SHORT COMMUNICATION

Health Literacy and Associated Factors in Subjects with Hand Eczema: A Dutch Population-based Study

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Nowadays, patients are encouraged to engage in their health and health-related aspects (1). However, it can be complicated to meet the complex demands of health, especially for those with limited health literacy (2). Health literacy is defined as the degree to which individuals have the capacity to obtain, process, and understand health information and services needed to make appropriate health decisions (1). Consequently, limited health literacy can be a barrier in disease (self-)management, especially in chronic diseases (2).

To date, health literacy has never been investigated in patients with hand eczema (HE), while it is a common skin disease with multifactorial causes, which might be accompanied by difficulties in the comprehension of the diagnosis (3). The treatment of HE involves measures to avoid exposure to irritants and allergens, along with using emollients and corticosteroids, necessitating treatment adherence and self-management. Furthermore, oral and written information concerning the diagnosis and prevention is often provided during consultations, making health literacy essential. Therefore, the aim of this study is to measure health literacy and its associated factors among individuals with HE within the Dutch general population, to create more awareness as a first step to improve healthcare in this specific patient population.

MATERIALS AND METHODS

This cross-sectional study contains data from the Lifelines Cohort Study, a multi-disciplinary prospective population-based study examining the health and health-related behaviours of 167,729 persons living in the North of the Netherlands (4). Adult participants with HE were identified by an add-on questionnaire, sent out in 2020 to 135,950 participants. Participants who did not respond to this questionnaire were defined as non-responders.

Details regarding the questions and categorization have been published previously and can be found in Table SI (5, 6). To measure health literacy, 6 questions were included in the questionnaire sent out between 2012 and 2015. Functional health literacy, including basic skills in reading and writing, was measured by 3 validated questions from the Dutch Set of Brief Screening Questions (range 0–15), with a score of <13 points representing low functional health literacy (1, 7). Communicative health literacy, including cognitive and social skills to extract information and meaning from different forms of communication and apply this to changing circumstances, was measured by 2 questions from the validated Dutch Functional Communicative and Critical Health Literacy (FCCHL) questionnaire (1, 8). One question from the FCCHL questionnaire was used to assess critical health literacy, including the spectrum of more advanced cognitive and social skills to critically analyse information to exert greater control over health situations (1, 8). The highest level of education was categorized by recoding the 8 potential response categories, varying from "no education" to "university education" into years of education, using the minimum numbers of years required to complete each category (range 5–16 years).

Binary logistic regression analysis was performed among subjects with HE in lifetime with low vs high functional health literacy as the dependent variable and age, sex, and education as independent variables and adjusted for age, sex, and education, to account for their known association with HE and functional health literacy (6, 9). Data analysis was performed using the Statistical Products and Service Solutions package version 25.0 (SPSS 25.0, IBM Corp, Armonk, NY, USA).

The Lifelines Cohort Study was conducted according to the guidelines of the Declaration of Helsinki. All procedures were approved by the Medical Ethics Committee (METc 2007/152 and 2019/571) of the University Medical Center Groningen and all participants provided informed consent.

RESULTS

In total, 57,046 (42.0%) participants were included, with a lifetime and one-year prevalence of HE being respectively 15.0% and 7.3% (5). Non-responders ($n = 76{,}991$) were younger, more often male, had completed fewer years of education and reported lower health literacy compared with responders (Table SII). Characteristics of the current study population are presented in **Table I**.

Low functional health literacy scores were found for 24.3% of the subjects with HE. In total, 5.5% of the subjects with HE reported that they sometimes, always, or often needed help with reading hospital materials and 14.5% were no more than somewhat confident about filling out medical forms. In addition, 11.2% reported sometimes, always, or often trouble with understanding their medical situation due to difficulties with written information.

A total of 49.5% of the subjects with HE never or occasionally talk to others about the problems or complaints for which they receive help or treatment. In addition, 39.1% never or occasionally collect information on their problems or complaints. Furthermore, 33.5% never or occasionally collect information to make health-related decisions.

When analysing the group of subjects who have ever had HE ($n = 8{,}550$) and the association between age, sex, years of education, and low vs high scores of functional health literacy, more years of education showed a positive association with a higher score of functional health literacy after full adjustment (OR > 2.41, p-value < 0.001) (Table SIII).

Table I. Characteristics of the total study population, subjects with hand eczema ever, and subjects without hand eczema ever

	Total (*n* = 57,046)	HE lifetime (*n* = 8,550)	HE never (*n* = 48,496)
Sex, female, *n* (%)	34,396 (60.3)	6,123 (71.6)	28,273 (58.3)
Age (years), mean ± SD	55.8 ± 12.2	53.4 ± 11.4	56.2 ± 12.2
Atopic dermatitis, *n* (%)	5,145 (9.2)	2,415 (29.7)	2,730 (5.7)
Missing	1,009	420	589
Exposure to wet activities, *n* (%)	13,299 (24.6)	2,610 (32.5)	10,689 (23.2)
Missing	2,927	514	2,413
Education, *n* (%)			
5–6 years	853 (1.5)	108 (1.3)	745 (1.6)
9 years	6,212 (11.1)	719 (8.6)	5,493 (11.6)
10 years	7,740 (13.9)	1,078 (12.9)	6,662 (14.0)
12 years	21,881 (39.2)	3,583 (42.7)	18,298 (38.5)
15 years	15,222 (27.2)	2,298 (27.4)	12,924 (27.2)
16 years	3,954 (7.1)	602 (7.2)	3,352 (7.1)
Missing	1,184	162	1,022
Functional health literacy, *n* (%)			
Total score, median [IQR]	14.0 [1.0]	14.0 [1.0]	14.0 [1.0]
low score (<13 points)	11,418 (24.7)	1,680 (24.3)	9,738 (24.7)
high score (≥13 points)	34,895 (75.3)	5,231 (75.7)	29,664 (75.3)
Missing	10,733	1,639	9,094
Help with reading information, *n* (%)			
Never (5)	37,963 (81.9)	5,596 (81.0)	32,367 (82.1)
Occasionally (4)	6,220 (13.4)	938 (13.6)	5,282 (13.4)
Sometimes (3)	1,524 (3.3)	267 (3.9)	1,257 (3.2)
Often (2)	559 (1.2)	98 (1.4)	461 (1.2)
Always (1)	78 (0.2)	13 (0.2)	65 (0.2)
Missing	10,702	1,638	9,064
Confident in filling out medical forms, *n* (%)			
Not at all (1)	858 (1.9)	88 (1.3)	770 (2.0)
A little (2)	1,331 (2.9)	175 (2.5)	1,156 (2.9)
Somewhat (3)	4,702 (10.1)	739 (10.7)	3,963 (10.1)
Reasonably (4)	26,421 (57.0)	3,998 (57.8)	22,423 (56.9)
Very (5)	13,017 (28.1)	1,911 (27.7)	11,106 (28.2)
Missing	10,717	1,639	9,078
Difficulties with written information, *n* (%)			
Never (5)	31,396 (67.8)	4,668 (67.5)	26,728 (67.8)
Occasionally (4)	9,693 (20.9)	1,467 (21.2)	8,226 (20.9)
Sometimes (3)	4,783 (10.3)	714 (10.3)	4,069 (10.3)
Often (2)	356 (0.8)	48 (0.7)	308 (0.8)
Always (1)	97 (0.2)	15 (0.2)	82 (0.2)
Missing	10,721	1,638	9,083
Talk about complaints, *n* (%)			
Never (1)	10,113 (21.8)	1,191 (17.2)	8,922 (22.6)
Occasionally (2)	15,309 (33.0)	2,236 (32.3)	13,073 (33.2)
Sometimes (3)	12,652 (27.3)	2,072 (30.0)	10,580 (26.8)
Often (4)	6,388 (13.8)	1,138 (16.5)	5,250 (13.3)
Always (5)	1,859 (4.0)	275 (4.0)	1,584 (4.0)
Missing	10,725	1,638	9,087
Collecting information, *n* (%)			
Never (1)	10,701 (23.1)	1,230 (17.8)	9,471 (24.0)
Occasionally (2)	10,029 (21.7)	1,475 (21.3)	8,554 (21.7)
Sometimes (3)	9,006 (19.4)	1,357 (19.6)	7,649 (19.4)
Often (4)	10,959 (23.7)	1,930 (27.9)	9,029 (22.9)
Always (5)	5,615 (12.1)	918 (13.3)	4,697 (11.9)
Missing	10,736	1,640	9,096
Collecting information regarding decision-making, *n* (%)			
Never (1)	7,381 (15.9)	817 (11.8)	6,564 (16.7)
Occasionally (2)	10,493 (22.7)	1,500 (21.7)	8,993 (22.8)
Sometimes (3)	9,934 (21.4)	1,481 (21.4)	8,453 (21.4)
Often (4)	11,486 (24.8)	1,964 (28.4)	9,522 (24.2)
Always (5)	7,030 (15.2)	1,150 (16.6)	5,880 (14.9)
Missing	10,722	1,638	9,084

Education was defined as the minimal years of education needed to achieve the highest self-reported completed education level and assessed during baseline assessment (2006–2013). Health literacy was assessed during a follow-up questionnaire sent out between 2012 and 2015. All other variables were included in the questionnaire regarding skin diseases, sent out in 2020. All questions regarding health literacy could be answered on a scale of 1–5, after reversing the answers to questions 1 and 3; higher scores indicated higher health literacy. SD, standard deviation; IQR, interquartile range; HE: hand excema.

DISCUSSION

This large general population-based study found that almost a quarter of subjects with HE had limited functional health literacy. Almost half of the subjects never or occasionally talk about their medical situation, and nearly 40% never or occasionally collect medical information. Fewer years of completed education was associated with lower functional health literacy.

These results indicate that a substantial proportion of subjects with HE are at risk of encountering problems due to limited health literacy. In previous qualitative studies concerning HE, patients reported that they wanted an active role in their course of illness, but that lack of sufficient knowledge regarding HE was one of the barriers experienced to having an active role (10). In addition, they emphasized that the shared decision-making process depended on the empowerment of the patient (3). Lack of knowledge and empowerment might be a result of limited health literacy, which can act as a barrier in HE care, emphasizing the need for awareness of limited health literacy among these patients.

Fewer years of completed education might be the first clue to which patient profiles need additional attention. However, as it is hard to improve health literacy on an individual level, most interventions aim to improve organizational health literacy and focus on implementing strategies to make it easier for patients with limited health literacy to understand oral and written information and manage their health. It is important to realize that although these interventions require time and effort, they can eventually save time, facilitating treatment adherence and higher patient satisfaction (2).

Strengths of this study are that it includes a large sample from the Dutch general population and incorporates items from both functional, communicative, and critical health literacy domains. However, the individual questions used to measure communicative and critical health literacy are not validated. In addition, the questions were distributed as a self-administered questionnaire, which excluded illiterate subjects from responding, causing selection bias. Furthermore, non-responders reported lower health literacy compared with responders, and all questions were based on self-reported perception of health literacy, which might have led to an underestimation.

In conclusion, this study found that a substantial proportion of subjects with HE reported limited health literacy, emphasizing the need for more awareness among clinicians treating these patients. Future research should focus on the impact of limited health literacy on health outcomes of HE by using validated objective and subjective measurement tools, to ultimately enable the development of interventions to increase organizational health literacy.

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