

Supplemental materials for

Cheng H, Weng S, Wu J, Yeh S, Chen H, Novida H, Ou H, Li C. Long-Term Sulfonylurea Use and Impaired Awareness of Hypoglycemia Among Patients With Type 2 Diabetes in Taiwan. *Ann Fam Med.* 2024;22:10.1370/afm.3129

Li Supplemental Tables 1 and 2

Supplemental Table 1. Associations of **Gold-TW** based impaired awareness of hypoglycemia with various potential correlates

	Gold-TW based IAH				χ^2	<i>p</i> -value	Full adjust OR (95% CI) Sulfonylurea user	Full adjust OR (95% CI) insulin user
	<u>No</u>		<u>Yes</u>					
	<i>n</i>	%	<i>n</i>	%				
<u>Socio-demographics</u>								
Sex					0.16	0.69		
Men	221	49.9	222	50.1			1.00	1.00
Women	233	51.2	222	48.8			0.71 (0.50-1.00)	0.74 (0.52-1.04)
Age (years)					4.42	0.11		
20-39	29	47.5	32	52.5			1.00	1.00
40-69	339	52.7	304	47.3			0.90 (0.44-1.84)	0.87 (0.43-1.77)
70-89	86	44.3	108	55.7			1.24 (0.54-2.89)	1.24 (0.54-2.85)
<u>The highest education level</u>					7.51	0.06		
Illiteracy / Elementary	118	44.0	150	56.0			1.00	1.00
Junior high	86	50.6	84	49.4			0.73 (0.46-1.16)	0.72 (0.45-1.13)
Senior high	146	55.5	117	44.5			0.73 (0.47-1.12)	0.71 (0.46-1.09)
College and above	104	52.8	93	47.2			0.84 (0.51-1.38)	0.77 (0.47-1.26)
Marital status					0.67	0.72		
Married	346	51.3	329	48.7			1.00	1.00
Single	49	47.1	55	52.9			1.00 (0.58-1.74)	0.94 (0.54-1.61)
Widowhood / Divorce	59	49.6	60	50.4			0.76 (0.45-1.30)	0.76 (0.45-1.28)
Living area					3.17	0.08		

	Gold-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	<u>No</u>		<u>Yes</u>				<u>OR (95% CI)</u>	<u>OR (95% CI)</u>
	<i>n</i>	%	<i>n</i>	%			<u>Sulfonylurea user</u>	<u>insulin user</u>
Urban	257	53.3	225	46.7		1.00	1.00	
Rural	197	47.4	219	52.6		1.17 (0.85-1.61)	1.14 (0.84-1.57)	
Occupation					3.56	0.47		
Services workers	52	52.0	48	48.0		1.00	1.00	
Housekeepers	68	44.7	84	55.3		1.38 (0.74-2.58)	1.35 (0.73-2.50)	
Manufacturing, construction, and sales workers	111	53.6	96	46.4		0.67 (0.38-1.18)	0.73 (0.42-1.27)	
Not actively employed	163	49.7	165	50.3		1.05 (0.60-1.84)	1.11 (0.64-1.92)	
Others ^a	60	54.1	51	45.9		0.83 (0.44-1.56)	0.88 (0.48-1.62)	
Living arrangement					6.76	0.009		
Alone	40	38.5	64	61.5		1.00	1.00	
With others	414	52.1	380	47.9		0.53 (0.31-0.89)	0.51 (0.30-0.85)	
<u>Disease and treatment histories</u>								
Diabetes duration (years)					17.81	<0.001		
<1	10	32.3	21	67.7		1.00	1.00	
1-2	21	32.3	44	67.7		0.51 (0.17-1.51)	0.74 (0.25-2.17)	
3-4	36	42.4	49	57.6		0.31 (0.11-0.90)	0.44 (0.16-1.22)	
≥5	387	54.0	330	46.0		0.13 (0.05-0.34)	0.33 (0.13-0.85)	
Duration of insulin use (years)					64.91	<0.001		
No use	109	34.8	204	65.2			1.00	
<1	44	42.7	59	57.3			0.73 (0.42-1.26)	

	Gold-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	<u>No</u>		<u>Yes</u>				<u>OR (95% CI)</u>	<u>OR (95% CI)</u>
	<i>n</i>	%	<i>n</i>	%			<u>Sulfonylurea user</u>	<u>insulin user</u>
1-2	79	55.6	63	44.4			0.55 (0.35-0.88)	
3-4	62	58.5	44	41.5			0.54 (0.32-0.92)	
≥5	160	68.4	74	31.6			0.33 (0.22-0.49)	
Duration of sulfonylurea use (years)					67.36	<0.001		
No use	327	61.5	205	38.5			1.00	
<1	12	52.2	11	47.8			0.42 (0.17-1.03)	
1-2	22	37.3	37	62.7			1.09 (0.56-2.12)	
3-4	27	45.8	32	54.2			1.06 (0.54-2.09)	
≥5	66	29.3	159	70.7			3.50 (2.39-5.13)	
<u>Medical care</u>								
Outpatient visit for diabetes care in the past year								
≥1 every 3 months	445	52.3	406	47.7	16.51	<0.001	1.00	
<1 every 3 months	9	19.1	38	80.9			1.65 (0.70-3.89)	
Blood glucose test in the past 3 months					31.81	<0.001		
No	156	39.8	236	60.2			1.00	
Yes	298	58.9	208	41.1			0.63 (0.46-0.86)	
Test for urine microalbumin in the past year					30.02	<0.001		
No	57	31.8	122	68.2			1.00	
Yes	397	55.2	322	44.8			0.53 (0.35-0.79)	
Retina					80.87	<0.001		

	Gold-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	<u>No</u>		<u>Yes</u>				<u>OR (95% CI)</u>	<u>OR (95% CI)</u>
	<i>n</i>	%	<i>n</i>	%			<u>Sulfonylurea user</u>	<u>insulin user</u>
examination in the past year								
No	64	25.5	187	74.5		1.00	1.00	
Yes	390	60.3	257	39.7		0.30 (0.21-0.44)	0.30 (0.21-0.43)	
Foot examination in the past year					2.72	0.10		
No	84	45.2	102	54.8		1.00	1.00	
Yes	370	52.0	342	48.0		0.79 (0.53-1.16)	0.75 (0.52-1.10)	
Perceived health								
Mean±SD	70.1 ± 12.6		69.5 ± 13.9		0.48	0.49	0.87 (0.77-0.99)	0.88 (0.77-0.99)
Limited daily activities for ≥6 months					11.65	0.003		
Not at all	335	47.6	369	52.4		1.00	1.00	
Mild	110	60.8	71	39.2		0.63 (0.42-0.94)	0.66 (0.45-0.98)	
Severe	9	69.2	4	30.8		0.16 (0.03-0.90)	0.15 (0.03-0.80)	

^a Others: Government employees and teachers, agriculture, animal husbandry, forestry, and fishing workers, technology workers

Supplemental Table 2. Associations of **Clarke-TW** based impaired awareness of hypoglycemia with various potential correlates

	Clarke-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	No		Yes				OR (95% CI)	OR (95% CI)
	<i>n</i>	%	<i>n</i>	%			Sulfonylurea user	Insulin user
<u>Socio-demographics</u>								
Sex					0.99	0.32		
Men	27	62.3	16	37.7			1.00	1.00
Women	29	65.8	15	34.2			0.55 (0.38-0.79)	0.56 (0.39-0.80)
Age (years)					4.16	0.13		
20-39	44	72.1	17	27.9			1.00	1.00
40-69	41	64.6	22	35.4			1.77 (0.85-3.70)	1.77 (0.82-3.82)
70-89	114	58.8	80	41.2			2.40 (1.02-5.67)	2.40 (0.99-5.81)
<u>The highest education level</u>					6.44	0.09		
Illiteracy / Elementary	16	59.0	10	40.0			1.00	1.00
Junior high	10	60.0	6	40.0			0.96 (0.60-1.52)	0.94 (0.60-1.49)
Senior high	17	66.9	11	33.1			0.87 (0.56-1.34)	0.82 (0.54-1.27)
College and above	13	69.0	9	31.0			0.89 (0.53-1.48)	0.80 (0.48-1.32)
Marital status					0.85	0.65		
Married	42	63.1	24	36.9			1.00	1.00
Single	68	65.4	36	34.6			1.08 (0.63-1.87)	1.04 (0.59-1.83)
Widowhood / Divorce	80	67.2	39	32.8			0.65 (0.36-1.17)	0.64 (0.36-1.14)
Living area					0.93	0.34		
Urban	31	65.5	16	34.5			1.00	1.00
Rural	25	62.0	15	38.0			0.99 (0.70-1.40)	1.01 (0.72-1.43)

	Clarke-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	No		Yes				OR (95% CI)	OR (95% CI)
	<i>n</i>	%	<i>n</i>	%			Sulfonylurea user	Insulin user
	9	3	7	7			1.39)	1.40)
Occupation					9.62	0.05		
Services workers	70	70.0	30	30.0			1.00	1.00
Housekeepers	82	53.9	70	46.1			2.33 (1.23-4.39)	2.29 (1.23-4.27)
Manufacturing, construction, and sales workers	13	66.7	70	33.8			0.86 (0.48-1.51)	0.90 (0.51-1.58)
Not actively employed	20	63.9	119	36.3			1.16 (0.66-2.06)	1.17 (0.67-2.05)
Others ^a	76	68.5	35	31.5			1.02 (0.52-1.99)	1.15 (0.59-2.22)
Living arrangement					0.94	0.33		
Alone	62	59.6	42	40.4			1.00	1.00
With others	51	64.2	28	35.5			0.83 (0.49-1.40)	0.81 (0.48-1.36)
<u>Disease and treatment history</u>								
Diabetes duration (years)					14.17	0.003		
<1	23	74.2	8	25.8			1.00	1.00
1-2	28	43.1	37	56.9			2.78 (0.94-8.20)	3.36 (1.11-10.23)
3-4	52	61.2	33	38.8			1.27 (0.44-3.68)	1.40 (0.48-4.08)
≥5	47	65.1	24	34.3			0.63 (0.24-1.65)	1.18 (0.44-3.18)
Duration of insulin use (years)					45.39	<0.001		
No use	15	49.4	15	50.8				1.00
<1	72	69.9	31	30.1				0.51 (0.30-0.88)

	Clarke-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	No		Yes				OR (95% CI)	OR (95% CI)
	<i>n</i>	%	<i>n</i>	%			Sulfonylurea user	Insulin user
1-2	97	68.3	45	31.7			0.57 (0.35-0.92)	
3-4	78	73.6	28	26.4			0.53 (0.30-0.93)	
≥ 5	17	73.9	61	26.1			0.52 (0.34-0.78)	
Duration of sulfonylurea use (years)					70.54	<0.001		
No use	39	74.6	13	25.6			1.00	
<1	16	69.6	7	30.4			0.54 (0.21-1.42)	
1-2	29	49.2	30	50.8			1.05 (0.52-2.12)	
3-4	36	61.0	23	39.0			0.98 (0.51-1.89)	
≥ 5	97	43.1	12	56.9			3.06 (2.11-4.44)	
<u>Medical care</u>								
Outpatient visit for diabetes care in the past year								
≥ 1 every 3 months	55	65.4	29	34.6	9.25	0.02	1.00	
<1 every 3 months	20	42.6	27	57.4			0.98 (0.46-2.08)	
Blood glucose test in the past 3 months								
No	19	49.3	19	50.8	62.95	<0.001	1.00	
Yes	38	75.1	12	24.9			0.38 (0.29-0.53)	
Test for urine microalbumin in the past year								
No	92	51.4	87	48.6	14.93	<0.001	1.00	
Yes	48	67.3	23	33.7			0.67 (0.45-1.00)	

	Clarke-TW based IAH				χ^2	<i>p</i> -value	Full adjust	Full adjust
	No		Yes				OR (95% CI)	OR (95% CI)
	<i>n</i>	%	<i>n</i>	%			Sulfonylurea user	Insulin user
	2	0	7	0				
Retina examination in the past year					65.18	<0.001		
No	10	42.7	14	57.4		1.00	1.00	
Yes	46	72.7	18	27.3		0.38 (0.27-0.54)	0.37 (0.26-0.54)	
Foot examination in the past year					1.28	0.16		
No	12	68.7	59	31.3		1.00	1.00	
Yes	44	62.7	26	37.3		1.46 (0.97-2.20)	1.44 (0.96-2.15)	
Perceived health					2.12	1.15		
Mean±SD	70.3 ± 13.5		69.0 ± 12.8			0.87 (0.77-1.00)	0.88 (0.77-1.01)	
Limited daily activities for ≥6 months					3.82	0.15		
Not at all	43	62.9	26	37.1		1.00	1.00	
Mild	12	70.7	54	29.3		0.86 (0.57-1.29)	0.87 (0.58-1.30)	
Severe	8	61.5	5	38.5		0.88 (0.21-3.63)	0.84 (0.22-3.16)	

^a Others: Government employees and teachers, agriculture, animal husbandry, forestry, and fishing workers, technology workers