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Reducing Old Age Vulnerabilities in Developing Countries: The Role of Income-Support on Poor Older People's Health

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Abstract

This systematic review is on the impact of income-support on older people's health in developing countries. A systematic search for non-randomised and mixed methods studies published between 2013 and 2017 was conducted in academic and grey literature databases, websites and references lists of relevant studies. Study methodological quality was assessed with a risk of bias tool. Inclusion criteria were met by 7 studies, 3 in Latin America, two each in Africa and Asia. Five of the studies used a quantitative non-randomised approach while the remaining two used mixed methods analysis. Income-support was discovered to have positive effects on older people's nutritional status, cognitive functions, health and psychological wellbeing. Income-support offers older people access to healthcare services and protection against detrimental effects of lack of money in accessing healthcare services.

Key Words: Health, income-support, older people

Introduction

The population of older people in developing countries is increasing. For instance, it has been projected that by the year 2050, the ageing population in sub-Saharan Africa would have increased to 161 million (Aboderin& Beard, 2015; Audain, Carr, Dikmen, Zotor, & Ellahi, 2017; Nanyonjo, 2016; UN, 2016). Most of the health systems in developing countries are not prepared adequately for the health demands of older people (HelpAge International, 2017). There are inadequate health facilities specializing on older people's health as facilities are not designed to the older people's medical needs and personnel are not properly trained in administering care to them (HelpAge International, 2017).

The majority of the older people in developing countries do not have health insurance where most of the health services are the cash-and-carry systems that mandated patients, even those brought to the hospital on emergencies to pay cash deposit at every point of service delivery (HelpAge International, 2017). Also, available data showed that less than 17% of older people have pensions in sub-Saharan Africa (UN, 2016). Because of this, older people in the region continue to work on the farms to earn a living (Aboderin& Beard, 2015; UN, 2016). Aside from remaining part of the labour force beyond the stipulated recommended age, older people in sub-Saharan Africa whose adult children have moved to other cities in search of work or have died for one reason or the other, also take care of their grandchildren (Aboderin & Beard, 2015; UN, 2016).

Planning for an ageing population is crucial to the attainment of the integrated 2030 Agenda, with ageing running across the goals of poverty reduction, good health, economic growth, gender equality and decent work (Dugarova, 2017). Ghana is one of the leading countries in sub-Saharan Africa that have taken the initiative to support older people. The government, in 2008, introduced the Livelihood Empowerment Against Poverty (LEAP), a cash transfer programme for older people of 65 years and above who are considered extremely poor and live in vulnerable households.

There is increasing empirical evidence pointing to considerable degrees of functional impairment among older people, partially connected to the protracted disease burden (Nanyonjo, 2016). It has been reported that older people in developing countries are prone to a lot of diseases, both communicable and non-communicable ones. Such diseases include cardiovascular and circulatory disease, cancer, diabetes, cirrhosis of the liver and nutritional deficiencies (Aboderin& Beard, 2015; Audain et al., 2017; Nanyonjo, 2016; UN, 2016). Furthermore, a survey of older people in Africa showed high levels of "hypertension, musculoskeletal disease, visual impairment, functional limitations and depression" (Aboderin & Beard, 2015, p.10). Additionally, contagious illnesses continue to affect older women and men in sub-Saharan Africa, highlighted by a significant prevalence of HIV infection and its worsening effect on various non-communicable diseases (Aboderin & Beard, 2015).

Since disease burden increases with age, there is a huge need for the prevention and treatment of these diseases and long-term care for older people in developing countries (Nanyonjo, 2016; UN, 2016). Studies have shown that older people in developing countries face a herculean task in accessing healthcare services because of transport cost and the cost of paying for healthcare services (Aboderin& Beard, 2015; HelpAge International, 2017). Therefore, social pension interventions or similar interventions for income support to older people in developing countries are important to the social security of older people (UN, 2016).

Evidence has shown that income-support plays a crucial role in removing some demand-side obstacles, such as out-of-pocket expenditures to healthcare for older people (HelpAge International, 2017). It has also been reported that older people use income-support for transporting themselves to health facilities, consultation fees and treatment cost as well as health insurance and prescriptions (HelpAge International, 2017). The general impact of income-support on older people's health-outcomes in developing countries is not yet fully known as limited research has been done in this area. For instance, the field of research on older people's health in sub-Saharan Africa is still at an early stage (Nanyonjo, 2016). Additionally, limited attention has been given to issues of older people in sub-Saharan Africa, which remains the earth's poorest and youngest region (Aboderin & Beard, 2015).

There is the need for a better understanding of the health challenges of older people, their limited access to health facilities and the crucial role income-support is playing in removing some demand-side barriers to healthcare services. This review aims to assess the impact of income-support on older people's health.

Materials and Methods

Criteria for Considering Studies for the Review

Type of studies

This review aims to assess the impact of income-support on older people's healthcare. In order to accomplish the aim of the review, we focused on studies in developing countries that evaluate the effects of income-support programmes on older people's health. In a nutshell, we considered studies that focused on the role of income-support in assisting older people to access healthcare services. The following study designs were used for the review:

- Quasi experimental design
- Mixed methods
- Cross sectional study
- Quantitative non-randomised

Types of participants

This review included studies that assess the interface between income-support and the health of older people of the ages of 60 and above in developing economies as defined by the United Nations (UN, 2014).

Types of interventions

This review included income programmes that were meant to reduce poverty and vulnerabilities in poor households with older people of 60 years and above. That is, to be included in this review, interventions must meet the following criteria:

- a non-conditional cash transfer to older people;
- income supplement for poor elderly in low- and middle-income setting;
- old age grants for older people's wellbeing;
- old age allowance for older people with income not more than USD 35.52 annually;
- social pension to provide minimum income for old age; and
- conditional cash transfer to support vulnerable older people.

Types of outcome measures

This review included studies that estimated the impact of income-support programmes on older people's health and changes in health outcomes. These outcomes are divided into primary and secondary outcomes measured by the included studies.

Primary outcomes

The following primary outcomes were eligible for the review:

- Use of healthcare services, including but not limited to:
 - doctor consultation;
 - outpatient visits;
 - purchasing of drugs;
 - transportation cost to healthcare facilities;
 - treatment of ailments;
 - use of cash transfers in removing any demand-side barriers to healthcare services.
- Health outcomes, but not limited to:
 - cognitive functions;
 - food security;
 - improvement in lung functions;
 - mental wellbeing;
 - reduction in depressive symptoms.

Secondary outcomes

This review considered the following as the secondary outcomes:

- social determinant of health;
- healthcare expenditure;
- changes in access to healthcare services.

Search Methods for Identification of Studies

We conducted an electronic search for relevant studies for the systematic review. The searches were conducted in the following databases which included both academic and grey literature:

- PubMed
- Cochrane Library
- ResearchGate
- African Journals Online
- Google Scholar
- African HealthLine
- HelpAge International Social Pension Database
- Science Direct
- Cambridge Journal Database
- Oxford Journal Database

Aside from the use of electronic search for the selected studies of this review, we searched the websites of prominent organisations such as the WHO, HelpAge International, World Bank, USAID and the UK Department of International Development (DFID). We conducted an

additional search on the reference lists of the included studies in case we have missed any relevant literature from the electronic search.

Data collection and Analysis

Selection of studies

The two authors were responsible for the selection of relevant studies for the review which was done independently. The disagreements that emanated from the selection process were resolved through discussion among the authors. Initially, we screened the titles of the selected studies and through this process duplicate records were removed. A second round of screening was done on the titles and abstracts of the selected studies in order to identify studies that meet the inclusion criteria of the review. An additionally screening of abstracts and full text of the selected studies paved way for the identification of studies that were eligible for the review.

Data extraction and management

Data were extracted independently from studies included in this systematic review by the two authors, (O.A.& J.A.) using the standardised data extraction tool available in JBI SUMARI (Aromataris& Munn, 2017). Data extracted included the following:

- Author's names
- Publication date
- Geographical region
- Types of study
- Data collection methods
- Participants
- Interventions
- Main outcome measures and results

Quality assessment

Two authors (O.A and J.A) independently assessed the quality of the included studies. During this process, the disagreements that emanated were resolved through discussion. To assess the risk of bias of the included studies, we employed the Mixed Method Appraisal Tool (MMAT) prepared by (Hong et al., 2018). The risk of bias was assessed by the following scores: Yes, No and Cannot tell, while the overall appraisal of the risk of bias for the included studies that was used for the summary assessment were as follow: Include, Exclude, and Seek further info.

Data synthesis

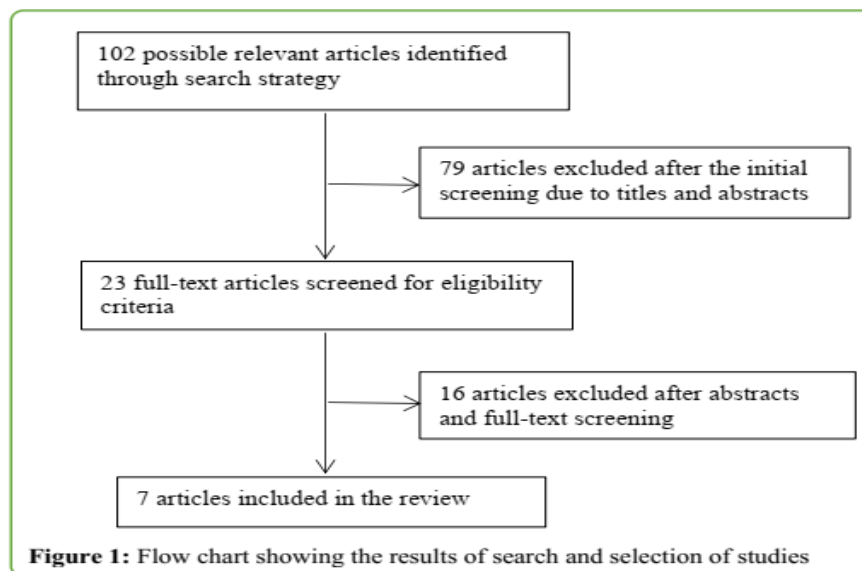
Due to the heterogeneity in study setting, design, interventions and outcomes mentioned in the included studies, it was not feasible to statistically combine the results of the studies under review. In this case, we used qualitative synthesis *vis a vis* narrative synthesis to present the estimated effects of income-support on older people's health from the included studies.

Results

Study Selection

Figure 1 presents the study selection process for the systematic review. Our initial search for relevant literature produced 102 articles. Due to the screening of titles and abstracts of the

initial identified articles, 79 articles were excluded, leaving 23 articles for full text screening. The 23 articles were screened for eligibility through abstracts and full text, leaving only 7 articles for the final review.



Characteristics of the Included Studies

Table 1 shows the characteristics of the seven included studies. Geographically, three of the studies were conducted in Latin America: Mexico (Aguila, Kapteyn, and Smith, 2015; Salinas-Rodríguez and Manrique-Espinoza, 2013; Salinas-Rodríguez, Torres-Pereda, Manrique-Espinoza, Moreno-Tamayo, and Téllez-Rojo Solís, 2014); two were conducted in Asia: Bangladesh (Uddin, 2013) and China (Cheng, Liu, Zhang, and Zhao, 2018); and the remaining studies were conducted in sub-Saharan Africa: Ethiopia, Mozambique, Tanzania and Zimbabwe (HelpAge International, 2017) and South Africa (Lloyd-Sherlock and Agrawal, 2014).

In terms of study design, four studies used non-randomised approach (Aguila et al., 2015; Cheng et al., 2018; Lloyd-Sherlock and Agrawal, 2014; Salinas-Rodríguez et al., 2014), two others used mix methods technique (HelpAge International, 2017; Uddin, 2013) and one used cross sectional (Salinas-Rodríguez and Manrique-Espinoza, 2013). The included study types composed of four peer-reviewed articles (Aguila et al., 2015; Lloyd-Sherlock Agrawal, 2014; Salinas-Rodríguez and Manrique-Espinoza, 2013; Salinas-Rodríguez et al., 2014), one discussion paper (Cheng et al., 2018), one dissertation (Uddin, 2013) and one grey literature (HelpAge International, 2017).

In terms of intervention, most of the studies focused on cash transfers and social pension. Data used by the included studies in estimating the effects of income-support on older people's health were sourced from different sources such as interview, longitudinal survey and focus group discussion. Outcomes measured by the included studies include health benefits, physical health, mental health, vaccination and access to healthcare services.

Table 1: Characteristics of the included studies

Authors Date	Country	Study design	Type of study	Intervention	Participant	Data source	Outcomes measured
Aguila et al. (2014)	Mexico	Quasi-experimental	Peer-reviewed	Income supplement	Seventy-year and above	Rich data capturing health and wellbeing in old age	Health benefits
Cheng et al. (2016)	China	Non-randomised	Discussion paper	Social pension	Elderly population aged 60 and above	Chinese Longitudinal Healthy Longevity Survey (CLHLS)	Physical health, cognitive function, and psychological well-being
HelpAge International (2017)	Ethiopia, Mozambique, Tanzania and Zimbabwe	Mixed methods	Grey literature	Cash transfers	158 elderly people	Focus group discussion, interview	Access to healthcare services
Lloyd-Sherlock and Agrawal (2014)	South Africa	Non-randomised	Peer-reviewed	Social pension	Black African women aged 60 and over and men aged 63 and over	World Health Organization (WHO) survey of Global Ageing and Adult Health (SAGE)	Health service utilisation, hypertension awareness and treatment
Salinas-Rodríguez and Manrique-Espinoza (2013)	Mexico	Cross-sectional	Peer-reviewed	Conditional cash transfer	12,146 older people	2007 Oportunidades Evaluation Survey	Vaccination coverage
Salinas-Rodríguez et al. (2014)	Mexico	Non-randomised	Peer-reviewed	Non-contributory social pension	5,270 older adults	Baseline and follow-up survey	Mental wellbeing
Uddin (2013)	Bangladesh	Mixed methods	Dissertation	Old-age allowance	40 programme beneficiaries	Data from primary and secondary sources	Access to healthcare facilities

Methodological Quality of Included Studies

We used MMAT risk of bias tool to assess the methodological quality of the included studies (Hong et al.). The quality of the five quantitative studies included in the review was high because each of the study scored the following grades 5/5; (Lloyd-Sherlock and Agrawal, 2014); 4/5 each for (Aguila, Kapteyn, & Smith, 2015; Cheng et al., 2018; Salinas-Rodríguez and Manrique-Espinoza, 2013; Salinas-Rodríguez et al., 2014) from the methodological quality criteria. All the study measurements were appropriate for both their outcomes and interventions and their study participants were representative of the target population.

The quality of two of the mixed method studies was moderate, as each of the study scored 3/5 (HelpAge International, 2017; Uddin, 2013) from the methodological quality criteria. The two studies showed adequate rationale for using mix methods design to address the research question. The different components of the studies were adequately integrated to answer the research question and the outputs of the combination of the qualitative and quantitative components were effectively interpreted.

Effects of Interventions

Impact on Anthropometric or Nutritional Outcomes

Of the seven studies we reviewed, three reported on the role of income-support programmes on poor older people's anthropometric or nutritional status (Aguila et al., 2015; Cheng et al., 2018; HelpAge International, 2017). In China, social pension enrolment had positive and significant impact on older people's height as they experienced 3.5 cm less height shrinkage than poor older people not receiving social pensions (Cheng et al., 2018). Similarly, a 100 percent rise in pension income had a significant effect on height loss reduction by 0.8 cm (Cheng et al., 2018). In sum, the social pensions had a positive effect on the physical health of older people (Cheng et al., 2018). In Ethiopia, cash transfers improved nutrition and food security for older people (HelpAge International, 2017). According to one of the female respondents from the focus group discussion:

We used to have one or two meals but now we have three meals. We are also able to buy vegetables and onions and buy meat twice a month to vary the diet. We can also buy soap to wash our clothes and utensils and wash clothes for our children and grandchildren. I feel stronger and more energetic than before... I am sure I even look more beautiful (HelpAge International, 2017, p. 23).

In Mexico, income supplementation on the health of poor older people showed that little segment of the older people receiving income supplement reported that they ran out of food stuff in the last three months compared to poor older people not receiving income supplementation (Aguila et al., 2015). In addition, the treatment group reported a significant decrease of being hungry and not eating all day compared to the control group (Aguila et al., 2015).

Impact on Cognitive Functions

Two studies of the seven studies we reviewed reported on the interface between income-support and older people's cognitive functions (Aguila et al., 2015; Cheng et al., 2018). In China, the take-up of social pensions had a positive effect on the cognitive functions of older people (Cheng et al., 2018). The findings of the study revealed that enrolment in the pension programme significantly improved Mini-Mental State Examination (MMSE) score by more than 2 points and raised the probability of excellent cognitive function by 18 percentage points (Cheng et al., 2018). Additionally, a 100 percent increase on the social pension benefits led to a 0.57-point rise in MMSE score, 4.2 percentage points more beneficiaries having excellent cognitive function (Cheng et al., 2018).

In Mexico, the study of Aguila et al. (2015), using DID estimates to carry simple exercise on older people's cognitive function showed that they regressed the health conditions on age and age squared taking cognisance of peak flow, immediate and delayed recall. Their findings revealed a marked reduction with age. In continuation of their analysis, they interviewed a 78-year-old individual in their study sample to know if the income supplement enhances his health and how much younger the older individual has to be to enjoy the same level of health in the case of no income supplement. Their findings showed that improvement in immediate recall was the same as if the study individual were about 5.5 years younger. In the case of delayed recall, the improvement was tantamount to being 12.4 years younger. For peak flow, the improvement was commensurate to being 7 years younger (Aguila et al., 2015).

Impact on Health Outcomes

Four studies reported health outcomes due to cash transfers on older people (Aguila, Kapteyn, and Smith, 2015; Cheng et al., 2018; HelpAge International, 2017; Lloyd-Sherlock and Agrawal, 2014). In China, social pension enrolment by older people led to a significant reduction in the incidences of hypertension by 21 percentage points and enhanced their instrumental activities of daily living (IADL) performance by 11 percentage points (Cheng et al., 2018). Additionally, a 100-percent rise in pension income significantly reduced the probability of experiencing hypertension by 5.4 percentage points and significantly enhanced the probability of performing IADL by 2.4 percentage points (Cheng et al., 2018). However, both the enrolment and increase in pension income by older people have no significant effect on self-reported general health (Cheng et al., 2018).

The study that investigated the impact of cash transfers on older people's access to healthcare services in Ethiopia, Mozambique, Tanzania and Zimbabwe revealed that older people in these countries faced obstacles in accessing healthcare services because of their economic conditions. Aside from this, the older people in the study sample from the four countries reported being affected by non-communicable diseases such as arthritis (Ethiopia 40%; Mozambique 75%; Tanzania 33%; Zimbabwe 21%); asthma (Ethiopia 11%; Mozambique 12%; Tanzania 9%; Zimbabwe N/A); diabetes (Ethiopia 10%; Mozambique N/A; Tanzania 10%; Zimbabwe 5%); eye problems (Ethiopia 30%; Mozambique 38%; Tanzania 39%; Zimbabwe 15%); and hypertension (Ethiopia 20%; Mozambique 40%; Tanzania 29%; Zimbabwe 16%) (HelpAge International, 2017). Despite the cash transfers being recognised as not being enough to meet the health needs of older people, they were successful in improving the older people's abilities to identify and act on their health needs because they were associated with health awareness activities in Ethiopia and Tanzania (HelpAge International, 2017).

In Mexico, empirical evidence showed that older people living in Yucatan who received income supplement had a statistically significant improvement in both immediate and delayed recall coupled with improvement in lung function measured by peak flow (Aguila et al., 2015). Additionally, the income supplement helped poor older beneficiaries to have little presence of low haemoglobin levels linked to fatigue. This effect was marginally significant to the conventional *P* value but not significant when Holm-Bonferroni correction was applied (Audain et al., 2017). In South Africa, poor black older people receiving social pension had a significant pension status associated with awareness of hypertensive status (OR:2.80; 95% CI:1.68-4.67), but rural setting was significantly associated with lower awareness (0.61; 95% CI:0.45-0.82) (Lloyd-Sherlock and Agrawal, 2014)

Impact on Psychological Wellbeing

Three studies reported outcomes on psychological wellness for poor older people after receiving cash income-support (Cheng et al., 2018; HelpAge International, 2017; Salinas-Rodríguez et al., 2014). The results obtained in China showed that social pension uptake had negative and statistically significant result for depression index while a 100-percent increase in pension income had 0.30 percentage points reduction in depression index (Cheng et al., 2018). These indicated that the social pension has improved the psychological wellbeing of the poor older people receiving it (Cheng et al., 2018). The analysis of cash transfer programmes in Ethiopia, Mozambique, Tanzania and Zimbabwe showed positive effects despite the little amount of cash receipts given to poor older people (HelpAge International,

2017). Evidence showed significant effects of cash transfers allowing older people to better meet their basic needs, especially in buying different types of food stuff, and hygiene products. Participants of the focus group discussions in the four countries reported that a large amount of their cash transfers were spent on food and soap. In Mozambique, cash transfers were spent in accessing potable water (Salinas-Rodríguez et al., 2014). According to one of the key informants interviewed in Ethiopia: “Cash transfers also improve the psychology and self-esteem of the family and the elderly people in particular – the more they secure their livelihoods, the more they are socially included”(HelpAge International, 2017, p. 23).

The evaluation of Mexican non-contributory social pension scheme showed that after one-year exposure to the scheme, the beneficiaries’ depressive symptoms significantly decreased ($\beta = 20.06$, CI95% 20.12; 20.01) (Salinas-Rodríguez et al., 2014). Similarly, the social intervention contributed to higher feelings of safety and welfare linked with reduced depressive symptoms among poor older people (Salinas-Rodríguez et al., 2014). According to some of the statements of the old beneficiaries of the social intervention, they experienced a decrease or relief of poverty and stress associated with lack of income and an expanded sense of social security and wellbeing from receiving monthly income that they could regard their own and on which they can decide what to do (Salinas-Rodríguez et al., 2014). One of the older recipients of the social intervention stated:

Now I eat better, now I have ‘a cent’ to buy at least a piece of meat, something like that... some bread. Before, it was not like this. we couldn’t buy anything because we did not have money (laughter), and now, yes now, we have this. I do feel better (Salinas-Rodríguez et al., 2014, p. 6).

Impact on Uptake of Healthcare Services

Six studies reported on the uptake of healthcare services by poor older people due to cash transfer in their possession (Aguila et al., 2015; HelpAge International, 2017; Lloyd-Sherlock and Agrawal, 2014; Salinas-Rodríguez and Manrique-Espinoza, 2013; Salinas-Rodríguez et al., 2014; Uddin, 2013). In Bangladesh, a mixed-method analysis showed that prior to the introduction of old age allowance, poor older people access healthcare services through the support of their family members (Uddin, 2013). However, with the introduction of the old age allowance, 97.5% of the study sample purchased their necessary drugs from their allowance (Uddin, 2013). This showed from the study’s findings that 94.87% of the poor older people had met their essential medication with the aid of the allowance (Uddin, 2013).

The impact evaluation of HelpAge International on cash transfers and older people’s access to healthcare services in four sub-Saharan African countries showed that cash transfer programmes helped poor older people to access healthcare services (HelpAge International, 2017). The older people in these four countries identified the cost of transportation to health facilities as hindrance in accessing healthcare services (HelpAge International, 2017). However, with the cash transfer programmes, most of the beneficiaries were able to access healthcare services. In Ethiopia, one of the beneficiaries stated: “*Through the cash transfer, I have money for transport to go and seek healthcare services*” (HelpAge International, 2017, p. 21). While in Tanzania, an old recipient of the cash receipt had this to say: “Sometimes when [the cash transfer] is there, it helps to meet transport costs to the hospital. If the cash transfer money is there I do not beg – I just use it to go to the health facility”(HelpAge International, 2017, p. 21)

Aside from the use of cash transfers in paying for transport cost to health facilities, older people in the impact evaluation analysis use cash transfers to pay for hospital bills, treatment and medicines. In Ethiopia, a male respondent stated: “Without the cash transfer, we would not be able to access any health services as they are too expensive, even at the health centre”(HelpAge International, 2017:21). In Mozambique, the cash transfers helped an old male patient to pay for his medical surgery. According to him:“I had an operation and the money from the PSSB helped to pay for it”(HelpAge International, 2017, p. 22).

The difference-in-difference estimates in Mexico on the effects of income supplementation on the health of older people showed that the intervention supported half of the beneficiaries’ visit to a doctor and the number of visits to doctors increased compared to those of non-beneficiaries (Aguila, Kapteyn, & Smith, 2015). The monthly cash received by the older people gave a sense of relief to their relatives who were responsible for out-of-pocket (OOP) spending on healthcare services. The income support helped the older people to pay for their healthcare expenditure. However, some of them complained of the high cost of drugs (Aguila et al., 2015). In a similar study also in Mexico, vaccination coverage among cash transfer beneficiaries and non-beneficiaries stood at 46% and 41% for influenza, 52% and 45% for pneumococcal disease and 79% and 71% for tetanus respectively. The study analysis showed that the cash transfer programme exerted a significant impact on immunisation and had an effect of 0.069 (CI95%: 0.038, 0.096; $p < 0.001$) on influenza vaccine. Further analysis of the study revealed that “pneumococcal and tetanus vaccine results were analogous with coefficient value of 0.072 (CI95%: 0.043, 0.102; $p < 0.001$) and 0.066 (CI95%: 0.041, 0.092, $p < 0.001$), respectively” (Salinas-Rodríguez and Manrique-Espinoza, 2013, p. 5)

Aside from the cash transfer programme making influenza immunisation coverage 7% higher for beneficiaries of the intervention than those of non-beneficiaries, the intervention increased the possibility of taking up the complete vaccination schedule (coefficient = 0.055, CI95%: 0.028, 0.028; $p < 0.001$) (Salinas-Rodríguez & Manrique-Espinoza, 2013).

In the Mexican State of Yucatan, a qualitative interview showed that before the introduction of non-contributory social pension, one of the beneficiaries of the intervention felt unhappy for not having money to access healthcare services. However, with the introduction of the intervention, he was happy for receiving the intervention:

Well, indeed I did not feel sad. I was ashamed because the money was not enough to buy needed things, and then, when I got sick, I used to have to beg for money. But now, at least we have some money. If I get sick, at least I have money to buy medicine that [the health services] don’t have(Salinas-Rodríguez et al., 2014, p. 6)

In South Africa, the study conducted by Lloyd-Sherlock and Agrawal (2014), on cash transfers and older people’s health showed mixed effects. The cash transfer programme was significantly linked with more frequent outpatient visits for beneficiaries of the programme (OR 1.77; 95% CI1.00-3.15). However, the analysis of the programme did show that rural setting was not significantly linked with outpatient visits. Nevertheless, the programme was significantly associated with lower awareness (OR:0.61; 95% CI:0.45-0.82) and the treatment of hypertension (OR:0.68; 95% CI: 0.49-0.94). On older female beneficiaries, the programme was associated with healthcare utilisation (OR:1.56; 95% CI: 1.15-2.12), awareness (OR:1.95; 95% CI:1.44-2.64) and treatment (OR:1.86; 95% CI: 1.35-2.57) (Lloyd-Sherlock and Agrawal, 2014).

Discussion

This review is the first to assess the impact of income-support for older people's health in developing countries. The findings from the systematic review showed that income-support to older people helped in improving their anthropometric or nutritional status, cognitive functions and psychological wellbeing. In addition, income-support allows older people to access health services which in turn improve their health status.

Income inequality prevents people from both developed and developing countries from accessing health services when needed. For instance, in the British Columbia, Canada, it was discovered that people with lower incomes were less likely to access general practitioner (GP) and specialist services (Penning and Zheng, 2016). In sub-Saharan Africa, studies have shown that poverty hinders children, women and the vulnerable from accessing healthcare service when they are indisposed (Aregbeshola & Khan, 2018; Awiti, 2014; Keya et al., 2018; Lanre-Abass, 2008). Older people are the ones mostly affected by poverty in developing countries, especially older people without social security or pension benefits (Marmot, 2006). The prevalence of poverty among older people in developing countries has been responsible for many governments' use of income-support for older people.

Our findings showed that income-support improved older people's anthropometric or nutritional status in China, Ethiopia and Mexico. Although it had a significant effect in China, the study did not have the same significant level of effect in Ethiopia, while in Mexico, it had no significant effect. Nevertheless, there was a significant effect on food security for beneficiaries of the intervention than non-beneficiaries.

In terms of cognitive functions, only two studies reported positive effects: those in China and Mexico. While in Mexico, the studies did not present the outcomes of the intervention on the study sample, it, however, stated that the intervention had a significant impact on a subgroup. It was possible for the study in China to assess the cognitive functions of older beneficiaries of the social pension programme through MMSE score. Those who enrolled in the social pension programme had a 100% increase in income benefit and the income benefit improved their MMSE score with a significant effect. Income-support has been known to improve the cognitive functions of beneficiaries through the consumption of variety of diets. In Nicaragua, beneficiaries that were exposed to cash transfer programme had their cognitive development raised by 0.09 standard deviations compared to the non-beneficiary group in 2006, and 0.08 standard deviations greater in 2008 (Macours et al., 2012).

Findings from this review also showed that income-support improve the health outcomes and psychological wellbeing of older people. Data from the three studies that evaluated income-support and the wellbeing of older people in China, Ethiopia and Mexico revealed that the beneficiaries of the interventions felt happy because the income-support added value to their life. Similar studies have revealed the estimated positive effects of income-support on the wellbeing of beneficiaries in Columbia, Ghana, Kenya and Lesotho (Attah et al., 2016; Martínez & Maia, 2018; Pereira, 2016).

Aside from the evidence from this review on the positive effects of income-support on the psychological wellbeing of older people, our findings also showed positive effects of income-support on older people's health. From our review, income-support had positive effects on hypertension awareness, allowed beneficiaries to identify and act on their health needs, and a reduction in the incidences of hypertension and improved lung functions. However, one study reported no effect of income-support on self-reported general health in China. Two studies

that used systematic reviews to assess the impact of cash transfers on health outcomes showed strong evidence of cash transfer uptake on the health outcomes of beneficiaries of the programmes (Lagarde et al., 2009; Pega et al., 2017).

Among the seven studies we reviewed, six assessed the impact of income-support on the uptake of healthcare services by older people. Our findings showed that income-support enhanced the uptake of healthcare services when needed. Income-support helped older people to transport themselves to health facilities, pay for medical services, including the purchase of medical drugs. Aside from these, one beneficiary was able to use the income-support to pay for surgery. In Ethiopia, Mozambique, Tanzania and Zimbabwe, the beneficiaries of the income-support programmes agreed that the income they received was little, but most of them were able to use the little income to access healthcare services. Similar studies have been able to prove the positive effects of income support on the uptake of healthcare services (see Lagarde et al., 2009; Pega et al., 2017).

Our findings have been able to prove the positive effects of income-support on the health of older people in developing countries. These findings are in consonance with the findings of similar studies in the United States. Data provided by the Gregory Armstrong of the Centres of Disease Control and Prevention (CDC) in the study of Arno et al (2011), supported their hypothesis that income-support programme had a beneficial impact on the health of older people in the United States. In a similar vein, an income-support programme, Earned Income Tax Credit (EITC), was reported to have had a positive impact on the health of Americans (Arno et al.,2009).

There are some limitations that this review encountered. Firstly, because older people face a lot of challenges, especially in developing countries where there are limited social protection schemes to support them, data on the impact of income-support on older people's health were very scarce. Consequently, of the selected studies for this review, only seven met our inclusion criteria. Secondly, our search for relevant literature was limited to studies conducted in English; whereas, there are various studies on social protection for the elderly in Latin America conducted in other languages. Finally, in some of the studies included in this review, we discovered missing data that might have been helpful in our analysis.

Conclusion

This systematic review is the first to assess the impact of income-support on older people's health in developing countries. Our analysis showed that income-support to poor older people improved their health and wellbeing. Although income-support are meant to support older people in various aspect of their lives, our analyses was limited to older people's health.

The limitations of this review make it mandatory for further research on the subject area. Nevertheless, our findings have implications for healthcare policies in developing countries. It has been proved that income inequality hinder access to healthcare services among the vulnerable. Governments in developing countries need the political will to design and implement social health insurance programmes that will have access to healthcare service to all irrespective of socioeconomic status.

Our systematic review findings have shown that social protection mechanisms address the exclusion and vulnerability of older people. This current evidence supports the relevance of a life-course mechanism to ageing and the calls for improving and protecting older people against social exclusion in the implementation of SDGs.

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