Healthcare Utilization and Perceived Health Status among Falun Gong Practitioners in Taiwan

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Objective: Falun Gong (FLG) is a practice of mind and body focusing on moral character improvement that includes meditative exercises. In this study, we explored perceived health status, healthcare resource utilization, and related factors among Taiwanese FLG practitioners, compared to themselves before practicing FLG, and also to the general Taiwanese norm, as reported by the 2001 National Health Interview Survey (NHIS). **Methods:** This cross-sectional study was based on a voluntary, paper-based survey conducted from October 2002 to February 2003 using the same Taiwanese SF-36 instrument employed by the NHIS. Primary outcomes included 8 SF-36 domain scores and the number of outpatient visits. One-sample t-tests, one-way ANOVA, and multivariate linear regression analyses were used. **Results:** The response rate was 75.6% (1210/1600). Compared to the norm, the study cohort had significantly higher scores in 6 of 8 SF-36 domains across sex and age ($p < .05$). Among those with chronic diseases, 70% to 89% reported that their conditions were improved or cured. Additionally, 74.2% and 79.2% participants stopped drinking alcohol and quit smoking; 62.7% reported decreased outpatient visits (mean before = 11.96; mean after = 5.87; norm = 14.4). **Conclusions:** In this cohort, FLG participants had higher perceived health scores than the population norm and reduced outpatient visits than before practice.

Key words: Qigong; perceived health; Falun Gong; healthcare utilization; health-related quality of life; meditation
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Authorities recognize that escalating health expenditure is a global challenge.[1,2] In response, healthcare has been evolving into a patient-centered, outcome-based, integrated care model. There is an increasing demand among various (integrated) healthcare models to include disease prevention and wellness programs.[3] An important component of preventive and wellness programs is to integrate effective complementary and alternative medical (CAM) approaches such as diet, nutrition, exercise, and patient self-management of health to improve wellbeing.[4]

Yoga, Tai Chi and qigong have received increased attention lately. National surveys indicate that an increasing number of adults in the United States (US) practice yoga, Tai Chi, or qigong (6.7% in 2002, 7.4% in 2007, and 10.9% in 2012, respectively).[5] The health benefits of yoga, Tai Chi and qigong have been evaluated previously,[6-11] yet among available CAM approaches, the benefits of Falun Gong (FLG) have been under-reported in the scientific literature.

Falun Gong (also known as Falun Dafa), was introduced to the public in China in 1992, and has since spread to other countries around the globe,

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including Taiwan and the US.[12] The Falun Gong exercise set includes 4 slow-motion movements and a tranquility meditation, able to be completed without the need for mind guidance or complex breathing techniques. The formality of the Falun Gong exercise may look somewhat similar to some types of qigong, yoga, or Tai Chi, but importantly, the key difference is Falun Gong's emphasis on the improvement of moral and spiritual characters by following the 3 core principles of "Truthfulness, Compassion, and Forbearance," which are explained in the book *Zhuan Falun*.[13] Applying these 3 core principles in daily life typically leads not only to moral and spiritual improvement, but also to health-promoting behavior changes, including abstaining from alcohol consumption and quitting smoking. Those who practice Falun Gong (Falun Gong practitioners, participants, adherents, or followers) are encouraged to do group exercise, read *Zhuan Falun* together, and share experiences to inspire and support each other. These differences make Falun Gong unique among other CAM approaches. Therefore, knowledge about yoga, Tai Chi, and qigong is not necessarily applicable to Falun Gong.[6-11]

The estimated number of Falun Gong participants in China increased exponentially to almost 70 million from mid-1992 to 1999,[14] ranking Falun Gong as the top among nearly 2400 qigong schools in China at the time.[14,15] The fast growth of Falun Gong, as well as its support from the Chinese government during 1992-1999, was considered to be due, in part, to the widespread belief that practicing Falun Gong would improve health and reduce medical costs. According to one official involved in the nationwide reviewing process (for qigong): "Falun Gong and other types of qigong can save each person 1000 yuan in annual medical fees. If 100 million people are practicing it, that's 100 billion yuan saved per year in medical fees."[15] Besides these reports, there is a need to generate evidence via scientific research. Investigations on the effect of Tai Chi or qigong on healthcare utilization are scarse.[16] Approaches that can help reduce healthcare costs while improving health-related quality of life (HRQOL) are of great interest for today's healthcare systems, and thus, worth studying.

Previous studies indicate CAM (eg, meditation or qigong) is associated with improved HRQOL[17-19] and preventive health behaviors,[20] which are likely connected to health promotion and prevention. Based on these studies[17-20] and the above report,[15] our research question is whether Falun Gong is associated with health and economic benefits. We hypothesized that HRQOL for Falun Gong participants will be better than the population norm. It is known that HRQOL is adversely affected by age and lower for men than women,[21,22] so we planned a subgroup analysis for men and women and different age subgroups. The considerations of analyzing HRQOL by age and sex were to test our second hypothesis. Therefore, the study objectives were to: (1) compare self-reported HRQOL measures among Falun Gong practitioners with the norm in the general population, and in different age and sex groups; (2) describe changes in self-reported changes in personal health, chronic conditions/symptom levels, living habits, and health resource utilization before and after practicing Falun Gong; and (3) explore the association between Falun Gong practice, length of time practiced, and book reading, and study outcomes, while adjusting for age, sex, and prior chronic conditions and controlling for demographic and socioeconomic characteristics.

Despite the fact that this study was conducted in the early 2000s, its results still provide evidence to facilitate health policy decision-making, given the ever-growing interest among global governments and medical organizations in searching for means that can lead to health promotion and behavior changes, and among healthcare professionals and the general public for this kind of restorative and rejuvenating practice.[5-11] In addition, the study results are still applicable to the World Health Organization (WHO)[23] definition of health and topics of *Healthy People 2020*,[24] such as "health-related quality of life and well-being" and "older adults." Therefore, evidence generated from this 2002 study fulfills the knowledge gap for a wide range of healthcare communities policymakers, payers, healthcare practitioners, and other individuals, to improve understanding of the associations of Falun Gong practice with health promotion, HRQOL changes, and healthcare utilization.

METHODS

Study Design

For this study, we employed an observational, cross-sectional survey design. The original paper-based questionnaire written in Traditional Chinese

is available upon request with the English translation of this questionnaire included in Appendix 1.

Participants

The target population was Falun Gong participants in Taiwan. Inclusion criteria of study participants were: (1) practicing Falun Gong for more than 2 months, (2) beginning reading the book *Zhuan* Falun,[13] and (3) being at least 18 years of age at the time of the survey. There were 2 main reasons to select Taiwan as the study site. First, Taiwan has the second largest Falun Gong population, making related research possible.[12] Falun Gong and related research has been banned in China since July 1999. Even though China continues to have the largest number of Falun Gong practitioners (practicing secretly), it was not feasible to reach Falun Gong practitioners in China safely. Second, the 2001 National Health Interview Survey (NHIS) in Taiwan used a previously validated 36-item Short Form Survey (SF-36) instrument, and provided an estimate of the norm of HRQOL in Taiwan's general population.[25-27] With the consideration of feasibility, we designed this study using the same SF-36 instrument, target population, and similar timeframe as the 2001 NHIS. We recognize that it may not be representative of the population of Falun Gong practitioners of Taiwan today. Nevertheless, the year 2002 was close to the 2001 NHIS conducted in Taiwan and both studies employed the same version of the SF-36 instrument.[25-27] Thus, it is possible to make a comparison in HRQOL between the general population and Falun Gong practitioners in Taiwan.

A multistage stratified randomized cluster sampling method was employed to maximize representation. During the study period, the island of Taiwan (not including remote islands) had 350 townships. Based on the degree of development of the cities and towns, the 350 townships were stratified into 10 levels. A cluster was formed by randomly selecting 20% of the cities/towns within each level. Based on information at www.falundafa.org.tw at that time, the principal investigator (PI) contacted the volunteer coordinators who lived in the chosen towns and sent out the questionnaire to them, and Falun Gong participants in the chosen towns were solicited to participate in this survey. The study cohort consisted of voluntary participants answering a paper-based survey that was implemented during the study period (from October 2002 to February 2003) to obtain participants' demographic information and self-reported health status. The site coordinators distributed survey questionnaires at practice sites where participants voluntarily consented to participation and answered and returned the questionnaires.

Measurements

The primary study outcomes include self-reported HRQOL scores measured by using the same SF-36 instrument (and domains) used in Taiwan's NHIS conducted in 2001.[26] SF-36 is one of most frequently used, validated, generic HRQOL instruments, consisting of physical and mental components of health status across 8 domains.[25] The physical component includes 4 domains: physical function (PF), role limitation due to physical problems (RP), bodily pain (BP), and general health (GH). The mental component includes 4 domains: vitality (VT), social function (SF), role limitation due to emotional problems (RE), and mental health (MH). The validation process of the Traditional Chinese version of the SF-36 instrument has been described elsewhere.[27] Section B of the study questions includes SF-36 items and the 8 domain scores that were of particular interest.

The secondary study outcomes include the following measures before and after practicing Falun Gong: (a) self-reported changes in personal health (Section C of the study questionnaire); (b) self-reported changes in chronic conditions/symptom levels (Section D of the study questionnaire); (c) self-reported changes in living habits (Section F of the study questionnaire); and (d) self-reported changes in annual frequency of outpatient visits, a proxy of health resources utilization, before and after practicing Falun Gong (Section E of the study questionnaire). Taiwan's National Health Insurance (NHI) covered at least 97% of the general population in Taiwan. Another primary outcome is the annual frequency of outpatient visits based on the record documented on the participants' NHI cards. At the time of the study, paper-based NHI cards were issued annually, and a stamp was put on the back of the card to indicate each outpatient visit. Each card allowed up to 6 visits and a labeling system was used to indicate a multiplier of 6. In other words, card A showed 0-6 visits and card

Table 1
Characteristics of Study Participants and the Taiwan Population Norms from the 2001 National Health Interview Survey[26]

Percentage or mean (SD)	Falun Gong Participants (N = 1210)	Norm (N = 17,515)	p-value
Female (N = 1210)	59.8%	49%	< .001
Age, years (N = 1208)	49.8 (13.5)		
Age ≥ 65 years	14.9%	9%	< .001
Sampling unit (N = 1209)			< .001
City	31.8%	31%	
Town	37.3%	42%	
Others	30.9%	28%	
Household income (NTD/month) (N = 1084)	$56,200 ($38,600)	$33,500	< .001
Years of Education (N = 1202)			< .001
7-9	13.0%	24%	
10-12	26.5%	28%	
>12	36.1%	21%	
0-6	24.4%	-	
Marital Status (N = 1205)			< .001
Married	77.7%	56%	
Divorced, widowed or separation	9.5%	10%	
Others	12.9%	34%	
Children (N = 1155)			
No child	14.9%	-	
The youngest child's age < 6	7.4%	-	
The youngest child's age 6-18	26.1%	-	
The youngest child's age ≥ 18	51.5%	-	
Employment, of workers (N = 608)			< .001
Employer	6.3%	5%	
Own-family work	23.0%	23%	
Government	31.7%	10%	
Private	39.0%	62%	
Of unemployed people (N = 592)			< .001
Students	6.1%	29%	
Housekeeper	54.6%	36%	
Retiree	29.9%	25%	
Others	9.5%	10%	
Medical conditions	Before/after practicing Falun Gong		
Cardiovascular diseases (N = 1195)	19.5%/12.6%	6.8%	< .001/< .001
Diabetes mellitus (N = 1198)	6.4%/4.9%	4.5%	.0016/.5224
Pulmonary disorders (N = 1194)	18.5%/10.6%	5.2%	< .001/< .001
Hypertension (N = 1180)	17.0%/10.4%	11.3%	< .001/.3656
Non-Smoking (N = 1210)	97.8%	-	
Non-Alcohol drinking (N = 1210)	94.3%	-	

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Table 1 *(cont)*
Characteristics of Study Participants and the Taiwan Population Norms from the 2001 National Health Interview Survey[26]

Percentage or mean (SD)	Falun Gong Participants	Norm	p-value
Length of practicing Falun Gong (N = 1201)			
< 1/2 year	12.8%	-	
1/2 to 1 year	14.8%	-	
1 to 2 years	30.1%	-	
> 2 years	42.3%	-	
Times of reading Zhuan Falun (N = 1199)			
< 1 time	4.2%		
1 to 4 times	21.4%	-	
4 to 7 times	12.3%	-	
7 to 10 times	7.9%	-	
More than 10 times	54.1%	-	

B showed 7-12 visits, and so on. Then the number of stamps on the back of the card was checked to obtain the actual frequency of outpatient visits. For example, a card B with 5 stamps on the back indicated 11 outpatient visits.

The controlled variables and covariates being collected include demographic characteristics and socioeconomic status (Section A of the study questionnaire). The independent variables include self-reported status of practicing Falun Gong (Section G of the study questionnaire), age, sex, and prior chronic conditions.

Sample Size Calculation

The Taiwan norm for the SF-36 general health perception (GH) dimension has a sample standard deviation 21.78.[27] We hypothesized that a 2-point change in GH scores would be meaningful in practice. To detect a 2-point change using a one-sample t-test with 2-sided alpha of .05, 1000 participants will yield approximately statistical power of 82%. Assuming that the non-response (or invalid response) rate would be < 30%, we planned to recruit 1430 Falun Gong participants.

Data Collection

Paper copies of the study questionnaire were sent to contact persons of practice sites in the selected towns, as described earlier. Completed and returned written questionnaires were transferred into a digital format and numerically coded by study investigators for analysis. A de-identified data set was created and the PI held the keys for this data set. This de-identified data set was used for data analysis. Written questionnaires are no longer available.

Data Analysis

The statistical analysis was first performed using SPSS software, version 13 (SPSS Inc., Chicago, IL) by the PI. After the PI died in 2006, some analysis was checked by using R version 3.6.2 (2019), https://www.R-project.org/. For the household income interval variable in the survey question A7, the sample mean and SD in Table 1 were approximated by using the midpoints of the intervals, except that the highest open ended interval > $160K was approximated by $165K. All tests were 2-sided and considered statistically significant at the $p < .05$ level. The survey data were analyzed in the following 5 categories:

Perceived health status compared to the 2001 Taiwan norm. One-sample t-tests were used to compare mean scores of 8 SF-36 domain scores between the study cohort of participants and the 2001 Taiwan norm, [27] and among different age and sex subgroups.

Table 2
SF-36 Domain Scores of Study Participants and the 2001 Taiwan Population Norms[27] by Sex and Age Groups (SD = standard deviation; Difference = Mean Score of Participants Minus That of Norm)

Component		Physical				Mental			
Domain	**Score**	**PF**	**RP**	**BP**	**GH**	**VT**	**SF**	**RE**	**MH**
Total									
Falun Gong Participants	N	1204	1198	1202	1189	1197	1205	1186	1191
	Mean	92.82	89.55	81.21	81.22	74.35	86.98	89.85	78.04
	SD	(13.43)	(24.42)	(18.70)	(18.65)	(17.21)	(14.01)	(25.38)	(15.51)
Norm	Mean	92.21	83.61	73.33	70.42	68.25	86.80	79.40	73.01
	SD	(16.20)	(33.30)	(28.57)	(21.78)	(18.67)	(17.07)	(36.07)	(16.55)
Difference	Mean	0.61	5.94	7.88	10.80	6.10	0.18	10.45	5.03
	p-value	.114	< .001	< .001	< .001	< .001	.653	< .001	< .001
Male									
Falun Gong Participants	N	484	481	483	478	481	485	476	478
	Mean	93.41	89.36	82.91	80.74	75.24	87.81	89.85	79.18
	SD	(12.67)	(25.37)	(17.73)	(18.15)	(15.75)	(13.47)	(25.54)	(14.43)
Norm	Mean	93.97	86.41	77.05	72.74	70.94	87.86	81.25	75.08
	SD	(14.66)	(30.83)	(28.11)	(20.72)	(17.90)	(16.56)	(34.64)	(15.95)
Difference	Mean	-0.56	2.95	5.86	8.00	4.30	-0.05	8.60	4.10
	p-value	.336	.011	< .001	< .001	< .001	.934	< .001	< .001
Female									
Falun Gong Participants	N	720	717	719	711	716	720	710	713
	Mean	92.42	89.67	80.06	81.54	73.75	86.42	89.86	77.28
	SD	(13.92)	(23.78)	(19.25)	(18.99)	(18.10)	(14.34)	(25.30)	(16.15)
Norm	Mean	90.49	80.87	69.67	68.14	65.61	85.76	77.60	70.97
	SD	(17.40)	(35.35)	(28.56)	(22.54)	(19.04)	(17.49)	(37.33)	(16.88)
Difference	Mean	1.93	8.80	10.39	13.40	8.14	0.66	12.26	6.31
	p-value	< .001	< .001	< .001	< .001	< .001	.215	< .001	< .001
Age 20-39									
Falun Gong Participants	N	255	255	254	252	254	254	253	254
	Mean	97.47	94.80	83.73	84.85	73.23	87.11	88.93	75.91
	SD	(7.95)	(17.18)	(18.79)	(17.64)	(17.07)	(15.03)	(25.55)	(16.05)
Norm	Mean	96.82	89.63	75.82	74.98	69.58	87.84	80.37	72.78
	SD	(8.92)	(26.42)	(28.11)	(19.24)	(17.28)	(15.35)	(34.78)	(15.83)
Difference	Mean	0.65	5.17	7.91	9.87	3.65	-0.73	8.56	3.13
	p-value	.192	<.001	<.001	<.001	.001	.437	<.001	.002

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Table 2 *(cont)*
SF-36 Domain Scores of Study Participants and the 2001 Taiwan Population Norms[27] by Sex and Age Groups (SD = standard deviation; Difference = Mean Score of Participants Minus That of Norm)

Component		Physical				Mental			
Domain	**Score**	**PF**	**RP**	**BP**	**GH**	**VT**	**SF**	**RE**	**MH**
Age 40-64									
Falun Gong Participants	N	759	756	759	755	759	762	748	755
	Mean	93.36	90.42	80.93	80.74	75.19	87.17	91.80	78.66
	SD	(12.35)	(22.89)	(18.38)	(18.98)	(17.04)	(13.13)	(22.91)	(15.28)
Norm	Mean	91.00	81.42	70.21	66.47	67.17	87.12	81.54	73.39
	SD	(15.42)	(35.06)	(28.83)	(22.21)	(19.32)	(17.03)	(35.12)	(17.37)
Difference	Mean	2.36	9.00	10.72	14.27	8.02	0.05	10.26	5.27
	p-value	< .001	< .001	< .001	< .001	< .001	.913	< .001	< .001
Age 65+									
Falun Gong	N	181	178	180	173	175	180	176	173
Participants	Mean	83.76	78.04	78.40	78.36	72.79	85.97	83.52	79.05
	SD	(18.90)	(34.52)	(19.58)	(17.70)	(17.76)	(15.95)	(32.46)	(14.86)
Norm	Mean	69.76	56.71	61.33	54.58	58.70	79.05	68.71	71.19
	SD	(26.99)	(46.03)	(27.87)	(23.23)	(20.47)	(23.49)	(43.40)	(18.26)
Difference	Mean	14.00	21.33	17.07	23.78	14.09	6.92	14.81	7.86
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001

Descriptive statistics of self-reported changes in chronic disease conditions and in annual frequency levels of outpatient visits. This analysis explored changes in chronic disease conditions and healthcare utilization before and after Falun Gong practice.

Testing associations of independent variables with perceived health status using multivariate linear regression analyses. One-way analysis of variance was used to test whether the mean SF-36 domain scores vary among the study subjects with different lengths of time practicing Falun Gong. In addition, the associations between independent variables, length of practice, number of times of reading *Zhuan Falun*, age, gender, and prior chronic conditions, and each of the 8 SF-36 domain outcomes was estimated using multiple linear regression analysis, adjusting for controlled variables of demographic and socioeconomic characteristics. All models were based on the same list of independent and controlled variables. An asterisk sign (*) indicates the corresponding variable was significant (*p < .05; **p < .01; ***p < .001.)

Testing associations of independent variables with the annual frequency of outpatient visits by multivariate linear regression analysis. Analogously, the same linear regression analysis was used to examine the associations between independent variables and the number of outpatient visits. This part of analysis provided objective assessment of the association of practicing Falun Gong on the medical facility utilization, which may be treated as a proxy of the individual's health status.

Testing interaction effect due to prior chronic conditions in multiple linear regression models. The null hypothesis was that there were no differences in the associations of independent variables with the 9 study outcomes between participants

Table 3
Perceived Health Benefits After Practicing Falun Gong

Among those with prior chronic conditions before practice				
Status of chronic conditions before practice	**Serous or very serious**		**Mild**	
Status of chronic conditions after practice	Cured	Improved	Cured	Improved
Cardiovascular diseases	15/37 (41%)	19/37 (51%)	67/196 (34%)	106/196 (54%)
Diabetes mellitus	2/17 (12%)	12/17 (71%)	15/60 (25%)	25/60 (42%)
Pulmonary disorders	26/56 (46%)	26/56 (46%)	68/165 (41%)	69/165 (42%)
Hypertension	17/42 (41%)	19/42 (45%)	61/159 (38%)	72/159 (45%)

Frequency levels of outpatient visits among N=1210 participants		
Outpatient visits per year	**Before practicing Falun Gong**	**After practicing Falun Gong**
None	81(6.69%)	461(38.10%)
1-6	399(32.98%)	404(33.39%)
7-12	226(18.68%)	133(10.99%)
13-18	152(12.56%)	90(7.44%)
19-24	94(7.77%)	56(4.63%)
25-30	110(9.09%)	22(1.82%)
31-36	92(7.60%)	41(3.39%)
No response	56(4.63%)	3(0.25%)

who had prior chronic conditions and those who did not have any. We tested whether the regression coefficients differed by status of prior chronic conditions. The full model included the interaction terms of the status of prior conditions with all the explanatory variables. The reduced model did not include any of the interaction terms. F-tests were used to evaluate whether the whole set of interaction terms were significant.

RESULTS

Demographics

Overall, 1600 questionnaires were sent out to the practice sites at chosen towns and 1210 individuals consented to completing and returning them, a response rate of 75.6%. Table 1 shows the demographic characteristics and socioeconomic status of the Falun Gong participants and the estimated norm of the general population in Taiwan. Compared to the 2001 norm, Falun Gong participants had significantly higher ($p < .001$) estimates in the following demographic and prior practice health characteristics: women (59.8% vs 49%); the proportion of elderly (65 years and older, 14.9% vs 9%); college education or above (36.1% vs 21%); married (77.7% vs 56%); monthly income (NTD $56,200 vs NTD $33,500); cardiovascular diseases before practice (19.5% vs 6.8%); diabetes (6.4% vs 4.5%); pulmonary disorders (18.5% vs 5.2%) and hypertension (17.0% vs 11.3%).There was a smaller estimate in private sector workers (39.0% vs 62 %) and students (6.1% vs 29%).

SF-36 Measures

Table 2 shows the comparisons of 8 SF-36 mean domain scores between Falun Gong participants and the general population (norm) in Taiwan, and by sex and age groups, respectively. Overall, FLG participants had a significantly ($p < .05$) higher mean SF-36 domain score than the norm in 6 out of 8 health domains. Non-statistically significant results were observed for PF and SF domains. When survey results were analyzed by sex, similar patterns of comparisons were seen in men and women except for the mean PF score in women. Similar patterns were again observed in the age groups of 40-64 and 20-39. Among participants aged 65 and older, all mean SF-36 domain scores were significantly high-

Table 4
Association of the Length of Falun Gong Practice on SF-36 Domain Scores among N = 1196 Study Participants

Domain	Score	PF	RP	BP	GH	VT	SF	RE	MH
< 1/2 year	Mean	87.70	85.96	74.15	69.42	65.70	81.53	88.59	70.81
	SD	19.76	27.58	20.42	22.29	18.64	16.22	28.21	17.08
1/2 to 1 year	Mean	91.99	87.95	78.59	76.12	70.63	86.58	86.43	75.09
	SD	12.77	26.40	20.74	20.19	18.34	14.65	28.09	16.87
1 to 2 years	Mean	93.48	90.89	81.21	82.04	74.42	86.59	90.58	77.71
	SD	12.18	22.08	18.30	17.75	16.86	13.68	24.43	15.12
> 2 years	Mean	94.29	90.47	84.38	86.21	78.38	89.17	91.24	81.69
	SD	11.65	23.82	16.88	15.06	15.06	12.71	23.55	13.55
Total	Mean	92.87	89.65	81.26	81.31	74.44	87.04	90.00	78.13
	SD	13.41	24.26	18.68	18.60	17.12	13.98	25.18	15.45
p-value		< .001	.117	< .001	< .001	< .001	< .001	.149	< .001

er in the surveyed Falun Gong participants than in the general population ($p < .05$).

Perceived Changes in Chronic Conditions

The upper part of Table 3 shows perceived changes after practicing Falun Gong among those with prior chronic conditions before practicing Falun Gong. Cardiovascular diseases, diabetes, pulmonary disorders, and hypertension were 4 of the top chronic conditions in Taiwan during 2001. Among Falun Gong participants who had any of these 4 chronic conditions before practicing Falun Gong, the majority (70% to 89%) reported that their health condition was either cured or their health status improved after practicing Falun Gong.

Changes in Health Resource Utilization

The lower part of Table 3 shows the general trend of decreased outpatient visits that we observed. The PI obtained consent from 1103 Falun Gong participants to access their insurance records to obtain the exact frequency of office visits. The average number of outpatient visits per year before practicing Falun Gong was 11.96, which was similar to the previously reported mean in the general population in Taiwan during the period of 1996-2001 (mean = 14.4).[28] After practicing Falun Gong, the number of outpatient visits per year dropped to 5.93. Excluding 59 persons with missing values, 62.7% of persons reported a reduced number of outpatient visits, indicating a drop in healthcare resource utilization in the study cohort, and 30.9% reported the same level of outpatient visit before and after practice.

Behavior Modifications

For the behavior question on alcohol consumption/drinking, 213 people answered "yes" to "have a desire to drink" before practicing Falun Gong, and 158 (74.2%) of those quit drinking after practice. Similarly, for smoking, chewing betel nuts, and gambling, 79.2%, 83.3%, and 85.6% quit out of 125, 42, and 111 people, respectively.

Factors Associated with Perceived Health and Healthcare Utilization

Table 4 shows the association of the length of practicing Falun Gong (in years) on each SF-36 domain score among study participants. Generally, the SF-36 domain scores increased with an increased length of practicing Falun Gong, with few exceptions. One-way ANOVA indicated that there were statistically significant differences in SF-36 domain scores among participants with different lengths of practice in 6 out of 8 domains, except for RP and RE.

Table 5 shows the results of multivariate linear regression analyses, where each column shows re-

Table 5
Multiple Linear Regression for Primary Outcomes of SF-36 Domain Scores and the Number of Outpatient Visits

	PF	RP	BP	GH	VT	SF	RE	MH	Med Visits
Valid N	1020	1017	1017	1011	1017	1020	1008	1013	1020
R-squared	0.2062	0.1142	0.1356	0.1981	0.1352	0.1117	0.0735	0.1343	0.2621
Adj R-squared	0.1879	0.0937	0.1156	0.1795	0.1152	0.0911	0.0519	0.1142	0.2451
Independent Variables									
Intercept	102.281***	105.539***	76.901***	81.525***	67.213***	90.723***	105.036***	63.928***	5.545**
Length of practice (years)	0.457	0.674	0.884*	2.015***	1.415***	0.715*	0.569	1.060***	-1.077***
Times of reading Zhuan Falun	0.634***	0.546**	0.806***	1.117***	1.014***	0.637***	0.422*	0.876***	-0.581***
Prior chronic condition (yes/no)	-2.907 ***	-4.658**	-6.439***	-7.463***	-5.046***	-3.978***	-2.621	-4.149***	2.281***
Female (yes/no)	-2.020**	-2.128	-1.867	0.599	-1.849	-2.408**	-2.421	-2.506**	-0.414
Age (years)	-0.280***	-0.366***	-0.120	-0.153*	0.017	-0.087	-0.159	0.071	0.120***
Controlled Variables									
City (yes/no)	1.273	0.991	0.327	2.340*	0.572	-0.156	1.269	1.407	-0.363
Town (yes/no)	-0.210	-2.415	-1.424	0.472	-0.093	-3.284***	-1.643	0.493	-0.800
Household Income ($NTD/month)	0.118	0.854***	0.432**	0.356**	0.453***	0.384***	0.586**	0.208	-0.128*
Years of Education 7-9	1.798	-3.325	-0.297	0.856	0.011	-2.925*	-8.484***	2.199	-0.369
10-12	0.100	-4.502*	1.427	-1.397	-2.513	-2.701**	-8.098***	-1.448	1.200
> 12	0.700	-6.604**	2.577	-1.389	-4.057**	-4.174***	-10.131***	-1.541	0.900
Married	0.514	1.487	1.117	-0.057	0.386	-0.863	-3.731	4.846**	1.073
Divorced, widowed or separation	0.260	2.615	0.883	-0.652	-0.338	0.560	-3.860	4.312	0.994
No child	2.236	4.638	9.315***	1.683	1.479	1.952	-1.699	5.212**	-1.573
The youngest child's age 6-18	3.211**	5.193*	6.535***	1.282	1.146	2.675	3.916	2.020	-2.094**
The youngest child's age ≥ 18	2.081	3.691	4.436	-0.686	-0.915	1.086	2.872	1.542	-1.349
Own-family work	-3.687***	-7.578***	-2.354	-2.750	-1.772	-1.908	-4.722*	-2.703	0.870
Employer	-3.968*	-4.014	3.097	0.444	2.078	0.454	-2.994	3.417	-1.581
Government work	-1.882	-2.162	-4.638**	-2.943	0.577	-0.157	1.070	-0.942	1.722**
Student	-4.641*	-4.875	-0.905	-6.430*	-4.103	-6.918**	-26.886***	-5.067	0.718
Housekeeper	-2.292*	-3.660	-1.333	-3.980**	-1.027	-0.798	-2.540	-0.902	0.828
Retiree	-4.326***	-8.940***	2.185	-0.400	0.648	0.381	-5.373*	-0.310	2.041**
Other jobs	0.735	-1.301	0.738	-0.284	1.645	3.690*	-1.106	1.222	-0.013

sults of one regression analysis. The results indicate that the number of times of reading the book *Zhuan Falun* had the strongest positive association with all SF-36 domains and a statistically significant negative association with the number of outpatient visits, when other covariates (demographic and socioeconomic characteristics) were controlled and independent variables, such as age, sex, and prior chronic conditions were adjusted. The length of practice also had statistically significant positive associations with BP, GH, VT, SF and MH domain scores and a negative association with the number of outpatient visits. The main effect of prior chronic conditions was significantly negative in all SF-36 outcomes, except RE, and led to an increased number of outpatient visits. Higher household income was associated with better perceived health status.

The Interaction Effect due to Prior Chronic Conditions

We tested whether the effects of explanatory variables on primary outcomes were different between those who had prior chronic conditions and those who did not. The resulting F-tests were not statistically significant for all 9 linear models.

DISCUSSION

Our results support our first hypothesis that HRQOL of Falun Gong participants was better than the 2001 Taiwan population norm, as well as our second hypothesis that those who were 65 years or older had better HRQOL than the corresponding Taiwan norm. Self-reported improvement on the secondary outcomes (ie, improved symptoms or cure of chronic conditions, abstaining from risky behaviors, and reduced annual frequency of office visits) were also observed. Our findings included that (1) Falun Gong practitioners felt healthier on average than the general population, as demonstrated by the 6 significantly higher SF-36 domain scores and fewer outpatient visits after practice; (2) the positive perceived HRQOL from practicing Falun Gong was particularly prominent among the elderly and those with chronic conditions; (3) the examined health behavior modification ranged from 74.2% for stopping alcohol consumption to 85.6% for quitting gambling; (4) the effect of reading the book *Zhuan Falun* was significant in improving perceived health and reducing the number of medical visits among participants; (5) increased time practicing Falun Gong improved perceived health status and reduced outpatient visits among participants; and (6) an interaction effect due to prior chronic conditions was unlikely in the perceived health benefits of practicing Falun Gong. The lack of statistically significant differences in PF and SF may be due to the fact that both functions are relatively easy to achieve.

The potential mechanism of action of qigong is a difficult topic due to its complex nature. The concept of qi energy generation is hard to accept by the current evidence-based medical system. Medical literature on Falun Gong's effects is lacking.[29-31] The following mechanisms may partially explain the observed health benefits associated with the practice of Falun Gong.

The first would be behavior modifications. Our survey found a high percentage of Falun Gong participants, ranging from 74.2% to 85.6%, quit well-known risk factors for health problems including drinking alcohol, smoking, chewing betel nuts, and gambling. Whereas the effect of Falun Gong on alcohol consumption might be tangible, we did not quantify the degree of drinking in this study. A moderate degree of alcohol drinking is considered to play a role in certain social functions. A less recognized behavior modification, but one that is emphasized by Falun Gong practice, is the personal behavioral modifications based on the principles "Truthfulness, Compassion, and Forbearance." Adherence to these fundamental precepts should reduce interpersonal conflicts and stress, which is supported by our survey results of significantly increased mean scores on VT, RE and MH domains before and after practice, and between participants and the general population norm.

The second plausible mechanism is that slow-motion exercises and tranquility meditation lead to health benefits. These benefits, such as improved flexibility, balance, and agility, improved muscle strength and definition, reduced pain, and improved overall well-being, can be demonstrated by the significant differences in RP, BP, and GH domain scores.

To our knowledge, there is only one prior study that evaluated the effect of Falun Gong practice at the biochemical level. Li et al[30] investigated the impact of Falun Gong practice on neutrophils both

at cellular and genomic levels. Neutrophils from Falun Gong practitioners have a significantly longer life span *in vitro* and increased functionality compared to cells from normal healthy controls. The comparison demonstrated enhanced immunity, down-regulation of cellular metabolism, and more rapid resolution of inflammatory responses among Falun Gong practitioners than in the controls. Review of gene expression studies of mind-body interactions revealed changes opposite to the effects of chronic stress.[32] Similarly, a systematic review suggested that Tai Chi practice boosts cell-mediated immunity and antibody response by the immune system.[33]

Limitations

This study had several limitations. First, due to the nature of this being a cross-sectional survey, causality cannot be assumed. Survey results may be applicable only to a certain population at a certain period of time. Second, the self-reported measures may be subject to recall bias, which was less likely for the annual frequency of outpatient visits, as the health insurance cards at the time carried this information. Third, the sampling frame was of Falun Gong practitioners in Taiwan, and thus, the results may not be generalized to other Falun Gong populations in other countries. The sampling approach included voluntary self-selection, which may not yield a representative sample; yet the use of a cluster sampling method and the high response rate increased the likelihood of adequate representation. Fourth, the use of statistics in the general population (norm) may be viewed as an unfair comparison. However, our study approach was similar to one used by Komelski et al,[34] who compared health status between a sample of taijiquan and qigong practitioners and a US representative sample. Their results also indicated that the health status of taijiquan and qigong practitioners was significantly better than the US norm. We believed use of the norm in the comparison was reasonable. Fifth, in this study, we did not compare health benefits among those with 4 chronic conditions at baseline between the study cohort and the general public. Patients with prior chronic conditions may behave differently than those without any prior conditions. Our analysis suggests such an interaction effect was less likely. Lastly, it was suggested that there might be benefit in applying zero-inflated Poisson models for analyzing the annual frequency of outpatient visits, which may be explored in future full-scale surveys. Nevertheless, further research may be needed to investigate the effect of Falun Gong practice on particular diseases or conditions. In particular, we recommend more biochemical, cellular, and genomic studies.

IMPLICATIONS FOR HEALTH BEHAVIOR OR POLICY

Based on the guiding principles of "Truth, Compassion and Forbearance," Falun Gong requires both practice (slow-motion exercise and tranquility meditation) and cultivation of mindful and spiritual characters; thus, Falun Gong can be regarded as an individual practice of a wellness-improving system integrating/consolidating physical (body), emotional (mind), social and spiritual wellbeing at multiple levels. These features fit into the current understanding of multiple aspects of health as defined by WHO: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[23] Falun Gong practice provides such an integrated approach.

Falun Gong practice towards physical-emotional-social and spiritual well-being echoes the topic of "health-related quality of life and well-being" in the *Healthy People 2020* initiative's 4 overarching goals. Falun Gong practice is free of charge for everyone; all teaching materials are available online for free. Perhaps the most notable investment at the individual level is time. Policymakers could offer additional option for individuals to improve HRQOL, but practicing Falun Gong requires no or minimal investment on public health promotion. The potential return on investment could be large at both individual and societal levels. Because the effects of HRQOL are associated with practice length and book reading, these 2 can be combined to create a practice index, and therefore, provide objective measurement for promotion and practice.

The *Healthy People 2020* initiative's topic "Older Adults" aims to improve the health, function, and quality of life of older adults. Our study demonstrates that a perceived positive HRQOL associated with practicing Falun Gong was particularly prominent among the elderly and those with chronic

conditions. If a narrower target population is preferred when feasibility and priority are a concern, policymakers may distribute Falun Gong practice information in senior care facilities as a slow-motion exercise and tranquility mediation, and book reading is all relatively safe for older adults to perform.

The Li et al[30] study demonstrated positive cellular and genomic changes brought about by Falun Gong practice, aligning with the "Genomic" topic in *Healthy People 2020*. The demonstrated non-pharmaceutical effects on the human genomic landscape by Falun Gong practice suggest that policymakers consider funding more such studies. The demonstrated optimized immune reaction may be helpful during the COVID-19 pandemic, in which an over-stimulated immune system, or "cytokine storm" is postulated to play a role in the morbidity and mortality brought about by the viral infection. Concerned people may consider adopting the practice of Falun Gong to enhance immunity. The wide-reaching health benefits of Falun Gong practice needs more study.

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Human Subjects Approval Statement

At the time of the study period (October 2002 to February 2003), approval from an Ethics or Institutional Review Board (IRB) was not required to conduct a questionnaire survey based on the guidelines of National Taiwan University where the primary investigator (PI), Dr. Yu-Whuei Hu, was affiliated. The dataset was de-identified and only the PI held the key that linked survey participant code numbers with participant identifiers. The de-identified dataset was distributed to study team members. Unfortunately, the PI, the holder of the key, Dr. Yu-Whuei Hu, died in 2006 before the study and manuscript were finished. Subsequent use of de-identified data would not constitute human subjects research, as determined by the IRB office, Washington University in St. Louis, MO (IRB # 202009059) because it is no longer identifiable.

Conflicts of Interest Disclosure Statement

All authors of this article declare they have no conflicts of interest.

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Appendix 1

Below is a shortened version of survey questionnaire. For full-text survey questionnaire in English and/or Chinese, please contact Dr. Mai He by email to maihe@wustl.edu or mikehemd@gmail.com.

Survey on Physical and Mental Health of Falun Gong Practitioners in Taiwan

October 30, 2002

You, as a Falun Gong practitioner, have been randomly selected to participate in this survey, titled "Survey on the Physical and Mental Health of Falun Gong Practitioners in Taiwan". The main purpose of this survey is to collect data on your health status, the changes in your health before and after practicing Falun Gong, and your medical resource utilization. The study results may be adopted to inform Taiwan's national health promotion policy. Each of your responses to this survey is very valuable and important; so please answer questions based on your "true situation". Please also provide your demographic and health-related information. If you agree to release your national health insurance information in conjunction with this survey, please sign the consent form at the end of the questionnaire. Your identity and personal information will be stored separately; only the survey subject code number will be seen in data analysis. All information will be kept strictly confidential. Thank you for your participation and cooperation.

Your contact information

Name: _____

Telephone: _____

EMAIL: _____

Practice Site: _____

Postal Code: _____

If you don't know the postal code, please write down the city and township

City: _____ Township _____

Survey subject code number _____ (No need to fill in, it will be entered automatically)

A. Demographic Information

A1. Gender: □1: Male □2: Female

A2. Age: _____ years old, Birth year: _____

A3. Highest level of education:

□1: ≤9 grade; □2: 10-12 grade; □3: Associate degree; □4: College; □5: post graduate

A4. Marital status:

□1: Never married; □2: Married; □3:Domestic partner; □4:Divoice/Separated;

□5:Widow/Widower; □6: Others (please specify):_____

A5. Child(ren):

□1: No child

□2: The youngest child is under 6 years old

□3: The youngest child is 6-18 years old

□4: The youngest child is >18 years old and live with you

□5: All chid(ren) is/are independent and do(es) not live with you

□6: Others (please specify):_____

A6. Job status:

□1: Self-employed

□2: Helping home business

□3: Employed

□4: Retired

□5: Housewife or househusband

□6: Unemployed

□7: Others (please specify):_____

A7. Approximate monthly household incomes

□ <NT$20,000	□NT$20,001-$40,000	□NT$ 40,001-$60,000
□NT$ 60,001-$80,000	□NT$80,001-$100,000	□NT$100,001-$120,000
□NT$120,001-$140,000	□NT$140,001-160,000	□>NT$160,000

A. **Perceived Health Status (SF-36)**

Instruction: in this section, "in the past month" refers to "in the past 30 days from today"

B1. In general, would you say your health is:

□1: Excellent

□2: Very good

□3: Good

□4: Fair

□5: Poor

B2. **Compared to one year ago**, how would you rate your health in general **now**?

□1: Much better now than one year ago

□2: Somewhat better now than one year ago

□3: About the same

□4: Somewhat worse now than one year ago

□5: Much worse now than one year ago

B3. The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?

	Yes limited a lot	Yes, limited a little	No, not limited at all
a. **Vigorous activities**, such as running, lifting heavy objects, participating in strenuous sports	□1	□2	□3
b. **Moderate activities**, such as moving a table, mopping the floor, bowling, or playing Tai-Chi	□1	□2	□3
c. Lifting or carrying groceries	□1	□2	□3
d. Climbing **several** flights of stairs	□1	□2	□3
e. Climbing **one** flight of stairs	□1	□2	□3
f. Bending, kneeling, or stooping	□1	□2	□3
g. Walking **more than a kilometer**	□1	□2	□3
h. Walking **several blocks**	□1	□2	□3
i. Walking **one block**	□1	□2	□3
j. Bathing or dressing yourself	□1	□2	□3

B4. During the **past 1 month**, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**?

	Yes	No
a. Cut down the **amount of time** you spent on work or other activities	□1	□2
b. **Accomplished less** than you would like	□1	□2
c. Were limited in the **kind** of work or other activities	□1	□2
d. Had **difficulty** performing the work or other activities (for example, it took more efforts)	□1	□2

B5. During the **past 1 month**, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)?

	Yes	No
a. Cut down the **amount of time** you spent on work or other activities	□1	□2
b. **Accomplished less** than you would like	□1	□2
c. Didn't do work or other activities as **carefully** as usual	□1	□2

B6. During the **past 1 month**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

□1: Not at all; □2: Slightly; □3: Moderately; □4: Quite a bit; □5: Extremely

B7. How much **bodily** pain have you had during the **past 4 weeks**?

□1: None; □2: Very mild; □3: Mild; □4: Moderate; □5: Severe; □6: Very severe

B8. During the **past 1 month**, how much did **pain** interfere with your normal work (including both work outside the home and housework)?

□1: Not at all; □2: A little bit; □3: Moderately; □4: Quite a bit' □5: Extremely;

B9. These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the **past 4 weeks**.

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a. Did you feel full of pep?	□1	□2	□3	□4	□5	□6
b. Have you been a very nervous person?	□1	□2	□3	□4	□5	□6
c. Have you felt so down in the dumps that nothing could cheer you up?	□1	□2	□3	□4	□5	□6
d. Have you felt calm and peaceful?	□1	□2	□3	□4	□5	□6
e. Did you have a lot of energy?	□1	□2	□3	□4	□5	□6
f. Have you felt downhearted and blue?	□1	□2	□3	□4	□5	□6
g. Did you feel worn out?	□1	□2	□3	□4	□5	□6
h. Have you been a happy person?	□1	□2	□3	□4	□5	□6
i. Did you feel tired?	□1	□2	□3	□4	□5	□6

B10. During the **past 4 weeks**, how much of the time has **your physical health or emotional problems** interfered with your social activities (like visiting with friends, relatives, etc.)?

□1: All the time

□2: Most of the time

□3: Some of the time

□4: A little of the time

□5: None of the time

B11. How TRUE or FALSE is **each** of the following statements for you.

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a. I seem to get sick a little easier than other people	□1	□2	□3	□4	□5
b. I am as healthy as anybody I know	□1	□2	□3	□4	□5
c. I expect my health to get worse	□1	□2	□3	□4	□5
d. My health is excellent	□1	□2	□3	□4	□5

C. Changes in personal health before and after practicing Falun Gong

C1. In general, were you satisfied with your health **before** practicing Falun Gong?

□1: Extremely dissatisfied; □2: Dissatisfied; □3: Moderately satisfied; □4: Satisfied; □5: Extremely satisfied

C2. In general, were you satisfied with your health **now**?

□1: Extremely dissatisfied; □2: Dissatisfied; □3: Moderately satisfied; □4: Satisfied; □5: Extremely satisfied

C3. Were you satisfied with your ability to engage in daily activities **before** practicing Falun Gong?

□1: Extremely dissatisfied; □2: Dissatisfied; □3: Moderately satisfied; □4: Satisfied; □5: Extremely satisfied

C4. Were you satisfied with your ability to engage in daily activities **now**?

□1: Extremely dissatisfied; □2: Dissatisfied; □3: Moderately satisfied; □4: Satisfied; □5: Extremely satisfied

C5. Do you often have negative feelings (such as sadness, nervousness, anxiety, depression, etc.) **before** practicing Falun Gong?

□1: Never; □2: Seldom; □3: Sometimes; □4: Frequent; □5: Always;

C6. Do you often have negative feelings (such as sadness, nervousness, anxiety, depression, etc.) **now**?

□1: Never; □2: Seldom; □3: Sometimes; □4: Frequent; □5: Always;

D. Did you have any of the following conditions or symptoms before practicing? If so, please compare the condition before and after practicing Falun Gong, and check (V) in the appropriate field for each question. If you do not have the symptoms before practicing Falun Gong, please select [No symptoms]; if you do not have the symptoms anymore after practicing Falun Gong, please select [No change]; if the symptoms only appear after practicing Falun Gong, please select the appropriate changes:

	Condition **before** practicing Falun Gong					Change **after** practicing Falun Gong				
Disease name or symptoms [Please **circle** the name of the disease and mark "V" to indicate your response]	No symptom	Mild symptom	Moderate symptom	Severe symptom		Recovery completely	Improved	No Change	Worse	Serious deterioration
1. Malignant tumor, please specify:										
2. Heart diseases										
3. Hypertension										
4. Lung diseases (eg, bronchitis, emphysema, asthma)										
5. Diabetes										
6. Stroke (hemorrhage or thrombotic)										
7. Gastric ulcer or duodenal ulcer										
8. Liver diseases										
9. Kidney diseases										
10. Insomnia										
11. Prostate disease (males only)										

12. Uterine or ovarian disease (females only)										
13. Lupus erythematosus										
14. Hyper- or hypo-thyroidism										
15. Gout, arthritis or rheumatism										
16. Psychosis, please specify:										
17. Others, please specify:										

E. Health resource utilization

E1. Height _____ cm Weight:_____ kg

E2. In the year **before** practicing Falun Gong, please indicate the last sequence of your health insurance card being used.

- □Never use my insurance card
- □ A (1-6 visits)
- □ B (6-12 visits)
- □C (13-18 visits)
- □D (19-24 visits)
- □E (25-30 visits)
- □F or more (31 or more visits)

E3. In this year **so far**, please indicate the last sequence of your health insurance card being used.

- □Never use my insurance card
- □ A (1-6 visits)
- □ B (6-12 visits)
- □C (13-18 visits)
- □D (19-24 visits)
- □E (25-30 visits)
- □F or more (31 or more visits)

E4. If the frequency of outpatient visits is reduced, the reason(s) include

[check all that apply]

- □1: My health is well; I have no need to see a doctor
- □ 2: The hospital or clinic is too far, or the transportation is inconvenient
- □ 3: Long waiting time for registration or see a doctor
- □4: I am too busy with work or housework to see a doctor
- □5: Your family member has no time to take you to the doctor
- □6: It's no use going to the doctor
- □7: Cannot afford
- □8: Others, please specify:

F. Changes in personal living habits before and after practicing Falun Gong

F1. Did you have a habit of drinking **before** practicing Falun Gong?

□1: Yes (Continue to question F2); □2: No (Skip to question F3)

F2. Are you still drinking at present (after practicing Falun Gong)?

□1: Already quit drinking, quit after practicing Falun Gong for ____ month(s)

□2: Drinking occasionally; □3; Still drinking

F3. Did you have a habit of smoking **before** practicing Falun Gong?

□1: Yes (Continue to question F4); □2: No (Skip to question F5)

F4. Are you still smoking at present (after practicing Falun Gong)?

□1: Already quit smoking, quit after practicing Falun Gong for ____ month(s)

□2: Smoking occasionally; □3; Still smoking

F5. Did you have a habit of chewing betel nuts **before** practicing Falun Gong?

□1: Yes (Continue to question F6); □2: No (Skip to question F7)

F6. Are you still chewing betel nuts at present (after practicing Falun Gong)?

□1: Already quit chewing betel nuts, quit after practicing Falun Gong for ____ month(s)

□2: Chewing betel nuts occasionally; □3; Still chewing betel nuts

F7. Did you have a habit of gambling **before** practicing Falun Gong?

□1: Yes (Continue to question F8); □2: No (Skip to question G1)

F8. Are you still gambling at present (after practicing Falun Gong)?

□1: Already quit gambling, quit after practicing Falun Gong for ____ month(s)

□2: Gambling occasionally; □3; Still gambling

G. Status of Practicing Falun Gong

G1. How long have you been practicing Falun Gong?

□ less than 0.5 year; □ 0.5-1 year; □1-2 years; □ 2-3 years;

□ 3-4 years; □4-5 years; □ more than 5 years (_____ years)

G2. How many times have you read the entire book of "*Zhuan Falun*"?

□ Not yet read the entire book; □ 1-3 times; □4-6 times; □7-9 times; □ more than 10 times;

G3. How much time on average do you spend on studying "*Zhuan Falun*" daily (approximately)?

□ less than 0.5 hour; □0.5-1 hour; □1-2 hours; □2-3 hours; □ >3 hours

G4. How much time on average do you spend on practicing Falun Gong exercises daily (approximately)?

□ less than 0.5 hour; □0.5-1.5 hours; □1.5-2.5 hours; □ >2.5 hours

G5. Do you often attend group study clubs or group experience sharing?

□1: Yes; □2: No

G6. Do you often attend group exercise?

□1: Yes; □2: No

This concludes the questionnaire.

Please continue to fill in your National Health Insurance Data Use Consent Form. Thank you for your cooperation!