

RESEARCH COMMUNICATION

Patient Satisfaction Survey of a Self-Paid Physical Checkup Program for Cancer Screening

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Abstract

Introduction: Early disease detection is an effective way to control diseases. Government sponsored health screening programs show their health value by increasing numbers of participants each year. Self-paid physical checkup programs may complement these programs. The purpose of this study was to examine participants' satisfaction with a self-paid physical checkup program for cancer screening. **Methods:** This cross-sectional study consisted of two surveys with qualitative and quantitative questionnaires. A random sample of 1000 participants was collected from those who attended the self-paid physical checkup program in two periods. Their needs and expectations with the program with five point scores were analyzed. **Results:** Data were collected during the period of January to June, 2001 and again in 2011. The response rates were 93.8% and 59%, and the effective rates were 94% and 71.4%, respectively. The results indicated that participants' items needed and items wished to cancel were similar in both surveys. The self-paid physical checkup program met the needs of participants concerning gastrointestinal, colorectal and abdomen examinations. In contrast, dental, eye and physical examinations, and HIV screening were viewed as less interesting by participants, because of the lack of immediate post-checkup cares or they were not at high risk. **Conclusions:** Self-paid physical checkup programs add value to free cancer screening for health maintenance and help provide good physician-patient relationships, health education and post-checkup cares.

Keywords: Cancer screening - physical checkup programs - self-paid - satisfaction

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Introduction

Prevention is better than treatment, but most of the current health insurance systems cannot satisfy the needs of those who concern about their health (Frame and Carlson, 1975; Roter et al., 1997; Stange et al., 1992; Williams and Calnan, 1991). Health surveys have found that two thirds of patients and physicians believe it is important for adults to receive a preventive health examination (Oboler et al., 2002; Prochazka et al., 2005) and these routine health examination are believed to strengthen physician-patient relationships (Laine, 2002; O'Malley and Greenland, 2005).

National Health Insurance of Taiwan has been promoting free-charge health screening programs for adult in recent years and shows the coverage number of population is about 6.0% and 19.5%, respectively for a typical rural area and city (Bureau of Health Promotion, Department of Health, ROC, 2011). This preventive health examination is further supplemented with four free additional cancer screening programs for different populations: cervical cancer (for women over 30 years old) annually and bi-annually, for breast cancer (for 40-69 years old females with family history), oral cancer (for betel quid

chewers), and colon cancer (50-69 years old) in recent years. Other studies show that most of preventive health examinations are paid by commercial insurance plans, and these examinations are not recommended by Canadian Task Force on the Periodic Health Examination (1979) and Medical Practice Committee, American College of Physicians. Periodic health examination (1981). Council on Scientific Affairs (1983) and van Walraven et al. (2000) recommend a more individualized package of preventive health examinations for patients. Therefore, self-paid physical checkup programs might complement the shortcomings of the current health insurance systems. According to evidence-based preventive care and guidelines, health care providers would limit the types of medical examines to avoid discretionary or unnecessary laboratory testing (Merenstein et al., 2006; White, 1999). Health consumers in the past had less opinions expressed, however, the situation is changed by the demands of self-paid health program. The market of self-paid physical checkup is very competitive in Taiwan, because patients have more options to choose for their needs. Patient satisfactions are pressing the health providers to improve their services in all areas, including the self-paid physical checkup program.

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The easiest way to find out the patient satisfaction is through questionnaires (Moll van Charante et al., 2006; Niles et al., 1996). A qualitative and quantitative questionnaire is trustworthy and valid (Weingarten et al., 1995). While participants were filling out the questionnaire, the investigators could also communicate with them. Through this survey, we might learn more about the quality of examination items and consumers' need and expectation and further improve the health benefits.

Materials and Methods

Study participants

During the periods from January, to June 2001 and January, to June 2011, a total of 2230 and 2200 people participated, respectively, in the self-paid physical checkup program at the Health Management Center, Taichung Veterans General Hospital (TCVGH). We randomly chose 1000 from these participants of two periods. The study had been approved by the Institutional Review Board of TCVGH (Certificate No. CE11135). The contents of this questionnaire included 52 questions about examination procedures, items, and qualities, as well as facilities, equipments, and quality of services. Participants might answer each question by rating scores: very satisfied (5), satisfied (4), acceptable (3), less than satisfied (2), and not satisfied (1). Another 18 open questions were about the reason to participate the program, opinions about examination items and the cost of this examination. We also collected the demographic information, such as gender, age, education, occupation, number of times for attending self-paid physical checkup examination, family annual income, residence and marital status.

Two pretests were performed on 22 and 16 participants and revised after investigators discussed with them and questionnaire was finalized after 3rd pretest to 32 participants with a help of a language teacher of local high school.

Data analyses

Completed questionnaire with more than 5 contradictory or unfilled answers were labeled 'invalid' and were excluded from analysis. Each related question was analyzed by Chi-square method. A two-tailed p value less than 0.05 was considered statistically significant.

Results

Descriptive Information

The response rate of 2001 survey was 93.8% (938/1000). Fifty-six invalid questionnaires were excluded from analysis and the effective rate was 94.0%.

Table 1 shows the demographic data of participants with 510 males and 372 females. The response rate of 2011 survey was 59% (1103/1867). Fifty-six invalid questionnaires were excluded from analysis and the effective rate was 94.0%. The general profile of participants in 2011 was similar to the previous one.

Participants' satisfaction

We analyzed each category and satisfaction by cross-

analyses. Men were more satisfied with safeties ($\chi^2 = 10.28$, $df = 3$, $p = 0.016$), administration's service ($\chi^2 = 11.51$, $df = 4$, $p = 0.021$), examination qualities ($\chi^2 = 13.94$, $df = 3$, $p = 0.003$), and physician's service ($\chi^2 = 0.97$, $df = 3$, $p = 0.028$) than women to this program. Participants with higher annual family income were more satisfied with services of physicians ($\chi^2 = 50.95$, $df = 30$, $p = 0.010$) and equipments ($\chi^2 = 47.62$, $df = 30$, $p = 0.022$) than those with low family income. Other categories were not different statistically. The overall satisfaction rate was 87.95 % and 90.1%, for 2001 and 2011 survey, respectively (Table 2).

Participants' opinions on the items of needs and items wished to cancel are summarized in Table 3. Most of them agreed that the top-three most important cancer screening items were the upper gastrointestinal fibroscopy (87.0%), fibrosigmoidal endoscopy (89.3%), and the abdomen sonography (80.8%) from the 2001 survey. In contrast, items wished to be cancelled were dental examination (82.9%), eye examination (19.6%), and HIV screening (18.7%). Although we did not collected detailed data as in the 2001 survey, the trend was similar that dental, physical, and eye examination remained lower satisfaction than other items and these items were ignored in 4-5% of the 2011 participants. In the first survey, 92% of participants wished to include bone density test in the program and 97.5% of female participants, breast sonography or mammography in the first survey (2001). In the second

Table 1. Demographic Data for Participants (2001)

Category	Category Male (%)	Female (%)	Total (%)
Gender	510 (57.8)	372 (42.2)	882 (100)
Age			
<25	3 (0.3)	5 (0.6)	8 (0.9)
25-34	25 (2.9)	28 (3.2)	53 (6.1)
35-44	111 (12.7)	93 (10.7)	204 (23.4)
45-54	155 (17.8)	97 (11.1)	252 (28.9)
55-64	116 (13.3)	98 (11.2)	214 (24.5)
65-74	78 (8.9)	35 (4.0)	113 (12.9)
>75	19 (2.2)	10 (1.1)	29 (3.3)
Range of age	20-86	15-90	15-90
Mean age	52.4 ± 12.4	50.4 ± 12.7	51.6 ± 12.6
Marital status			
Married	469 (54.0)	307 (35.3)	776 (89.3)
Unmarried	18 (2.0)	31 (3.6)	49 (5.6)
Others	15 (1.7)	29 (3.3)	44 (5.1)
Educational level			
<High school	94 (10.8)	112 (12.8)	206 (23.6)
High school	210 (24.1)	167 (19.2)	377 (43.2)
College	177 (20.3)	82 (9.4)	259 (29.7)
Graduate school	25 (2.9)	5 (0.6)	30 (3.5)
Residence			
Urban	387 (44.1)	283 (32.2)	670 (76.3)
Rural	121 (13.8)	87 (9.9)	208 (23.7)
Family annual income*			
Low	102 (12.0)	87 (10.2)	189 (22.2)
Middle	197 (23.1)	96 (11.3)	293 (34.4)
High	193 (22.7)	177 (20.8)	
Number of times attended medical examination			
First time	322 (36.5)	277 (31.4)	599 (68.0)
Second time	91 (10.3)	53 (6.0)	144 (16.3)
More than twice	96 (10.9)	42 (4.8)	138 (15.7)

Table 2. Assessment of Participants' Satisfaction

Category	Satisfied 2001 (%)	Acceptable 2001 (%)	Dissatisfied 2001 (%)	Satisfied 2011 (%)
Internal factors				
Time schedule	741 (85.1)	126 (14.5)	4 (0.5)	786 (85.4)
Facilities	746 (88.4) ^a	121 (13.8)	9 (1.0)	787 (88.6)
Safeties	765 (87.4) ^a	105 (12.6)	5 (0.6)	785 (88.5)
Meal quality	660 (75.9)	198 (22.8)	12 (1.4)	777 (86.5)
Equipments	772 (88.4) ^b	97 (11.1)	4 (0.5)	786 (88.6)
Exam. Quality	711 (81.5) ^a	154 (17.7)	7 (0.8)	787 (92.5)
Exam. Procedures	623 (71.6)	217 (24.9)	30 (3.5)	787 (90.8)
Service quality				
Administrators	742 (85.1) ^a	118 (13.5)	12 (1.4)	783 (90.1)
Technicians	771 (88.6)	95 (10.9)	4 (0.5)	783 (90.6)
Nurses	803 (91.9)	67 (7.7)	4 (0.5)	787 (92.6)
Checkup physicians	671 (77.0) ^{a,b}	190 (21.8)	10 (1.2)	758 (86.1)
Ophthalmologists	726 (83.5)	138 (15.9)	5 (0.6)	758 (86.1)
Otolaryngologists	741 (85.8)	119 (13.8)	4 (0.5)	769 (88.5)
Dentists	685 (79.2)	172 (19.9)	8 (0.9)	753 (82.3)
Gynecologists*	325 (85.3)	51 (13.4)	5 (1.3)	427 (90.8)
Overall Satisfaction	759 (87.9)	101 (11.7)	4 (0.5)	785 (90.1)

*For female participants only; ^ap <0.05; the satisfactions in the males and females were compared with the items in that category;

^bp <0.05; the satisfactions in the males and females with annual family income were compared with the items in that category

Table 3. Assessment of Participants' Needs

Category	Items needed (n = 871)		Items to cancel (n= 316)	
	No	(%) Rank	No (%) Rank	Rank
Physician's counseling	831 (95.4)	1	40 (12.7)	4
Fibrosigmoid endoscopy	778 (89.3)	2	2 (0.6)	15
GI fibroscopy	758 (87.0)	3	3 (1.0)	13
Abdomen sonography	704 (80.8)	4	5 (1.6)	10
Hepatitis viral screening	621 (71.3)	5	4 (1.3)	12
Chest X-ray	498 (57.2)	6	8 (2.5)	9
Serum tumor markers	487 (55.9)	7	3 (1.0)	13
Pulmonary function	486 (55.8)	8	11 (3.5)	8
Electrocardiography	483 (55.5)	9	5 (1.6)	10
ENT examination	444 (51.0)	10	21 (6.7)	6
Serum thyroxine (T4) assay	375 (43.1)	11	20 (6.3)	7
Eye examination	310 (36.5)	12	62 (19.6)	2
Physical examination	250 (28.7)	13	31 (9.8)	5
Serum HIV screening	248 (28.5)	14	59 (18.7)	3
Dental examination	227 (26.1)	15	262 (82.9)	1

survey, a free breast mammography was already provided by Bureau of Health promotion, DOH, Taiwan. About 10% of participants expressed desire to have brain CT or MRI scans included.

Discussion

Patient satisfaction surveys help healthcare providers in improving quality of healthcare, health education, and developing healthcare policies (Niles et al., 1996; Schaffler et al., 1996; Black and Welch, 1997; Wachter et al., 1998; Paddock et al. 2000; Moll van Charante et al., 2006). This survey did help us to understand the needs of consumer and improve our health service in this self-paid physical checkup program. The lower satisfaction rating in meal quality and some of the examination procedures in the first survey (2001) had been greatly improved in the second survey (2011). However, services of nurses remained to be the most satisfactory in surveys of both periods. Counseling service with physician was regarded

as the prime important needs in this survey. However, it was interesting to find out participants wanted to talk to physician directly but had less interest in physical examination. It showed that they wanted physicians to be listeners and expected to have the ordering of a particular screening test (White et al., 1993; Solomon et al., 2000; Tudiver et al., 2001). Participants did not appreciate the fact that physical examination could help physicians to diagnose correctly and laboratory tests and high tech imaging were just supporting the clinical diagnosis but not vice versa (Mehrotra et al., 2007). On the other hand, this survey revealed the needs and demands of participants and key issues for health education. It is important that health education reaches to the general population so medical resources can be used more efficiently.

The findings also highlighted the significant role that self-paid checkup program played in our health care system. Among the examination items, gastrointestinal fibroscopy, fibrosigmoidal endoscopy and abdominal sonography were on the top list of needs. This consistent to the fact that cancers rank top in the leading caused of death in recent years by statistical data from the Department of Health in Taiwan. On other hand, participants regarded dental, eye, and physical examinations and HIV screening test were less interesting. It is known that older people are at risk of chronic diseases of the mouth, including dental infections (e.g., caries, periodontitis), tooth loss, benign mucosal lesions, and oral cancer (Burt, 1994). The reason of lower satisfaction of dental examination was due to the lack of immediately dental care after the checkup program. HIV screening was regarded as unnecessary by these participants who were not high risk. In the first survey, participants indicated their wish to have bone density test, breast mammography to be included in the program. This had been partially fulfilled with the implementation of free breast mammography by Bureau of Health Promotion, DOH, Taiwan since 2009 and 2010, for females of 50-69 and 40-45 years old, respectively.

Some participants also wished to have advanced

technological examination such as MRI and CT. However, evidence-based clinical guidelines do limit the use of high technological examinations to the symptomatic patients with known/detectable disease (Black and Welch, 1979; Frame and Carlson 1975; Williams and Calnan, 1991). A recent study even suggests that some of routine tests are unnecessary in health participants of preventive health examinations (Mehrotra et al., 2007). For those who had no symptoms or only mild illness, the result of examination had no significant meanings (Black and Welch, 1979; Cheung et al., 1999; Solomon et al., 2000; Mehrotra et al., 2007). The items of examination might be varied according to the differences in races, ages, and regional prevalent diseases. Despite of that, this checkup program had met their needs and expenses. Physicians would understand participants' health status better and give individual suggestions and post-checkup health education or cares.

There were several limitations of this review. Firstly, two unrelated cross-sectional questionnaire surveys might not fully reflect the needs and demands of participants. Secondly, the results came from a specific group of population who was willing to answer most of questionnaire and ignoring the items that they were less interested in. Thirdly, the cost of self-paid checkup program would exclude participants from the lower socioeconomic class. Finally, the checkup program might not meet the demand of individuals, because of differences in age, culture, and job hazards.

In conclusion, a good health would benefit from individual's health maintenance and quality of medical services. Therefore, healthcare providers should always keep public's demands in mind. A careful health management by the providers should strike a balance between the demand and quality of services.

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References

- Black WC, Welch HG (1997). Screening for disease. *Am J Roentgenol*, **168**, 3-11.
- Bureau of Health Promotion, Department of Health, ROC (2011). <http://www.bhp.doh.gov.tw/BHPnet/English/Class.aspx?Sub=publications>.
- Burt BA (1994). Periodontitis and aging: reviewing recent evidence. *J Am Dent Assoc*, **125**, 273-9.
- Canadian Task Force on the Periodic Health Examination. The periodic health examination (1979). *Can Med Assoc J*, **121**, 1193-254.
- Cheung BMH, Jeng KCG, Lau YJ (1999). Screening for diseases in elderly persons: the correlation between physical checkup findings and chief complaints. *Gerontology*, **45**, 283-8.
- Council on Scientific Affairs (1983). Medical evaluations of healthy persons. *JAMA*, **249**, 1626-33.
- Frame PS, Carlson SJ (1975). A critical review of periodic health screening using specific screening criteria. Parts 1-4. *J Fam Pract*, **2**, 29-36, 123-9, 189-94, 283-9.
- Laine C (2002). The annual physical examination: needless ritual or necessary routine? *Ann Intern Med*, **136**, 701-3.
- Medical Practice Committee, American College of Physicians (1981). Periodic health examination: a guide for designing individualized preventive health care in the asymptomatic patients. *Ann Intern Med*, **95**, 729-32.
- Mehrotra A, Zaslavsky AM, Ayanian JZ (2007). Preventive health examinations and preventive gynecological examinations in the United States. *Arch Intern Med*, **67**, 1876-83.
- Merenstein D, Daumit GL, Powe NR (2006). Use and costs of nonrecommended tests during routine preventive health exams. *Am J Prev Med*, **30**, 521-7.
- Moll van Charante E, Giesen P, Mokkink H, et al (2006). Patient satisfaction with large-scale out-of-hours primary health care in The Netherlands: development of a postal questionnaire. *Fam Pract*, **23**, 437-43.
- Niles N, Tarbox G, Schults W, et al (1996). Using qualitative and quantitative patient satisfaction data to improve the quality of cardiac care. *Jt Comm J Qual Improv*, **22**, 323-35.
- Oboler SK, Prochazka AV, Gonzales R, Xu S, Anderson RJ (2002). Public expectations and attitudes for annual physical examinations and testing. *Ann Intern Med*, **136**, 652-9.
- O'Malley PG, Greenland P (2005). The annual physical: are physicians and patients telling us something? *Arch Intern Med*, **165**, 1333-4.
- Paddock LE, Veloski J, Chatterton ML, Gevirtz FO, Nash DB (2000). Development and validation of a questionnaire to evaluate patient satisfaction with diabetes disease management. *Diabetes Care*, **23**, 951-6.
- Prochazka AV, Lundahl K, Pearson W, Oboler SK, Anderson RJ (2005). Support of evidence-based guidelines for the annual physical examination: a survey of primary care providers. *Arch Intern Med*, **165**, 1347-52.
- Roter DL, Stewart M, Putnam SM, et al (1997). Communication patterns of primary care physicians. *JAMA*, **277**, 350-6.
- Schauffler HH, Rodriguez T, Milstein A (1996). Health education and patient satisfaction. *J Fam Pract*, **42**, 62-8.
- Solomon DH, Schaffer JL, Katz JN, et al (2000). Can history and physical examination be used as markers of quality? An analysis of the initial visit note in musculoskeletal care. *Med Care*, **38**, 383-91.
- Stange KC, Kelly R, Chao J, et al (1992). Physician agreement with US Preventive Services Task Force recommendations. *J Fam Pract*, **34**, 409-16.
- Tudiver F, Brown JB, Medved W, et al (2001). Making decisions about cancer screening when the guidelines are unclear or conflicting. *J Fam Pract*, **50**, 682-7.
- van Walraven C, Goel V, Austin P (2000). Why are investigations not recommended by practice guidelines ordered at the periodic health examination? *J Eval Clin Pract*, **6**, 215-24.
- Wachter RM, Katz P, Showstack J, Bindman AB, Goldman L (1998). Reorganizing an academic medical service: impact on cost, quality, patient satisfaction, and education. *JAMA*, **279**, 1560-5.
- Weingarten SR, Stone E, Green A, et al (1995). A study of patient satisfaction and adherence to preventive care practice guidelines. *Am J Med*, **99**, 590-6.
- White B (1999). Measuring patient satisfaction: how to do it and why to bother. *Fam Pract Manag*, **6**, 40-4.
- White E, Urban N, Taylor V (1993). Mammography utilization, public health impact, and cost-effectiveness in the United States. *Annu Rev Public Health*, **14**, 605-33.