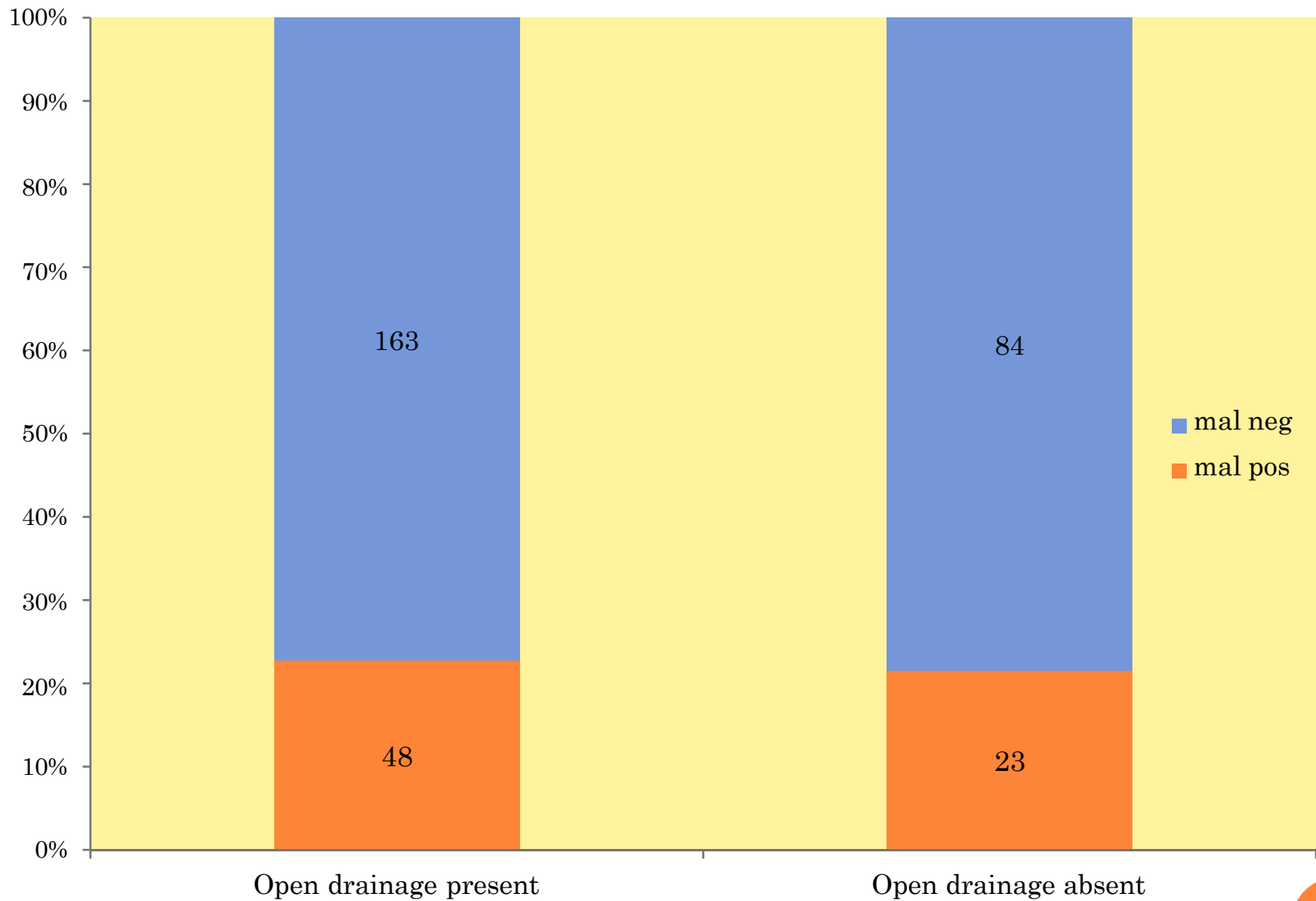






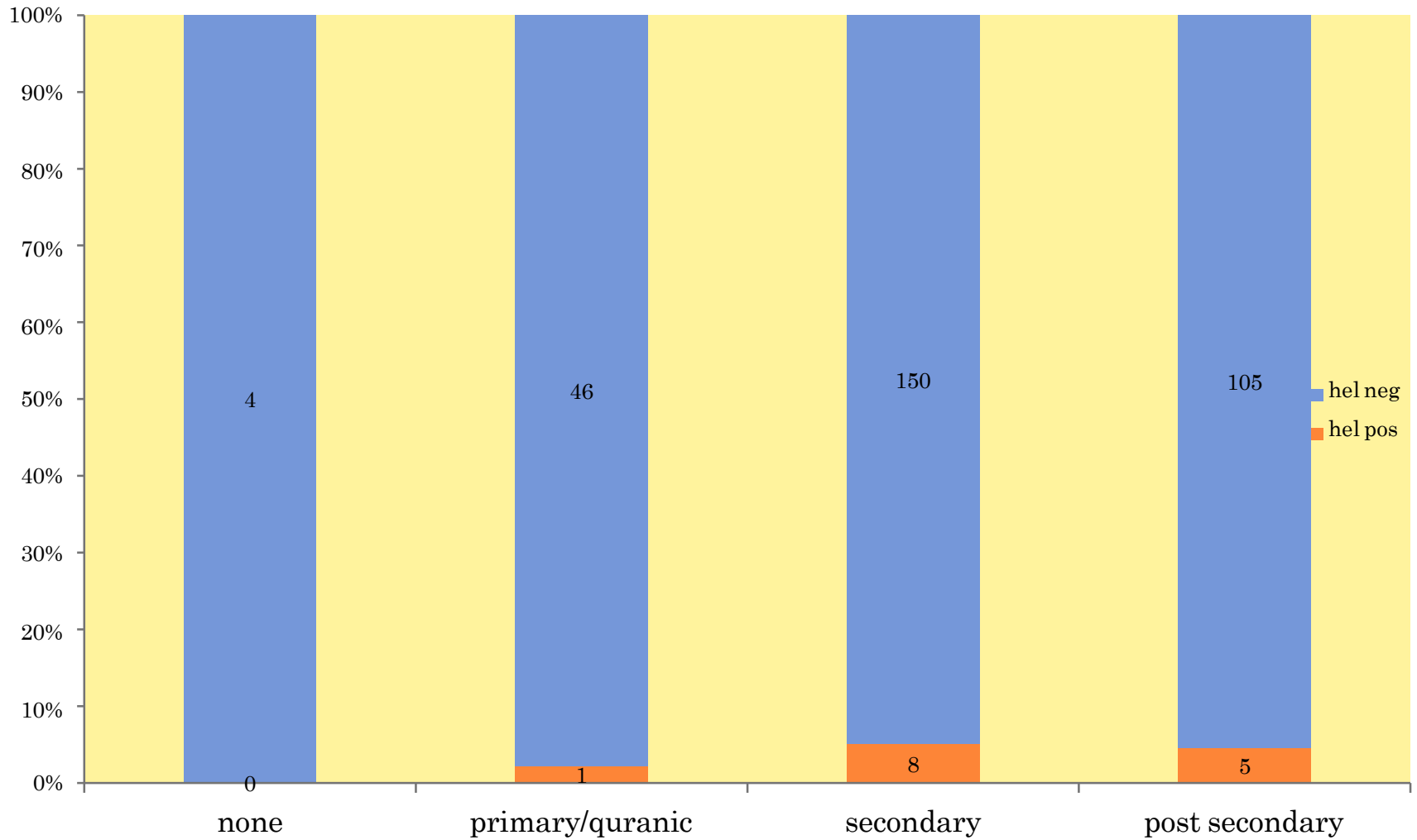
**Fig. 4c: Malaria prevalence based on living conditions**





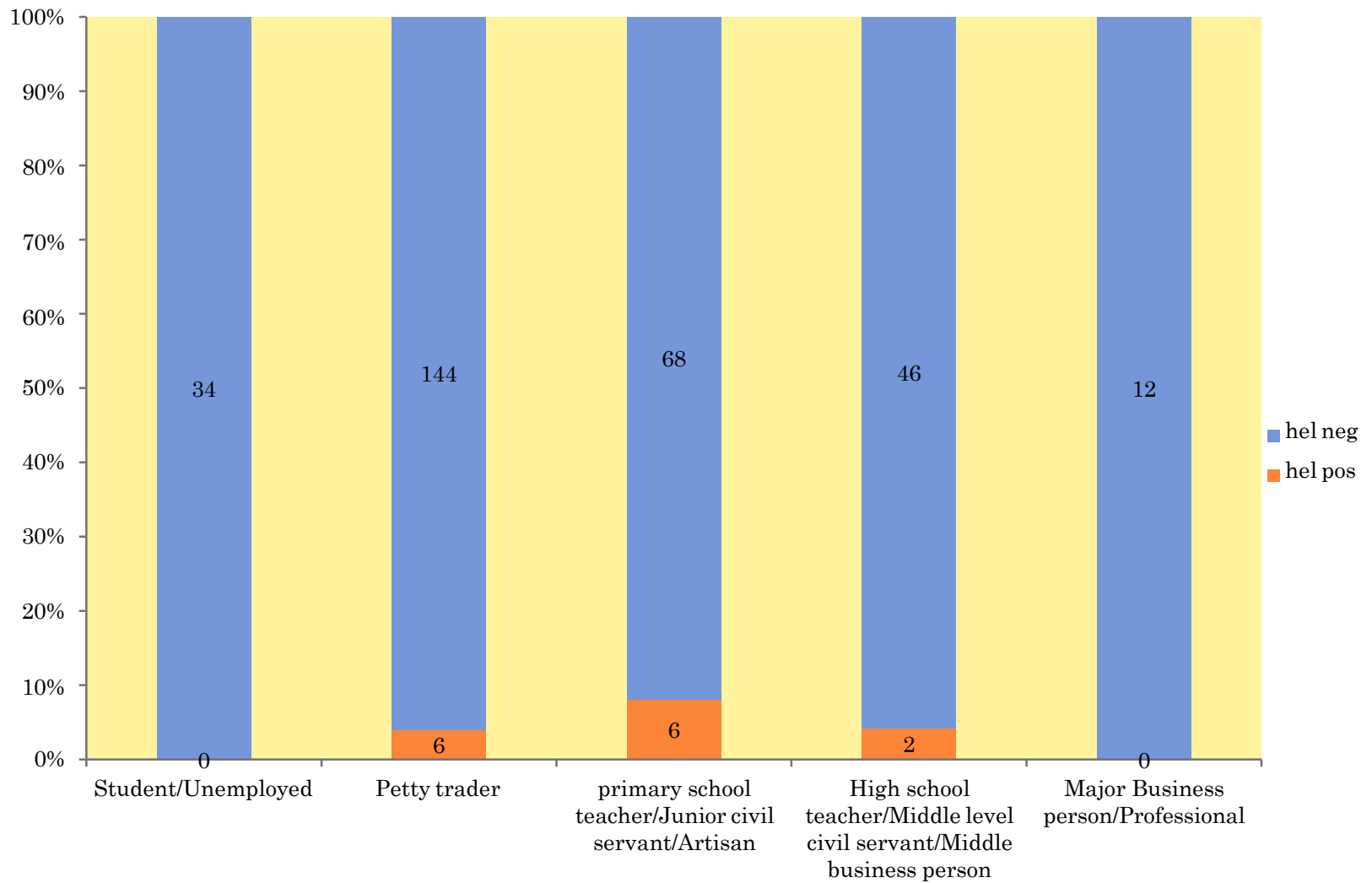
**Fig. 4d: Malaria prevalence based on living conditions**





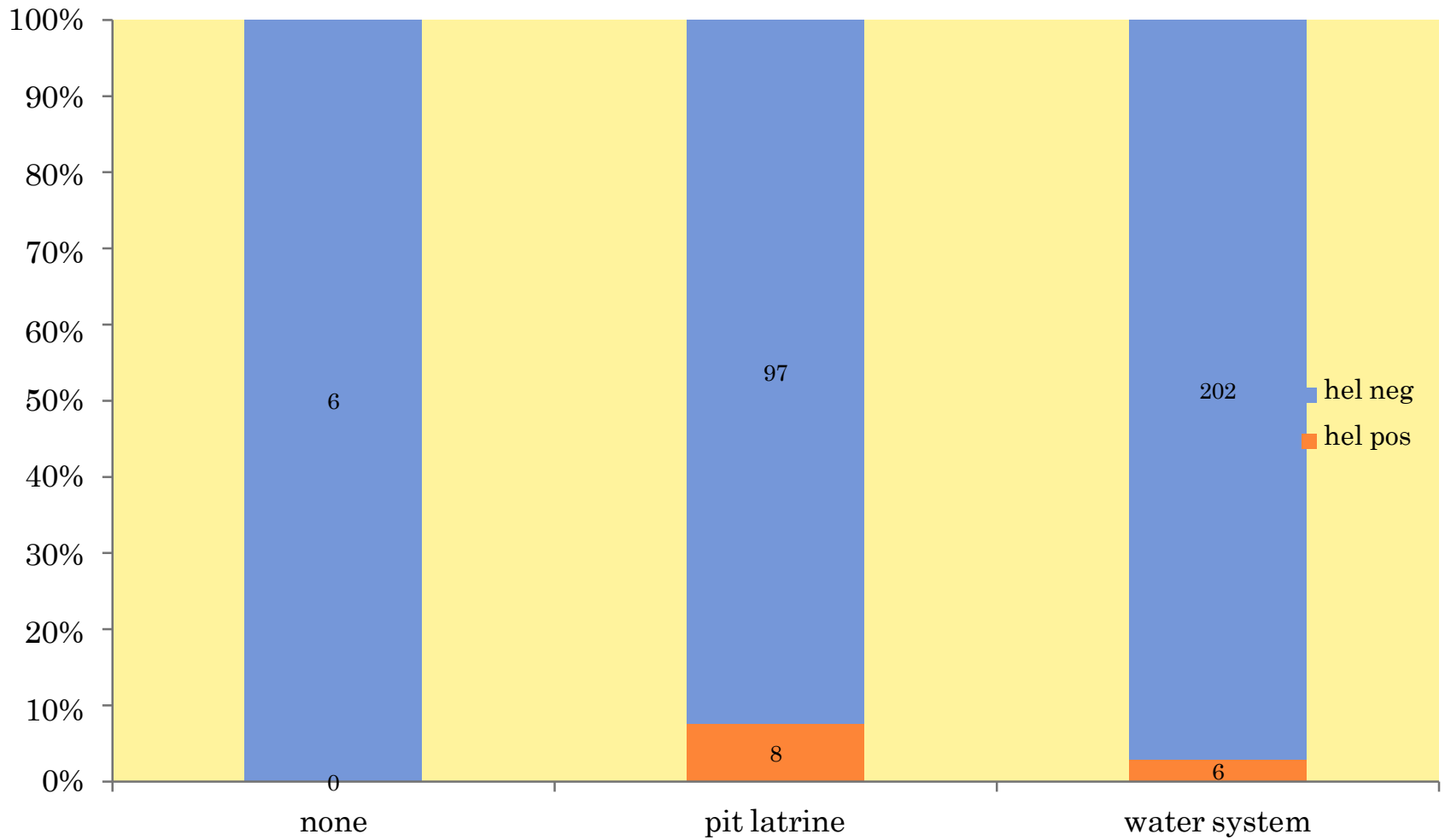
**Fig. 1: Prevalence of helminthiasis based on level of education**





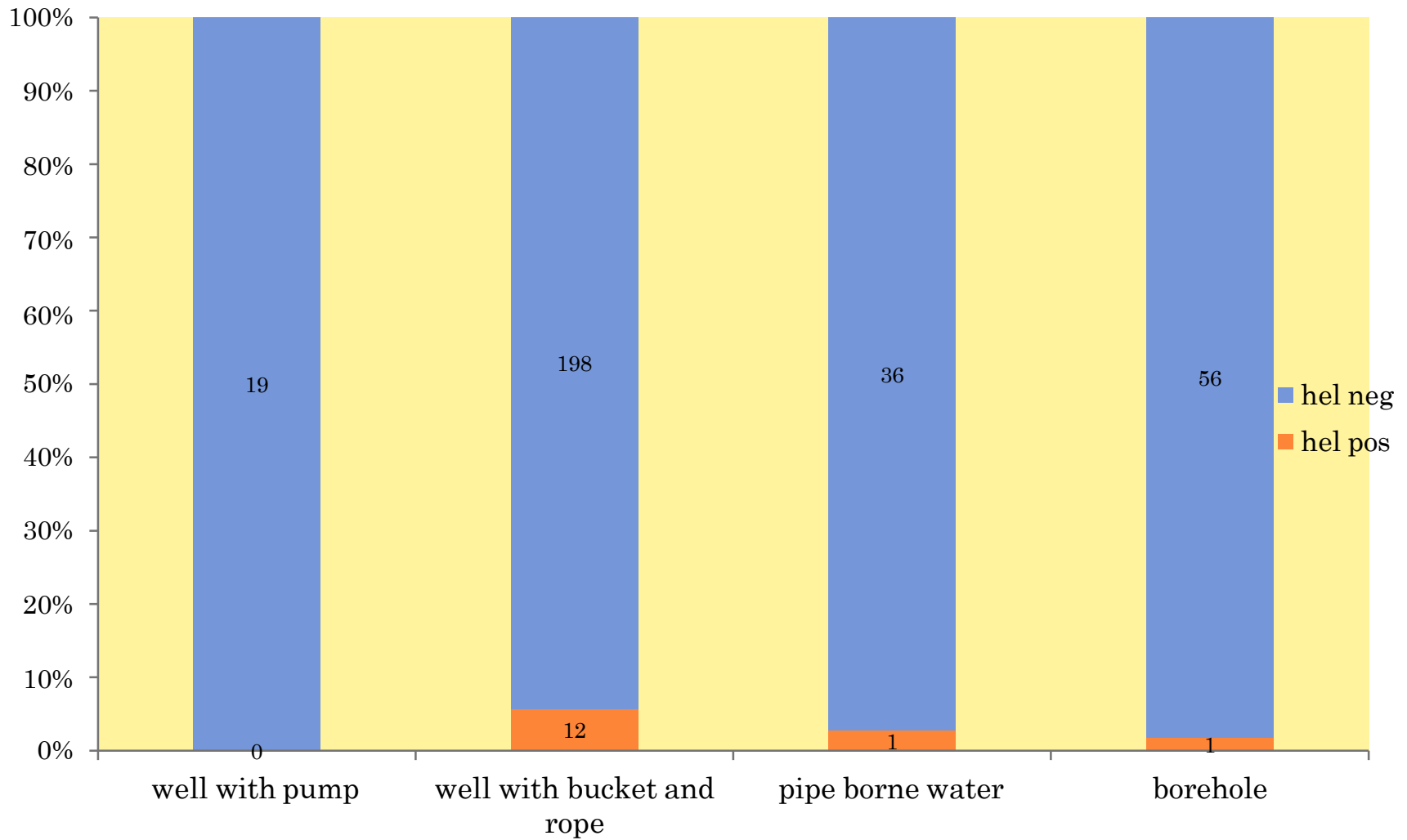
**Fig. 2: Prevalence of helminthiasis based on occupation**





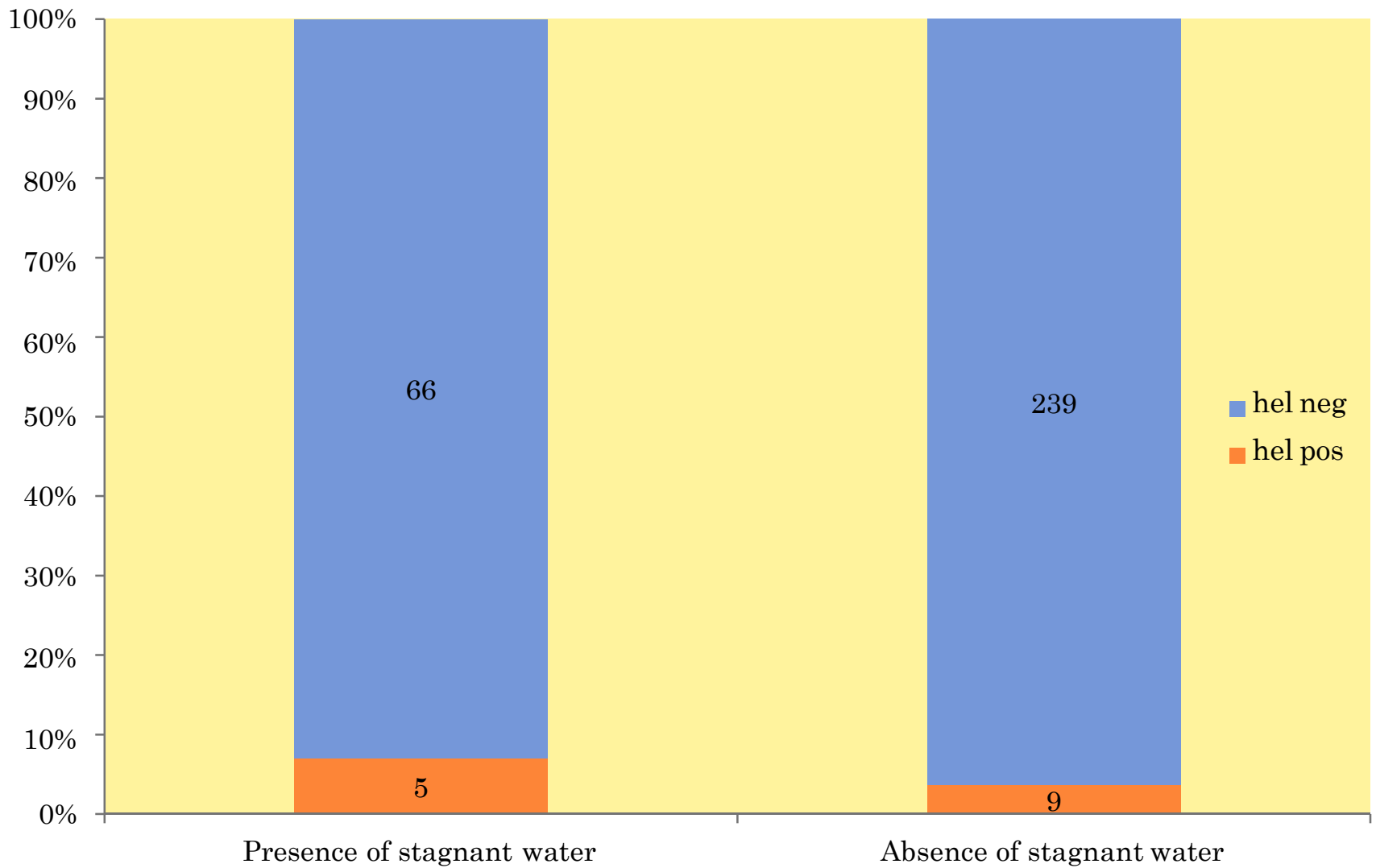
**Fig. 3a: Prevalence of helminthiasis based living conditions**





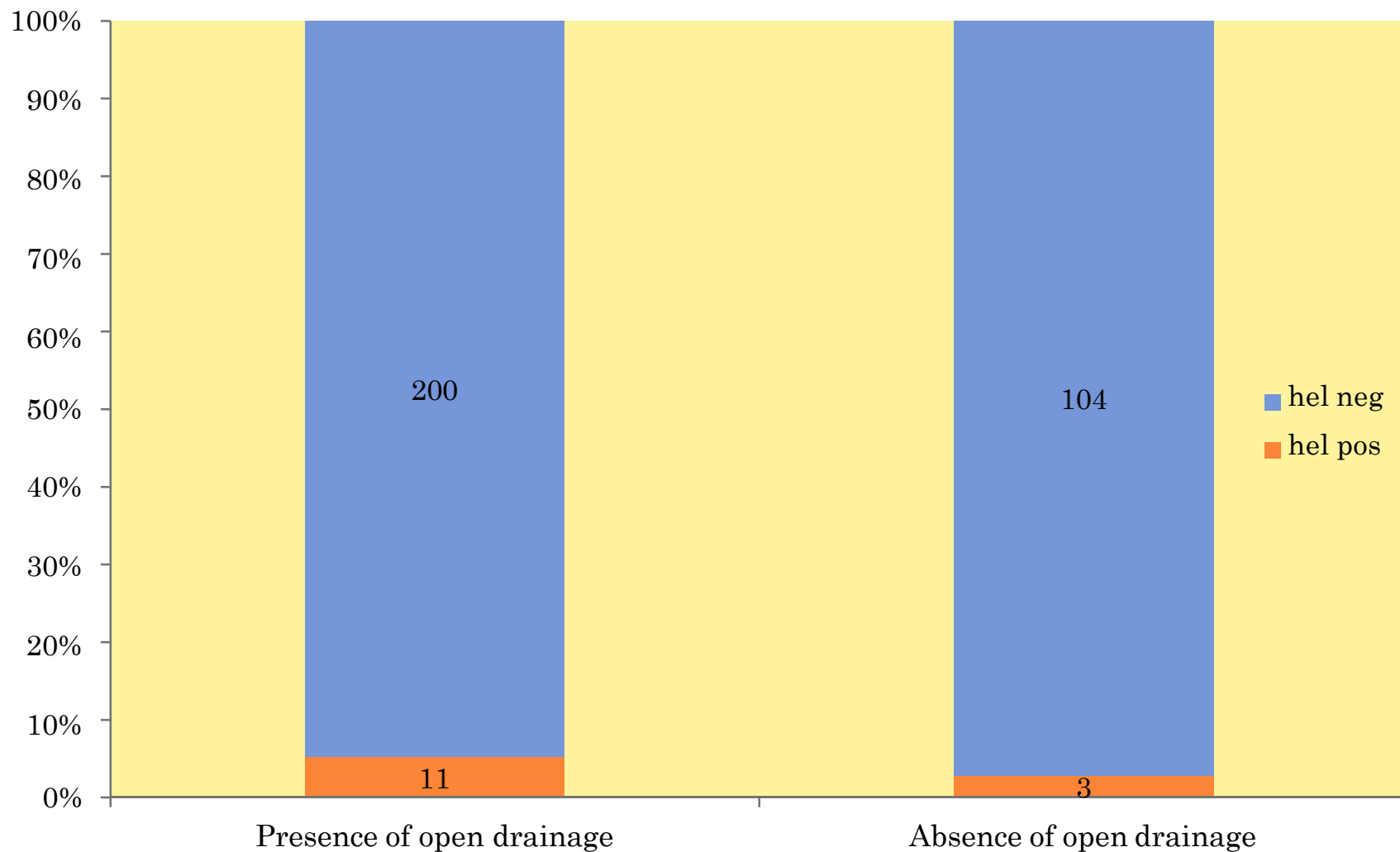
**Fig. 3b: Prevalence of helminthiasis based living conditions**





**Fig. 3c: Prevalence of helminthiasis based living conditions**

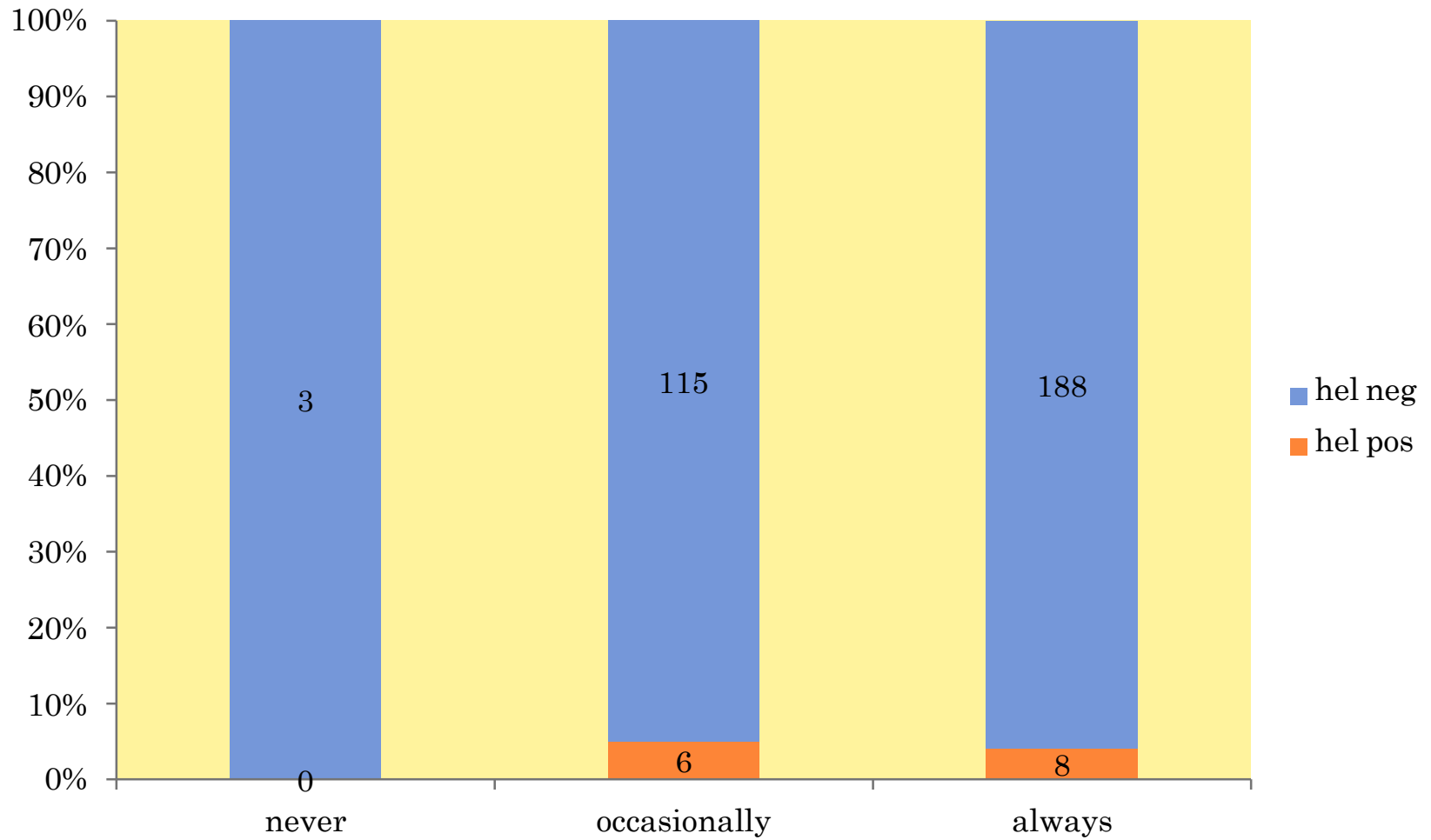




**Fig. 3d: Prevalence of helminthiasis based living conditions.**

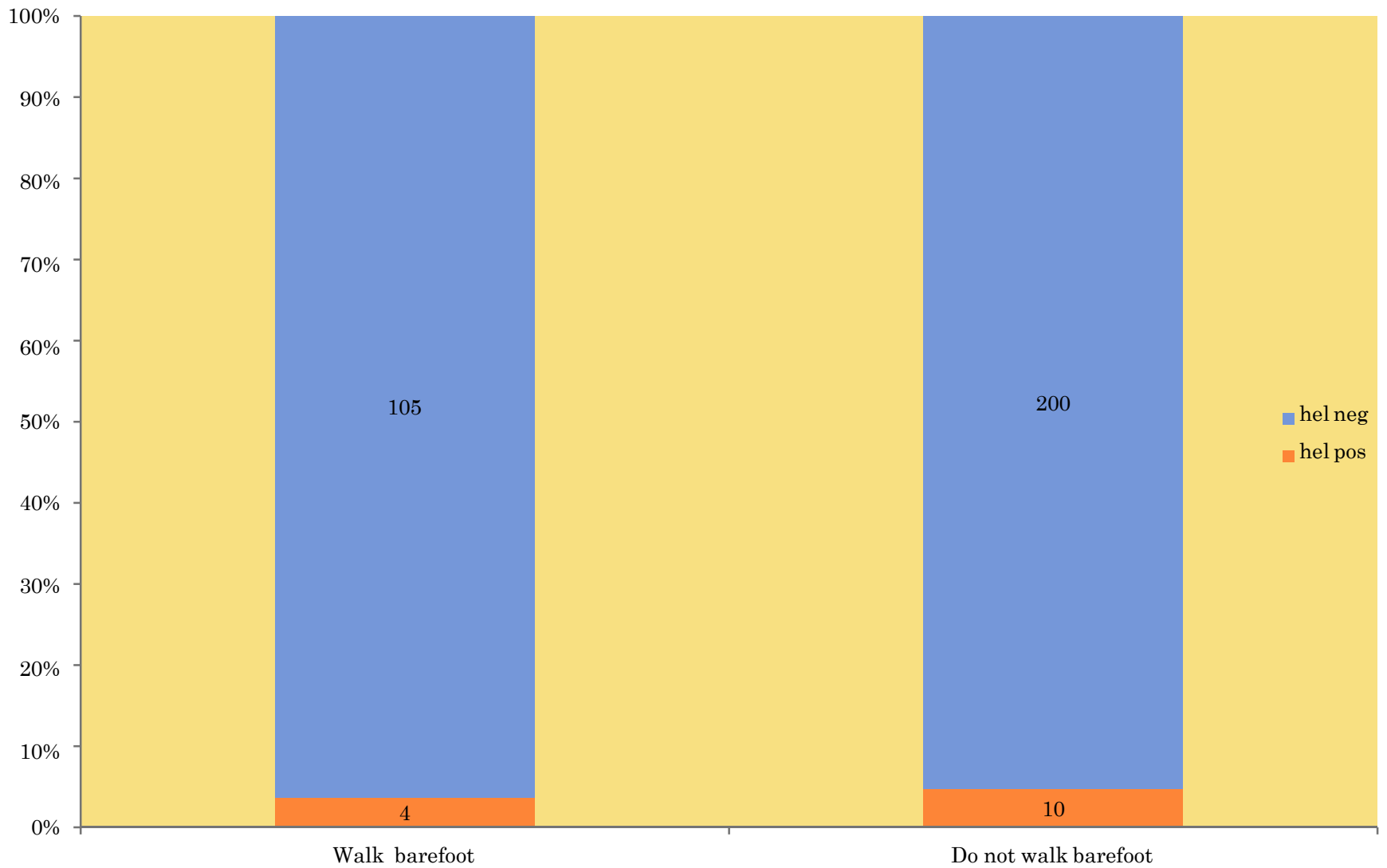




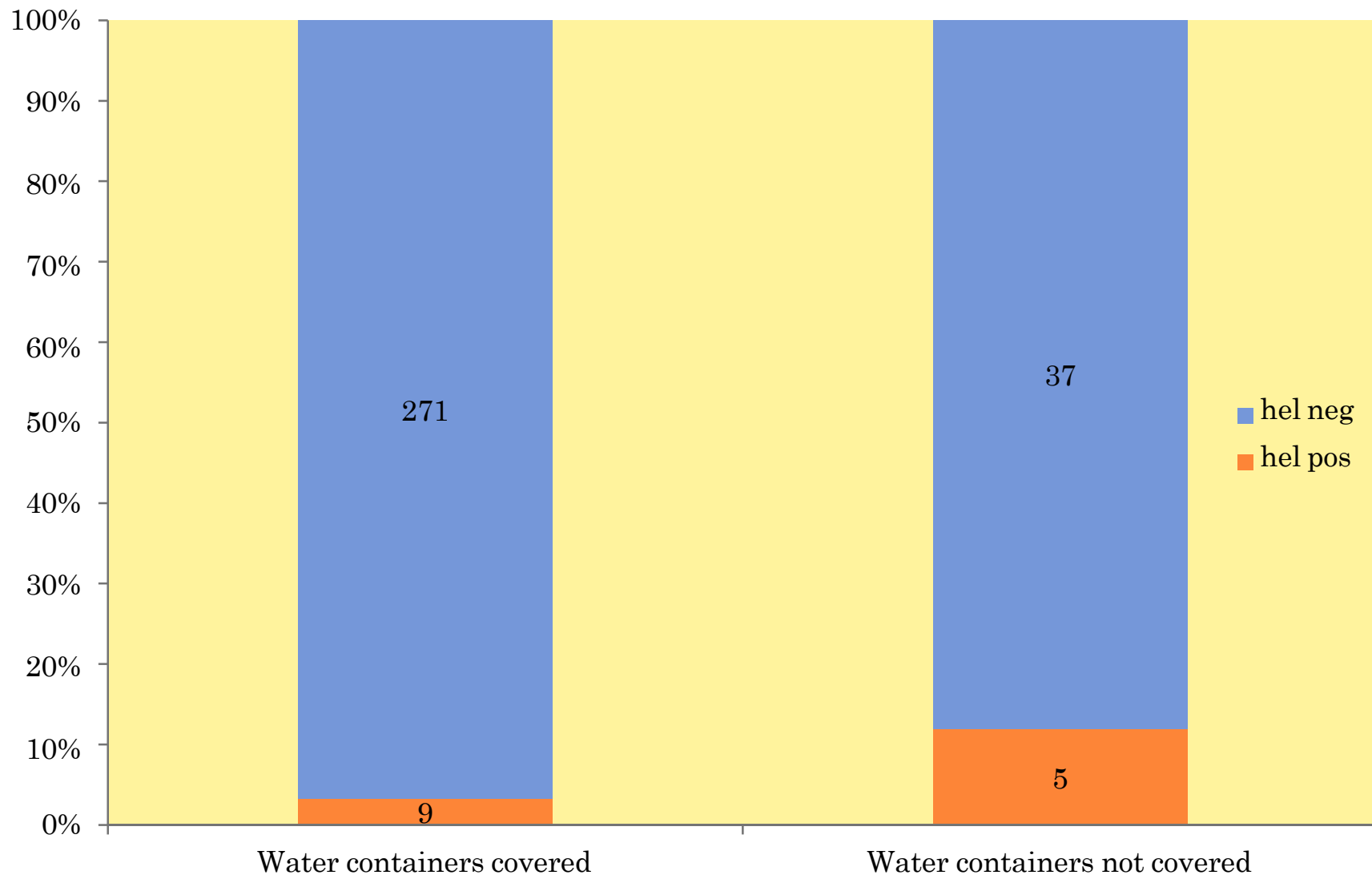


**Fig. 4a: Prevalence of helminthiasis based on sanitary practices (handwashing).**





**Fig. 4b: Prevalence of helminthiasis based on sanitary practices (walk barefoot).**



**Fig. 4c: Prevalence of helminthiasis based on sanitary practices (covering of water containers).**

# TABLE 6 – SUMMARY OF RESULTS

	Malaria	Helminthiasis
<b>SOCIO-ECONOMIC STATUS</b>		
Level of education	p=0.284	p=0.817
Occupation	p=0.591	p=0.331
<b>LIVING CONDITIONS</b>		
Screen on window	p=0.925, OR=0.961	
Stagnant water	p=0.365, OR=0.734	p=0.216, <b>OR=2.012</b>
Covering of water containers	p=0.768, OR=0.891	<b>p=0.010</b> , OR=0.246
Open drainage	p=0.8, <b>OR=1.075</b>	p=0.322, <b>OR=1.907</b>
Toilet facility		p=0.237
Portable water		p=0.395
<b>SANITARY PRACTICES</b>		
Hand washing		p=0.871
Walk barefoot		p=0.842

# LIMITATIONS OF THE STUDY

- Inadequate sample size.
- Better outcome if study approach was observational.



# CONCLUSION AND RECOMMENDATION

- Socio-economic status, living conditions and sanitary practices are potential risk factors in disease susceptibility (Woodburn et al. 2009).
- Absence of screen on door/window, presence of stagnant water and open drainage system will more likely increase the chances of infections.
- Intervention tools to improve the living conditions of pregnant women is highly recommended



**THANK YOU FOR  
LISTENING**

