RESULTS

***Table (1)* : Distribution of the studied group by personal characteristics and sex.**

Sex / personal characteristics	Male (n = 148)		Female (n = 152)		Total (n = 300)	
	No	%	No	%	No	%
Age						
< 25	38	25.7	34	22.4	72	24.0
25 -	80	54.1	101	66.4	181	60.3
45 +	30	20.2	17	11.2	47	15.7
Residence						
Urban	49	33.1	96	63.2	145	48.3
Rural	99	66.9	56	36.8	155	51.7
Marital status						
Single	46	31.1	10	6.6	56	18.7
Married	102	68.9	141	92.8	243	81.0
Divorced	0	00	1	0.6	1	0.3
Special habits						
Drug abusers	2	1.4	0	00	2	0.7
Smokers	70	47.3	3	2	73	24.3
Non smokers	76	51.3	149	98	225	75.0
Education						
Educated	107	72.3	86	56.6	193	64.3
Non educated	41	27.7	66	43.4	107	35.7
Occupation						
Manual	49	33.1	82	53.9	131	43.7
Skilled	21	14.2	19	12.5	40	13.3
Clerk	57	38.5	46	30.3	103	34.3
Prof. & Manger.	21	14.2	5	3.3	26	8.7
Crowding Index						
< 2	103	69.6	88	57.9	191	63.7
2 -	28	18.9	46	30.3	74	24.7
3 +	17	11.5	18	11.8	35	11.6

This table shows that 49.3% (148 of 300) of the studied group were males and 50.7% (152 of 300) were females. Most of the studied subjects (60.3%) were in the age group 25-45 years while 15.7% were 45 years and above. Almost equal two proportions of the studied group were living in urban (48.3%) and rural (51.7%) areas. About two third (66.2%) of males were living in rural areas while (63.2%) of females were living in urban ones. More than four fifths (81%) of the studied group were married. Only 0.3% were divorced, no one was found to be widowed.

Regarding special habits of the studied individuals only two individuals (0.7%) were found to be drug abusers while no one was found to be alcoholic. About two thirds (64.3%) of the studied sample were educated. The manual workers including house-wives represented 43.7% while professionals and managers represented only 8.7% of the studied group.

It is also clear From this table that 63.7% of the studied group live in houses with crowding index of less than 2 persons per room, 24.7% live in houses with C.I varies between 2 to less than 3, only 11.6% of cases live in houses with crowding index of more than 3.

Fig.(4):Distribution of the studied group by sex and residence.

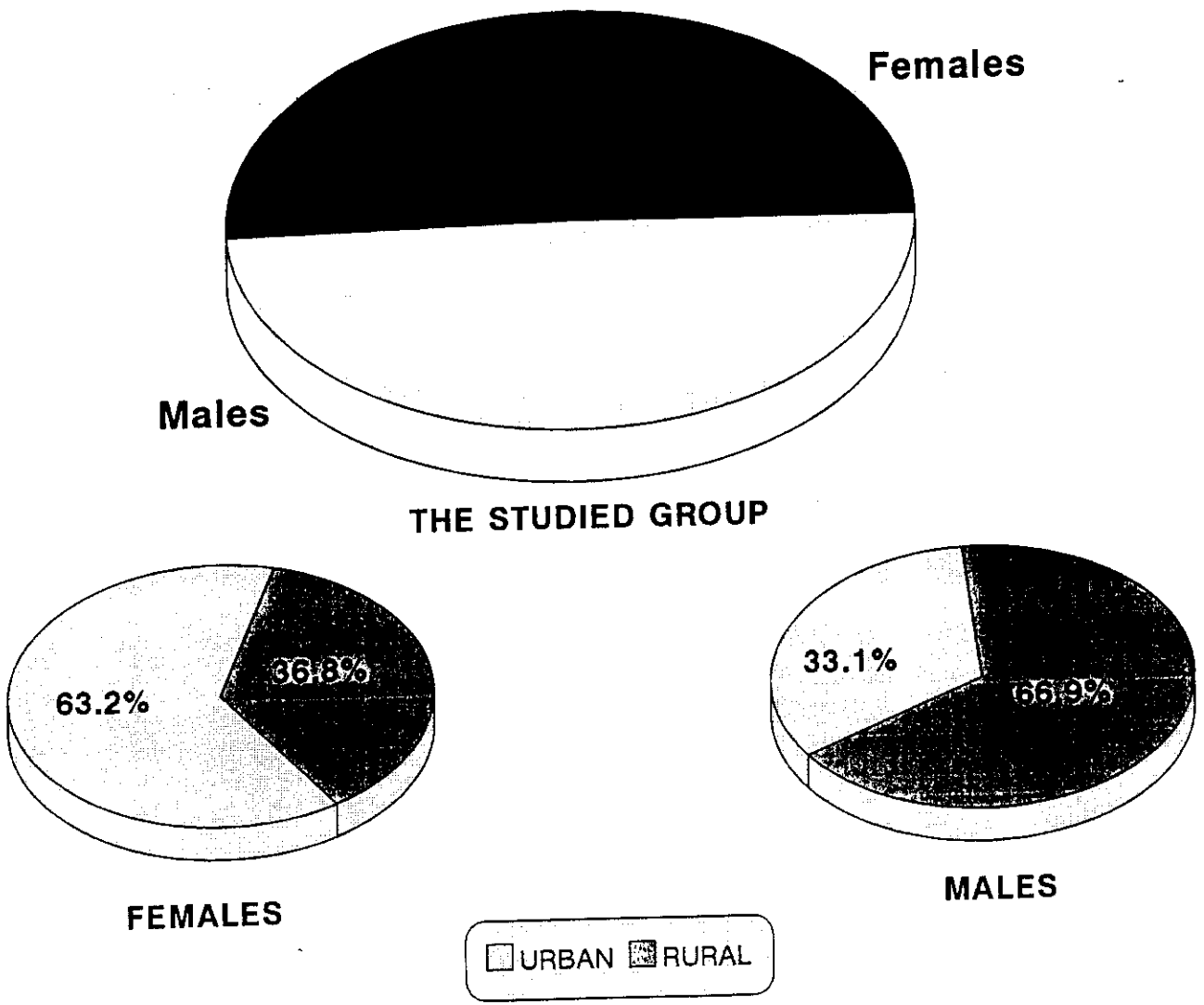


Table (2) : **Mean and S.D. of age and crowding index (C.I.) among the studied group.**

Sex / Age and C.I.	Male		Female		Total	
	X	S.D	X	S.D	X	S.D
Age	34.3	11.4	33.4	10.1	33.8	10.8
C.I.	1.6	0.8	1.8	0.9	1.7	0.9

This table shows that the mean age of the studied cases was 33.8 ± 10.8 years. It was 34.3 ± 11.4 years for males, and 33.4 ± 10.1 years for females. The mean crowding index of the studied group was 1.7 ± 0.9 individuals /room.

Table (3) : **Distribution of HBs Ag, HBs Ab and HCV Ab among the studied group.**

Hepatitis Markers	positive		Negative	
	No	%	No	%
HBs Ag (300)	17	5.7	283	94.3
HBs Ab (300)	86	28.7	214	71.3
HCV Ab (300)	81	27.0	219	73.0

This table shows that the percentages of positive hepatitis B surface antigen, hepatitis B surface antibody and hepatitis C antibodies among studied sample were 5.7%, 28.7% and 27% respectively.

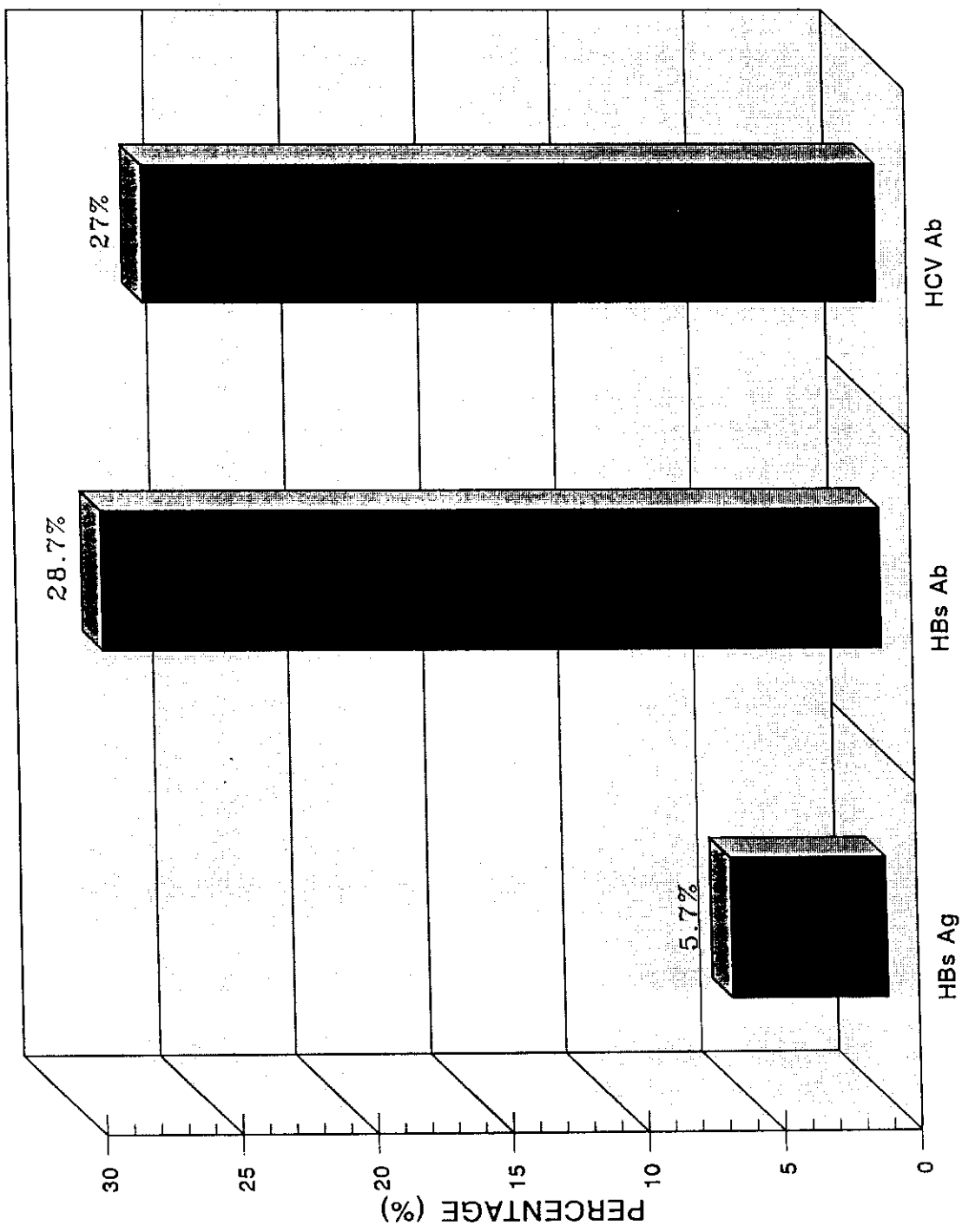


Fig.(5):Prevalence of hepatitis markers among the studied group.

Table (4): **Distribution of HBs Ag, HBs Ab, and HCV Ab, among the studied group according to Sex**

Sex / Hepat. Markers	Females (n = 152)		Males (n = 148)		Total (n = 300)		X^2	P
	No	%	No	%	No	%		
-HBs Ag								
Positive	8	5.3	9	6.1	17	5.7	0.094	>0.05
Negative	144	94.7	139	93.9	283	94.3		
-HBs Ab								
Positive	40	26.3	46	31.1	86	28.7	0.833	>0.05
Negative	112	73.7	102	68.9	214	71.3		
HCV Ab								
Positive	28	18.4	53	35.8	81	27.0	11.505	<0.001
Negative	124	81.6	95	64.2	219	73.0		

This table Shows that the percentages of positive HBs Ag , HBs Ab And HCV Ab among the studied Samples were higher in males than females. The different is highly statistically significant ($p < 0.001$) regarding HCV Ab only.

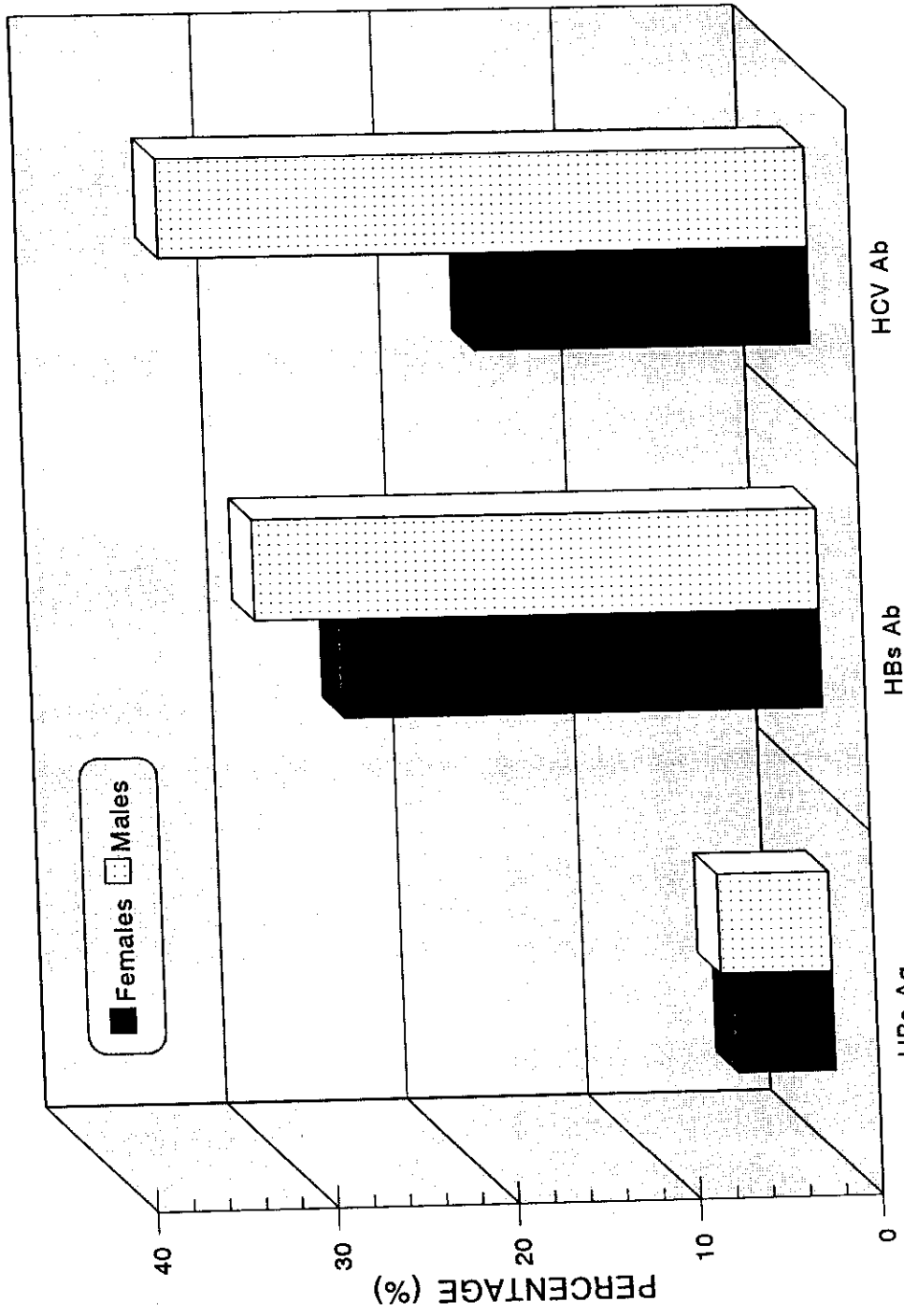


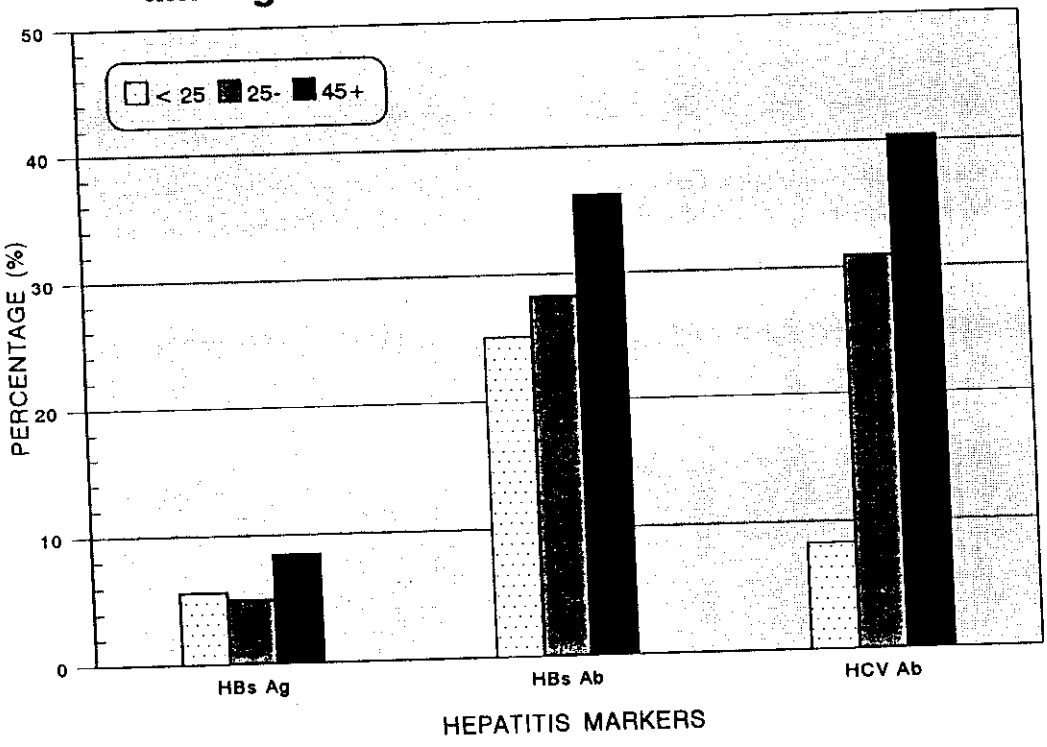
Fig.(6):Sex distribution of positive hepatitis markers among studied group.

***Table(5)* : Distribution of HBs Ag , HBs Ab and HCV Ab among Studied group according to age**

Age / Hepat. Markers	< 25 (n = 72)		25- (n = 181)		45 - (n = 47)		Total (n = 300)		X^2	P
	No	%	No	%	No	%	No	%		
-HBs Ag										
Positive	4	5.6	9	5.0	4	8.5	17	5.7	* 0.876	>0.05
Negative	68	94.4	172	95.0	43	91.5	283	94.3		
-HBs Ab										
positive	18	25.0	51	28.2	17	36.2	86	28.7	1.789	>0.05
Negative	54	75.0	130	71.8	30	63.8	214	71.3		
-HCV Ab										
Positive	6	8.3	56	30.9	19	40.4	81	27.0	14.228	<0.001
Negative	66	91.7	125	69.1	28	59.6	219	73.0		

This table shows that the highest frequencies of adults positive to HBs Ag and HBs Ab were at the group aged 45 years and more but the differences are not statistically significant ($p > 0.05$). As regard hepatitis C , the frequency of positive HCV Ab increased with age . The difference is highly statistically significant ($p < 0.001$).

Fig.(7):Age distribution of positive hepatitis markers among the studied group.



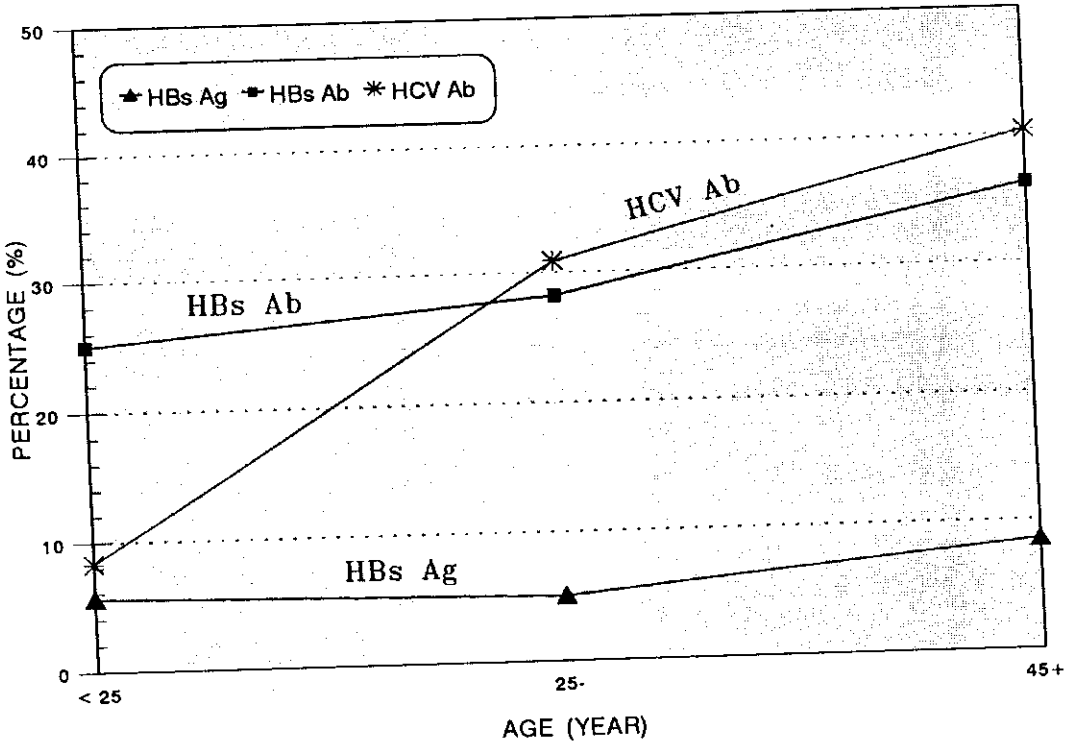


***Table (6)* : Distribution of HBs Ag, HBs Ab and HCV Ab among Studied group according to residence .**

Residence / Hepat. Markers	Urban (n=145)		Rural (n=155)		Total (n=300)		X2	P
	No	%	No	%	No	%		
-HBs Ag								
Positive	6	4.3	11	7.1	17	5.7	1.227	>0.05
Negative	139	95.7	144	92.9	283	94.3		
-HBs Ab								
Positive	43	29.7	43	27.7	86	28.7	0.134	>0.05
Negative	102	70.3	112	72.3	214	71.3		
-HCV Ab								
Positive	33	22.8	48	31.0	81	27.0	2.561	>0.05
Negative	112	77.2	107	69.0	219	73.0		

It is clear from this table that the percentages of carriers of HBs Ag and HCV Ab among the studied sample were higher in rural areas (7.1%, 31% respectively) than urban ones (4.3%, 22.8% respectively). But the differences are insignificant statistically.

***Table (7)* : Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to marital status.**

Marital status / Hepatitis Markers	Single (n=56)		Married & divorced (n=244)		Total (n=300)		X2	P
	No	%	No	%	No	%		
-HBs Ag								
Positive	2	3.6	15	6.2	17	5.7	* 0.565	>0.05
Negative	54	96.4	229	93.8	283	94.3		
-HBs Ab								
Positive	17	30.4	69	28.3	86	28.7	0.096	>0.05
Negative	39	69.6	175	71.7	214	71.3		
-HCV Ab								
Positive	7	12.5	74	30.3	81	27.0	7.345	<0.05
Negative	49	87.5	170	69.7	219	73.0		

* Corrected chi square test.

This table shows that the percentages of positive HBs Ag and HCV Ab were higher among married (6.2%, 30.3% respectively) than single (3.6%, 12.5% respectively) individuals with statistically significant difference regarding positive HCV Ab ($P < 0.05$).

Fig.(8):Prevalence of hepatitis markers among studied group according to marital status

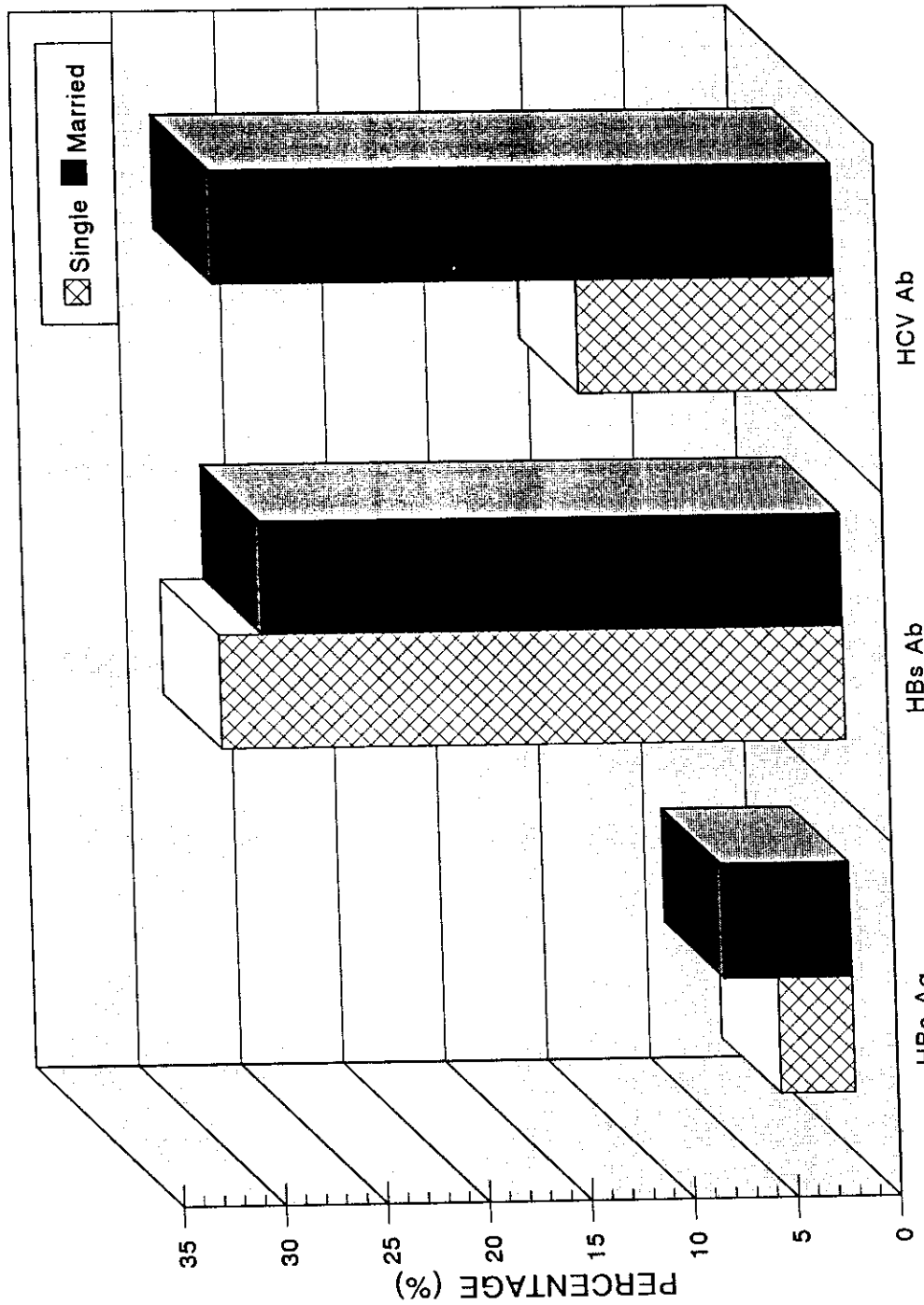


***Table (8)* : Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to education status.**

Education status / Hepatitis Markers	Educated (n=193)		Non Educat. (n=107)		Total (n=300)		X2	P
	No	%	No	%	No	%		
-HBs Ag								
Positive	7	3.6	10	9.3	17	5.7	4.212	<0.05
Negative	186	96.4	97	90.7	283	94.3		
-HBs Ab								
Positive	53	27.5	33	30.8	86	28.7	0.385	>0.05
Negative	140	72.5	74	69.2	214	71.3		
-HCV Ab								
Positive	51	26.4	30	28.0	81	27.0	0.091	>0.05
Negative	142	73.6	77	72.0	219	73.0		

This table shows that the percentages of positive HBs Ag, HBs Ab and HCV Ab markers were higher among non educated (9.3%, 30.8%, 28% respectively) than educated (3.6%, 27.5%, 26.4% respectively) cases, the difference is statistically significant regarding positive HBs Ag cases ($P < 0.05$).

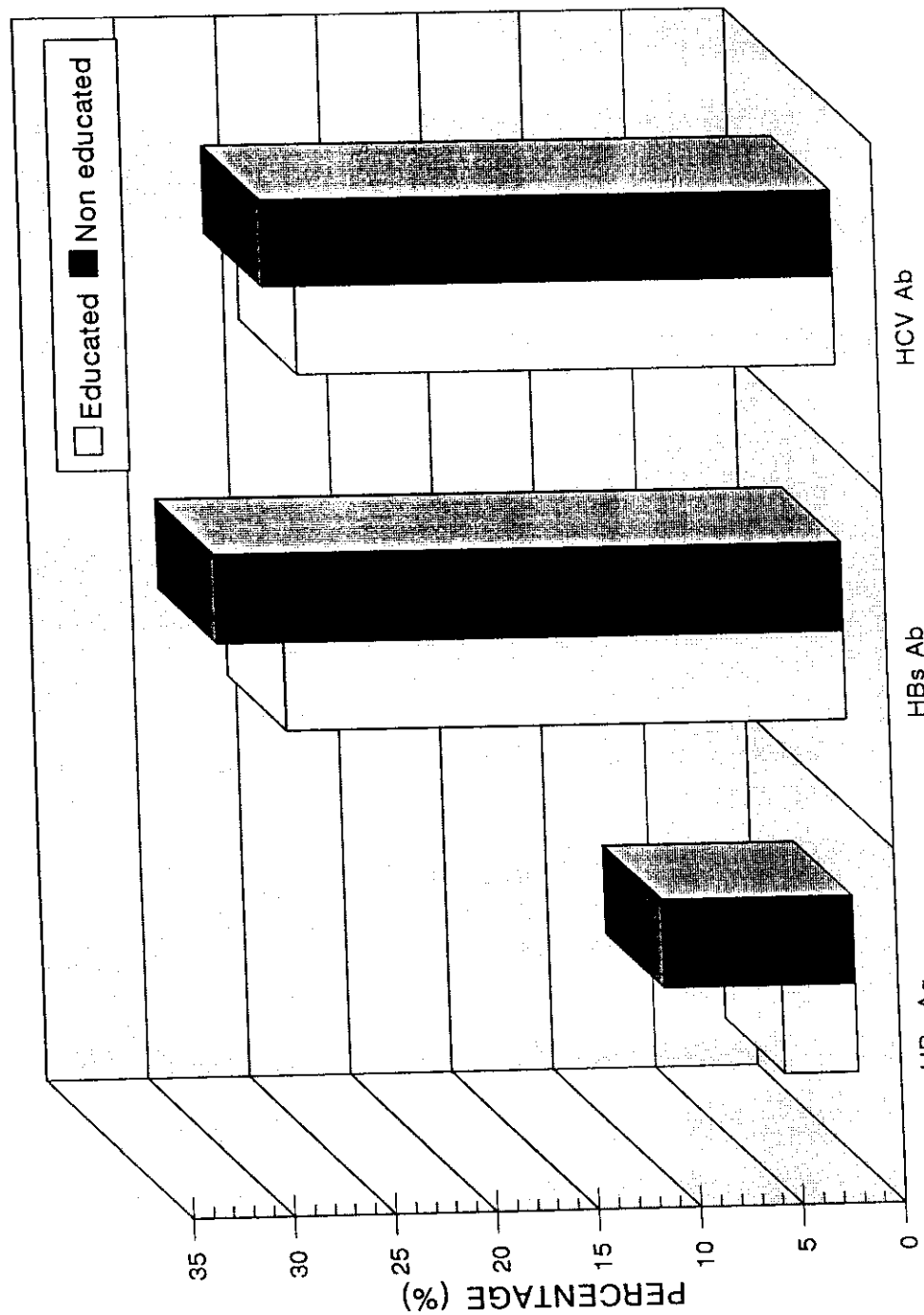


Fig.(9): Prevalence of hepatitis markers among studied group according to education status.

Table (9a) **: Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to occupation.**

Occupat. / Hepat. Markers	Manual (n =131)		Skilled (n = 40)		Clark (n= 103)		Prof. Mang (n = 26)		Total (n =300)		X^2	P
	No	%	No	%	No	%	No	%	No	%		
-HBs Ag												
Positive	10	7.6	3	7.5	1	1.00	3	11.5	17	5.7	* 7.125	> 0.05
Negative	121	92.4	37	92.5	102	99.0	23	88.5	283	94.3		
-HBs Ab												
Positive	36	27.5	10	25.0	22	27.2	12	46.1	86	28.7	4.352	> 0.05
Negative	95	72.5	30	75.0	75	72.8	14	53.9	214	71.3		
-HCV Ab												
Positive	29	22.1	12	30.0	34	33.0	6	23.1	81	27.0	3.843	> 0.05
Negative	102	77.9	28	70.0	69	67.0	20	76.9	219	73.0		

* Corrected chi square test.

This table shows that there were no statistically significant differences (P>0.05) between positive and negative HBs Ag, HBs Ab and HCV Ab cases regarding occupation, but the percentage of positive HBs Ag was higher among manual and skilled workers (7.6%, 7.5%, respectively) while the percentage of positive HCV Ab was the highest among clarks (33%).

***Table (9 b)* : Distribution of positive hepatitis markers among studied group according to occupation.**

Occupation / Hepatitis Markers	Medical & paramed. (n = 42)		Others occup. (n = 258)		Z	P
	No.	%	No.	%		
+ ve HBs Ag	1	2.4	16	6.2	0.993	> 0.05
+ ve HBs Ab	17	40.5	69	26.7	1.825	< 0.05
+ ve HCV Ab	11	26.2	70	27.1	0.127	> 0.05

This table shows that the percentages of positive HBs Ag or HCV Ab carriers were lower among medical and paramedical personnel (2.4%, 26.2% respectively) than other occupations (6.2%, 27.1% respectively), the differences were not statistically significant. While the percentage of positive HBs Ab cases was significantly higher among medical and paramedical personnel (40.5 %) than others (26.7%) ($P < 0.05$).

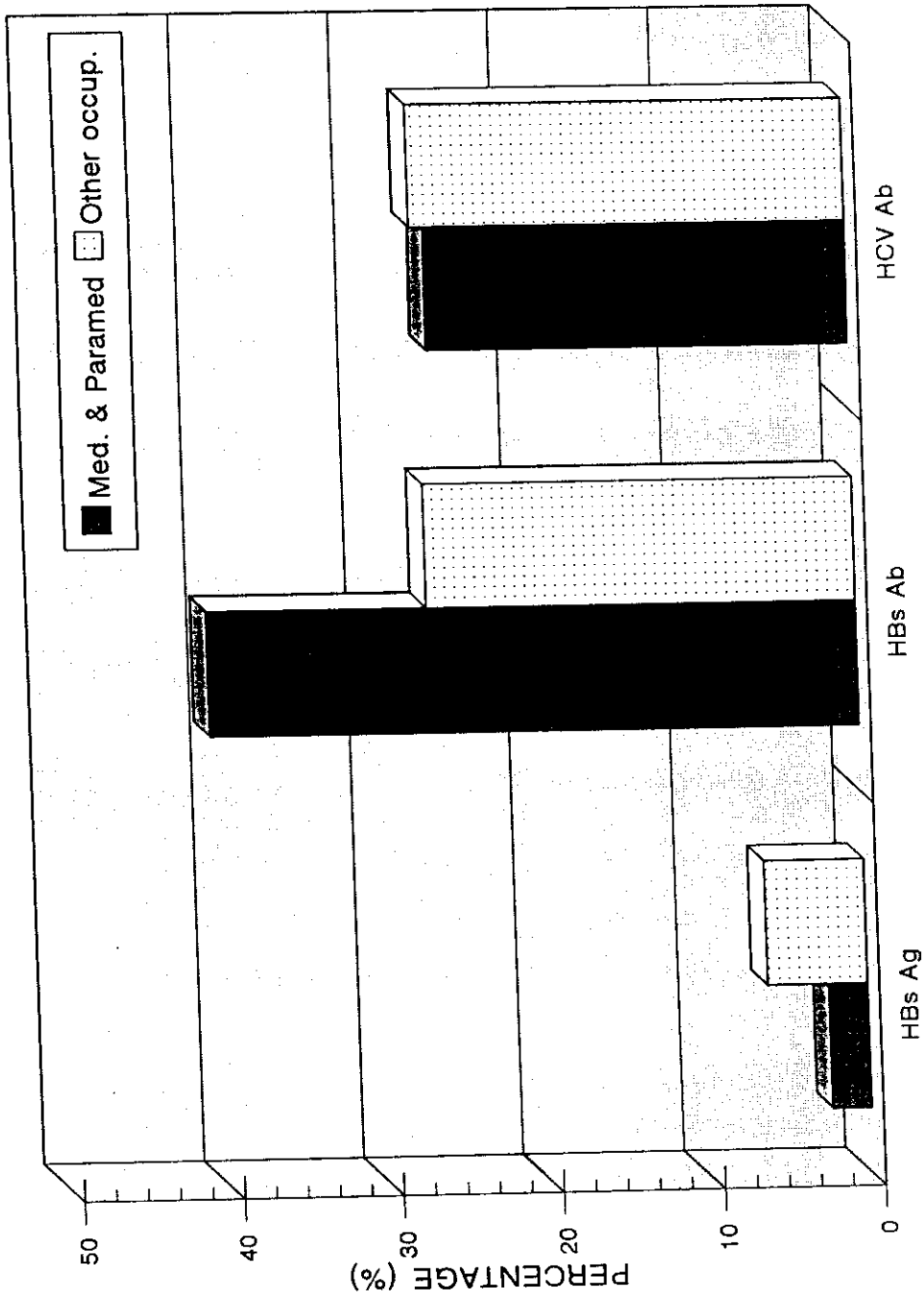


Fig.(10):Prevalence of hepatitis markers among studied group according to occupation.

Table (10) **: Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to the crowding index.**

Crowding Index / Hepatitis Markers	< 2 (n = 191)		2 - (n = 74)		3 + (n = 35)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%	No.	%		
- HBs Ag										
Positive	9	4.7	5	6.8	3	8.6	17	5.7	1.043	> 0.05
Negative	182	95.3	69	93.2	32	91.4	283	94.3		
- HBs Ab										
Positive	52	27.2	27	36.5	7	20.0	86	28.7	3.693	> 0.05
Negative	139	72.8	47	63.5	28	80.0	214	71.3		
- HCV Ab										
Positive	51	26.7	17	23	13	37.1	81	27.0	2.444	>0.05
Negative	140	73.3	57	77	22	62.9	219	73.0		

* Crowding Index = $\frac{\text{no. of family members}}{\text{no. of rooms}}$

This table shows that the percentages of positive HBs Ag and HCV Ab carriers were the highest among adults which live in houses with crowding index of 3 and more persons per room (8.6%, 37% respectively) the differences were insignificant statistically.

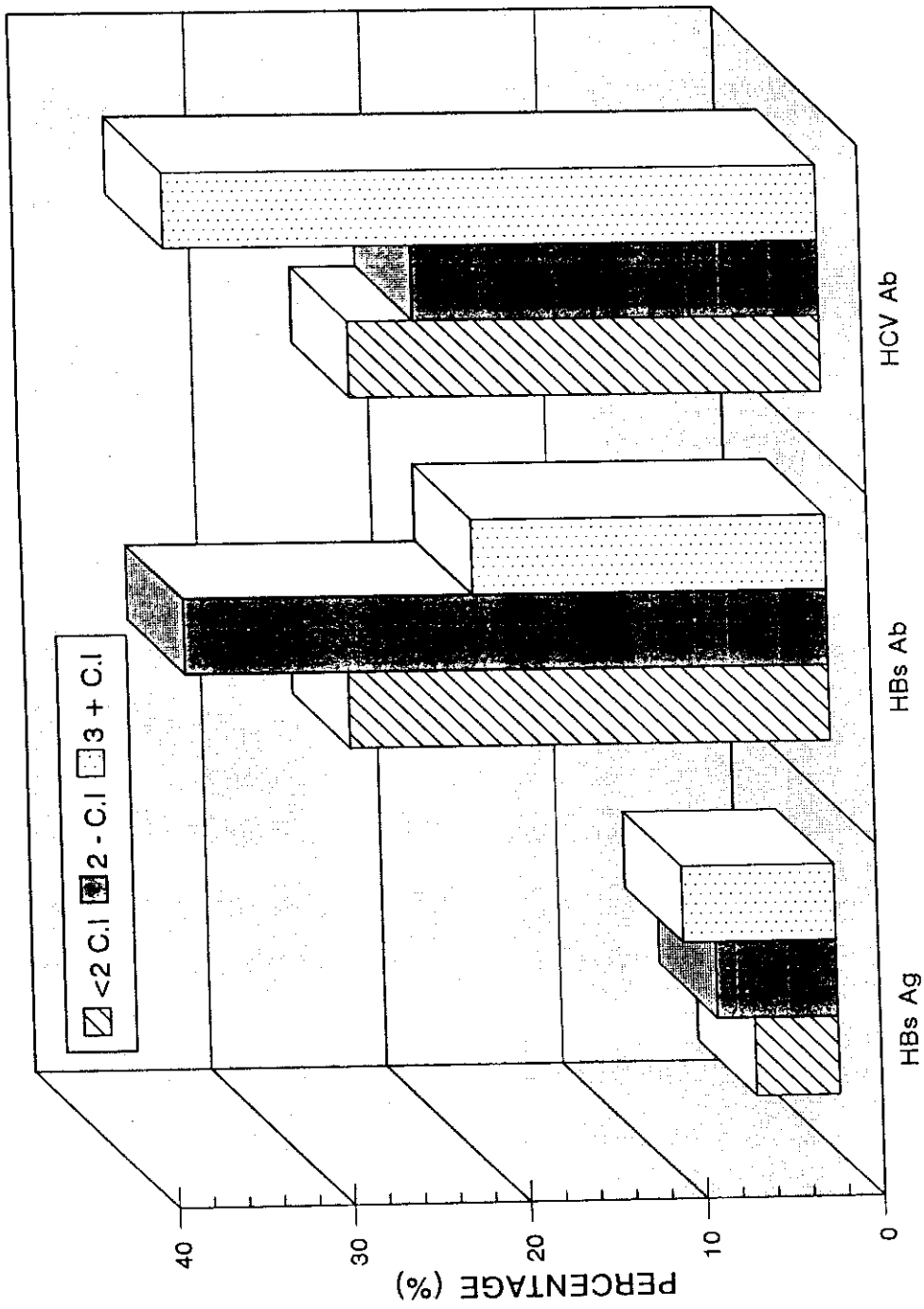


Fig.(11):Prevalence of hepatitis markers among studied group according to crowding index.

Table (11) **: Distribution of HBs Ag, HBs Ab, and HCV Ab among studied group according to history of bilharziasis.**

Bilharziasis / Hepat. Markers	Yes (n = 97)		No (n = 203)		Total (n = 300)		X^2	P	*OR	*CI 95 %
	No.	%	No.	%	No.	%				
- HBs Ag										
Positive	6	6.2	11	5.4	17	5.7	0.072	>0.05	1.15	0.37-3.5
Negative	91	93.8	192	94.6	283	94.3				
- HBs Ab										
Positive	30	30.1	56	27.6	86	28.7	0.214	>0.05	1.18	0.67-2.06
Negative	67	69.1	147	72.4	214	71.3				
- HCV Ab										
Positive	43	44.3	38	18.7	81	27.0	21.842	<0.001	3.46	1.96-6.11
Negative	54	55.7	165	81.3	219	73.0				

* OR = Odds Ratio

* CI = Confidence Interval

This table shows that there was a statistically significant higher percentage of positive HCV Ab among bilharzial (44.3%) than non bilharzial (18.7%) cases ($P < 0.001$). Bilharzial cases were more at high risk (3.46 times) to acquire HCV infection than non bilharzial ones. Also the percentages of HBs Ag and HBs Ab were higher among bilharzial cases, (6.2%, 30% respectively) than non bilharzial (5.4%, 27.6% respectively) the differences were not statistically significant.

Table (12) **: Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to history of Diabetes.**

Hist. of Diabetes / Hepat. Markers	Yes (n = 35)		No (n = 265)		Total (n = 300)		X^2	P	OR*	CI* 95 %
	No.	%	No.	%	No.	%				
- HBs Ag										
Positive	3	8.6	14	5.3	17	5.7	0.625	>0.05	1.68	0.36-6.74
Negative	32	91.4	251	94.6	283	94.3				
- HBs Ab										
Positive	8	22.9	78	29.4	86	287	0.654	>0.05	0.71	0.28-1.73
Negative	27	77.1	187	70.6	214	71.3				
- HCV Ab										
Positive	18	51.4	63	23.8	81	27.0	11.996	<0.001	3.39	1.56-7.41
Negative	17	48.6	202	76.2	219	73.0				

* OR = Odds Ratio

* CI = Confidence Interval

This table shows that the percentages of positive HBs Ag and HCV Ab were higher among diabetics (8.6%, 51.4% respectively) than non diabetic (5.3%, 23.8% respectively) patients with statistically significant difference regarding HCV Ab ($P<0.001$). The risk of diabetic patients to have HCV infection is 3.39 folds that of non diabetics.

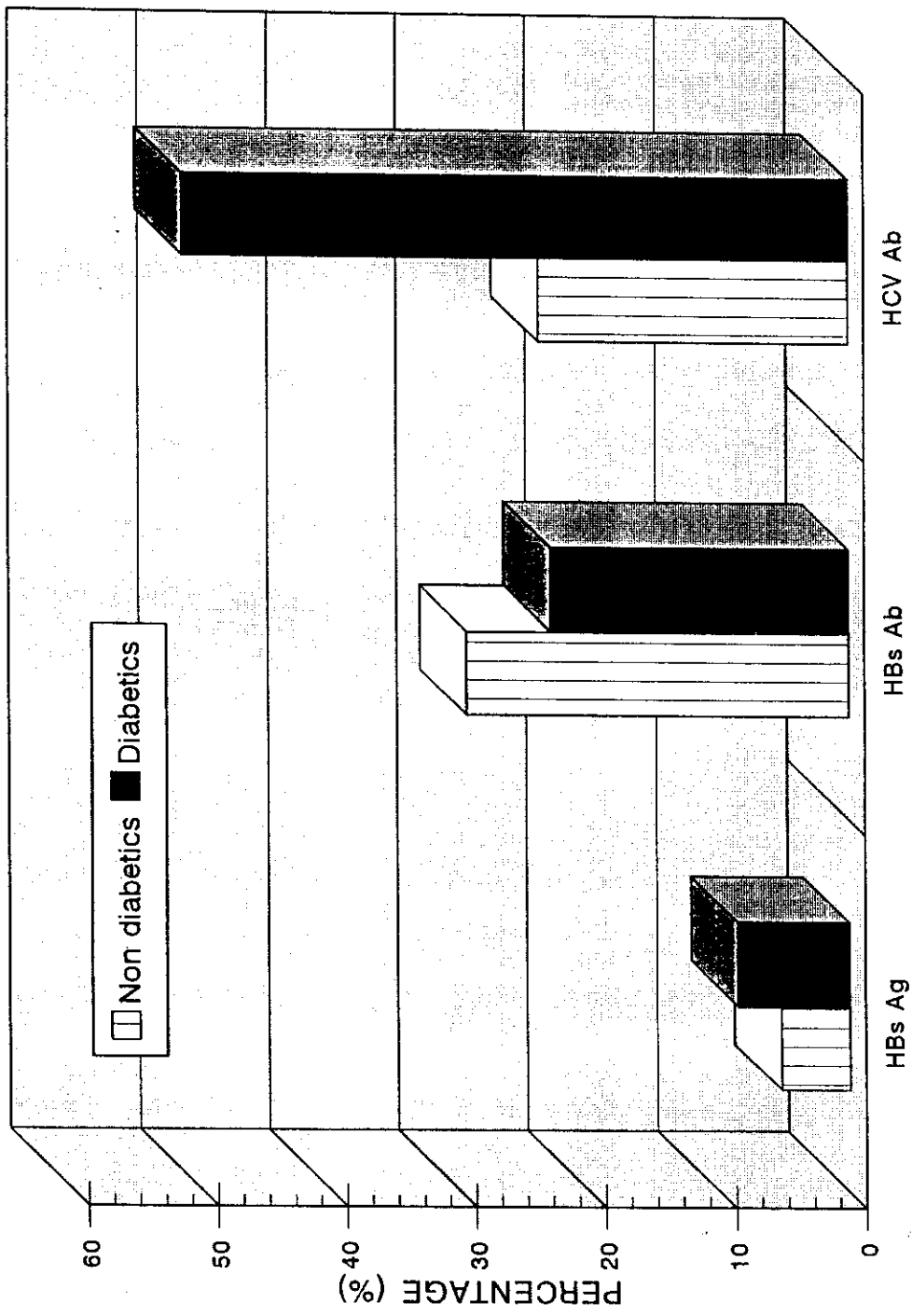


Fig.(13):Prevalence of hepatitis markers among diabetic and non-diabetic cases of the studied group.

***Table (13)* : Distribution of positive HBs Ag, HBs Ab and HCV Ab among studied group according to previous history of hepatic illness.**

Hist. of hepatic illness / Hepatitis Markers	Yes (n = 10)		No (n = 290)		Z	P
	No.	%	No.	%		
+ ve HBs Ag	1	10.0	16	5.5	0.603	> 0.05
+ ve HBs Ab	1	10.0	85	29.3	1.328	> 0.05
+ ve HCV Ab	5	50.0	76	26.2	1.666	< 0.05

This table shows that the percentages of HBs Ag or HCV Ab carriers were higher among adults with past history of hepatic illness (10%, 50% respectively) than those without history (5.5%, 26.2% respectively) with statistically significant difference regarding HCV infection ($P<0.05$).

***Table (14)* : Distribution of HBs Ag, HBs Ab and HCV Ab among studied group by history of blood transfusion.**

Hist. of blood transfusion / Hepatitis Markers	Yes (n = 16)		No (n = 284)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%		
- HBs Ag								
Positive	2	12.5	15	5.3	17	5.7	1.476	> 0.05
Negative	14	87.5	269	94.7	283	94.3		
- HBs Ab								
Positive	3	18.7	83	29.2	86	28.7	0.813	> 0.05
Negative	13	81.3	201	70.8	214	71.3		
- HCV Ab								
Positive	8	50.0	73	25.7	81	27.0	4.536	< 0.05
Negative	8	50.0	211	74.3	219	73.0		

It is clear from this table that the percentages of HBs Ag or HCV Ab carriers of the studied group were higher among those who received blood transfusion (12.5%, 50% respectively) than who did not receive any blood transfusion before (5.3%, 25.7% respectively). The difference was statistically significant regarding HCV Ab ($P < 0.05$).

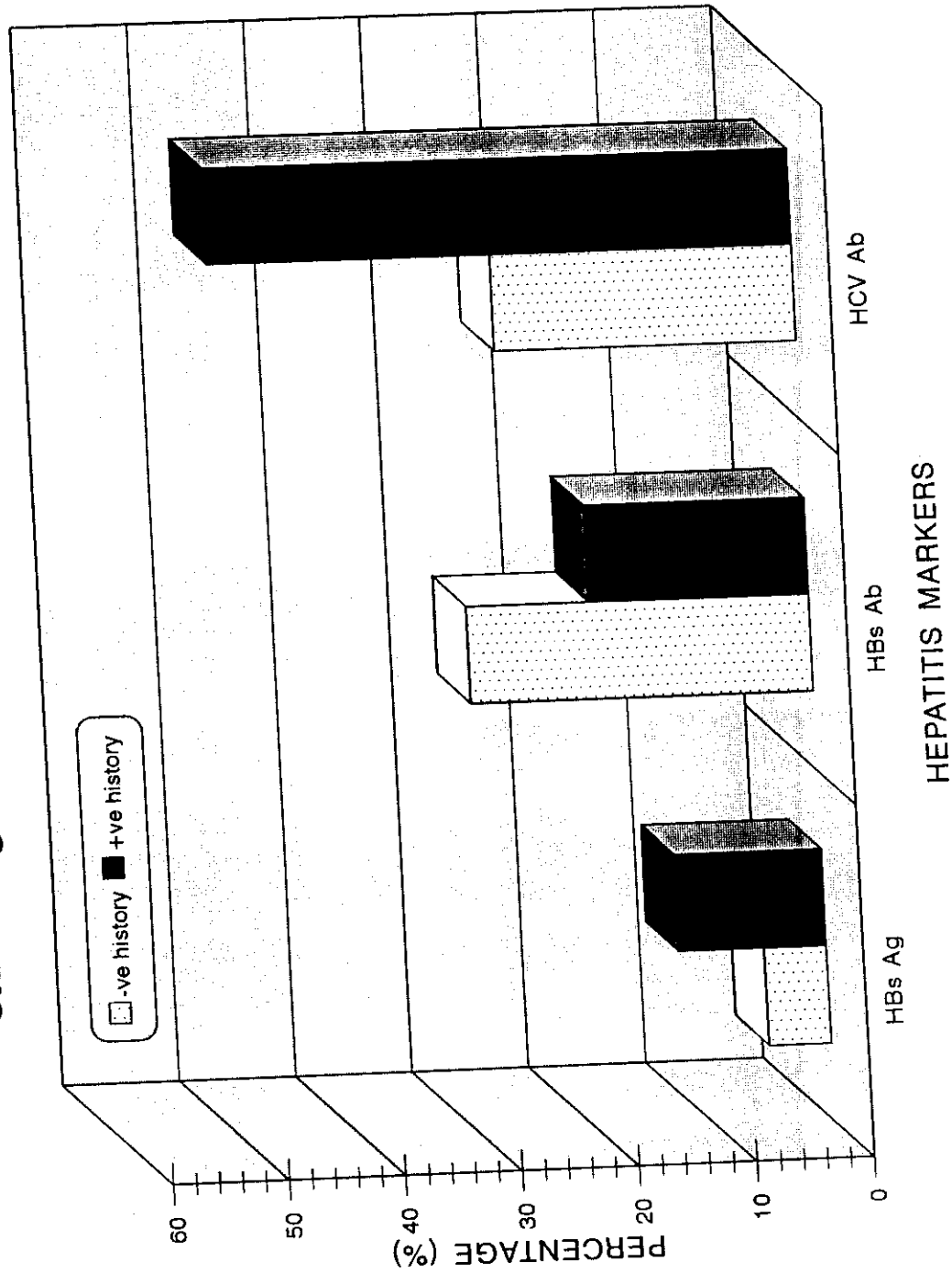


Fig.(15):Distribution of positive hepatitis markers among studied group by history of bl. transfusion.

***Table (15)* : Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to ear piercing**

Ear piercing / Hepatitis Markers	Yes (n = 151)		No (n = 149)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%		
- HBs Ag								
Positive	8	5.3	9	6.0	17	5.7	0.077	> 0.05
Negative	143	94.7	140	94.0	283	94.3		
- HBs Ab								
Positive	39	25.8	47	31.5	86	28.7	1.198	> 0.05
Negative	112	74.2	102	68.5	214	71.3		
- HCV Ab								
Positive	29	19.2	52	34.9	81	27.0	9.372	< 0.05
Negative	122	80.8	97	65.1	219	73.0		

This table shows that there was no statistically significant difference for positive HBs Ag (or HBs Ab) individuals according to ear piercing. while the percentage of positive HCV Ab was higher among adults without ear piercing (34.9 %) than that of subjects who had pierced ears (19.2 %), the difference is statistically significant ($P < 0.05$).

Table (16) **: Distribution of HBs Ag, HBs Ab, and HCV Ab among studied group by history of long-term treatment by injection.**

Treatment by injection / Hepatitis Markers	Yes (n = 69)		No (n = 231)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%		
- HBs Ag								
Positive	6	8.7	11	4.8	17	5.7	1.538	> 0.05
Negative	63	91.3	220	95.2	283	94.3		
- HBs Ab								
Positive	24	34.8	62	26.8	86	28.7	1.637	> 0.05
Negative	45	65.2	169	73.2	214	71.3		
- HCV Ab								
Positive	32	46.4	49	21.2	81	27.0	17.070	<0.001
Negative	37	53.6	182	78.8	219	73.0		

This table shows that the percentages of cases with positive HBs Ag, HBs Ab or HCV Ab were higher among those who received treatment by injection for long time (8.7%, 34.8%, 46.4% respectively) than those without history of long term treatment by injection (4.8%, 26.8%, 21.2% respectively) with statistically significant difference regarding HCV Ab (P<0.001).

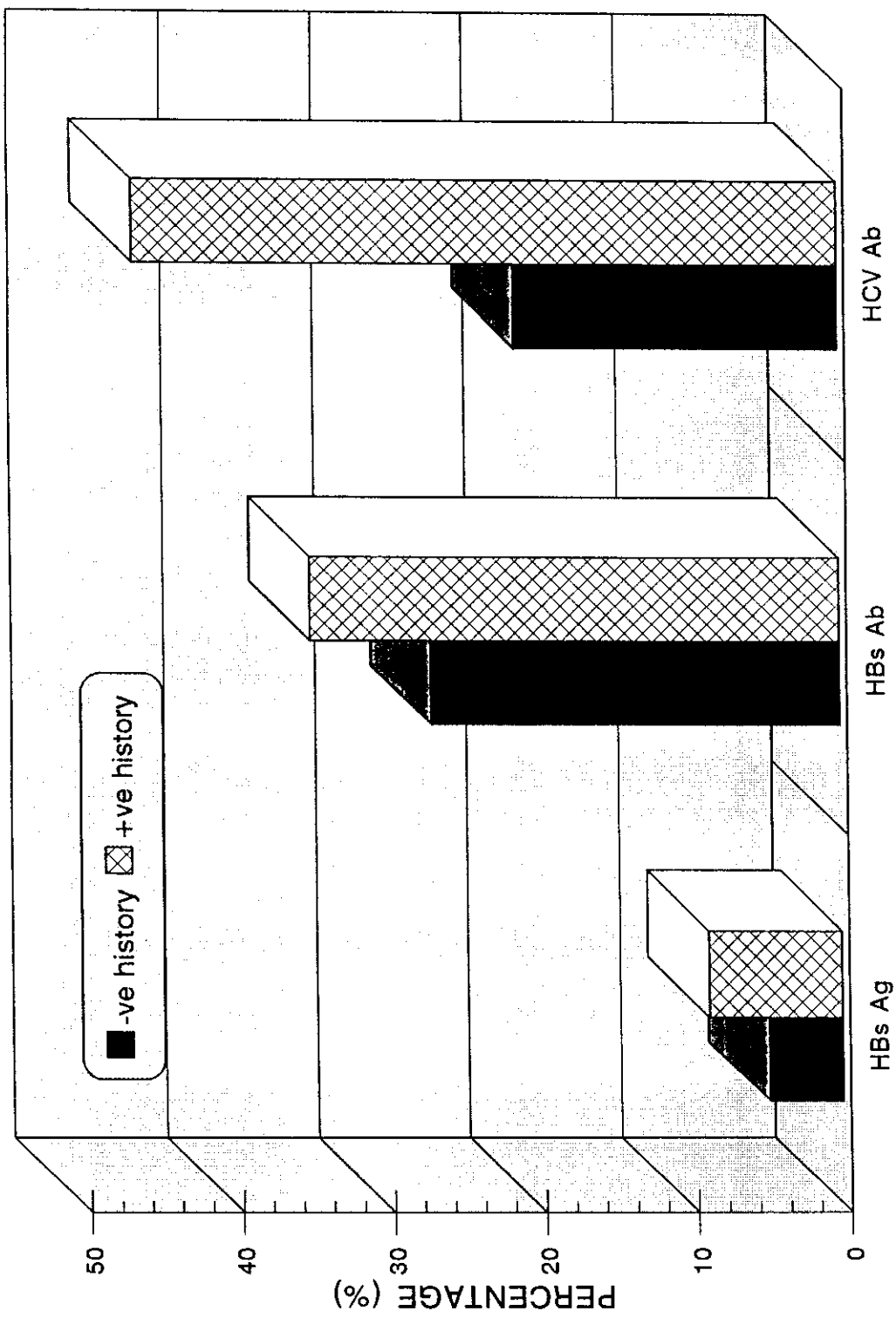


Fig.(16):Distribution of positive hepat. markers among studied group by hist. of long-term treat. by injection.

Table (17) **: Distribution of HBs Ag, HBs Ab and HCV Ab among studied group according to visit to a dentist.**

Visit to a dentist / Hepatitis Markers	Yes (n = 202)		No (n = 98)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%		
- HBs Ag								
Positive	12	6.0	5	5.1	17	5.7	*0.087	> 0.05
Negative	190	94.0	93	94.9	283	94.3		
- HBs Ab								
Positive	55	27.2	31	31.4	86	28.7	0.626	> 0.05
Negative	147	72.8	67	68.4	214	71.3		
- HCV Ab								
Positive	58	28.7	23	23.5	81	27.0	0.920	> 0.05
Negative	144	71.3	75	76.5	219	73.0		

* Corrected chi square test.

This table shows that the percentages of positive HBs Ag or HCV Ab among studied group were higher in those who had ever visited a dentist (6.8%, 28.7% respectively) than individuals who never visit a dentist (3.2%, 23.5% respectively). The differences were not statistically significant (P > 0.05).

Table (18) **: Distribution of positive hepatitis B markers (HBs Ag, HBs Ab) and HCV Ab among studied group according to the presence of tattooing.**

Tattooing / Hepatitis Markers	Yes (n = 8)		No (n = 292)		Z	P
	No.	%	No.	%		
+ ve HBs Ag	0	00	17	5.7	0.703	> 0.05
+ ve HBs Ab	2	25.0	84	28.8	0.232	> 0.05
+ ve HCV Ab	3	37.5	78	26.7	0.678	> 0.05

It is clear from this table that no one of those who had tattooing was positive for HBs Ag, while the percentage of positive HCV Ab cases was higher among those with tattooing (37.5 %) than those without tattooing, the difference is statistically insignificant (P > 0.05).

Table (19) **: Distribution of HBs Ag, HBs Ab and HCV Ab among studied group by exposure to surgical intervention.**

Surgical intervent. / Hepatitis Markers	Yes (n = 145)		No (n = 155)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%		
- HBs Ag								
Positive	9	6.2	8	5.2	17	5.7	0.153	> 0.05
Negative	136	93.8	147	94.8	283	94.3		
- HBs Ab								
Positive	39	26.9	47	30.3	86	28.7	0.430	> 0.05
Negative	106	73.1	108	69.7	214	71.3		
- HCV Ab								
Positive	46	31.7	35	22.6	81	27.0	3.178	> 0.05
Negative	99	68.3	120	77.4	219	73.0		

This table shows that the percentages of HBs Ag or HCV Ab carries were higher among those exposed to surgical intervention (6.2%, 31.7% respectively) than who never exposed (5.2 %, 22.6% respectively). The differences in both cases were not statistically significant (P > 0.05).

Table (20) **: Distribution of HBs Ag, HBs Ab and HCV Ab among studied group by family history of hepatitis.**

F.H.of hepat. / Hepatitis Markers	Yes (n = 48)		No (n = 252)		Total (n = 300)		X^2	P
	No.	%	No.	%	No.	%		
- HBs Ag								
Positive	3	6.2	14	5.6	17	5.7	*0.036	> 0.05
Negative	45	93.8	238	94.4	283	94.3		
- HBs Ab								
Positive	16	33.3	70	27.8	86	28.7	0.609	> 0.05
Negative	32	66.7	182	72.2	214	71.3		
- HCV Ab								
Positive	16	33.3	65	22.8	81	27.0	1.163	> 0.05
Negative	32	66.7	187	74.2	219	73.0		

* Corrected chi square test.

This table shows that the percentages of adults with positive HBs Ag, HBs Ab or HCV Ab were slightly higher among those giving positive family history of hepatitis (6.2%, 33.3%, 33.3% respectively) than those without family history of infection (5.6%, 27.8%, 25.8% respectively). But the differences were not statistically significant.

Table (21) **: Distribution of HBs Ag and HBs Ab among studied group according to hepatitis B vaccination.**

HB vaccination / Hepatitis Markers	Yes (n = 12)		No (n = 288)		Z	P
	No.	%	No.	%		
+ ve HBs Ag	0	00	17	5.9	0.867	> 0.05
+ ve HBs Ab	6	50.0	80	27.8	1.668	< 0.05

This table shows that no one of the studied cases who received hepatitis B vaccine (even one dose) was positive for HBs Ag, while the percentage of positive HBs Ab was higher among vaccinated (50%) than non vaccinated persons (27.8%). The difference is statistically significant ($P < 0.05$).

Fig.(17):Distribution of positive hepat. markers among studied group by hist. of HB vaccination.