

Prevalence of *Helicobacter pylori* infection in patients with dyspeptic symptoms in
Damaturu metropolitan

Abstract

AIM: To study the prevalence of *Helicobacter pylori* (*H. pylori*) contamination among dyspeptic patients in Damaturu and report on the relationship between *H. pylori* predominance and different age groups in the population under study.

METHOD: A sum of 229 volunteers with dyspeptic symptoms (140 females and 89 males; mean period of 43.6 ± 14.2 years) took an interest in the investigation. The status of infection caused by *H. pylori* was determined using serological test. Information was gathered by the utilization of self-managed survey while status of *H. pylori* was resolved dependent on the serological examination (fast symptomatic test). The one Step *H. Pylori* serum whole blood rapid test kit was used to detect the presence of IgG antibodies specific to *H. pylori* infections in the participants.

RESULTS: The prevalence of *H. pylori* disease was 51.96%. There was no noteworthy factual relationship between age and contamination rate at p-value (0.1515). In young subjects (under 11 years of age), the *H. pylori* contamination rate was moderately higher (50.00%). The most extreme number of the positive patients was found in the age range of 50-59 years (69.23%) and the base prevalence was in the age range of 10-19 years (50.00%).

The overall prevalence of *H. pylori* contamination between the gender is out of 89 males, 55 were found to be positive to the infection (61.79%), while out of 140 females, 64 were also positive (45.71%). Despite these findings, there was no critical factual relationship between the genders and *H. pylori* infection ($p=0.113$). The statistical qualities of members at the examination section demonstrate that out of 129 patients having a place with the upper lower class, 85 subjects (66.40%) were found to be positive to *H. pylori*. The lower-middle-class

30 demonstrates that out of 89 subjects 30 were positive (33.70%), while upper-middle outcome
31 demonstrates that out of 12 subjects 4 were confirmed with 33.33%. This demonstrates that
32 subjects living under overcrowded conditions with dense population have a high contamination
33 rate of *H. pylori* and therefore is a noteworthy factual relationship between socio-statistic factors
34 and overall prevalence of *H. Pylori* infection ($p = 0.001$)

35 CONCLUSION: We came to realize the overall prevalence of *H. pylori* contamination in
36 patients with dyspeptic symptoms in Damaturu. The *H. pylori* contamination might be a hazard
37 factor for peptic ulcer and more grounded gastritis.

38

39 **Keywords:** *Helicobacter pylori*, *dyspepsia*, *occupation*, *sanitary habit*, *socio-economic status*.

40 INTRODUCTION

41 It has been known for over 100 years that microscopic organisms are available in human stomach
42 [1]. These microscopic organisms, be that as it may, were believed to be contaminants from
43 processed nourishment as opposed to genuine colonizers. Barry Marshall and Robin Warren
44 portrayed the effective disengagement and culture of a winding bacterial species, around 29 years
45 back, later known as *Helicobacter pylori* [2], from the human stomach. Marshall [3] and Moris [4]
46 felt free to lead the self-ingestion examination and later analysis with volunteers [5] demonstrated
47 that these bacteria can colonize the human stomach, in this manner instigating irritation of the gastric
48 mucosa. These underlying information emphatically animated further research which demonstrated
49 that gastric colonization with *Helicobacter pylori* can prompt an assortment of upper gastrointestinal
50 disorders, for example, perpetual gastritis, peptic ulcer illness, gastric mucosa-associated lymphoid
51 tissue (MALT), lymphoma and gastric malignancy.

52
53 The genus *Helicobacter* has place with subdivision of the Proteobacteria, order *Campylobacterales*,
54 family *Helicobacteriaceae*. *H. pylori* is a gram-negative bacterium estimating about 2 to 4 μm in
55 length and 0.5 to 1 μm in width. Although usually spiral-shaped, the bacterium can appear as rod
56 while the coccoid shapes appear after prolonged *in-vitro* culture or antibiotic treatment [6]. These
57 coccoid cannot be refined *in vitro* and are thought to represent dead cells [6]. It has been
58 recommended that coccoid structures may represent a practical non-culturable state [7]. The
59 organism has 2 to 6 unipolar, sheathed flagella of around 3 μm in long which regularly conveys an

60 unmistakable bulb toward its end [8]. The flagella present motility and permit quick development in
61 gooey arrangement, for example, the mucosa overlying the gastric epithelial cell [8].

62
63 The essential consequence which happens after colonization with *H. pylori* is perpetual dynamic
64 gastritis. The condition can be seen in all *H. pylori*-positive subjects. The intra-gastric circulation and
65 intensity of this endless prococative procedure rely upon an assortment of components. For example,
66 qualities of the colonizing strain, host genetics, insusceptible reaction, diet and degree of acid
67 production. *H. pylori*-induced ulcer infection, gastric malignant growth, lymphoma are all together
68 complications of this incessant irritation.

69
70 *Helicobacter pylori* is found down the middle the number of inhabitants on the planet. Its
71 prevalence indicates enormous topographical varieties. In different creating nations over 80% of
72 the populace is *Helicobacter pylori*-positive even at a youthful age [9]. The prevalence in
73 industrialized nations by and large stays under 40% and is significantly lower in youngsters and
74 teenagers than in grown-up. The predominance of *Helicobacter pylori* relates with financial
75 status, specifically in connection to living conditions at young age [10]. While the predominance
76 of the disease in creating nations remains generally consistent. The principal explanation behind
77 this contrast is the financial status that exists between the two populations.

78
79 The transmission of *H. pylori* is to a greater extent by oral-fecal route. This is due to the absence
80 of good sanitation, safe drinking water, essential cleanliness, bad eating habits and overcrowding.
81 They all play a certain role in predominance of the contamination.

82
83 Various examinations have attempted to utilize the rate and prevalence of *H. pylori* disease, its
84 method of transmission, and any risk factor adding to the advancement of the contamination. The
85 yearly occurrence reports in 3 grown-up adults in creating nations were between 0.3%-0.5% for a
86 considerable length of time [11]. Prevalence evaluations change extraordinarily relying upon the
87 area under investigation and attributes of the populace. By and large, predominance increases
88 with age as well as low financial status during youthful age.

89 New findings have likewise been distributed from African nations. Such include studies from
90 Morocco and Ethiopia that showed a prevalence of *H. pylori* contamination of 75.5% and 65.7%,

91 respectively. The two investigations additionally found a huge increment with age [12, 13]. A
92 review from Nigeria announced higher qualities: the prevalence was 80% when conducted with
93 histology and was considerably higher, reaching 93.6%, when serology was also conducted [14].
94

95 *Helicobacter pylori* plays a vital role as the etiologic agent in the pathogenesis of interminable
96 gastritis, peptic ulcer illness, gastric adenocarcinoma, and mucosa-associated lymphoid tissue
97 lymphoma. In any case, the vast majority of the tainted subjects stay asymptomatic.

98 The examination intends to investigate *Helicobacter pylori* infection in patients with different
99 gastrointestinal manifestations attending Yobe State Specialist Hospital (YSSH). In the
100 overview, we determined the disease rate of *H. pylori* in Damaturu by Rapid Determine Test
101 (RDT), while the status of gastric mucosa was examined based on serology.
102

103 Materials and methods

104 Study population

105 A total number of 229 patients of both genders with dyspeptic indications (140 females and 89
106 males; age range 10 to 80 years of age) constituted the study subjects in 2018. Information was
107 gathered by utilization of self-regulated surveys while the status of *H. pylori* was determined
108 using serological test (rapid diagnostic test). The one Step *H. Pylori* serum whole blood rapid
109 test kit was used to detect the presence of IgG antibodies specific to *H. pylori* infections in the
110 participants.
111

112 Composed educated assent was gotten from all members, and the approval was affirmed by the
113 Ethics and Research Committee of Yobe State Ministry of Health preceding the investigation.
114 Patients who had taken proton inhibitor or antibiotics for a month preceding the investigation
115 were excluded.

116 Serological examination of *H. pylori* infection

117 The test instrument and reagents were brought to the room temperature. The test instrument was
118 laid on a level dry surface and around 2 drops of the readied test were added to the sample well.
119 The reading was taken after 10mins with two-shading groups, one at a test band another at the
120 control band which demonstrate a positive test. The negative test outcome indicated just a
121 solitary one shading band.

122

123 Statistical Analysis

124 The data was analysed using Statistical Package for Social Science (SPSS) version 20 (SPSS
125 Inc., Chicago, IL, United States). Differences in socio-financial aspects in each gathering were
126 investigated to look at the relationship of factors, for example, age, sex, for *H. pylori* infection
127 using Pearson relationship correlation. P-value < 0.05 was considered to be significant. .

128

129 Results

130 Prevalence of *H. pylori* contamination in Damaturu

131 Out of 229 patients, 119 were *H. pylori*-positive to immuno-card STAT HPSA test, giving an
132 emergency clinic based predominance of 51.96% (Table 1). Out of 89 males, 55 were positive for *H.*
133 *pylori* (61.79%), while out of 140 females, 64 were positive (45.71%). The predominance was
134 evaluated in various age groups (Table 3). The highest number of positive patients was found in the
135 age ranges of 50-59 years (69.23%) and 80-89 years with 100% prevalence, while the lowest was
136 found in the age range of 10-19 years (50.00%). For financial status, out of 128 patients that have a
137 place with upper lower class, 85 subjects were certain for *Helicobacter pylori* giving a level of
138 66.40%. For lower middle class, out of 89 subjects 30 were positive for *H. pylori* giving 33.70%. Out
139 of 12 subjects within the upper-middle-class, 4 were positive giving a level of 33.3% (Table 4).

140 The statistical attributes of members at the investigation section demonstrate that out of 128 patients
141 in the upper lower class, 85 subjects at 66.40% are positive. In the lower middle class, out of 89
142 subjects 30 were positive with 33.70%. While for the upper-middle class, out of 12 subjects 4 were
143 positive with 33.33%. This demonstrates that subjects within the upper lower class have a higher rate
144 of *H. pylori* infection and therefore means that there is critical factual relationship between socio-
145 economic status and prevalence of contamination with *H. pylori* ($p = 0.001$).

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147

148 **Table 1. Prevalence of *Helicobacter pylori***

Total subject	Positive	%
229	119	51.96

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150

151 **Table 2. Number of *Helicobacter pylori* positive patients according to sex.**

Sex	Total subject	Positive	%
Male	89	55	61.79
Female	140	64	45.71

152

153 **Table 3. Numbers of *Helicobacter pylori* positive patients according to age group.**

154

Age group	Subjects	Positive	%
10-19	30	15	50.00
20-29	95	43	45.26
30-39	55	30	54.54
40-49	26	16	61.53
50-59	13	9	69.23
60-69	6	4	66.66
70-79	3	1	33.33
80-89	1	1	100

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158 **Table 4. Number of *Helicobacter pylori* positive patients according to socio-economic status**

Socio-economics	Subjects	Positive	%
Upper lower	128	85	66.40
Lower middle	89	30	33.70
Upper middle	12	4	33.33

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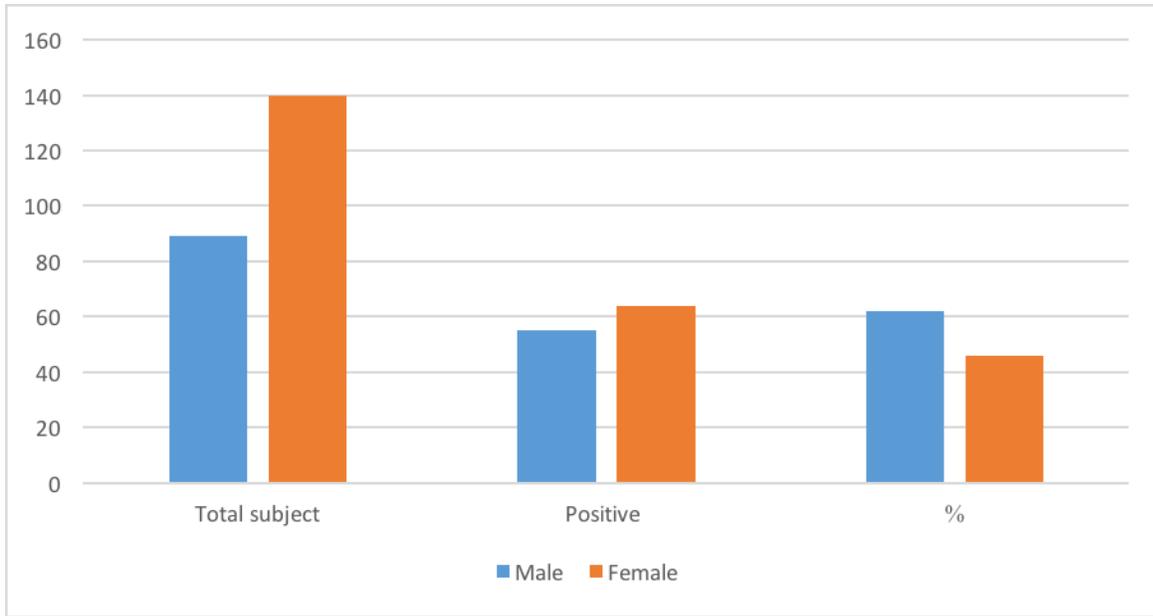
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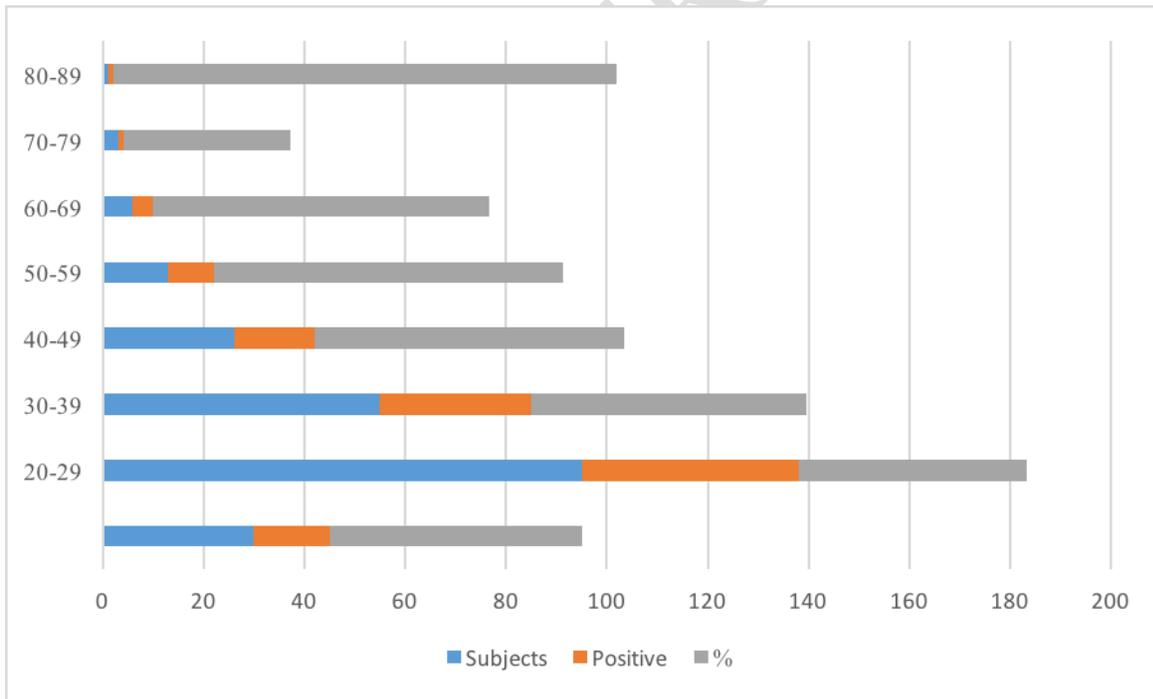
166 **Graph of Table 2: Bar chart showing *Helicobacter pylori* positive patients according to sex.**



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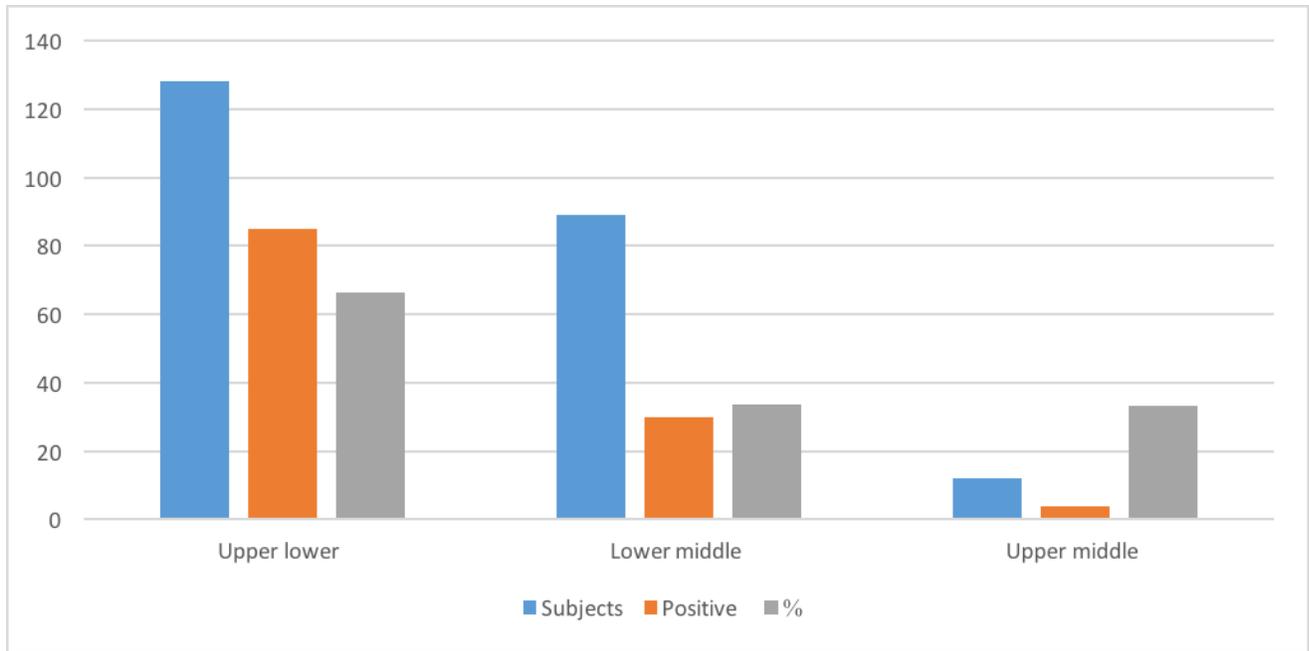
169 **Graph of Table 3:** Bar chart showing *Number of Helicobacter pylori positive patients according to age group.*



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171

172 **Graph of Table 4:** Bar chart showing *number of Helicobacter pylori positive patients according to socio-economic*
 173 *status*



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175

176 Discussion

177 The predominance of *H. pylori* contamination differs around the world. However, higher
 178 colonization rates have been found in developing nations in contrast to developed nations [15]. Our
 179 investigation was aimed at finding the predominance of *H. pylori* among dyspeptic patients attending
 180 YSSH. The general prevalence of *H. pylori* among 229 dyspeptic subjects was 51.96%. This is in
 181 agreement with what Chandigarh announced that 254 people were screened for *H. pylori* and 56.7%
 182 of the asymptomatic individuals were confirmed to be positive [16].

183 In the present study among *H. pylori*-positive patients, 55 (61.79%) were males and 64 (45.7%) were
 184 females. There were shifting reports of higher prevalence of *H. pylori* in either males or females,
 185 with no critical relationship between the infectivity and gender [17]. The finding is similar to that
 186 seen in a study by Rajesh Kumal et al [18], which showed higher *H. pylori* positive patients in males
 187 with 64.13% than in females with 35.86%.

188 In our study, the age range that indicates the most predominance is 50-59 years and the least is the
 189 age range of 10-19 years with 69.23% and 46.6% respectively. The higher prevalence of 69.23%
 190 gotten from this examination was likely the same with that obtained in Morocco by Benajah et al[13]

191 and in Ethiopia by Mathewos et al [12] with predominance of *H. pylori* contamination rate of 75.5%
192 and 65.7% of patients of the ages between 60-61 years respectively. Higher rates of peptic ulcer is
193 somewhere in the range of 55 and 65 years old and this clarifies that elderly people are at higher risk
194 of *H. pylori* contamination [12, 13]. This is in contrast to an examination by De Giacomo et al [29]
195 who expressed that *H. pylori* is quite often procured at youthful age (ordinarily before the age of 10
196 years).

197 The prevalence of *H. pylori* in our examination was observed to be higher in people with lower
198 financial status, with 62% in the upper-lower class and 37% in the lower middle class. This is in
199 consonance with the past report which exhibited that prevalence of *H. pylori* relates conversely with
200 financial status and life style of families having poor cleanliness, poor sanitation rehearses, and
201 stuffing [19, 20]. A strong relationship between *H. pylori* infection and financial status, destitution or
202 social hardship has been accounted for reliably for a long time by Bauer et al [22], Goh et al [23] and
203 Sitas et al [24]. Increased prevalence rates in some Eastern and Southern European investigations
204 have been related already with higher risk of contamination among the less privileged groups in
205 these nations, with consideration of individuals staying in slums. [24, 25].

206 These dangers related with people's life styles and natural conditions, including stuffed living
207 conditions, sharing of bed and poor cleanliness, with strong proof that *H. pylori* for the most part
208 colonized by young kids is acquired from guardians or kin, or through unhygienic water supplies [24,
209 26,28]. Generally, overcrowded living conditions in growing urban communities during industrial
210 development over the most recent couple of hundreds of years prompted the fact that there are
211 increases in *H. pylori* [28].

212 Conclusion

213 In developing nations, *H. .pylori* contamination is of great significance. The overall prevalence of 56%
214 and 62% recorded in our examination among dyspeptic subjects with low financial status implies
215 that general wellbeing intercessions are required, such as basic personal cleanliness, improvement of
216 people's life styles and health education.

217 Recommendation

218 Defiled nourishment arranged under unhygienic conditions might be the likely component for

219 transmission of the ailments [21]. Hygienic water supply may help with reducing the spread of the
220 infection as revealed by past investigations that water from running metropolitan, underground
221 sources just as hand-burrowed wells have been the repositories of *H pylori*.

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UNDER PEER REVIEW