Health literacy in relation to health outcomes in hypertension: A systematic review

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ABSTRACT

The article aims at presenting scientific evidence on the possible role of Health Literacy (HL) on hypertension health outcomes. Original-research studies published in English from January 1st 1990 to February 28th 2021, were selected through a computer-assisted literature search, using specific key words relating to hypertension and HL. Studies in full text, on adult hypertensive patients, were included. Out of the 56 articles reviewed, 29 publications met the criteria for inclusion. Twenty-four studies were cross-sectional, 2 studies were interventions and there was 1 study from each of the following categories: randomised control trial (RCT), retrospective study and a non-randomised prospective cohort trial. The findings differ according to the design of the study, however, there seems to be good evidence that higher HL is usually associated with better blood pressure control, better hypertension knowledge, better medication adherence and higher levels of health-related quality of life of the participants. There is evidence that health literacy levels positively affect hypertension health outcomes.

KEY WORDS: *Health literacy, hypertension, health outcomes, blood pressure, hypertension knowledge*

INTRODUCTION

Health Literacy (HL) has evolved into a broadly discussed and widely researched topic and it is defined as the possession of literacy skills that are required to make health related decisions, in a variety of different environments. Poor HL levels have been associated with higher use of emergency department services, lower uptake of preventive health-seeking behaviors, inadequate and/or poor knowledge of chronic diseases' prevention and lower levels of reported quality of life[1,2,3].

HL describes the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain health[4]. The concept of HL is focusing at empowering people to live a healthier life[5].

Nowadays, high blood pressure (BP) remains a major global public health issue[6,7] and constitutes the leading preventable risk factor for premature death and disability, worldwide. The number of people with raised BP has increased by 90% worldwide in the past four decades, mainly due to the growth and ageing of the population, with the majority of the increase occurring in low-income and middle-income countries[7].

Adequate levels of HL are of paramount importance in the management of hypertension since, successfully controlling and overcoming the condition, requires self-care management, self-efficacy, adherence to taking

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recommended drugs, as well as, certain diet and lifestyle modifications.

The aim of the article is to present and discuss the current scientific evidence on the possible role of HL on hypertension health outcomes, based on an extensive literature search.

MATERIALS AND METHODS

The PRISMA guidelines for reporting systematic reviews were followed here[8]. In particular, original-research studies that were published in English language from January 1st 1990 to February 28th 2021, were selected through a computer-assisted literature search (i.e., Medline via Pubmed and Scopus). The following key words were used: ["hypertension" OR "high blood pressure" OR "elevated blood pressure"] AND ["health literacy" OR "literacy"] (the terms numeracy, knowledge and medication literacy were not included in the search). In addition, the reference lists of the retrieved articles directed the search to relevant present articles that were not allocated through the searching procedure. Full text studies in English, focusing on the relationship of HL with health outcomes on adult hypertensive participants,

were included. Studies referring to health numeracy, health knowledge or medication literacy, were excluded.

In total 1438 citations were yielded form all databases and three additional studies were included, through the reference list screen. After removal of duplicates, titles and abstracts were screened for relevance. The main reason for exclusion was not addressing HL and health outcomes in people with hypertension. Based on that, overall 56 articles were included for full-text review, out of which, 29 publications met the above criteria and are presented in the current article (Figure 1).

RESULTS

Characteristics of Included Studies

All of the studies included address the relationship between HL and health outcomes (Table 1). 24 of the studies were cross-sectional[9-32], 2 studies were interventions[33-34], 1 of them was RCT[35] 1 study was retrospective[36] and 1 was a non-randomised prospective cohort trial[37]. The smallest study included 11 patients[33] whereas the largest study included 46,263 patients[19]. Sixteen studies were conducted in the United States[9-13,15-16,18-21,29,32-34,37], 4 were in Iran[23,26,31,35],
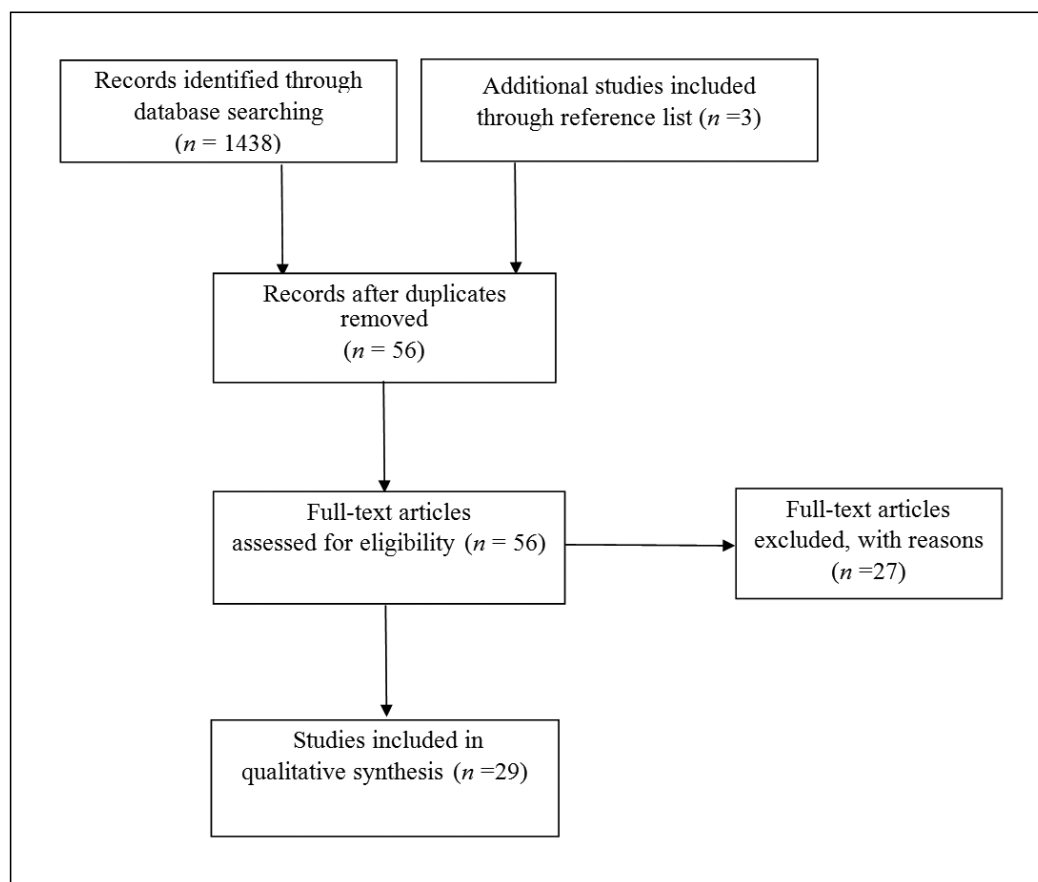

FIGURE 1. Flow diagram.

TABLE 1. Characteristics of published studies on health literacy in relation to health outcomes in hypertension.

Reference, year of publication	Country	Study Type	Sample (N, Sex, Ethnicity)	Measurement of Health Literacy	Results
Williams et al., 1998	USA	Cross-sectional	402 patients with hypertension	Test of FHL in Adults (TOFHLA)	Low-literate patients had higher SPB while no association was found between literacy level and DBP
Gazmararian et al., 2003	USA	Cross-sectional	653 patients who had asthma, diabetes, congestive heart failure, and/or hypertension	Short test of FHL in adults (S-TOFHLA)	Patients with inadequate HL knew significantly less about their disease than those with adequate literacy
Persell et al., 2007	USA	Cross-sectional	119 adults with hypertension	Short version of the Test of FHL in Adults (S-TOFHLA)	Patients with inadequate HL were less able to name any of their antihypertensive medications compared to those with adequate HL
Powers et al., 2008	USA	Cross-sectional	1224 patients with hypertension	Rapid Estimate of Adult Literacy in Medicine (REALM)	When compared to patients with adequate literacy, the predicted mean SBP for patients with limited literacy was higher. However, this interaction was not statistically significant for DBP
Pandit et al., 2009	USA	Cross-sectional	330 hypertensive patients form six primary care safety net clinics	Short version of the Test of Functional HL in Adults (S-TOFHLA)	Both lower educational attainment and more limited literacy were found to be significant independent predictors of poorer HK and control
Shibuya et al., 2011	Japan	Cross-sectional	320 Japanese adults (139 women and 181 men) who received an annual health check-up at an urban clinic in Japan	FHL and CHL were assessed using structured questionnaires based on TOFHLA	Lower HL and HK were associated with a poor health status and BP level in middle-aged participants
Aboumatar et al., 2013	USA	Cross-sectional	41 primary care physicians and 275 of their patients with hypertension	Rapid Estimate of Adult Literacy in Medicine REALM	A lower percentage of patients with low versus adequate literacy had controlled BP
Ingram et al., 2013	USA	Cross-sectional	121 African American participants	REALM	Most of the participants had inadequate HL. No statistically significant association was found between HL and adherence, but regression analysis showed that age and health status significantly predicted adherence
Ko et al., 2013	Singapore	Cross-sectional	306 patients with hypertension	The Short Test of Functional HL in Adults, Singapore version (STOFHLA Singapore)	The HK scores were significantly associated with HL level. The achievement of target BP was not associated with HL
Willens et al., 2013	USA	Cross-sectional	10,644 patients with hypertension	Brief Health Literacy Screen (BHLS)	Independent of educational attainment, 3-point increases in HL scores were associated with 0.74 mmHg higher SBP and 0.30 mmHg higher DBP
McNaughton et al., 2014a	USA	Cross-sectional	46,263 hospitalized patients with hypertension	Brief Health Literacy Screen (BHLS)	Low HL was associated with extremely elevated BP and elevated BP among those without diagnosed hypertension
McNaughton et al., 2014b	USA	Cross-sectional	423 urban, primary care patients with hypertension and coronary disease	REALM	Adjusting for age, gender, race, employment, education, mental status, and self-reported adherence, low literacy was associated with uncontrolled BP

TABLE 1. Characteristics of published studies on health literacy in relation to health outcomes in hypertension *(continued)*.

Reference, year of publication	Country	Study Type	Sample (N, Sex, Ethnicity)	Measurement of Health Literacy	Results
Perez 2015	USA	Cross-sectional	144 Hispanic adults	Newest Vital Sign (NVS)	There were significant weak to moderate relationships among acculturation, HL, and several illness perceptions
Ahn et al., 2016	Korea	Cross-sectional	289 patients with hypertension	Rapid estimate of adult literacy in medicine (REALM-R)	Those with higher HL and higher self-efficacy scores were more likely to have higher medication adherence
Halladay et al., 2017	USA	Non-randomized prospective cohort trial	525 adult patients English-speaking referred with uncontrolled hypertension	The Short-Test of FHL in Adults (STOFHLA)	At 12 months, the low and higher HL groups had statistically significant decreases in mean SBP but the between group difference was not significant
Naimi et al., 2017	Iran	Cross-sectional	400 patients with hypertension	HL for Iranian Adults (HELIA)	There was positive and significant correlation between HL and HRQL
Shi et al., 2017	China	Retrospective study	360 hypertensive patients	Chinese HL scale for hypertension (CHLSH)	Patients with high HL have better hypertension control, a lower risk of ischemic cardiovascular disease (ICVD), lower brachial ankle pulse wave velocity values, and better HRQL
Wang et al., 2017	China	Cross-sectional	882 hypertensive patients	Three-item Brief Health Literacy Screening (BHLS)	Age, education level, self-management efficacy and HL were significantly related to the HRQL. HL and Self-management efficacy have a significant impact on HRQL
Yilmazel et al., 2017	Turkey	Cross-sectional	500 volunteer teachers of both genders	The Newest Vital Sign Scale (NVS)	Disease knowledge and awareness were low in teachers. The measured HL levels of teachers didn't overlap with their own assessments about HL skills
Chajaee et al., 2018	Iran	Cross-sectional	700 patients with hypertension	HL for Iranian Adults (HELIA)	More than three quarters of participants (75.5%) are inadequate and partially adequate of HL. There was a significant correlation between the BP knowledge and the mean score of HL
Han et al., 2018	USA	Intervention	11 Spanish-speaking Latinos	HL was measured by HBP-health literacy scale (HBP-HLS) and the Newest Vital Sign	Participation in the intervention resulted in improved BP, numeracy, and psychological outcomes. Our findings support HL education as a promising avenue in promoting high BP control among inner-city Spanish-speaking Latinos
Park et al., 2018	Korea	Cross-sectional	160 low-income older people with hypertension registered in 16 public health centers in Busan, South Korea	The Newest Vital Sign (NVS)	Medication adherence and HL were significantly associated with HRQL in vulnerable older people with hypertension
Costa et al., 2019	Brazil	Cross-sectional	392 hypertensive patients 60> years or older, using at least one medication for hypertension daily for at least a year.	The Brazilian 18-item Short Assessment of Health Literacy for Portuguese-Speaking Adults;	Hypertensive elderly people with inadequate HL were more likely to have inadequate BP
Delavar et al., 2019	Iran	Randomized Controlled Trial	118 elderly people with uncontrolled primary hypertension and inadequate HL.	HL determined by a score of less than 66% based on the Health Literacy for Iranian Adults scale	Self-management education tailored to HL significantly promotes medication adherence but has no significant effects on control of BP

TABLE 1. Characteristics of published studies on health literacy in relation to health outcomes in hypertension *(continued)*.

Reference, year of publication	Country	Study Type	Sample (N, Sex, Ethnicity)	Measurement of Health Literacy	Results
Lor et al., 2019	USA	Cross-sectional	1355 Dominican Hispanic adults	HL was measured using the newest vital sign (NVS)	When controlling for age, sex, birth country, education level, recruitment location, depression, anxiety, and sleep disturbance, having adequate as compared to inadequate HL was associated with a higher medication adherence score
Miranda et al., 2019	Amsterdam	Cross-sectional	Dutch (n = 1948), South-Asian Surinamese (n = 2054) and African Surinamese (n = 1932) origin aged 18–70 years	The Rapid Estimate of Adult Literacy which was previously translated to Dutch (REALM-D).	HL is associated with hypertension prevalence in selected ethnic groups.
Warren-Findlow et al., 2019	USA	Intervention	52 mostly female and older than 50 years old patients with hypertension	Newest Vital Sign (NVS) and Test of FHL in Adults	Participants showed improvement on all self-care measures with significant mean differences on diet adherence and weight management activities
Ghaffari-fam et al., 2020	Iran	Cross-sectional	210 patients with hypertension	The HL instrument had o5 domains: Reading health information, Understanding health information, Appraisal of health information, Ability to access health information, Decision making	Significant correlations between HL dimensions and systolic hypertension The ability to access health information was the statistically significant predictor of systolic hypertension
Persell et al., 2020	USA	Cross-sectional	919 adults with uncontrolled hypertension	Newest Vital Sign	Participants with low HL were less likely to have chronic medications reconciled, know indications for chronic medications and demonstrate understanding of instructions and dosing

Note. FHL = Functional Health Literacy, HL = Health Literacy, BP = Blood Pressure, SBP = Systolic Blood Pressure, DBP = Diastolic Blood Pressure, HK = Hypertension Knowledge, CHL = critical HL, PDM = Participatory Decision Making, HRQL = Health Related Quality of Life

2 were in China[24,36], 2 were in Korea[22,27], 1 was in Japan[14], 1 was in Singapore[17], 1 was in Turkey[25], 1 was in Brazil[28] and 1 was in Amsterdam[30]. The most commonly used instruments for HL assessment were Test of Functional Health Literacy (FHL) in Adults (TOFHLA), Short Test of FHL in Adults (S-TOFHLA), and Rapid Estimate of Adult Literacy in Medicine (REALM), Newest Vital Sign (NVS), Brief HL Screening (BHLS) and HL for Iranian Adults (HELIA).

HL and blood pressure outcomes

Systolic and/or Diastolic Blood Pressure

Nine studies examined the association between health literacy and systolic and/or diastolic blood pressure (SBP/DBP). Most studies demonstrated an inverse association between low or inadequate health literacy and BP. In a study conducted in 402 hypertensive patients[9], it was concluded that low-literate patients had higher SBP while no association was found between literacy level and DBP. Similarly, it was concluded that when compared to patients with adequate literacy, the predicted mean SBP for patients with limited literacy, was higher[12]. A cross-sectional study (n=46.263 hospitalized adults), concluded that low health literacy was independently associated with elevated BP[19]. In another cross-sectional study with 423 urban, primary care hypertensive patients, low literacy was associated with uncontrolled BP (OR 1.75, 95%CI 1.06-2.87)[20]. Moreover, a retrospective cohort trial of 360 hypertensive patients indicated that SBP was significantly associated with health literacy after adjusting for potential confounders[36], while Persell and his partners, also concluded that BP was higher in patients with inadequate health literacy (difference of 5.2/2.2 mmHg)[11]. In a literacy-focused high blood pressure (HBP) intervention in Spanish-speaking

latinos with uncontrolled HBP, findings supported that participation in the intervention resulted in improved SBP and DBP[33]. On the other hand, in a cross-sectional study Willens et al. 2013[18] noticed that independent of educational attainment, 3-point increases in health literacy scores were associated with 0.74 mmHg higher SBP. In a non-randomized prospective cohort trial of 525 patients referred with uncontrolled hypertension, outcomes were assessed at 0, 6, 12, 18 and 24 months[37].

Blood pressure control

Seven studies examined the association between health literacy and BP control. In a retrospective cohort trial of 360 hypertensive patients, the authors concluded that patients with high health literacy have better hypertension control[36]. In multivariate analyses, more limited literacy was found to be a significant, independent predictor of poorer hypertension control[13]. Furthermore, Costa et al. 2019[28] conducted a cross-sectional study with 392 hypertensive elderly people and resulted that in the inadequate BP control group (N=163), the prevalence of inadequate functional HL was higher (69.3%). A randomized controlled trial, with 118 elderly people with uncontrolled hypertension and inadequate HL showed that, after the intervention, the rates of uncontrolled systolic and diastolic blood pressures decreased; however, the between-group differences respecting these rates were not statistically significant (P > 0.05)[35]. Recently, in a cross-sectional study conducted in Iran[31], it was found that controlling of systolic hypertension had a statistically significant negative correlation with all HL dimensions. On the contrary, in a cross-sectional survey conducted in Singapore, the achievement of target BP was not associated with HL level (p = 0.71) and there was no difference in the mean knowledge scores between the two BP control groups[17]. Similarly, Miranda et al., who conducted a large-scale prospective cohort study in a multi-ethnic population, resulted that no clear pattern was found in the association of health literacy with hypertension control[30].

Hypertension knowledge

Five studies demonstrated that lower HL was associated with lower hypertension knowledge. In a cross-sectional study with 402 patients with hypertension conducted mean scores of knowledge were strongly related to literacy[9]. Similarly, in another cross-sectional study which included 214 patients with hypertension, 65 years or older, respondents with inadequate health literacy knew significantly less about their disease, than those with adequate literature[10]. Pandit and his partners recruited 330 hypertensive patients from six primary care

safety net clinics and in multivariate analyses that did not make an adjustment for the other variable, lower literacy was found to be a significant independent predictor of poorer hypertension knowledge (grades 1–8 years of education: b = _0.89, 95% Confidence Interval (CI) – 1.76-0.02; category I of literacy skills: β = -2.04, 95% CI – 2.84-1.24[13]. A cross-sectional, interviewer-administered survey was performed at a government-funded primary care clinic in Singapore including 306 patients with hypertension, and the authors resulted that the hypertension knowledge scores were significantly associated with HL level (p<0.001)[17]. Finally, in a more recently published cross-sectional study conducted on 700 patients with hypertension, selected according to multistage random and quota types in the Isfahan province (Iran), there was a significant correlation between BP knowledge and mean score of health literacy[26].

Medication adherence

Six studies examined the association between health literacy and medication adherence in hypertension. Ingram and Ivanov 2013[16], examined the association of health literacy and adherence behaviors in African American older adults (N = 121) with hypertension using a descriptive correlational design. No statistically significant association was found between health literacy and adherence, but regression analysis showed that those who were younger and reported poor or fair health status, were less likely to adhere to treatment. In a cross-sectional study aiming to examine factors associated with medication adherence, medical-aid beneficiaries with higher health literacy and higher self-efficacy scores were more likely to have higher medication adherence, whereas, widowed and those who perceived more cons of chronic disease management, were more likely to have lower medication adherence than their counterparts (p < .05)[22]. In another randomized controlled trial with 118 elderly people with uncontrolled primary hypertension and inadequate health literacy, results indicate that after the intervention, medication adherence status in the intervention group was significantly better. (P = 0.002)[35]. In a cross-sectional survey of 1355 Hispanic adults, who self-reported hypertension, antihypertensive medication adherence and HL were evaluated along with covariates, including sociodemographic characteristics, depression, anxiety, and sleep disturbance. When controlling for age, sex, birth country, education level, recruitment location, depression, anxiety, and sleep disturbance, having adequate as compared to inadequate health literacy, was associated with a higher adherence score (b = 0.378, p = 0.043)[29]. Warren-Findlow et al. 2019[34] recruited 52 English

and Spanish speaking patients with hypertension in a pilot study. Comparing baseline and follow-up hypertension self-care scores, barriers to medication adherence decreased and medication adherence increased; however, these changes were not statistically significant. Finally, in contrast to the above studies, in a cross-sectional study of 919 health center patients from the Chicago area with uncontrolled hypertension, 47.4% had likely limited (low), 33.2% possibly limited, and 19.4% likely adequate health literacy. Self-reported adherence to hypertension medications was higher among the low HL group (65.6% versus 56.0%, p=0.010)[32].

Health-related Quality of Life (QoL)

Four studies demonstrated that HL was significantly associated with health-related quality of life. Naimi et al. 2017[23] in a cross-sectional study conducted in Tehran, Iran which consisted of 400 patients with hypertension, concluded that there was positive and significant correlation between HL and health-related *QoL* (p<0.01, r=0.30). In a retrospective cohort trial of 360 hypertensive patients, the goal was to determine factors associated with health literacy. Patients with high HL seemed to have better health-related QoL[36]. In a cross-sectional study published also in 2017, the aim was to examine the association between the health-related QoL of hypertensive patients and HL and self-management efficacy as well as how they affect the health-related QoL. The study demonstrated that HL was related to health-related QoL[24]. Moreover, in a descriptive cross-sectional study conducted in Korea, HL was significantly associated with health-related *QoL* in vulnerable older people with hypertension. It has to be stressed however that exercise and subjective health were more significant factors affecting health-related *QoL* than medical adherence and HL[27].

Other outcomes

Hypertension awareness: In a descriptive and cross-sectional research conducted among school teachers (78 out of 500 participants were hypertensive) in Turkey, adequate HL according to hypertension awareness and control in participants didn't show any significance. Among people with hypertension, adequate HL was higher in those aware of the disease, than those not aware of being hypertensive (*p* > 0.05)[25]. Similarly, no significant associations were found between HL and hypertension awareness when Miranda et al. 2019[30] aimed to assess the extent to which HL affects hypertension prevalence, awareness, treatment and control, in different ethnic groups.

Illness perceptions: A cross-sectional study including 144 Hispanic adults with a self-reported diagnosis of hypertension, concluded that there were significantly weak to moderate relationships among acculturation, health literacy, and several illness perceptions. A significant moderate relationship was also found among acculturation, health literacy, and the Brief Illness Perception Questionnaire summary scores. Thus, as acculturation and HL increased, the perception decreased on how threatening hypertension is, as an illness. Even after controlling for demographic variables, acculturation and HL contributed significantly in explaining overall illness perceptions of hypertension, as indicated by the Brief Illness Perception Questionnaire summary scores[21].

Medication reconciliation: Persell et al. 2007[11], in order to assess the relationship between health literacy, patient recall of antihypertensive medications, and reconciliation between patient self-report and the medical record, interviewed 119 patients with diagnosed hypertension and concluded that the agreement between patient-reported and medical record-reported antihypertensive medications, was lower for patients with inadequate, compared to adequate health literacy. In a more recently published cross-sectional study of patients from the Chicago area with uncontrolled hypertension, the authors demonstrated that compared to participants with likely adequate health literacy, participants with low HL were less likely to have chronic medications reconciled (18.0% versus 29.6%, p=0.007)[32].

Participatory decision making (PDM): In a cross-sectional study of enrollment data from a randomized controlled trial of interventions to improve patient adherence to hypertension treatments with 275 urban patients with hypertension participating, it was also found that patients with low literacy were as interested in participating in decision making, as their counterparts with adequate literacy; however, they were less likely to experience PDM in their medical visits[15].

Hypertension self-care: Warren-Findlow et al. 2019[34] recruited patients with hypertension to pilot test the acceptability and feasibility of a brief HL intervention focused on hypertension self-care and to assess changes in self-care activities. At 1-month follow-up, participants with inadequate literacy showed improvement on all self-care measures with significant mean differences (*p* < .05) on diet adherence and weight management activities.

Knowledge of drug indications: In a cross-sectional study of health center patients from the Chicago area with uncontrolled hypertension, the authors demonstrated that compared to participants with adequate health literacy, participants with low HL were less likely to know the indications for chronic medications (64.1% versus 83.1%, p<0.001)[32].

Risk of Ischemic Cardiovascular Disease (ICVD): Shi et al. 2017[36] conducted a retrospective cohort trial of 360 hypertensive patients to investigate the determinants of HL and the potential relationship between HL and hypertension management. They concluded that patients with high HL have a lower risk of ischemic cardiovascular disease (ICVD).

DISCUSSION

Self-care management, empowerment, self-efficacy and adequate adherence to medication and diet/lifestyle modifications, are essential for the successful management of a chronic disease like hypertension[38]. The current systematic literature review was set out to investigate the possible role of HL on health outcomes in hypertension.

As anticipated, higher HL is usually associated with better BP control, better hypertension knowledge, better medication adherence and higher levels of health-related quality of life, however, findings differ in strength, according to the design of the study and the study population (general population vs vulnerable groups). The results of the studies are inconsistent (Table 1).

The above discrepancies could be partly attributed to certain methodological limitations in terms of design and recruitment method and the use of different instruments to assess the HL levels of the participants. More specifically, most of the studies conducted in this field, who met the review inclusion criteria, were not conducted in Europe, they were cross-sectional which are observational in nature, and they were often conducted using convenience sampling with a relatively small number of participants.

It is important to note that in the current review, no studies addressing the link between HL and health outcomes in hypertension, were found till today, conducted in the Mediterranean area or in Southern Europe. The current article highlights the need for more specifically designed interventions and/or randomized control trials, as well as cross-sectional studies, particularly in southern Europe and in the Mediterranean area, aiming at better elucidating the possible association of HL in hypertension health outcomes, together with its underling mechanisms. The role of possible cultural differences in the interpretation of the results, should also be taken into account, when conducted studies in this field.

CONCLUSIONS

There is evidence that HL levels positively affect hypertension health outcomes. Given the importance of the appropriate management of hypertension, specifically designed randomized control trials and intervention trials, as well as cross-sectional studies in representative samples of the population, are needed to better elucidate the above association, particularly in the area of Southern Europe, where research in this area, is scarce.

Funding

ΠΕΡΙΛΗΨΗ

Εγγραμματοσύνη της Υγείας και σχετιζόμενες με την υγεία επιπτώσεις στην υπέρταση: Συστηματική Ανασκόπηση Βιβλιογραφίας

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Η ανασκόπηση στοχεύει στην παρουσίαση επιστημονικών δεδομένων σχετικά με τον πιθανό ρόλο της Εγγραμματοσύνης της Υγείας (ΕΥ) στις επιπτώσεις υγείας σχετιζόμενες με την υπέρταση. Πρωτότυπες ερευνητικές μελέτες δημοσιευμένες στα αγγλικά από την 1η Ιανουαρίου 1990 έως τις 28 Φεβρουαρίου 2021, επιλέχθηκαν μέσω αναζήτησης της βιβλιογραφίας, χρησιμοποιώντας συγκεκριμένες λέξεις-κλειδιά σχετιζόμενες με την υπέρταση και την ΕΥ. Συμπεριλήφθηκαν μελέτες με πλήρες κείμενο που αφορούσαν σε ενήλικες υπερτασικούς ασθενείς. Από τα 56 άρθρα που εντοπίστηκαν, 29 μελέτες πληρούσαν τα κριτήρια για να συμπεριληφθούν στην ανασκόπηση. Είκοσι τέσσερις μελέτες ήταν συγχρονικές, 2 ήταν παρεμβάσεις ενώ υπήρχε και 1 μελέτη από

καθεμία από τις ακόλουθες κατηγορίες: τυχαιοποιημένη κλινική δοκιμή (RCT), αναδρομική μελέτη και μια μη τυχαιοποιημένη προοπτική κλινική μελέτη. Τα ευρήματα διαφέρουν ανάλογα με το σχεδιασμό της μελέτης, ωστόσο, φαίνεται να υπάρχουν καλές ενδείξεις για το ότι η υψηλότερη ΕΥ συνήθως σχετίζεται με καλύτερο έλεγχο της αρτηριακής πίεσης, καλύτερη γνώση για την υπέρταση, καλύτερη συμμόρφωση με τη φαρμακευτική αγωγή και υψηλότερα επίπεδα ποιότητας ζωής σχετιζόμενη με την υγεία των ασθενών. Υπάρχει επίσης ένδειξη πως τα επίπεδα ΕΥ επηρεάζουν θετικά τις επιπτώσεις της υπέρτασης στην υγεία.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ: *Εγγραμματοσύνη της υγείας, υπέρταση, αποτελέσματα υγείας, αρτηριακή πίεση, γνώση για την υπέρταση*

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