

Supplementary Table 1. Risk Factors of Uninvestigated Dyspepsia and Functional Dyspepsia as Compared With Healthy Controls- Univariate Analysis

	No dyspepsia (n=1031)	Uninvestigated Dyspepsia(n =771)			Functional dyspepsia(n=491)		
	n (%)	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Demographic factors							
Sex							
Male	515(50.0)	302(39.2)	1	<0.001	146(29.7)	1	<0.001
Female	516(50.0)	469(60.8)	1.55(1.28-1.87)		345(70.3)	2.36(1.88-2.97)	
Age(year)							
Mean(SD)	51.79(10.69)	46(13.80)	0.96(0.95-0.97)	<0.001	45.0(13.30)	0.95(0.94-0.96)	<0.001
Occupation							
Unemployed	354(34.3)	250(32.4)	1		168(34.2)	1	
White-collar	372(36.1)	246(31.9)	0.94(0.75-1.18)	0.573	170(34.6)	0.96(0.74-1.25)	0.774
Blue-collar (Labor)	305(29.1)	275(35.7)	1.28(1.02-1.61)	0.037	153(31.2)	1.06(0.81-1.38)	0.684
Married status							
Married	885(85.8)	593(76.9)	1		367(74.7)	1	
Never married	94(9.1)	151(19.6)	2.40(1.82-3.17)	<0.001	107(21.8)	2.75(2.03-3.72)	<0.001
Divorced	32(3.1)	18(2.3)	0.84(0.47-1.51)	0.559	12(2.4)	0.90(0.46-1.78)	0.770
Married again	20(1.9)	9(1.2)	0.67(0.30-1.46)	0.325	5(1.0)	0.60(0.23-1.62)	0.315
Education level							
Below elementary	102(9.9)	124(16.1)	1		60(12.2)	1	
Below senior high school	252(24.4)	312(40.5)	1.02(0.75-1.39)	0.908	193(39.3)	1.30(0.90-1.89)	0.504
Above college	677(65.7)	335(43.5)	0.41(0.30-0.55)	<0.001	238(48.5)	0.60(0.42-0.85)	0.004
Blood type†							
A type	264(25.6)	185(27.5)	1		122(28.4)	1	
B type	223(21.6)	151(22.5)	0.97(0.73-1.28)	0.81	96(22.3)	0.93(0.68-1.29)	0.665
AB type	56(5.4)	63(9.4)	1.61(1.07-2.41)	0.022	42(9.8)	1.62(1.03-2.56)	0.037
O type	435(42.2)	273(40.6)	0.90(0.70-1.14)	0.370	170(39.5)	0.85(0.64-1.12)	0.238
Lifestyle factors							
BMI(kg/m2)							
Mean(SD)	23.52(3.19)	23.72(7.63)	1.01(0.99-1.02)	0.439	22.94(5.10)	0.96(0.93-0.99)	0.006
Smoking							
Never	831(80.6)	545(70.7)	1		381(77.6)	1	
Ever	200(19.4)	226(29.3)	1.72(1.38-2.14)	<0.001	110(22.4)	1.20(0.92-1.56)	0.174
Alcohol							

consumption							
Never	842(81.7)	558(72.4)	1		378(77.0)	1	
Ever	189(18.3)	213(27.6)	1.70(1.36-2.13)	<0.001	113(23.0)	1.33(1.02-1.73)	0.033
Betel nut chewing							
Never	1017(98.6)	683(88.6)	1		452(92.1)	1	
Ever	14(1.4)	88(11.4)	9.36(5.28-16.59)	<0.001	39(7.9)	6.27(3.37-11.66)	<0.001
Tea consumption							
Never	461(44.7)	383(49.7)	1		247(50.3)	1	
Ever	570(55.3)	388(50.3)	0.82(0.68-0.99)	0.037	244(49.7)	0.80(0.64-0.99)	0.041
Coffee consumption							
Never	545(52.9)	479(62.1)	1		297(60.5)	1	
Ever	486(47.1)	292(37.9)	0.68(0.57-0.83)	<0.001	194(39.5)	0.73(0.59-0.91)	0.005
Vegetarians							
Never	996(96.9)	724(93.9)	1		462(94.1)	1	
Ever	35(3.4)	47(6.1)	1.84(1.18-2.89)	0.007	29(5.9)	1.79(1.08-2.96)	0.024
Exercise habit							
Less/never	361(35.0)	488(63.3)	1		297(60.5)	1	
Ever	670(65.0)	283(36.7)	0.31(0.26-0.38)	<0.001	194(39.5)	0.35(0.28-0.44)	<0.001
NASIDs recent consumption							
Never	997(96.7)	598(77.6)	1		383(78.0)	1	
Ever	34(3.3)	173(22.4)	8.48(5.79-12.42)	<0.001	108(22.0)	8.27(5.53-13.37)	<0.001
Aspirin recent consumption							
Never	988(95.8)	761(98.7)	1		484(98.6)	1	
Ever	43(4.2)	10(1.3)	0.30(0.15-0.61)	0.001	7(1.4)	0.33(0.15-0.74)	0.007
Psychological factor (BSRS-5)							
I. Sleep disturbance							
No	619(60.0)	280(36.3)	1		161(32.8)	1	
Yes	412(40.0)	491(63.7)	2.64(2.17-3.19)	<0.001	330(67.2)	3.08(2.46-3.86)	<0.001
II. Anxiety							
No	727(70.5)	321(41.6)	1		169(34.4)	1	
Yes	304(29.5)	450(58.4)	3.35(2.76-4.08)	<0.001	322(65.6)	4.56(3.62-5.73)	<0.001
III. Hostility							
No	674(65.4)	376(48.8)	1		214(43.6)	1	
Yes	357(34.6)	395(51.2)	1.98(1.64-2.40)	<0.001	277(56.4)	2.44(1.96-3.04)	<0.001
IV. Depression							
No	759(73.6)	389(50.5)	1		225(45.8)	1	
Yes	272(26.4)	382(49.5)	2.74(2.25-3.34)	<0.001	266(54.2)	3.29(2.63-4.13)	<0.001

V. Inferiority							
No	891(86.4)	579(75.1)	1		366(74.5)	1	
Yes	140(13.6)	192(24.9)	2.11(1.66-2.69)	<0.001	125(25.5)	2.17(1.66-2.85)	<0.001
Other factors							
<i>H. pylori</i>							
No	652(63.2)	413(53.6)	1		295(60.1)	1	
Yes	379(36.8)	358(46.4)	1.49(1.23-1.80)	<0.001	196(39.9)	1.14(0.92-1.43)	0.235
IBS							
No	999(96.9)	620(80.4)	1		347(70.7)	1	
Yes	32(3.1)	151(19.6)	10.57(7.17-15.57)	<0.001	144(29.3)	12.96(8.67-19.37)	<0.001

OR and 95% CI calculated using univariate logistic regression model.

†Blood type was unknown in 53 with control group,99 with uninvestigated dyspepsia,61 with functional dyspepsia.

BMI, body mass index; BSRS-5, short form of Brief Symptom Rating Scale; CI, confidence interval; *H. pylori*, *Helicobacter pylori*; IBS: irritable bowel syndrome; NSAIDs, non-steroidal anti-inflammatory drugs; n, number; OR, Odds ratio; SD, standard deviation.

Supplementary Table 2. Risk Factors of Subgroups of Functional Dyspepsia as Compared With Healthy Controls- Univariate Analysis

	No dyspepsia (N=1031)	PDS (n=184)			EPS (n=129)			Overlap (n=169)		
	n (%)	n (%)	OR (95% CI)	p-value	n (%)	OR (95% CI)	p-value	n (%)	OR (95% CI)	p-value
Demographic factors										
Sex										
Male	515 (50.0)	55 (29.9)	1	<0.001	41 (31.8)	1	<0.001	47 (27.8)	1	<0.001
Female	516 (50.0)	129 (70.1)	2.34 (1.67-3.28)		88 (68.2)	2.14 (1.45-3.17)		122 (72.2)	2.59 (1.81-3.71)	
Age										
Mean (SD)	51.79 (10.69)	44 (13.83)	0.94 (0.93-0.95)	<0.001	46 (13.12)	0.95 (0.94-0.97)	<0.001	44 (12.87)	0.94 (0.93-0.95)	<0.001
Occupation										
Unemployed	354 (34.3)	55 (29.9)	1		39 (30.2)	1		72 (42.6)	1	
White-collar	372 (36.1)	74 (40.2)	1.28 (0.88-1.87)	0.200	46 (35.7)	1.04 (0.67-1.61)	0.860	46 (27.2)	0.61 (0.41-0.90)	0.014
Blue-collar (Labor)	305 (29.1)	55 (29.9)	1.16 (0.78-1.74)	0.471	44 (34.1)	1.19 (0.76-1.86)	0.451	51 (30.2)	0.82 (0.56-1.21)	0.325
Married status										
Married	885 (85.8)	123 (66.8)	1		103 (79.8)	1		134 (79.3)	1	
Never married	94 (9.1)	54 (29.3)	4.13 (2.82-6.07)	<0.001	20 (15.5)	1.74 (1.03-2.94)	0.037	31 (18.3)	2.18 (1.40-3.40)	0.001

Never	842 (81.7)	138 (75)	1	0.036	105 (81.4)	1	0.940	128 (75.7)	1	0.071
Ever	189 (18.3)	46 (25)	1.49 (1.03-2.15)		24 (18.6)	1.02 (0.64-1.63)		41 (24.3)	1.43 (0.97-2.10)	
Betel nut chewing										
Never	1017 (98.6)	174 (94.6)	1	0.001	120 (93.0)	1	<0.001	150 (88.8)	1	<0.001
Ever	14 (1.4)	10 (5.4)	4.18 (1.83-9.56)		9 (7.0)	5.45 (2.31-12.87)		19 (11.2)	9.20 (4.51-18.74)	
Tea consumption										
Never	461 (44.7)	96 (52.2)	1	0.062	65 (50.4)	1	0.223	80 (47.3)	1	0.525
Ever	570 (55.3)	88 (47.8)	0.74 (0.54-1.02)		64 (49.6)	0.80 (0.55-1.15)		89 (52.7)	0.90 (0.65-1.25)	
Coffee consumption										
Never	545 (52.9)	119 (64.7)	1	0.003	75 (58.1)	1	0.244	96 (56.8)	1	0.341
Ever	486 (47.1)	65 (35.3)	0.61 (0.44-0.85)		54 (41.9)	0.81 (0.56-1.16)		73 (43.2)	0.85 (0.61-1.18)	
Vegetarians										
Never	996 (96.9)	173 (94.0)	1	0.095	123 (95.3)	1	0.468	158 (93.5)	1	0.055
Ever	35 (3.4)	11 (6.0)	1.81 (0.90-3.63)		6 (4.7)	1.39 (0.57-3.37)		11 (6.5)	1.98 (0.98-3.98)	
Exercise habit										
Less/never	361 (35.0)	105 (57.1)	1	<0.001	80 (62.0)	1	<0.001	106 (62.7)	1	<0.001
Ever	670 (65.0)	79 (42.9)	0.41 (0.30-0.56)		49 (38.0)	0.33 (0.23-0.48)		63 (37.3)	0.32 (0.23-0.45)	

NASIDs recent consumption										
Never	997 (96.7)	151 (82.1)	1 (3.85-10.66)	<0.001	99 (76.7)	1 (5.22-15.14)	<0.001	125 (74.0)	1 (6.36-16.76)	<0.001
Ever	34 (3.3)	33 (17.9)	6.41 (3.85-10.66)		30 (23.3)	8.89 (5.22-15.14)		44 (26.0)	10.32 (6.36-16.76)	
Aspirin recent consumption										
Never	988 (95.8)	180 (97.8)	1 (0.18-1.44)	0.204	128 (99.2)	1 (0.03-1.32)	0.091	167 (98.8)	1 (0.07-1.15)	0.076
Ever	43 (4.2)	4 (2.2)	0.51 (0.18-1.44)		1 (0.8)	0.18 (0.03-1.32)		2 (1.2)	0.28 (0.07-1.15)	
Psychological factors (BSRS-5)										
I. Sleep disturbance										
No	619 (60.0)	47 (25.5)	1 (3.07-6.24)	<0.001	72 (55.8)	1 (0.82-1.72)	0.357	39 (23.1)	1 (3.43-7.32)	<0.001
Yes	412 (40.0)	137 (74.5)	4.38 (3.07-6.24)		57 (44.2)	1.19 (0.82-1.72)		130 (76.9)	5.01 (3.43-7.32)	
II. Anxiety										
No	727 (70.5)	56 (30.4)	1 (3.89-7.69)	<0.001	57 (44.2)	1 (2.08-4.38)	<0.001	53 (31.4)	1 (3.68-7.44)	<0.001
Yes	304 (29.5)	128 (69.6)	5.47 (3.89-7.69)		72 (55.8)	3.02 (2.08-4.38)		116 (68.6)	5.23 (3.68-7.44)	
III. Hostility										
No	674 (65.4)	72 (39.1)	1 (2.12-4.06)	<0.001	61 (47.3)	1 (1.46-3.04)	<0.001	74 (43.8)	1 (1.74-3.37)	<0.001
Yes	357 (34.6)	112 (60.9)	2.94 (2.12-4.06)		68 (52.7)	2.11 (1.46-3.04)		95 (56.2)	2.42 (1.74-3.37)	
IV. Depression										

No	759 (73.6)	74 (40.2)	1	<0.001	66 (51.2)	1	<0.001	79 (46.7)	1	<0.001
Yes	272 (26.4)	110 (59.8)	4.15 (3.00-5.74)		63 (48.8)	2.66 (1.84-3.86)		90 (53.3)	3.18 (2.28-4.43)	
V. Inferiority										
No	891 (86.4)	134 (72.8)	1	<0.001	99 (76.7)	1	0.004	126 (74.6)	1	<0.001
Yes	140 (13.6)	50 (27.2)	2.38 (1.64-3.44)		30 (23.3)	1.93 (1.24-3.01)		43 (25.4)	2.17 (1.47-3.21)	
Other factors										
<i>H. pylori</i>										
No	652 (63.2)	102 (55.4)	1	0.045	77 (59.7)	1	0.432	110 (65.1)	1	0.644
Yes	379 (36.8)	82 (44.6)	1.38 (1.01-1.90)		52 (40.3)	1.16 (0.80-1.69)		59 (34.9)	0.92 (0.66-1.30)	
IBS										
No	999 (96.9)	129 (70.1)	1	<0.001	96 (74.4)	1	<0.001	116 (68.6)	1	<0.001
Yes	32 (3.1)	55 (29.9)	13.31 (8.30-21.36)		33 (25.6)	10.73 (6.32-18.22)		53 (31.4)	14.26 (8.84-23.03)	

OR and 95% CI calculated using a univariate logistic regression model.

†Blood type was unknown in 53 with control group, 17 with PDS, 23 with EPS, 23 with overlap syndrome.

BMI, body mass index; BSRS-5, short form of Brief Symptom Rating Scale; CI, confidence interval; EPS, epigastric pain syndrome; *H. pylori*, *Helicobacter pylori*; IBS: irritable bowel syndrome; NSAIDs, non-steroidal anti-inflammatory drugs; n, number; OR, Odds ratio; PDS, postprandial distress syndrome; SD, standard deviation.