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The Association Between Health-Related Quality of Life and Social Determinants of Health for Diabetes in Japan : A Cross-Sectional Patient Survey

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INTRODUCTION

- Health is influenced by many factors, of which social determinants of health (SDH) are one type of non-medical factor.
- In Japan, introduction of a questionnaire concerning SDH in diabetes and other lifestyle-related diseases is being considered for specified medical checkups.

OBJECTIVE

- This study examines the association between health-related quality of life (HRQoL) and SDH for diabetes patients compared with that of the general population in Japan using cross-sectional patient survey data.

METHODS

- Data from the 2022 Patient Mindscape® survey was used. Patient Mindscape® is a Japanese nationwide patient-reported outcomes survey conducted annually among 500,000+ patients for 80+ conditions.
- Two populations were included: 1) Patients aged 40 or older that reported suffering from diabetes only within the past one year and 2) General persons aged 40 or older having no drug-treated disease within the past one year.
- SDH were defined as gender, employment status, household income, marital status, number of children living with the family, and presence of diabetes among cohabiting family members. EQ-VAS scores were used as a measure of HRQoL.
- Linear regression models were used to examine the association between HRQoL and SDH for each population. A *p* value of less than 0.05 was considered statistically significant. Statistic analysis was performed using R version 4.2.1.

RESULTS

1. Participant Characteristics

- The details of participant characteristics are shown in Table 1.
- 2,390 diabetes patients and 75,916 general persons were analyzed.

Table 1: Participant characteristics

		Total	Diabetes patients	General persons
Number of participants		78,306 (100%)	2,390 (3.1%)	75,916 (96.9%)
Mean age, years (SD)		54.37 (9.1)	60.38 (9.7)	54.18 (9.0)
Mean EQ-VAS score (SD)		76.96 (17.7)	73.83 (18.7)	77.06 (17.6)
Gender	Male	45,522 (58.1%)	2,028 (2.6%)	43,494 (55.5%)
	Female	32,784 (41.9%)	362 (0.5%)	32,422 (41.4%)
Marital status	Unmarried	23,991 (30.6%)	655 (0.8%)	23,336 (29.8%)
	Married	54,315 (69.4%)	1,735 (2.2%)	52,580 (67.1%)
Number of children living with the family	None	45,225 (57.8%)	1,573 (2.0%)	43,652 (55.7%)
	Less than 2 children	28,827 (36.8%)	730 (0.9%)	28,097 (35.9%)
	3 or more children	4,254 (5.4%)	87 (0.1%)	4,167 (5.3%)
Presence of diabetes among cohabiting family members	No	75,335 (96.2%)	1,921 (2.5%)	73,414 (93.8%)
	Yes	2,971 (3.8%)	469 (0.6%)	2,502 (3.2%)
Employment status	Unemployed	19,021 (24.3%)	688 (0.9%)	18,333 (23.4%)
	Non-regular employee	16,228 (20.7%)	399 (0.5%)	15,829 (20.2%)
	Regular employee	43,057 (55.0%)	1,303 (1.7%)	41,754 (53.3%)
Household income	< 1 million yen	3,030 (3.9%)	88 (0.1%)	2,942 (3.8%)
	< 3 million yen	12,891 (16.5%)	445 (0.6%)	12,446 (15.9%)
	< 5 million yen	19,619 (25.1%)	651 (0.8%)	18,968 (24.2%)
	< 10 million yen	32,613 (41.6%)	906 (1.2%)	31,707 (40.5%)
	< 20 million yen	9,233 (11.8%)	265 (0.3%)	8,968 (11.5%)
	≥ 20 million yen	920 (1.2%)	35 (0.0%)	885 (1.1%)

Abbreviation: SD, standard deviation

2. The Association Between HRQoL and SDH

- The details of the association between SDH and HRQoL are shown in Table 2 and Table 3.
- For general persons, while household income and marital status had a statistically significant positive association with HRQoL, employment status had a statistically significant negative association.
- A similar trend was observed for diabetes patients, with a strong association for household income more than 3 million yen, marital status and employment status.

Table 2: The Association Between HRQoL and SDH for general persons

		Estimate	SE	*p* value
Intercept		70.732	0.343	0.000
Gender	Male	Reference	-	-
	Female	0.666	0.147	0.000
Marital status	Unmarried	Reference	-	-
	Married	3.172	0.165	0.000
Number of children living with the family	None	Reference	-	-
	Less than 2 children	-1.141	0.151	0.000
	3 or more children	-1.126	0.295	0.000
Presence of diabetes among cohabiting family members	No	Reference	-	-
	Yes	-0.253	0.358	0.479
Employment status	Unemployed	Reference	-	-
	Non-regular employee	-0.112	0.194	0.563
	Regular employee	-0.701	0.184	0.000
Household income	< 1 million yen	Reference	-	-
	< 3 million yen	3.143	0.363	0.000
	< 5 million yen	4.371	0.358	0.000
	< 10 million yen	5.415	0.360	0.000
	< 20 million yen	6.649	0.400	0.000
	≥ 20 million yen	8.337	0.686	0.000

Abbreviation: SE, standard error

Table 3: The Association Between HRQoL and SDH for diabetes patients

		Estimate	SE	*p* value
Intercept		65.708	2.064	0.000
Gender	Male	Reference	-	-
	Female	-0.891	1.109	0.422
Marital status	Unmarried	Reference	-	-
	Married	6.097	0.963	0.000
Number of children living with the family	None	Reference	-	-
	Less than 2 children	-1.003	0.921	0.276
	3 or more children	1.147	2.099	0.585
Presence of diabetes among cohabiting family members	No	Reference	-	-
	Yes	-0.692	0.956	0.470
Employment status	Unemployed	Reference	-	-
	Non-regular employee	1.281	1.207	0.289
	Regular employee	-2.331	1.017	0.022
Household income	< 1 million yen	Reference	-	-
	< 3 million yen	4.775	2.182	0.029
	< 5 million yen	5.126	2.156	0.017
	< 10 million yen	5.482	2.188	0.012
	< 20 million yen	7.644	2.447	0.002
	≥ 20 million yen	5.364	3.783	0.156

Abbreviation: SE, standard error

CONCLUSIONS

- There are differences in the strength of the association between HRQoL and SDH factors for diabetes patients compared to the general population in Japan.
- As such, it is important to consider policy initiatives taking into consideration the strength of the association between HRQoL and SDH.

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Healthier Decisions

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