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MDPI

Supplementary material.

Figure S1. Distribution of the Purpose in Life (PIL) total scores among study participants (N = 294).

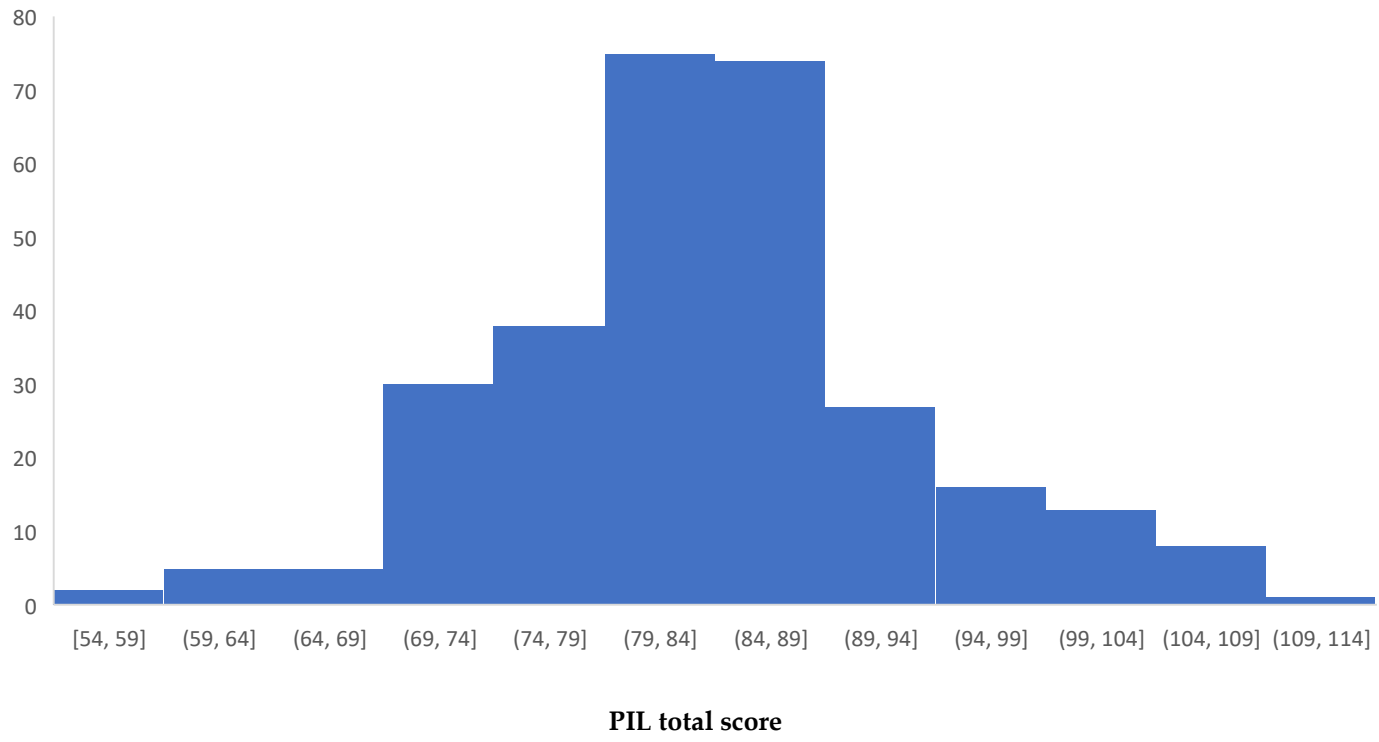


Table S1. Descriptive statistics for individual items of the Purpose in Life Test

PIL	N	Mean ± SD	Var.	Skewness	Kurtosis
Q1	294	5.19 ± 1.54	2.36	-0.54	-0.71
Q2	294	3.10 ± 1.67	2.80	0.42	-0.8
Q3	294	4.76 ± 1.82	3.32	-0.66	-0.69
Q4	294	5.33 ± 1.57	2.47	-0.83	-0.12
Q5	294	3.39 ± 1.85	3.43	0.49	-0.82
Q6	294	4.71 ± 1.89	3.56	-0.56	-0.84
Q7	294	2.88 ± 1.82	3.30	0.67	-0.67
Q8	294	5.12 ± 1.68	2.81	-0.84	-0.16
Q9	294	5.34 ± 1.50	2.25	-1.02	0.55
Q10	294	2.68 ± 1.74	3.04	0.84	-0.33
Q11	294	5.49 ± 1.54	2.37	-1.11	0.73
Q12	294	5.17 ± 1.53	2.36	-0.70	-0.29

Q13	294	6.05 ± 1.18	1.39	-1.36	1.88
Q14	294	2.93 ± 1.82	3.30	0.56	-0.89
Q15	294	2.42 ± 1.75	3.07	0.97	-0.38
Q16	294	5.98 ± 1.69	2.86	-1.58	1.30
Q17	294	3.10 ± 1.82	3.30	0.61	-0.75
Q18	294	2.77 ± 1.76	3.10	0.68	-0.70
Q19	294	2.43 ± 1.52	2.32	0.92	0.04
Q20	294	5.33 ± 1.67	2.79	-1.04	0.27

Table S2. Sensitivity analysis of factors associated with purpose in life, replacing marital status with living arrangement in the multivariable linear regression model.

Variable	Category	Adjusted B	95% CI	P value
District	Kaohsiung	-1.61	-3.63 to 0.42	0.119
Gender	Female	0.51	-1.66 to 2.69	0.642
Age	Per 1-year increase	-0.24	-0.38 to -0.11	0.001
Education	High school or higher	-1.11	-3.51 to 1.29	0.362
Living arrangement (ref: living alone)	Spouse only	-1.43	-4.61 to 1.75	0.378
	Spouse + others	0.50	-2.79 to 3.79	0.764
	Child only	3.72	-0.47 to 7.91	0.081
	Child + others	2.37	-1.62 to 6.37	0.243
	Others	2.23	-4.42 to 8.88	0.510
Income	≥55,000 NTD	2.87	0.39 to 5.35	0.023
Faith/religious belief	Has belief	-3.14	-5.40 to -0.88	0.007
Self-rated health	Healthy	-1.25	-3.89 to 1.40	0.355

Model statistics: N = 294; $R^2 = 0.1389$; overall model $F(12, 281) = 4.44$, $P < 0.001$; living arrangement global Wald test: $F(5, 281) = 2.27$, $P = 0.0482$.

Abbreviations: PIL, Purpose in Life; CI, confidence interval; NTD, New Taiwan dollar. Adjusted B values were estimated using multivariable linear regression with heteroskedasticity-robust standard errors. Marital status in the primary model was replaced by living arrangement in this sensitivity analysis, while all other predictor domains were retained. Recruitment district was included as an adjustment variable, consistent with the primary multivariable model. Living alone was used as the reference category for living arrangement. The overall association between living arrangement and PIL was assessed using a global Wald test (P = 0.0482).

Table S3. Sensitivity analysis of factors associated with purpose in life, replacing faith/religious belief with specific religious affiliation in the multivariable linear regression model.

Variable	Category	Adjusted B	95% CI	P value
District	Kaohsiung	-1.46	-3.47 to 0.55	0.154
Gender	Female	0.21	-2.03 to 2.44	0.857
Age	Per 1-year increase	-0.30	-0.44 to -0.17	<0.001
Education	High school or higher	-0.03	-2.32 to 2.27	0.981
Marital status (ref: has spouse)	Never married	-4.19	-8.18 to -0.20	0.039
	Divorced	-3.10	-7.19 to 0.98	0.136
	Spouse died	2.91	0.26 to 5.56	0.031
Income	≥55,000 NTD	2.31	-0.14 to 4.77	0.065
Specific religious affiliation (ref: no faith/belief)	Buddhism	-7.61	-11.42 to -3.79	<0.001

	Shinto	-7.88	-16.31 to 0.54	0.067
	Christianity	-1.98	-4.37 to 0.41	0.103
	Taoism	-2.22	-5.11 to 0.67	0.131
Self-rated health	Healthy	-0.61	-3.36 to 2.13	0.660

Model statistics: N = 294; R^2 = 0.1668; overall model F(13, 280) = 4.38, P < 0.001. Specific religious affiliation was associated with PIL overall: global Wald test F(4, 280) = 4.45, P = 0.0017. Marital status also remained associated with PIL overall: F(3, 280) = 4.27, P = 0.0057.

Abbreviations: PIL, Purpose in Life; CI, confidence interval; NTD, New Taiwan dollar. Adjusted B values were estimated using multivariable linear regression with heteroskedasticity-robust standard errors. Faith/religious belief in the primary model was replaced by specific religious affiliation in this sensitivity analysis, while all other predictor domains were retained. Participants reporting no faith/religious belief were used as the reference category for religious affiliation. Overall associations for religious affiliation and marital status were assessed using global Wald tests.

Table S4. Sensitivity analysis excluding potentially influential observations identified using Cook's distance.

Variable	Category	Adjusted B	95% CI	P value
District	Kaohsiung	-0.17	-1.81 to 1.46	0.837
Gender	Female	1.08	-0.75 to 2.92	0.246
Age	Per 1-year increase	-0.24	-0.36 to -0.13	<0.001
Education	High school or higher	0.66	-1.23 to 2.54	0.493
Marital status (ref: has spouse)	Never married	-3.10	-5.98 to -0.22	0.035
	Divorced	-1.07	-4.15 to 2.02	0.497
	Spouse died	2.64	0.44 to 4.84	0.019
Income	≥55,000 NTD	1.78	-0.20 to 3.77	0.078
Faith/religious belief	Has belief	-3.82	-5.69 to -1.95	<0.001
Self-rated health	Healthy	-1.77	-3.83 to 0.29	0.092

Model statistics: N = 275; R^2 = 0.2213; overall model F(10, 264) = 6.30, P < 0.001; Root MSE = 6.87; marital status global Wald test: F(3, 264) = 4.12, P = 0.0071.

Abbreviations: PIL, Purpose in Life; CI, confidence interval; NTD, New Taiwan dollar. Adjusted B values were estimated using multivariable linear regression with heteroskedasticity-robust standard errors. Recruitment district was included as an adjustment variable, consistent with the primary multivariable model. Potentially influential observations were identified using Cook's distance > 4/N as a screening threshold. Nineteen of 294 observations (6.5%) exceeded this threshold and were excluded only for this sensitivity analysis; all observations were retained in the primary analysis. The maximum Cook's distance in the primary model was 0.039. The sensitivity analysis was conducted to assess whether the primary model estimates were materially influenced by observations exceeding the Cook's distance screening threshold, rather than to justify their exclusion from the primary analysis.

Table S5. Item-level internal consistency analysis of the Purpose in Life Test.

Item	N	Item-test correlation	Item-rest correlation	Cronbach's α if item deleted
PIL-1	294	0.7485	0.7141	0.9168
PIL-2	294	0.6238	0.5723	0.9196
PIL-3	294	0.6597	0.6073	0.9188
PIL-4	294	0.6652	0.6201	0.9186
PIL-5	294	0.5347	0.4684	0.9221
PIL-6	294	0.5366	0.4692	0.9222

PIL-7	294	0.6830	0.6334	0.9182
PIL-8	294	0.6887	0.6440	0.9180
PIL-9	294	0.7003	0.6617	0.9179
PIL-10	294	0.6851	0.6379	0.9181
PIL-11	294	0.6949	0.6547	0.9179
PIL-12	294	0.6881	0.6473	0.9181
PIL-13	294	0.6479	0.6140	0.9194
PIL-14	294	0.5674	0.5054	0.9212
PIL-15	294	0.6773	0.6290	0.9183
PIL-16	294	0.3568	0.2849	0.9256
PIL-17	294	0.6782	0.6281	0.9183
PIL-18	294	0.6131	0.5576	0.9199
PIL-19	294	0.7184	0.6811	0.9175
PIL-20	294	0.6935	0.6495	0.9179
Overall scale	294	—	—	0.9230

Abbreviations: PIL, Purpose in Life. Internal consistency was assessed using Cronbach's alpha. All 20 items showed positive item–rest correlations (range, 0.285–0.714). Cronbach's alpha for the overall 20-item scale was 0.923, indicating high internal consistency.