A systematic review to assess the impact of the Elderly Health Care Voucher Scheme (EHCVS) and the feasibility to fully adopt in Hong Kong elder care services

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Systematic Review

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Abstract

Background: Finding a solution to tackle the overcrowding and over-reliance on public health care services has been a policy agenda of the Hong Kong Government throughout the past decade. The purpose of this review is to provide valuable insight for policymakers to understand whether the Elderly Health Care Voucher Scheme (EHCVS) is a realistic policy tool to shift service demand from the public to the private sector and its possibility to apply in other similar publicly funded settings.

Methods: Included records in this review were selected through CINAHL, PubMed, and Google Scholar peer-reviewed articles databases and nine targeted government websites. All potential records were assessed based on the prespecified inclusion and exclusion criteria. Thematic synthesis was used to combine the extracted data and to construct key themes of the impact of the EHCVS.

Results: The findings highlight some of the successes of the policy that focus on strengthening the connection between government, elders and private health care providers, and improving the quality of acute care. However, less than successful elements that require revision include designing the purpose of voucher for preventive care and disease management and shifting elders from the public to private health sector through financial incentives. Overall, the analysis suggested the financial subsidies have not motivated elders to utilise private health care services, but rather it demonstrates an effort by the Hong Kong Government to begin addressing public health care waiting lists while prioritising quality care for senior citizens throughout the last 10 years.

Conclusion: Better consideration of the subsidy amount to remove the financial burden of the older population, along with greater information disclosure and promotion may increase elders’ willingness to utilise private elder care services, potentially improve the quality of life for seniors, and ultimately reduce the burden on public elder care sector in the future.

Background

Facing challenges associated with population ageing, a crowded public health sector and a constant shortage of health workforce, the government of Hong Kong instigated a Private-Public Partnership (PPP) initiative in 2008. Under the PPP, the government developed seven programs to reduce the burden and workload in the public health care sector [48]. These initiatives were projected to increase the quality and efficiency of health service delivery in government-funded health facilities by building greater connection and collaboration with the private health sector to ultimately benefit the health of the population [26, 29, 48]. The Elderly Health Care Voucher Scheme (EHCVS) was introduced on 1 January 2009 as one of the strategies under the PPP [6, 48].

The situation of imbalance between public and private health care sector

Although Hong Kong was transferred to the Chinese Government over 20 years ago, significant elements of the English health care system remain [22]. The health care system of Hong Kong continues to run on a dual-track basis, which provides comprehensive health care services to all citizens that are free-of-charge or at a minimal cost while allowing private health care providers to set their own fee schedules and deliver health care services tailor to consumers’ needs [22, 29]. Since there are no price controls at private health care sector, the cost of care in the private sector often tenfold the money being spent on public sector care provision [22]. The lack of health care price transparency and the unpredictable cost has resulted in 90% of the Hong Kong population relying on public health services, whereas only 10% of the population is willing to seek, or indeed can afford to seek, health services through the private sector [22, 26, 50]. Despite the significant wait times and questions regarding the quality of care when compared with the private sector, the public sector still appears to be more attractive to those from lower socioeconomic status, older age groups, and those without additional private insurance [22]. As the pressure on the public health sector has consistently increased, and the negative emotions emerged within and outside of the public health sector, the new government adopted the PPP model as a bridge to allow private health service providers and the government agency to collaborate and deliver health services to the population over the long term [5, 48]. Through PPP, the public sector can share health care expenditures with private health service providers, which further reduce the financial burden to the Hong Kong Government [26, 48].

Subsidising private primary health care services for Hong Kong' older persons

Choosing to subsidise the senior adults of Hong Kong was primarily due to the traditional Chinese cultural value, Xiao (i.e., filial piety), which emphasises the responsibility of individual, households, and society to look after the elders to commend their contribution to the society [6]. Another undeniable truth is that senior adults, aged 65 years or over, are the primary users of public health care services [50]. For instance, Yam and colleagues [50] discovered 51% of hospitalised patients in public hospitals on the same day were aged 65 years and over. Half of the hospital patients who are senior adults suggest older adults often have greater needs for health services due to multiple chronic conditions and various types of physical and mobility impairment. However, the existing social allowances provided to elders seen to be insufficient and only in the interests of the most disadvantaged as applicants are required to satisfy a means test [4]. The premise of the EHCVS is centralised around
incentivising and hence shifting the care services for older persons to the private sector to improve public sector responsiveness and efficiency [50]. Further, it was also projected the scheme might reduce the number of patients waiting for treatment and increase the quality of care and patient satisfaction with public sector providers [29]. The idea of implementing a voucher mechanism to support the older population of Hong Kong was also seen as a tactic for the Chief Executive of Hong Kong back in 2008, which was believed to be politically favourable for an upcoming election [48].

**How the intervention might work for elder care services**

**Implication of the EHCVS**

Successful implementation of the EHCVS would likely induce behavioural change among older Hong Kong citizens [17]. Most of the senior population began to utilise private health care services rather than remain dependent on public health care services [24, 26]. The shift can ultimately lessen the burden, shorten the waiting list of the Emergency Department, and allow limited resources, such as health finance, hospital beds, and health workers, to be allocated to emergency patients in the public health care sector [24, 26].

**The feasibility of fully applying the voucher system in elder care**

The existing EHCVS only allows elders to apply vouchers to aged-care services to a certain extent. Elders are not allowed to use their voucher to purchase private residential home service, respite service, elderly support service (carer who aids elders in various activities of daily living), and medical supplies and incontinence aids [20, 38]. The factors that contribute to the above restriction were simply because other types of financial subsidies/allowance provided by the government under the Social Welfare Department (SWD) are available to support elders with financial hardships [32]. However, older adults living with their family often failed to pass the mean test or were denied subsidies or allowances after considering household income [7].

**Community care and residential care services**

At the beginning of 2019, 12,300 applicants were on the waitlist for government-funded community care services and 40,434 applicants were waiting for government-funded residential home care services, with an average wait time of 1.5 years and 3 years, respectively [7, 32, 33, 34]. Often, some elders die while waiting for placement in aged-care facilities. Although private aged-care homes also required applicants to wait for 9 months, there is a higher capacity (51,299 beds) for private elderly care sector to provide services to elders compared to the 23,422 beds subsidised by the government [31]. In addition, elders with greater financial ability can purchase private community care services at HK$9,000 per month in approximately 80 day-care centres/social care centres with a shorter waiting time [25]. Nonetheless, most low-income older adults view private aged-care services as unaffordable [32]. Without a subsidy, elders are less willing or are unable to afford to pay for private aged-care services, which indirectly forces them to stay in the public system.

**Elderly support services**

Apart from residential and community care services, different types of assistance services are also in favour of most senior citizens who live alone. In Hong Kong, more than 13% of the 1.1 million senior adults choose to live independently in community dwellings [36]. Elders who cannot function properly often require someone to assist with their daily life activities, such as meal delivering, housecleaning, assisted bathing, and accompanying them to medical appointments. Similar to any other aged-care services subsidised by the government, government-funded support services not only require elders to wait at least 3 months to more than 1 year after the application, but also demand elders to pay for the tools and travel expenses for the support teams or volunteers [35]. In other words, elders did not have a full subsidy for support services. Due to the above reasons, many elders would rather seek support services from private and self-financed organisations [47]. However, the service charge ranging from HK$62 to HK$160 per hour from private organisations creates a significant burden for elders to purchase the services for the long term. Often, elders need to spend approximately HK$248 to HK$640 on support for a 4-hour consultation in the public hospital [10]. Therefore, adding the choice of applying the voucher to support services would allow elders to purchase services at least 18 times with an average of HK$111 under the current grant of HK$2,000 per annum.

**Medical supplies and equipment**

Under the current EHCVS, elders are also prohibited from purchasing any medical equipment and incontinence aids with the voucher [20]. Members of the Legislative Council proposed expanding the service provision to include purchasing medical supplies and equipment during the first phase of the EHCVS [41]. Due to concerns about double subsidies provided to elders and preventing self-prescribing, the Chief Secretary for
Administration rejected the members’ suggestion [17, 39, 41]. However, the fact is that institutionalised elders hardly use their voucher outside of the aged-care home, and therefore allowing this group of elders to purchase incontinence supplies with the voucher, such as ostomy bags or diapers, could be more beneficial than saving the financial subsidy. This adjustment does not only benefit elders in residential homes but also elders who are living independently or with their partner and require continence and incontinence aids to manage their daily life. Although the existing disability allowance has covered some of the medical supply expenses for elders, applicants are required to obtain proof of their disability or medical condition [9]. The high eligibility rules of disability allowance along with the low monthly payment of HK$1,770 to HK$3,540 per month, was shown to be insufficient for elders with stoma to cover the costs of essential medical products, such as stoma glue and powder as well as afford better quality of ostomy bags [9]. Providing the choice of purchasing health care necessities with the voucher will allow greater flexibility of voucher usage tailored to the elders’ actual needs as well as offer a solution to long-standing policy issues—endless waiting times in public health and elder care services.

The importance of conducting a systematic review

Although the EHCVS has been implemented in Hong Kong for 10 years (2009—2019), no systematic review has been conducted to obtain a complete picture of the impacts and effectiveness of the EHCVS over this period to allow health policymakers to assess and reflect on policy implementation. This systematic review will enable policymakers to recognise the strengths and weaknesses of the EHCVS, support adjustments to increase the potential success of the policy, and allow for policy diffusion into elements of aged-care reform in Hong Kong. Although the discussion in this paper is restricted generally to elder care, many of these lessons may also apply to other settings.

Methods

Identification of studies

Before undertaking the literature search, a Population, Intervention, Comparisons, and Outcomes (PICO) model was adopted to ensure clear definition of the research question and subsequent inclusion and exclusion parameters for identified papers [19]. The search was divided into two categories: peer-reviewed journals and searches of targeted sites. Both of the searches were conducted and completed at the beginning of March 2019. For peer-reviewed journals, three search engines were used: CINAHL, PubMed, and Google Scholar. Medical Subject Headings (MeSH) were utilised to identify alternate phrasing and synonyms for each component of the PICO [20]. All search terms were built on the key components of the PICO, which includes the older population of Hong Kong, voucher*, financial incentive*, impact* on elders. A detailed search strategy can be found in Supplementary file 1. A BOOLEAN operators was employed to combine the keywords of the search, ensuring a comprehensive yet focused search [19]. In the initial search process, 888 articles were identified in CINAHL and PubMed, 30 articles were discovered in the Google Scholar engines.

Screening

Peer-reviewed journals

After performing the initial search process in the three search engines, all potential studies were exported to a reference management software, Endnote, to store the potential records and perform the screening task [19]. The built-in function of Endnote firstly removed 46 duplicate records. Each title was screened based on the search plan shown in Table 1 to identify potentially relevant studies for the review. In this stage, 3 of 842 records in the two academic databases were identified as related to the review, and 19 records in the Google Scholar engine met the eligibility criteria for further screening.

Searches of targeted sites

The Health Care Voucher website, established by the Health Care Voucher Unit under the Department of Health, was the primarily targeted website for grey literature as it is a central information platform for the scheme [20]. A scan through the health care voucher website and related links under the resources corner were performed to identify potential publications meeting the search criteria shown in Table 1. In one of the related links — Elderly Health Service all websites of elderly service departments and agencies were discovered. Seven of 23 sites on this web page were chosen for screening, which was believed to have a linkage with the development and implementation of the EHCVS. These included the Department of Health (DH), Central Health Education Unit, Healthy HK, Primary Care Directory, Elderly Commission, eElderly, and Hospital Authority. Scanning of the page list and publication corner was performed on the above websites referring to the search plan. The Legislative Council website was later selected for inclusion in the study after examining the press release announced in the DH website. Instead of using the press release records in the DH website, a keyword search, which utilised a combination of Elderly Health Care Voucher, English, Paper, after
2009 and before 2019, and sorted by Title was performed in the search engine of the Legislative Council website to ensure comprehensive inclusive or relevant articles. ‘Paper’ was then replaced by ‘Documents’ in the search engine to discover if any publications pertinent to the review. A total number of 24 records were considered eligible for the second stage of the screening process.

In the second screening stage, all eligible records were screened using the table of contents, summary, or abstract to confirm their relevance to this study. If studies were unsure whether it met the eligibility criteria, a full-text review was conducted to determine final inclusion. At the end of the screening process, searching for potentially relevant articles was performed in the reference lists of all selected studies to discover if any articles are meeting the inclusion criteria.

Table 1. Search Plan for Peer-Reviewed Journals and Targeted Sites

<table>
<thead>
<tr>
<th>Category</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria only applied to peer-reviewed journals</td>
<td>All types of published academic journals</td>
<td>Journal articles that are not formally published</td>
</tr>
<tr>
<td>Criteria only applied the targeted sites</td>
<td>Published by government organizations responsible for elderly affairs, the Department of Health, Hospital Authority and the legislative council of Hong Kong (i.e. including reports and papers)</td>
<td>Publications that are in the format of letters, blogs or press releases as well as produced as communications materials, such as leaflets, posters, and brochures surrounding the EHCVS</td>
</tr>
<tr>
<td>Language</td>
<td>Written in English</td>
<td>Written in other languages</td>
</tr>
<tr>
<td>Timeframe</td>
<td>Published within a 10-year time frame (Jan 2009-Feb 2019)</td>
<td>Published out of the 10-year time frame</td>
</tr>
<tr>
<td>§ This timeframe was selected based on the January 2009 launch of the scheme and allowed for a ten-year follow-up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>EHCVS-relevant publications which include information surrounding:</td>
<td>§ Brief descriptive summaries, introductory information or updates surrounding the EHCVS</td>
</tr>
<tr>
<td>§ The impact or effectiveness</td>
<td>§ Papers that did not mention the impact of EHCVS</td>
<td></td>
</tr>
<tr>
<td>§ Consumer willingness to pay</td>
<td></td>
<td></td>
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<tr>
<td>§ Voucher utilisation</td>
<td></td>
<td></td>
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<tr>
<td>§ Stakeholder feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>§ Scheme evaluation and future improvements and recommendations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perspective</td>
<td>Studies must be involved either elders, health service providers or government bodies’ viewpoint</td>
<td>Studies does not involve either elders, health service providers or government bodies’ viewpoint</td>
</tr>
<tr>
<td>Source</td>
<td>Primary sources</td>
<td>Secondary sources, summary or review documents whereby content may be retrieved from primary sources</td>
</tr>
</tbody>
</table>

Quality Assessment

Selected studies or records in this systematic review were assessed for quality and relevance of the findings using various quality appraisal tools, including the Appraisal Tool for Cross-Sectional Studies (AXIS), the Critical Appraisal Skills Programme (CASP), the Joanna Briggs Institute (JBI) Critical Appraisal Tool, the RAMESES II Quality Standards for evaluators and peer-reviewers and the Authority, Accuracy, Coverage, Objectivity, Date, and Significance (AACODS) Checklist [12, 14, 16, 21, 43]. An additional finding box was added at the end of each appraisal tool to summarise major findings. The detailed quality appraisal tables regarding the study types are presented in Supplementary file 2.

In general, most answers for the assessment items in the quality appraisal tools were ‘yes’ or ‘excellent’ which suggested included records were credible and relevant to the research question. In particular, the two pieces of grey literature drafted in 2015 provided a comprehensive picture of the take-up rate of the EHCVS for both elders and private health service providers throughout the past 7 years. These unpublished papers not only filled the gap of the missing data in the 10 included academic studies, but also minimise the formation of conclusion bias by only considering published articles to evaluate the impact of the EHCVS on the older population of Hong Kong [19].
A 'no' was found in the three cross-sectional studies and qualitative research in the criterion of justifying of the selected population for study. This loophole may lead to bias in generalizing the effect of the intervention to the entire study population, resulting in inaccurately representing the knowledge, understanding, and perception of the EHCVS among the older adults of Hong Kong [19, 24]. However, this bias was believed to have no significant influence on the systematic review, as this issue would likely to be overcome when combining the studies in the synthesis process [19]. The samples of included studies came from different locations across Hong Kong not only offered a comprehensive picture of the impact of the EHCVS among the older population, but also enriched the content of the review. Therefore, the quality assessment process was aimed to ensure high qualities of articles were used to inform the analysis rather than to exclude unmet studies [19].

Data extraction
For all included studies, relevant data was imported into an Excel spreadsheet for information management. Relevant data was populated into the pre-set table, including the first author name and year of publication, study location or district, study design, number of participants, and major factors that are related to the impact of the EHCVS. By classifying data into different categories, it provided a clear indication of what kind of impacts are likely to be discovered across studies, which also simplified the code-building process later in the thematic synthesis process.

Data Synthesis
Thematic synthesis was adopted in the data synthesis process. The review process identified 15 relevant studies which examined the impact of the EHCVS to the older population of Hong Kong. Eligible articles were entered into NVivo qualitative data analysis software to allow secure storage, comparison, and line-by-line coding [19, 44].

Stage 1 & 2: line-by-line coding and developing descriptive themes
Line-by-line synthesis was performed twice in this study. The first time was to explore the common descriptions of the impact of the EHCVS across studies to ensure the consistency of interpretation and allow most of the data to fit into each code. This process generated 31 initial codes. Based on the primary line-by-line synthesis, a coding frame (see Supplementary file 3) was developed to identify the differences between codes, and provide a clear guide to determine themes [19]. The second synthesis was performed to categorise the broadly defined themes into specific codes regarding the coding frame. A total number of 50 specific codes were developed. The 10 descriptive themes soon became apparent after classifying relevant data into corresponding codes: Attitudes, Awareness, Application, Enrolment, Behaviour, Achievement, Utilisation, Redundancy, Government Agencies Efforts, and Information.

Stage 3: generating analytical themes
In the last step of the thematic synthesis, descriptive themes were grouped together based on their characteristics and 'going beyond' the content to think about how these themes answer the research question — the impact of the EHCVS among the older population of Hong Kong [19, 44]. The grouping of descriptive themes utilised the prevalence of data extracted from included studies (also known as the percentage of coverage) in each code to determine the major characteristic of the descriptive theme, allowing the grouping of themes with similar attributes [19, 44]. For example, 'Attitudes-negative-Elders' and 'Attitudes-negative-Providers' both had a relatively higher percentage of coverage among other sub-themes under the descriptive theme of Attitudes, which means the descriptive theme 'Attitudes' generally had a negative attribute. Therefore, 'Attitudes' was then grouped with other descriptive themes that also had negative traits, such as 'Behavioural-unchanged-Elders.' Each descriptive theme was analysed and clustered using the same approach. Three analytical themes emerged after going beyond the primary data to explain and narrate findings within and across studies [19].

Results
Results of the search
In the initial search process, 888 papers were identified in two of the academic databases, 30 papers were found in the Google Scholar engine, and 24 documents were discovered in the nine targeted government websites. There were 43 studies successfully entered during the first stage of the screening process after the removal of duplicates and performing the primary screening of heading and abstracts. During the process of primary screening, 27 studies were excluded due to failing to meet the selection criteria, including records that highlighted or summarised the same studies (n = 5), provided brief description or introduction of the EHCVS (n = 20), and published in the format of letter or for the purpose of press release (n = 2). One more record was excluded after conducting a full-text screening because it only provided a brief summary of the
EHCVS. In the final stage of the screening process, 15 studies were chosen for qualitative analysis (see Figure 1). The characteristics of the 15 studies are illustrated in Table 2.

**Table 2. Characteristics of included articles that described impacts of EHCVS (n=15)**
<table>
<thead>
<tr>
<th>First author name and year of publication</th>
<th>Study location / District</th>
<th>Study Objective</th>
<th>No. of participants</th>
<th>Response rate (%)</th>
<th>Data collection Methods</th>
<th>Methodology</th>
<th>Analysis</th>
<th>Key features identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chan et al., 2014 [3]</td>
<td>Hong Kong</td>
<td>To examine the primary health care services utilisation and assessing the health of Hong Kong people regarding the changes in socio-economic trends during 2009-2013.</td>
<td>1075</td>
<td>37.8</td>
<td>Social quality survey</td>
<td>Case series</td>
<td>Comparative analysis</td>
<td>The utilisation rate of EHCV</td>
</tr>
<tr>
<td>Chan et al., 2015 [2]</td>
<td>Hong Kong</td>
<td>To explore the association between health status &amp; demographic and influenza vaccination coverage.</td>
<td>4204</td>
<td>75</td>
<td>Population-based survey</td>
<td>Cross-sectional studies</td>
<td>Statistical analysis</td>
<td>The utilisation rate of EHCV</td>
</tr>
<tr>
<td>Cheng et al., 2018 [5]</td>
<td>Wong Tai Sin</td>
<td>To explore the utilisation rate of EHCV in general and in dental care and to understand the perceived needs of dental treatment and offer dental procedures for elders in the research settings.</td>
<td>101</td>
<td>100</td>
<td>Survey and interviews</td>
<td>Cross-sectional studies</td>
<td>Statistical analysis</td>
<td>The utilisation rate of EHCV; reasons for not using voucher; types of service use; like/dislike about EHCV; encourage the use of private primary care services</td>
</tr>
<tr>
<td>Chu et al., 2013 [8]</td>
<td>Hong Kong</td>
<td>To describe the current oral health and dental care situation in Hong Kong.</td>
<td>7,000,000</td>
<td>N/A</td>
<td>N/A</td>
<td>Case series</td>
<td>N/A</td>
<td>Like/dislike about EHCV</td>
</tr>
<tr>
<td>FHB &amp; DH, 2011 [17]</td>
<td>Hong Kong</td>
<td>To discover the utilisation rate of EHCV among elders and collect feedback from stakeholders and understand their barriers in maximising the use of EHCV.</td>
<td>N/A</td>
<td>N/A</td>
<td>Questionnaires: focus group discussions</td>
<td>Case series</td>
<td>Not stated</td>
<td>The utilisation rate of EHCV; scheme awareness; like/dislike about EHCV; types of service use; encourage the use of private primary care services; the number of providers participated in the scheme; adjustment made by the government; enhancement of the EHCV system; suggestion of expanding service area; issues confronted</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Objective</td>
<td>Sample Size</td>
<td>Methodology</td>
<td>Analysis</td>
<td>Findings</td>
<td></td>
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<tr>
<td>To examine the elder's voucher usage and the number of health service providers participated in the scheme.</td>
<td>1026</td>
<td>Opinion survey: Face-to-face interview</td>
<td>Cross-sectional studies</td>
<td>Statistical analysis</td>
<td>Reasons for using voucher; like/dislike about EHCV; types of service use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To explore the impact of EHCV and its potential for extension.</td>
<td>1164</td>
<td>Survey</td>
<td>Cross-sectional studies</td>
<td>Not stated</td>
<td>Encourage the use of private primary care services; types of service use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To discover the willingness of elders to use EHCV and make co-payment in private healthcare services.</td>
<td>45</td>
<td>Opinion survey: focus group discussions and telephone interviews</td>
<td>Cross-sectional studies</td>
<td>Not stated</td>
<td>Reasons for providers participation; like/dislike about EHCV; scheme impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gao et al., 2018 [18]</td>
<td>Hong Kong</td>
<td>To describe the oral health care situation in Hong Kong.</td>
<td>7,400,000</td>
<td>Case series</td>
<td>N/A</td>
<td>Like/dislike about EHCV</td>
<td></td>
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</tr>
<tr>
<td>Lai et al., 2018 [24]</td>
<td>Hong Kong</td>
<td>To gain an in-depth understanding of the programme from the user's perspective; to identify factors that affect the programme to achieve its goals; to explore the perception of EHCV among older people in HK and to identify ways to improve the programme.</td>
<td>55</td>
<td>Interviews: focus group discussion</td>
<td>Qualitative study</td>
<td>Constant comparison</td>
<td>The utilisation rate of EHCV; types of service use; like/dislike about EHCV; scheme awareness; encourage the use of private primary care services</td>
<td></td>
</tr>
<tr>
<td>LegCo, 2011 [39]</td>
<td>Hong Kong</td>
<td>To allow members of the legislative council to understand the findings of the Interim report and ask for member's view in extending the EHCV scheme for another three years.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>The utilisation rate of EHCV; scheme awareness; like/dislike about EHCV; types of service use; encourage the use of private primary care services; the number of providers participated in the scheme; adjustment made by the government; enhancement of the EHCV system; suggestion of expanding service area;</td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Region</td>
<td>Purpose</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>LegCo, 2012</td>
<td>Hong Kong</td>
<td>To seek advice from the members of the Legislative Council to increase the financial subsidy, monitor and promote the EHCV scheme.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LegCo, 2015</td>
<td>Hong Kong</td>
<td>To remind members about the discussion of EHCV they had between the years of 2007 to 2015.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LegCo, 2015</td>
<td>Hong Kong</td>
<td>To invite members to approve a budget for the operational expenses of EHCV in 2015-16 since the estimated expenditure was not enough to meet the need of the Scheme.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Liu et al., 2012</td>
<td>Hong Kong</td>
<td>To provide evidence of consumer's willingness to pay for private services when</td>
<td>1164</td>
<td>68</td>
<td>Face-to-face interviews and questionnaire survey</td>
<td>Cross-sectional studies</td>
<td>Statistical analysis</td>
<td>Encourage the use of private primary care services; types of issues confronted by service providers</td>
</tr>
</tbody>
</table>
they can receive services in the public sector, to investigate if financial subsidies can encourage elders to use private services.

**Included Studies**

Among the 15 selected records, 5 studies initially aimed to discover the impact and achievement of the EHCVS and address the need for changing policy direction in the future. Most of these studies used survey, interviews, and focus group discussions to gain a better understanding of the impact and effectiveness of the EHCVS from both the elders and private health service providers’ perspectives, including their attitudes, awareness, knowledge, actual take-up, and application of the voucher. Five studies mentioned the demands and attitudes of the scheme by examining different types of health care service usage and health intervention programs in Hong Kong. One study included stakeholders’ views towards the EHCVS, which primarily intended to investigate the economic impacts of changing demographics. Since these six studies did not aim to discover the impact and effectiveness of the EHCVS, only a few sentences related to the EHCVS were included in these publications. However, these studies were published in different years and therefore could provide useful clues to determine if the attitudes and the take-up rate among elders and service providers had changed over time, which helps better draw a conclusion on the impact of the EHCVS over 10 years [19]. The remaining four included articles were based on discussions held between the health agencies and members of the Legislative Council, which aimed to allow members to understand the efficacy of the EHCVS and seek members’ advice to improve the effectiveness and efficiency of the scheme. These four articles did not involve any data collection methods since all were plain summaries and descriptions of the meeting minutes.

The sample size and response rate of the 15 included papers varied. Indeed, these two components did not have a significant impact for the data and information used in this study since four of eight studies that provided a sample size and response rate were not directly examining the impact of the EHCVS; the other four studies that examined the impact of the EHCVS all presented a high response rate. The seven remaining studies did not require or involve the discussion of sample size and response rate based on their study nature. Among the 15 included papers, 3
studies explored the reasons for using or not using the voucher, 5 studies contained the types of service used by elders and if the financial subsidy encouraged elders to private health care services, 10 studies discussed elders' likes or dislikes about the EHCVS, and 11 studies mentioned the rate of the voucher. These five categories were set before the data extraction, which are the target areas that help to answer the research question. Other features related to the impact of the EHCVS, such as providers participating in the scheme as well as scheme adjustment and enhancement, were discovered after undertaking the review. These elements are also believed to have a significant influence on the EHCVS.

Synthesis

The process of thematic synthesis generated 50 subthemes, which are associated with the influence of the EHCVS implementation as described in each study. After grouping the subthemes into a tree data structure based on their similarities and differences, 10 overarching descriptive themes were then developed [19, 44]. Three analytical themes emerged after going beyond the content to discover the linkage between each descriptive theme and considering how these descriptive themes answer the research question—the impact of the EHCVS [19, 44]. These analytical themes are (1) strengthening government relationships with elders and private health care providers, (2) improving the quality of acute care instead of preventive care and disease management, and (3) unsuccessfully shifting elders from the public to private health care sector (see Figure 2).

The 'going beyond' process has utilised the percentage of coverage (the amount of data extracted from the studies in each code) to determine and construct unique interpretations of the impact of the EHCVS (see Supplementary file 4) [27]. Some of the descriptive themes interpreted in the third stage of the synthesis process are interrelated and presented in more than one analytical themes. A grid shown in Supplementary file 5 was designed to identify the contribution of each study, ensure the synthesis was closely related to the primary findings, and minimise bias related to selective reporting of outcomes [19].

Strengthening government relationships with elders and private health care providers

Over the 10 years of the policy implementation, the government, members of Legislative Council, and the DH continuously provided recommendations and modified the scheme to attract and motivate elders to utilise private primary health services. Since the number of account creations was low during the first phase (2009—2011) of the EHCVS, four out of six articles discussing this area demonstrated that only 57% of eligible elders had their eHealth account opened and only 45% of them had made use of the voucher [5, 17, 39, 48, 50]. In response, the DH began to map out strategies to promote the usage of the voucher through mass media, distribution of leaflets in the public health sector, and displaying of posters in malls and on metro billboards [5, 40, 42]. Apart from increasing the publicity of the EHCVS to encourage eligible elder enrolment, the government has shown an ongoing effort to improve the effectiveness and efficiency of the voucher utilisation process for elders. This includes simplified registration and consent processes as well as enabling elders to more conveniently use the voucher by presenting their Hong Kong Identity Card [5, 6, 17, 39, 40, 41]. To enhance the uptake of the voucher, the government also adjusted the eligible age from 70 to 65 years to expand the population of the scheme [5, 8, 17, 18, 24, 51]. Notably, widening the service areas from 9 to 14 types of allied health services (particularly the inclusion of optometry), enabling elders to use the voucher in preventive, curative and rehabilitation services, applying the voucher to Shenzhen outpatient clinics, increasing the subsidy amount from HK$250 to HK$2000, and permitting the unspent voucher amount to be carried forward to the next year all had a positive impact in enhancing the enrolment rate of the EHCVS among elders [6, 17, 24, 39, 40, 41, 42, 50]. Under the sub-theme of Joining-Elders, there was a 20% growth in both voucher account creation and voucher utilisation rate by the end of May in 2015 [41, 48]. The increasing number of elders admitted to the scheme implied positive experiences, and the scheme began to take root in the community. With the government subsidy, elders have access to a broader choice in health care services, receive health care services closer to home, and receive higher quality of care with regards to reduced waiting times within the private system [17, 24, 39, 40].

Targeting the low enrolment rate (32.4%) of private health service providers, the government and the DH stepped forward to address the technical and supply issues that were constraining private health service providers' willingness to participate in the EHCVS [17, 24, 41, 48]. Four articles suggested the contributing factors to the low participation rate among private health service providers during the first phase of the EHCVS were the complicated voucher claiming procedure, absence of computers to access the eHealth system, pre-existing discounts to elders, and the lack of guarantee of elders utilising private health services [17, 24, 41, 48]. Considering the abovementioned reasons, the DH procured Smart Identity Card Readers and distributed these free-of-charge to enrolled providers in the second year of the pilot scheme to reduce the manual input errors and simplify the registration process. This adjustment is also likely to have flow-on effects insofar as mitigating the chance of voucher reimbursed refusal and expediting previous delays associated with providers receiving their monthly reimbursed payment [17]. In addition, the DH also implemented several mechanisms, including the requirement for private health service providers to insert the co-payment made by elders, and performed inspection visits to monitor and strengthen the voucher claiming process [17, 39, 40, 41]. On one hand, it aimed to generate statistical reports for the Health Voucher Unit and the DH to identify common transaction errors between providers, which allow the
This systematic review provides a comprehensive picture of the impact of the EHCVS across the last 10 years. The findings of the review highlight some of the successes of the policy are strengthening the connection between government, elders and private health care providers as DH to modify the eHealth system as well as provide timely feedback and assistance to private health service providers [17, 39, 42]. On the other hand, it also ensures public money is being used in the correct manner [17, 40]. These adjustments and improvements had a substantial effect on stimulating private health service providers’ enrolment throughout the 10 years [3, 17, 39, 40]. By the end of October 2015, 5,235 private health care providers were enrolled in the EHCVS, which accounted for an approximately 206% growth in participation since 2009 [41, 42]. A significant rise in the participation rate among private health service providers suggested the collaboration between the government and private health care sector was strengthened because of these reform adjustments [39, 48]. The number of private health service providers joining the EHCVS is a testament to a PPP of this nature and the ability to iterate and adapt the scheme to the changing demands and challenges [24, 39, 48].

Improving the quality of acute care instead of preventive care and disease management

Significant awareness of the EHCVS among elders was noted across four studies. Approximately 70% of the respondents in the included studies acknowledged the existence of the scheme and were able to correctly identify the scheme logo and articulate what types of health services the scheme supported [5, 17, 39, 50]. However, despite elders having a significant awareness of the EHCVS, insufficient awareness of how to apply for the voucher and which health service providers in their community participated in the scheme prevented elders from effectively utilising it in an effective manner [5, 17, 24, 39, 50]. Most elders involved in the studies expressed their preference to spend their allocation on acute care instead of chronic disease management in the private health care sector, as the restricted subsidy makes it financially unrealistic to continually manage chronic diseases in the private sector [2, 5, 17, 24, 26, 48, 50]. This corresponds with findings across three of seven studies under the sub-theme of Utilisation-Voucher with 70% of elders expressing a desire to spend the voucher in acute care services in the private sector rather than on health checks, dental care, and chronic disease management [17, 24, 39, 41, 50]. Consequently, 66% of elders prefer to stay in the public health care system despite their eligibility for the scheme [17, 24, 39, 50].

Insufficient subsidy amount to cover the large proportion of the service fee further caused elders to place dental check-ups in the least preferred service [5, 18, 26]. Six studies reported that elders are particularly reluctant to spend their voucher in dental care, as each episode of dental care is equivalent to 90% of the voucher value, far more than the 50% attributed to both Western and Chinese medicine services [5, 17, 39]. Elders also identified multiple concerns when considering receiving dental treatments in the private sector given health services in the sector are renowned for being expensive, and the cost is unpredictable [5, 17, 24, 26, 39, 50]. In fact, the subsidy amount provided under the EHCVS only enables elders to receive dental treatments fewer than twice a year [5, 24]. The low utilisation rate of dental services may also be attributed to elders’ perceptions regarding the unnecessary nature of dental care, with many believing self-performed oral hygiene alone is sufficient to maintain adequate oral health [5, 26]. No perceived need and the absence of regular health check-ups were also presented in five studies [5, 17, 26, 39, 50]. The above findings suggest elders placed preventive care, dental care, and chronic condition management in a non-essential position [39]. Yet, the government’s lack of recognition of this voiced need has restrained the scheme from achieving its intended objectives and desired outcome to promote preventive care and disease management among elders, reduce elders’ dependence on public health care services, and encourage greater connection between elders and their private doctors [24, 39, 41, 50].

Unsuccessfully shifting elders from the public to private health care sector

Five of the 15 studies reported that the financial subsidy did not shift demand from the public to the private health care sector due to a lack of clear information delivered to elders about the purpose of the EHCVS [24, 26, 39, 41, 50]. Elders’ discussion concerning acute care and the lack of desire to spend their voucher on preventive care in the private health care sector indicates they did not have a complete understanding of the policy intentions, which aims to support them in detection of disease, illnesses, and other health-related problems and reduce their reliance on public health care services [17, 24, 26, 39, 50]. Most of the elders believed the EHCVS provided full health care coverage and they were insufficiently informed about the need to co-pay [24]. Ten of the 15 studies hence reported elders generally perceived the subsidy amount provided under the EHCVS did not ease their financial burden in purchasing health care services in the private sector [5, 8, 17, 18, 24, 26, 39, 48, 50, 51]. This subsequently reduced their desire to seek health care services in the private sector, simply because the public health care sector provides the same treatment at a lower cost and consequently allows for continuous follow-up treatment despite the lengthy wait times [24, 26, 50]. Elders’ disinterest in the EHCVS also has flow-on effects to private health care providers’ perceptions of the scheme [50, 51]. Physicians in FHB & DH [17] mentioned the scheme did not boost their patient numbers nor did it enhance the health service usage of their existing clients. In other words, the EHCVS did not have a significant impact on changing the health-seeking behaviour among elders and failed to reallocate the health service demand from the public to the private health care sector over a 10-year period [24, 26, 39, 50].

Discussion

This systematic review provides a comprehensive picture of the impact of the EHCVS across the last 10 years. The findings of the review
well as improving the quality of acute care. However, less than successful elements that require revision include designing the purpose of voucher for preventive care and disease management and shifting elders from the public to the private health care sector through financial incentives. It is evident that the Hong Kong Government has implemented a number of quality improvement processes across the life of the scheme to ensure it sufficiently addresses the needs of private service providers and, by extension, the health needs of older persons [17, 39]. The adjustments made to the EHCVS were identified to have had a positive impact insofar as utilisation by eligible elders ultimately reduce reliance on the public health care services [17, 24, 39, 40, 41, 42, 50]. However, limited consideration of elders’ health-seeking behaviour and health care needs of this demographic constrained the achievement of the full potential of the scheme [24, 39, 41, 50]. Elders generally applied the voucher to short-term treatment, such as acute episodes of illness. Elders were reluctant to spend their voucher on disease prevention and management, as there appeared to be no perceived need and the subsidy amount was too low to cover follow-up treatment in the private health care sector. As a result, eligible elders preferred the public health care system despite long waiting times [17, 24, 39, 50]. Overall, the analysis suggests the financial subsidies did not motivate the older adults to utilise private health care services, but rather it demonstrates an effort by the Hong Kong Government to address public health care waiting lists while prioritising quality care for older citizens.

**Review implications and applicability of evidence to elder care**

Although the findings of this study suggested the use of the voucher has steadily increased over the last 10 years, no significant impact in shifting consumer demand from the public to the private health care sector was evident [24, 26, 39, 41, 50]. From the result of this review, it is likely elders will continue to prefer public elder care even they are given a choice to apply the voucher in private elder care services, in particular for community care and residential home care services. Since the government incentive only offered an annual amount of HK$2000 for eligible elders, elders are required to pay a monthly amount of HK$9000 to HK$13,000 (the price was adjusted for inflation in 2018) out-of-pocket expenses for the remaining months while utilising private community care or residential home care services [23, 25]. Similar to the findings related to health checks, oral health care, and chronic disease management, elders may consider the subsidy financially inadequate to motivate a shift in care provision [17, 24, 39, 41, 50].

Nevertheless, allowing elders to purchase aged-care services, medical supplies, and equipment with the voucher is expected to have a favourable impact on the quality of life and well-being of elders due to the afforded self-determination of this model [7]. Despite the fact that the policy has so far failed to achieve the government’s intended goal of shifting the majority of the older population from the public to private health care sector, the intervention has proven to permit elders expatiated access to private health care services during instances of ill health [24, 39]. In a sense, the application of the EHCVS is hence likely to reduce some degree of disease complication due to delayed treatment, ultimately influencing health status and quality of life of this demographic [7, 24, 39, 40]. Chou et al.’s [7] paper surrounding the use of voucher mechanism such as the voucher for long-term care identifies that this modality not only empowers the elders but also creates a competitive market, which is likely to increase respective quality and safety standards of the industry. Many scholars have highlighted that merely removing the financial barriers to care is insufficient in improving an individual’s quality of life and health outcome [7, 28, 46]. Instead, delivering care balanced between fulfilling individual needs and optimising the care delivery processes genuinely enhances clinical quality and outcomes and further reduces health care expenditures of the health care system [45]. Therefore, the implementation of a voucher mechanism in elder care may aid in addressing the current issues associated with poor living conditions, an over-crowded public aged-care sector, and substandard quality of care in private aged-care facilities [7].

Furthermore, expanding the service area to elder care services would enhance the purchasing power of elders in selecting service providers or medical products that benefit on their overall quality of life. Recent evidence suggests that the Hong Kong Government has begun to appreciate the entrenchment of value-based care afforded by a voucher mechanism of this nature [7]. Instead of delegating elders to the Central Waiting List for different types of elder care services, the Social Welfare Department launched a pilot voucher scheme in 2013 to offer alternatives for elders awaiting allocation to aged-care facilities. The scheme provided a monthly value of HK$6250 for elders with moderate impairment and experiences financial hardship to choose the community care services tailored to their individual needs in the private sector [7, 30, 38]. With financial assistance, elders can have a broader choice and purchasing power in acquiring elder care services that may subsequently mitigate the impact of their age-related deterioration. This may eventually reduce the number of residential home care applicants in the Central Waiting List, as elders may identify more suitable or timely options for managing their conditions, which ultimately reduces the burden on the government-funded aged-care homes. Further research is needed to confirm whether more substantial financial subsidies may motivate elders to choose private elder care services over government-funded elder care services.

**Concerns about the application of a voucher mechanism in elder care**

Concerns surrounding the application of voucher mechanism to elder care largely centre on the prevention of double subsidies and avoidance of the inappropriate use of medication by elders. The government also appears to be concerned about dishonest providers who may exploit this opportunity to upsell unnecessary and expensive medical products [17, 39, 41]. These concerns are not without evidence, as cases of improper
usage of the voucher have been identified in the last number of years [11, 15]. For example, one Chinese medicine practitioner claimed that he had assisted elders in exchanging dried food for the voucher, particularly at the end of each year to prevent exceeding the accumulated limit, which consequently leads to a waste of financial subsidy [15]. The Consumer Council also reported receiving almost double the number of complaints each year from 2014 to 2018 from the voucher holders who were lured into buying non-efficacious and expensive glasses and Chinese herbal medicines [11, 37]. To overcome the adverse effects resulting from the use of the voucher in elder care, greater regulation of the supply-side, as well as increased consumer awareness are likely to allow more informed and efficacious use of the scheme [7]. A suggestion for imposing greater restrictions on the supply-side would be to develop and impose mandatory reporting processes, similar to those used in the Australian health care system, where a provider has a duty and ethical obligation to report colleagues suspected of engaging in malpractice or deception [1]. Elders can also file a complaint against deceptive business practices or in instances where they may have been victims of fraud. This strategy may aid in closing the loophole of the existing voucher monitoring and auditing mechanism and ensure public money is spent on the right care, administered by the right provider, at an appropriate cost [7, 17, 41].

Strengths and limitations of the review

To the author's knowledge, this review is the first systematic review conducted to assess the impact of the EHCVS throughout its 10-year duration. Despite the lack of previous research conducted to examine the impact, effectiveness, and change of the scheme implementation, this review combined eligible studies to generate a higher level of insight into the impact of the EHCVS from elders, private service providers, and government perspectives over the past 10 years across different settings of Hong Kong. The study systematically sought to include all published and unpublished studies that met the predetermined criteria to provide a comprehensive picture of the impact of the EHCVS and further examined the feasibility of expanding the voucher system in elder care. Although it is obvious the demand of public elder care services would remain the same even if the EHCVS expanded its service area, it is uncertain whether a higher monthly subsidy amount would motivate elders to private elder care services. Hence, further research in this area should seek to understand factors that may induce consumer change among elders when a greater financial subsidy is provided. The findings offer a breadth understanding of the advantages and disadvantages of expanding the EHCVS to elder care services as well as the possibility of shifting demand from the public to private elder care sector with the current amount of financial subsidy to policymakers. However, the synthesis of qualitative findings in this systematic review may overgeneralize the impact of the EHCVS due to the unavailability of data throughout the 10 years. The missing data, such as the attitudes, awarenesses, and achievement of the EHCVS in some of the years, means the impact of the EHCVS cannot be truly reflected in a particular period. Broadening the inclusion criteria to include press releases or newspaper articles may overcome the issue of missing data, which further minimise the chance of over-generalization [13]. However, media bias and reliability may be a concern when employing these two media sources in a study [28]. Further, the impact of the EHCVS was limited to studies that were published in English. Future research should include published and unpublished Chinese materials to reduce the chance of over- or underestimating the effectiveness of the EHCVS due to language bias, which may enable policymakers to map out appropriate strategies to shift demand from the public to private sector as well as enhance elders’ quality of life.

Conclusions

This review explored whether the expansion of service area to elder care would motivate elders to utilise elder care services in the private sector through examining the impact of the EHCVS to elders in health care. The thematic synthesis provided a clear conceptual framework to inform the potential response and effectiveness of the voucher use when applied to elder care. Findings indicate the expansion of service areas may strengthen the relations between elders, private elder care providers, and the government by demonstrating the government’s commitment towards the situation in public aged-care sector and elders’ quality of life. Allowing elders to purchase elderly support services, medical supplies, and equipment with the voucher may partially relieve the growing financial burden of elders and further permit greater choice and quality of medical products and services suited to their individual care needs. However, elders may still consider the subsidy amount to be insufficient to engage in long-term private sector elder care services. Consequently, they may not be willing to apply the voucher in elder care services and would rather stay on the public waiting lists for elder care services.

For the future implementation of such voucher mechanism for elder care, it is crucial for policymakers to consider how much monetary amount needed to remove the financial burden of the older population by employing cost-benefit analysis, which helps to set an attractive incentive to motivate elders in utilising private elder care services. Ideally, the government should conduct a survey similar to the one conducted by Liu and colleagues [26] to examine the willingness to pay for various types of health care services in the private sector when the same services are available publicly. This approach would assist policymakers in achieving two outcomes. First, it would inform the design of optimal subsidy limits, which would enable elders to see the value of financial aid. Second, it would permit policymakers to understand what amount elders would be willing to pay for elder care services, which further provides evidence on whether a voucher mechanism should be applied partially or fully in elder care services. Nevertheless, it is essential for policymakers to first assess the ability for the private elder care sector to supply services when a higher subsidy is being provided to elders, as resource shortages are also present in the private sector [49]. This foresight will
ensure public money is being spent appropriately and that intervention is likely to achieve intended results—successfully shifting elders from the public to private elder care sector, reduce the burden on public elder care sector, and potentially improve the quality of life for seniors [7]. Finally, greater information disclosure and promotion of private elder care services will deepen elders’ understanding and is likely to change their perceptions towards private elder care sector, ultimately enabling elders to make informed decisions when applying vouchers to elder care services that best suit their care needs.

Abbreviations

AACODS: Authority, Accuracy, Coverage, Objectivity, Date, and Significance; AXIS: Appraisal Tool for Cross-Sectional Studies; CASP: Critical Appraisal Skills Programme; DH: Department of Health; EHCVS: Elderly Health Care Voucher Scheme; FHB: Food and Health Bureau; JBI: Joanna Briggs Institute; MeSH: Medical Subject Headings; PICO: Population, Intervention, Comparisons, and Outcomes; PPP: Private-Public Partnership; SWD: Social Welfare Department

Declarations

Ethics approval and consent to participate

Not Applicable

Consent for publication

Not Applicable

Availability of data and materials

The authors declare that all relevant data supporting the findings of this study are available within the article and its supplementary information files.

Competing interests

The authors declare that no competing interests exist.

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Authors’ contributions

This topic of analysis was conceptualised by JWP. Data collection and analysis was led by JWP with theoretical grounding provided by LE. The manuscript was drafted by JWP with critical revisions and intellectual content provided by LE. All authors approved the final version of this article.

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Supplementary Data

Supplementary file 1: Search strategy. This file provides explanations for the application of PICO, the identification of relevant subject headings, and the method to connect search terms using Boolean operators. (docx file 16kb)

Supplementary file 2: Critical Appraisal results for included studies regarding study types. Contains information on the studies included in the review and the quality appraisal of these. (xlsx file 78kb)
Supplementary file 3: Coding frame for data-synthesis. This file presents the codebook used to identify the differences between codes and provide a clear guide to determine themes. (xlsx file 53kb)

Supplementary file 4: Themes identified in each study. Information demonstrated how to use the percentage of coverage to determine and construct unique interpretations of the impact of the EHCVS. (xlsx file 37kb)

Supplementary file 5: The contribution of each study. This grid shows each paper's contribution to the synthesis, to ensure the synthesis was closely related to the primary findings and minimise bias related to selective outcome reporting. (xlsx file 25kb)

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Figures
Figure 1

PRISMA flow diagram. The diagram shows the selection process of the included studies/records through each stage of the systematic review (identification, screening, eligibility and included).
Figure 2

Components of the three analytical themes. The diagram illustrates the process of generating the analytical themes by grouping the descriptive themes with similar attributes.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Supplementaryfile1Searchstrategy.docx
- Supplementaryfile2CriticalAppraisalresults.xls
- Supplementaryfile3Codingframe.xls
- Supplementaryfile4Themesidentifiedineachstudy.xls
- Supplementaryfile5Thecontributionofeachstudy.xls