ORIGINAL ARTICLE

SYSTEMATIC REVIEW OF FACTORS ASSOCIATED WITH WILLINGNESS TO PAY FOR HEALTH FINANCING SCHEME

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ABSTRACT

Health care has emerged as one of the fastest growing industry worldwide. This induced health care costto rise tramendously. However, it is important to preserve high quality health care services that are equitable and affordable. In many countries, people are expected to contribute to the cost of the health care. Are populations ready to accept the concept and willing to pay for health financing scheme? What possible factors that may associate with their decision? This is the objective of the study, to examine the relevance evidence for this through a systematic review of literatures.We systematically searched Ovid MEDLINE and Google Schoolar databases until April 2016. We assessed the study population willingness to pay for health financing scheme and determine the significant variables that associate with WTP. 19 full-text articles were included in the review. Factors that were found significantly associated with WTP for health financing scheme by many studies were age, education, income and residential locality. Other factors that also found associated with WTP were health care services utilization and expenditure. The review findings showed that WTP for health financing scheme is beyond the households' financial capacity and has multifactorial influences.

Keywords: *Willingness to pay, health financial scheme, health insurance, social health insurance*

INTRODUCTION

The rising of the new millennium will indeed be challenging times for health care globally.Healthcare has emerged as one of the fastest-growing industries worldwide. As countries become richer, the expenditure on the healthcare rise but the capacity or perhaps the willingness to increase does not commensurate with the increased demand. Throughout the world, healthcare systems are facing major challenges as they struggle to meet rising demand with limited resources. In many countries, people are expected to contribute toward the cost of the healthcare. Spending in health services is affecting various groups at various levels in the health service funding scheme. The issues of healthcare cost continue to increase and cost-sharing is often disputed. Over the years, in different countries all over the world, different issues have confronted national government and citizens with respect to challenging their daily survival.

One of the most pressing issues, which had been confronting nations would be those associated with healthcare in general, and access to such services in particular. With the differences in the living conditions of people, it is also apparent that they have significant differences when it comes to their willingness to pay (WTP) for different healthcare services. In view of these differences, there have been strategies, which were pursued by several sectors calling for equality in access to such services. It is important to preserve high-quality healthcare services that are equitable and affordable. Something to consider in analyzing the government's approach is to emphasis on individual responsibility of health and ability to lighten the burden of the disease.

In many developing countries, people are expected to contribute toward the cost of healthcare from their own resources. As a result, ability to pay for healthcare has become a critical policy issue in developing countries. WTP may not reflect an ability to pay. Households face combined user fee burdens from various essential service sectors. Households may have no choice but pay for their health care services. They might try to mobilise resources they needed by sacrifying other basic needs[1]. Exchange and health transition in some elements is something that cannot be avoided by people in making choices. There are several systems of healthcare service payment/ healthcare

financing that being use and implement in countries worldwide. One of the policy options to reduce the financial burden on the government is by establishing a national health financing scheme or social health insurance as an alternative to taxation in the health care financing system to pool the health resources and provide universal financial risk protection. Furthermore, government still contributes a potion of money to the scheme. It distinguishes different sources of financing, which can help people have access to healthcare such as through subsidies and allocations, which will come from the government, reimbursements of out-of-pocket healthcare expenses for employees of private organizations, and health insurance[2].

For this scheme to assume effectiveness and efficiency, there is also a need for cooperation and participation coming from everyone who pools the said fund, and also there is a need for a cross-subsidy for the lower-income groups, to be assured that they will not be deprived of the healthcare services which are appropriate for every citizen[3]. When people are willing and able to pay for the universal financial risk protection in such scheme, they are able to gain both access to services and risk protection. With access to services, it means that there is a presence of the minimum equality with regards to the use of healthcare services, without any emphasis given on socioeconomic or income groups. Furthermore, with regards to risk protection, it is to be assured that people do not pay skyrocketing amounts in order to possibly get hold of socially-acceptable and equal healthcare services[4].WTP is one of the important economic values.Many studies have stated that, measuring willingness to pay is a mechanism to draw out the value from the respondent. WTP can be obtained or assessed in many ways: direct and indirect measurements; open-ended or close ended question[5,6,7].

There are many factors, which known to be important factors that may contribute to WTP of an individual. This study would examine the relevance evidence for this through a systematic review of literatures.

METHODOLOGY

Database & sources

We searched Ovid MEDLINE and Google Schoolar databases. Lists of all relevant studies from 1995 until week 4, April 2016 was screened.

Search keywords and terms

Our search of database used the following keywords “willingness to pay," “readiness to pay” and“healthcare," “health care," care”, “healthcare insurance," “healthcare financesscheme," “healthcare finance,"“social health insurance," “community health insurance." All sub-terms were also included, and we limited the search to studies published in English.

Inclusion & exclusion criteria

To examine factors associated with WTP for health financing scheme, studies of any relevant design were includedif they studyWTP for a health financing schemefor the study specific outcome, and at least socio-demography, soci-economic status and more factors as their study independent variables. We excluded studies without a full-text article.

Procedure

Titles and abstracts were screened for relevance, and full-text versions obtained where appropriate for assessment to the inclusion and exclusion criteria. For each study included, study methodology, study population location, time period, exposure variables were considered. The main results from each study were also recorded - in particular, the maximum value of willingness to pay for health financing scheme and factors associated with it. Flowchart of the searched studies was shown in Figure 1 below.

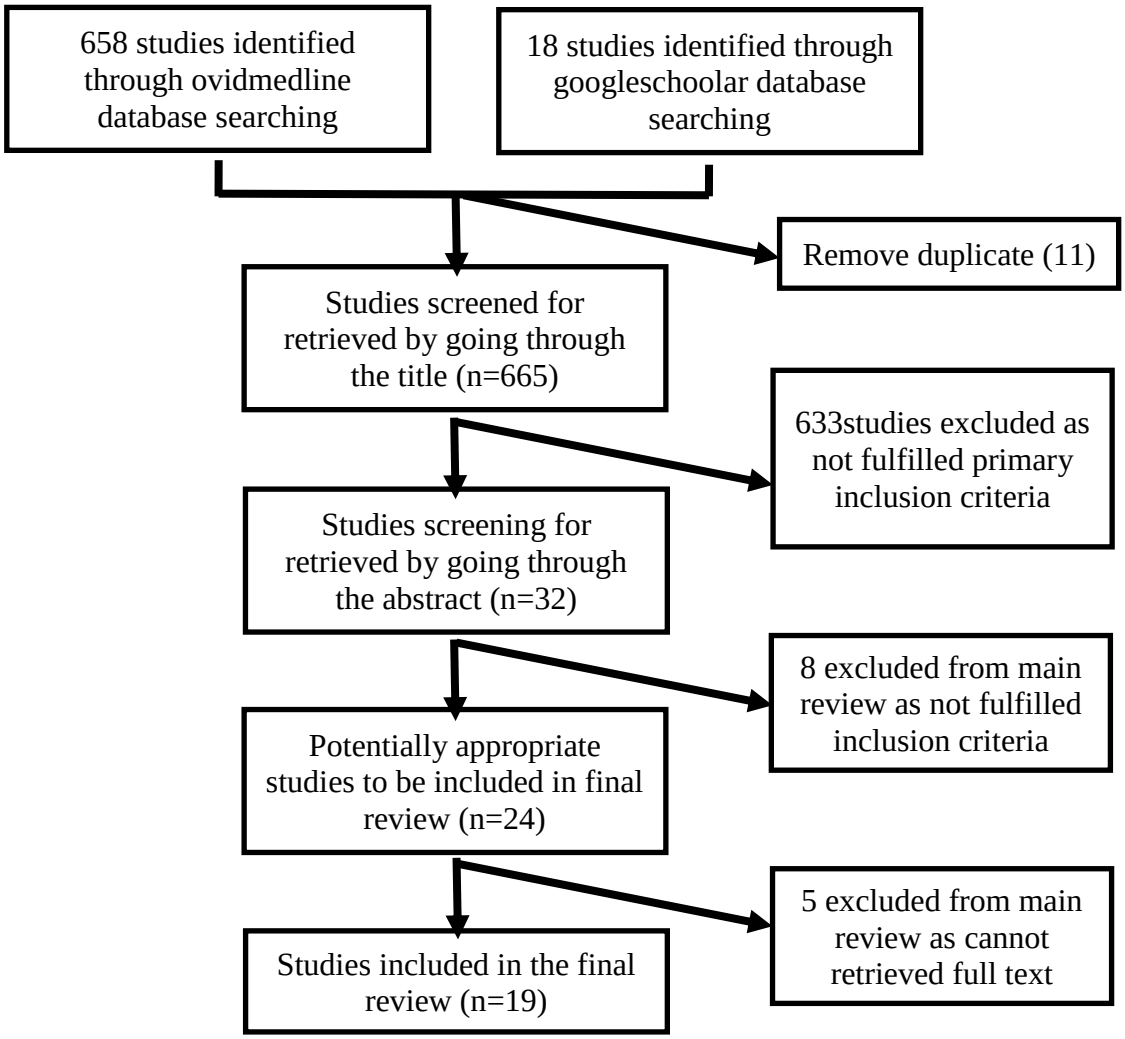

Figure 1: Search results and selection of studies for systematic review.

RESULTS

Description of included studies

Of 676 studies identified, 658 studies were through Ovid Medline database searches and another 18studies were via googlescholar. After screening the titles and abstracts, 19 full-text articles were included for the final review. All 19 were original articles. Table 1 showed the summary of the studies characteristic that was involved in this systematic review.

Table 1: Characteristic of studies involved.

No	Study	Method	Population Location & Country	Time period	Type of health financing scheme
1	Eckerlund et al. 1995	Open ended, Bidding game and Contingent valuation	Swedish population, Sweden	August 1993	Swedish health care budget
2	Asenso-Okyere et al. 1997	Focus group discussion, In-depth interview and Contingent valuation	Eastern Region of Ghana	1992	National health insurance
3	Asgary et al. 2004	Bidding game and Contingent valuation	Iran	2001	Health insurance
4	Dong et al. 2005	Contingent valuation	Nouna, Burkina Faso	2001	Community-based health insurance
5	Zhang et al. 2006	Contingent valuation	Fengsan Township, China	2002	Community-based health insurance
6	Barnighausen et al. 2007	Contingent valuation and payment card	Wuhan City, China	Sept 1999-Jan 2000	Social health insurance
7	Lang and Lai 2008	Contingent valuation	Taiwan	2003	National health insurance
8	Gustafsson-wright et al. 2009	Contingent valuation	Namibia	2008	Health insurance
9	Onwujekwe et al. 2010	Contingent valuation	South-Eastern Nigeria	2007	Community-based health insurance
10	Ghosh and Mondal 2011	Bidding game and dichotomous choice	Navi Mumbai	2009	Health insurance
11	Donfouet and Makaudze 2011	Contingent valuation	Rural Cameroon	2009	Community-based health insurance
12	Aizuddin et al. 2011	Open ended question	Farmers in Selangor, Malaysia	2004	National health financing scheme
13	Oyekale 2012	Yes No	Osun State, Nigeria	2007	National Health Insurance
14	Goudge et al. 2012	Yes No	South Africa Ghana Tanzania	2008	National Health Insurance
15	Usman 2013	Close and open ended question	Osun State, Nigeria	2006	Community based health financing scheme
16	Almualm et al. 2013	Exlored using Scale 1-6	Kuala Lumpur, Malaysia	2012	National health insurance
17	Shafie and Hassali 2013	Open ended, bidding game and contingent valuation	Penang, Malaysia	2009	Community based health insurance
18	Nosratnejad et al. 2014	Contingent valuation	Iran	2010	Social health insurance
19	Tesfamichael A. et al. 2014	Bidding game	South-central Ethiopia	2012	Social health insurance

As shown in the above table 1, majority of these articles were using contingent valuation as WTP measurement. All studies were on WTP for any

Factors associated with WTP for health financing scheme

Many studies showed that there were many factors associated withWTP for health financing scheme. Among all socio-demographic factors, many studies found age have significant association with WTP for varies of health financing scheme. Majority of studies found that age has significantly negative association with WTP. WTP for health financing scheme was decreasing in trend with increasing in age[7,8,9,10,11,12,13]. However, there were few studies found that age had positively associatedwith WTP for health financing scheme[14,15,16,17]. There were also studies found that age did not have any statistically significant association with WTP for health financing scheme[18,19,20,21,22,23,24,25].

Besides age, education was one of the important socio-demographic factors that frequently studied and found significantlyassociated with WTP for health financing scheme in many studies. Almost all studies revealed positive relationship, WTP for health financing scheme was higher among higher education level groups[7,8,9,10,13,14,15,16,17,19,20,21,23,24,25]. Only 3 studies revealed education was not significantly associated with WTP for health financing scheme[11,12,22]. None of studies reviewed found negative correlation.

Majority of the studies found that gender has significant association with WTP for health financing scheme. Number of studies showed WTP for health financing positively related with gender, higher WTP for health financing scheme among males compared to females[7,8,13,17,19,20]. Only Barnighausen et al. found vice versa, females were more willing to pay than males[9]. However, there were few studies found there were no strong relationship between gender and WTP for health financing scheme[11,12,15,16,18,21,22,24].

There was few researches studied marital status as independent factor with WTP for health financing scheme. Numbers of studies revealed that married people was more willing to pay for health financing scheme[8,17]. Only Lang and Lai, and Tesfamichael et al. found vice versa, married respondents were less willing to pay for health financing scheme than unmarried, divorved, or windowed respondents[16,25]. Few studies found there was no significant difference WTP for health financing scheme between married and unmarried repondents[15,19,22,23,24].

There was very few research studied ethnicity with WTP. Shafie and Hassali done an exploratory study in Penang, Malaysia, found that Chinese were more willing to pay for health financing scheme compared to non-Chinese[23].

form of health financing scheme either social health insurance or community health insurance or national health insurance or health insurance.

Few researches studied household size or dependency size or number of children or dependency ratio in relation with WTP for health financing scheme. Many studies reavealed that there was no significant association between WTP for health financing scheme and household size or dependency size or number of children or dependency ratio[7,11,12,14,15,17,20,22]. There are only two reviewed studies revealed their finding that as the number dependency ratio increased, WTP for health financing scheme reduced[19, 24]. None of studies reviewed, found positive association between WTP for health financing scheme and household size or dependency size or number of children or dependency ratio.

Among all socio-economic factors, many studies revealed that income have significant association with WTP for varies of health financing scheme. Almost all studies revealed significant positive association, that WTP for health financing scheme increased with increased of income[7,8,9,10,11,13,15,16,17,18,19,20,21,23,24]. There is only two reviewed studies revealed finding, income has no significant association with WTP for health financing scheme[12,22]. None of reviewed studies revealed negative association between WTP for health financing scheme and income.

Residential locality was one of important factors studied by many researches in relation to WTP for health financing scheme. Number of reviewed studies, revealed that WTP for health financing scheme were positively related to geographic location, respondent's resident in rural areas led to decrease WTP[8,13,14,20]. However, few other studies found differently, those who live in rural areas were significantly willing to pay for health financing scheme more as compared to those who live in the urban areas[17]. There were also studies found that there was no strong relationship between the area of residence and WTP for health financing scheme[16,19,22].

Besides all above factors, there were also other factors being studied associated with WTP for health financing scheme especially factors related with healthcare utility, healthcare services and few more. There was few studies revealed that health care expenditures has positive association with WTP for health financing scheme, as recent health care expenditure increased, WTP for health financing scheme increased[8,9,15,19]. The existence of health care unit, full time physician in the

village, distance to the nearest city with hospital and satisfaction from health care facilities in the nearest city also found to have positive and significant influenced on WTP for health insurance by Asgary et al. (2004) and Dong et al. (2005). Zhang et al. (2006) found slightly different, distance from home to village health post is negatively associated with WTP but distance from home to the country hospital is positively association with WTP for health financing scheme[8,14,15]. Usman (2013) found health care distance has negative association on WTP for health financing scheme[17]. Having a disease or have higher frequency of falling sick also found to have negative significant association with WTP for health financing scheme or lower probability[12,23].

In contrast, Ghosh &Mondal (2011) found that there was significant positive impact of incidence of inpatient episodes with WTP for health financing scheme, households which experienced a hospitalization episode in the past one year or presence of morbidities were more WTP for health financing scheme[21]. Nevertheless, there was few studies found that the health status variable does not affect the decision of the respondents WTP for health financing scheme[7,11,16,22,24]. Donfouet and Makaudze in their study in Cameroon and Tesfamicheal et al. also found that households who are knowledgeable about proposed health financing scheme tend to be more willing to pay[11,25].

Amount WTP for health financing scheme

Majority of the studiesrevealed the amount of WTP for health financing scheme in theirown country currency. We try to convert it into current USD exchange rate for standardisation. Table 2 showed the summary of the studies findings amount WTP for health financing scheme.

Majority of studies showed in the table 2 revealed the WTP for health financing scheme amount per month. Only two studies gave annual WTP amount. There were twostudies did not measured WTP amount specificly.Only four studies calculated percentage of WTP per monthly income.

DISCUSSION

Assessing the factors associated with household WTP for health financing schemewas the systematic review main objective. Factors that were found significantly associated with WTP for health financing scheme by many studies were age, education, income and residential locality. Other factors that also found associated with WTP were health care services utilization and expenditure.

These review revealed that younger age individuals were more willing to pay for a health financing scheme compared to older individuals[7,8,9,10,11,12,13]. It was discussed in many studies that younger age individuals were more motivated to change for better health services, more educated and have more financial support to purchase. These findings were also consistent with education level factor. Almost all studies reported that individuals with a higher-education level were more willing to pay compared to individuals with lower education level[7,8,9,10,13,14,15,16,17,19,20,21,23,24,25].It was explained that higher-education level was related with more knowledgeable, understand more and value more the scheme.

Almost all studies reviewed published higher income households have higher WTP for health financing scheme compared to lower income households[7,8,9,10,11,13,15,16,17,18,19,20,21,23,24]. Increased households' income were empowered the households to purchase more education and knowledge, and encourage them to seek more and better healthcare options.

Households that stayed in rural area were revealed by many studies to be less willing to pay compared to households who stay in urban area[8,13,14,20]. It was discussed that those stayed in rural area, majority were farmers who earn less, less educated and highly dependent on subsidy from the government.

These review also revealed that WTP for a health financing scheme was beyond the households' financial capacity. Numbers of studies reported that factors such as healthcare utility or expenditure also influenced individuals' decision on WTP for a health financing scheme. In which, individuals who have higher healthcare utilization or expenditure were willing to pay more for a health financing scheme[8,9,15,19]. It was discussed that it may be due to a health financing scheme offered more choices and better of healthcare services to fulfill their high demand for healthcare services and also safety net. WTP is a basis in determining the population acceptance and their aggreement to contribute for health financing scheme.

Table 2: Amount WTP for health financing scheme

No	Study	Amount WTPin own country currency	Exchange rate USD as of February 2017	Amount WTPin USD	Percentage of monthly income
1	Eckerlund et al. 1995	SEK635/ month	1 SEK = 0.111488 USD	70.7951USD	NS
2	Asenso-Okyere et al. 1997	¢4000/ month	1 GHS = 0.219065 USD	876.258USD	1.7%
3	Asgary et al. 2004	22,044rials/ month	1 IRR = 0.0000308600 USD	0.680278 USD	NS
4	Dong et al. 2005	9769 CFA / month	1 XOF = 0.00160996 USD	15.7277USD	NS
5	Zhang et al. 2006	10 Yuan annually	1 CNY = 0.145386 USD	1.45386USD	NS
6	Barnighausen et al. 2007	30RMB / month	1 CNY = 0.145386 USD	4.36129USD	4.6%
7	Lang and Lai 2008	NT$100 / month	1 TWD = 0.0324825 USD	3.24825USD	NS
8	Gustafsson-wright et al. 2009	NAD61 / month	1 NAD = 0.0769799 USD	4.69577USD	NS
9	Onwujekwe et al. 2010	260Naira / month	1 NGN = 0.00317720 USD	0.826073USD	NS
10	Ghosh and Mondal 2011	NS	-	-	0.98%
11	Donfouet and Makaudze 2011	1011.356CFA / month	1 XAF = 0.00160922 USD	1.627498USD	2.15%
12	Aizuddin et al. 2011	RM2.00 / month	1 MYR = 0.224795 USD	0.449590USD	NS
13	Oyekale 2012	N100 / month	1 NGN = 0.00317720 USD	0.317720 USD	NS
14	Goudge et al. 2012	NS	-	-	NS
15	Usman 2013	Urban 1798.90 Naira / year Rural 721 Naira / year	1 NGN = 0.00317713 USD	5.71534USD 2.29097USD	NS
16	Almualm et al. 2013	RM20 / month	1 MYR = 0.224744 USD	4.49489USD	NS
17	Shafie and Hassali 2013	Int$114.38 / month	1 MYR = 0.224746 USD	25.7065USD	NS
18	Nosratnejad et al. 2014	137 000Rials / month	1 IRR = 0.0000308600 USD	4.22783USD	NS
19	Tesfamichael A. et al. 2014	NS	-	-	NS

This systematic review revealed that the range of WTP for health financing scheme were between 1-5% of household monthly income. These rates are comparable with the current rate for Social Security Organization (SOCSO) in Malaysia, Employment Injury Insurance Scheme and Invalidity Insurance Scheme. The contributions are employer's contribute 1.75% (1.25% for Employment Injury and 0.5% for Invalidity) and employee contributes 0.5% for Invalidity Insurance Scheme[26]. It is also comparable with other countries experiences. In Indonesia, people in formal employment paid 5% of their monthly salary as premium which 4% paid by the employers and only 1% paid by employees for Jaminan Kesehatan Nasional (JKN)[27,28]. In Thailand, private employees paid 1-1.5% of their monthly payroll and employer paid 0.2-2% for Public Health Protection Schemes[29]. In Philippine, formal sector, their monthly contributions are at a prescribed rate set by the Corporation which not exceeding 5% of their respective basic monthly salaries and to be shared equally by the employer and employee for National Health Insurance Philippine[30]. In Taiwan, their country insurance premium rate is 4.91% since 2013 based on basic salary payroll and category for National Health Insurance[31].

From a country policy maker's point of view, the amount of WTP for health financing scheme demonstrated in this systematic review can be used as a reasonable premium to be set up for any proposed health financing scheme for their country.

CONCLUSION

The findings of this systematic review demonstrated that WTP for health financing scheme predicted by many factors such as socio-demographic, socio-economic and health utilization factors.

For researches, the findings of factors associated with WTP for health financing scheme that have been revealed can stimulate them to study those factors in their country and formulate a proposed model to be used in planning national or social or community based health financing scheme for their country. This knowledge also will help the government to plan better evidence based national or social or community health financing scheme to secure the needed group from catastrophic health expenditure and enhance the fair utilization of healthcare services provided to all for more equitable healthcare. It isrecommended that all the important associated factors found in individual country to be considered as the eligibility factorsin the implementation of national or social or community based health financing scheme in future.

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