

# A recipe for excellence in health care: investigating the relationship between health literacy, self-efficacy, awareness, and health services' use<sup>1</sup>

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## Abstract

**Purpose of the paper:** Health services' quality relies on the patients' ability to participate in the provision of care as co-creators of value. Among others, individual health literacy - i.e. the ability to access, understand, process and use health information for the purposes of health protection and promotion - is crucial to realize the full potential of patient involvement. This paper investigates the consequences of inadequate individual health literacy on self-efficacy perception and awareness of health-related issues, which are expected to affect the process of patient empowerment.

**Methodology:** A sample of 438 Italian patients was built. The Newest Vital Sign (NVS) was used to assess individual health literacy skills. A self-reporting survey was administered to assess the patients' self-efficacy, awareness of health-related issues and health services' use. Also, socio-demographic variables were collected to investigate the correlates of limited health literacy.

**Findings:** Problematic health literacy was prevailing. The lower the health literacy skills, the poorer the individual self-efficacy and the lower the awareness of health-related issues. Interestingly, inadequate health literacy was associated with increased access to emergency care and hospital services.

**Practical implications:** Inadequate health literacy is likely to prevent patient empowerment. Actually, it performs as a barrier to patient involvement in the provision of care. Policy makers should attach a specific health literacy concern to health policies intended to promote patient participation in the provision of care. Besides, health care providers should arrange and implement tailored health literacy promotion initiatives, in an attempt to realize the full potential of patient empowerment and improve the quality of care.

**Originality of the paper:** Although health literacy is a well-established topic, evidence on the consequences of limited health literacy on health behaviors is still inconsistent. This paper contributes in advancing scientific knowledge on the issue, delving into the effects of limited health literacy on self-efficacy perceptions, awareness of health-related issues and health services' use.

Key words: patient participation; health literacy; quality; self-efficacy; awareness; patient empowerment; patient involvement

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## 1. Introduction and research purposes

Quality improvement has been generally emphasized as a critical strategy to enhance the functioning of the health care system (Berwick *et al.*, 1991). In the past few years, scholars have paid growing attention to the relationship linking quality improvement and patient empowerment in the health care sector (Groene *et al.*, 2010). In fact, the establishment of co-creating partnerships between patients and health care professionals could strongly contribute in the enhancement of health care quality (Renedo *et al.*, 2015). Although the scientific literature pointed out the need to enhance patient empowerment and involvement in an attempt to increase health services' quality (Armstrong *et al.*, 2013), it is still unclear whether patient engagement is a reality or a rhetoric (Wiig *et al.*, 2013). Notwithstanding, patient enablement - that is to say the activation of patients' dormant resources for the purposes of health protection and promotion (Palumbo, 2017) - has been variously associated with improved quality of health services (Howie *et al.*, 1999), greater patient satisfaction (Howie *et al.*, 1998), and better health outcomes (Price *et al.*, 2006). From this point of view, the process of patient empowerment is crucial to achieving excellence in the provision of health services. However, it is worth noting that scholars are still debating the ultimate meaning of patient empowerment and involvement in the design and delivery of care (Funnell, 2016; Kreindler and Struthers, 2016).

Health Literacy is rapidly emerging as a requisite for the implementation of patient empowerment and, therefore, for the realization of excellence in health services (Wang *et al.*, 2016). In particular, health literacy could be understood as the individual ability to handle health-related information and to navigate the health care system (Batterham *et al.*, 2016). Although scholars do not agree in figuring out the relationship between health literacy and patient empowerment (Schulz and Nakamoto, 2013; Palumbo *et al.*, 2016), it has been stressed that the better the individual health literacy skills, the greater patients' willingness to be involved in the provision of care (Naik *et al.*, 2011) and to contribute to the enhancement of health services' quality (Ishikawa and Yano, 2008). In accordance with these arguments, this paper investigates the role of health literacy in realizing the full potential of patient empowerment. In particular, the consequences of individual health literacy skills on self-efficacy, awareness of health-related issues and health services' use is examined. It is supposed that the lower the individual health-related competencies, the lower the individual willingness to participate in the provision of care and the poorer patients' self-efficacy perception in performing health-related tasks. Moreover, problematic health literacy is assumed to produce inadequate awareness of health protection and health promotion initiatives. Lastly, yet importantly, inadequate health literacy is likely to entail inappropriate access to care.

This paper is organized as follows. The second section depicts the conceptual framework on which this study is established: firstly, a brief overview of the health literacy concept is presented; then, the main consequences associated with problematic health literacy by the scientific literature are reported; lastly, the research questions inspiring this

manuscript are outlined. The third section provides few notes about the research design and strategy: the measures to assess individual health literacy, self-efficacy perception, awareness of health-related issues and health services' use are presented; besides, the characteristics of the sample involved in this research are illustrated. The fourth section presents the research findings. The fifth section includes a critical discussion of the study results, which are read in light of the limitations that affected this research. Conclusions summarize the practical and empirical implications of this paper, paving the way for an agenda for further developments.

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## 2. Conceptual framework and research questions

### 2.1 *The multifaceted nature of the health literacy concept*

The debate on the definition of health literacy is still open (Pleasant *et al.*, 2016). Indeed, health literacy is a complex and multifaceted construct, which is concomitantly composed of numerous shades (Nielsen-Bohlman *et al.*, 2004). A functional slant characterized the former conceptualization of health literacy (Simonds, 1974). In fact, it was originally understood as the individual ability to: 1) understand oral and written health-related information; 2) comply with written and numerical directions about health protection and health promotion initiatives; 3) properly report prior conditions and treatment; 4) ask pertinent and timely questions about health conditions; and 5) solve everyday issues affecting the appropriate treatment of the disease (Parker *et al.*, 1995). From this standpoint, functional health literacy is based on two basic and complementary competencies: 1) literacy, that is to say the ability to read and handle written information about health-related topics (Baker *et al.*, 2000); and 2) numeracy, that is to say the ability to access, process and act on numerical health information in order to make timely and effective health decisions (Golbeck *et al.*, 2005).

However, traditional functional interpretation is unable to catch the complexity of the health literacy construct (Berkman *et al.*, 2010). Emphasizing the evolutionary nature of health literacy, Nutbeam (2008) argued that interactive and critical competencies - beyond functional ones - foster the individual ability to navigate the health care system. On the one hand, interactive health literacy consists in the ability to establish a clear and comfortable relationship with health care providers (Rubin *et al.*, 2011, thus allowing the gap between health care professionals and patients to be filled (Safer and Keenan, 2005). On the other hand, critical health literacy involves the ability to attentively handle available health-related information and to discriminate between alternative health protection and/or promotion initiatives in order to enhance appropriateness in the access to care (Chinn, 2011; Sykes *et al.*, 2013).

Obviously, health literacy is not exercised in the void. Rather, it should be contextualized according to the institutional and structural attributes of the health care service system (Levin-Zamir and Peterburg, 2001). In line with these considerations, scholars have proposed the organizational health

literacy construct (Brach *et al.*, 2012; Annarumma and Palumbo, 2016), which concerns the ability of health care organizations to enable patients to partner with the health care professionals and to co-create value with the latter (Palumbo, 2016). The lower the organizational health literacy, the greater the patients' difficulty to navigate the health care environment and to actively participate in the design and delivery of care (Weaver *et al.*, 2012). In spite of its relevance, organizational health literacy falls outside the scopes of this article, which solely focuses on individual health literacy skills.

### *2.2 The consequences of inadequate individual health literacy*

The consequences of problematic health literacy have been widely examined in the scientific and professional literatures (Davey *et al.*, 2015; Sørensen *et al.*, 2015); nonetheless, there is still little agreement about this topic (Berkman *et al.*, 2011). *Inter alia*, inadequate health literacy has been claimed to anticipate increased risks of inappropriate access to care (Palumbo *et al.*, 2016). In fact, problematic health literacy has been associated with higher risks of hospitalization (Baker *et al.*, 1998); also, people living with limited health literacy skills have been found to be more likely to access emergency care (Baker *et al.*, 2004; Cho *et al.*, 2008), which pave the way for increased health-related costs (Schumacher *et al.*, 2013). It is worth noting that people showing inadequate health literacy are expected to self-report a poorer health status and to disclose greater limitations in daily life activities than their health literate counterparts (Wolf *et al.*, 2005). What is even more interesting is that individual health literacy skills have been claimed to strongly influence the use of health promotion and preventive services (Scott *et al.*, 2002; Heinrich, 2012).

Various attempts to figure out the casual link between health literacy, health services' use and health outcomes could be retrieved (Paasche-Orlow and Wolf, 2007); however, the distinguishing attributes of this relationship are unclear. Among others, individual health behaviours are influenced by perceived self-efficacy, which refers to the individual's confidence in managing a given health situation (Bandura, 1977). Scholars have recognized self-efficacy as a generalized trait that reflects coping skills to solve health-related issues and obtain desired outcomes (Schwarzer and Fuchs, 1995, Sarkar *et al.*, 2006). Furthermore, inadequate health literacy has been claimed to entail low self-efficacy perception and - consequently - poor medication adherence (Osborn *et al.*, 2010; Bohanny *et al.*, 2013). Problematic health literacy has also been associated with impaired disease-related knowledge (Gazmararian *et al.*, 2003; Dennison *et al.*, 2011), inadequate awareness of health-related issues, and unwillingness to participate in health decision making (Goggins *et al.*, 2014). In spite of these considerations, evidence on the consequences of health literacy is scattered, producing significant disagreement among scholars (Malloy-Weir *et al.*, 2015). This is especially true in Italy, where health literacy has been a neglected topic for a long time (Palumbo, 2012).

## 2.3 Research questions

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Drawing on the conceptual framework depicted above, this study aims at shedding light on the relationship linking health literacy, self-efficacy perception, and awareness of health-related issues. In particular, the following research questions inspired this manuscript:

- R.Q. 1: Does inadequate health literacy show a significant relationship with self-efficacy perception and awareness of health-related issues?
- R.Q. 2: Is there a relationship between self-efficacy, awareness and health services' use?
- R.Q. 3: What are the categories of patients at greater risk of limited health literacy and, presumably, of low self-efficacy and awareness of health-related issues?

To provide a tentative answer to these research questions, a convenient sample of 438 Italian citizens was built. The next section describes the methods and materials that were arranged for this research, specifying the measures used to assess individual health literacy skills, self-efficacy perception and awareness of health-related issues.

## 3. Materials and methods

### 3.1 Research design

The participants to this study were randomly recruited among patients who were served by three large public health care organizations operating in different geographical areas of Italy. The units of analysis consisted of a general hospital of national Relevance established in Southern Italy, a multispecialty hospital situated in Northern Italy and a university hospital located in central Italy. This sampling strategy was consistent with the purpose of only involving people who accessed at least once the INHS at the moment of the interview. Patients, patients' relatives, and informal caregivers were approached and requested to participate in this study. On the whole, 1000 individuals were requested to fill in a survey, which was intended to assess their health literacy skills, their self-efficacy perception, their awareness of health-related issues, and their habitual patterns in accessing health services.

A Pencil and Paper Interview (PAPI) technique was used to collect data. An interviewer personally administered the survey to the study participants, in an attempt to reduce the risks of missing data and to provide the respondents with adequate support to fill in the survey. On the whole, the survey consisted of 30 items. To minimize the occurrence of a response set, several items of the survey were reversed, thus allowing the interviewer to easily identify the respondents who followed a preconceived schema in completing the questionnaire. Response rate was about 44%, with 438 filled surveys available for the purpose of the study. Neither missing data nor response set affected the collected survey. The data were processed through the IBM Statistical Package for Social Science (SPSS)

Statistics software - Version 21. To investigate the relationship between health literacy, self-efficacy perception, awareness and health services' use, Pearson Product-Moment Correlations were used. Alternatively, Spearman's rank correlation coefficients allowed the researchers to delve into the relationship between self-efficacy, awareness and health services' use.

### 3.2 Measures

Different tools to assess individual health literacy are available (Baker, 2006). Inter alia, the ToFHLA - Test of Functional Health Literacy in Adults (Parker *et al.*, 1995) - and the REALM - Rapid Estimate of Adult Literacy in Medicine (Davis *et al.*, 1993) - are the most used tools among scholars and practitioners. However, they show several limitations, including long completion times and a focus on reading abilities that does not allow a comprehensive assessment of respondents' health-related competencies (McCormack, 2009; Nutbeam, 2009). The NVS - Newest Vital Sign (Weiss *et al.*, 2005) - represents an alternative to both the ToFHLA and the REALM. It has been argued to be a user-friendly measurement tool, which does not elicit any feeling of shame on the part of low health literate people (VanGeest *et al.*, 2010); moreover, it allows a rapid assessment of health literacy skills, which is consistent with the results of more extensive assessment tools (Shah *et al.*, 2010). Last but not least, it is easy to use and allows an adequate detection of limited health literacy cases (Osborn *et al.*, 2007; Rowlands *et al.*, 2010). In light of these considerations, the NVS was used to assess health literacy skills for the purpose of this study.

The NVS consists of a standardized nutrition facts label, to which six questions aimed at assessing the respondents' reading and numeracy health-related skills are attached. One point is assigned for each correct answer. Therefore, the NVS score ranges between "0" and "6", where "0" indicates high risks of problematic health literacy and "6" indicates adequate health literacy. Even though the NVS is affected by a natural focus on functional health literacy competencies, it also concerns critical skills; in fact, it includes questions aimed at evaluating the individual ability to discriminate within available health information and to make appropriate health-related decisions. However, interactive health literacy is not contemplated by the NVS screening tool.

An *ad-hoc* approach was arranged to assess respondents' self-efficacy and awareness of health-related issues. Embracing a formative model (Coltman *et al.*, 2008), 10 direct statements were arranged and attached to self-efficacy and awareness of health-related issues. A four-point scale was linked to each item, where "1" indicated strong disagreement with the related statement, "2" slight disagreement, "3" slight agreement, and "4" strong agreement. In particular, for each self-efficacy item, the respondent rated his/her confidence in his/her own capability to perform the recommended health behaviour described in the item statement; alternatively, for each awareness item, the respondent rated his/her consciousness of health-related issues included in the item statement. Table 1 summarizes the structure of the survey and includes an illustrative

item for each section of the questionnaire. A standardized index ranging from “0” to “50” was designed for both self-efficacy and awareness of health-related issues, with “0” indicating either low self-efficacy or poor awareness and “50” indicating either high self-efficacy or strong awareness. The index was calculated only for those who answered at least six out of ten items for both self-efficacy and awareness of health-related issues.

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*Tab. 1: The constructs used to assess health literacy, self-efficacy, and awareness*

Construct	Brief description	No. of item	Illustrative Item	Assessment approach
Newest Vital Sign (NVS)	Six questions attached to a standardized nutrition facts labels to assess respondents' literacy and numeracy skills	7	If you usually eat 2,500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?	Open answer. 1 point for each correct answer
Self-efficacy perception (SE-Index)	Respondents' self-rated capability to perform recommended health behaviours	10	On a scale from very difficult to very easy (where 1 = very difficult; 4 = very easy) how easy would you say it is to use the health information available to you to make decisions about your illness?	4 points Likert Scale (5 = do not know/do not answer)
Awareness of health-related issues (AW-Index)	Respondents' self-reported consciousness of health-related issues	10	On a scale from very difficult to very easy (where 1 = very difficult; 4 = very easy) how easy would you say it is to detect health warnings about dangerous behaviour (e.g. smoking)?	4 points Likert Scale (5 = do not know/do not answer)

Source: Authors' elaboration

In addition, 4 items concerned respondents' self-reported use of health services. In particular, they were asked to disclose the recurrence of their access to emergency care, hospital services, primary care, and secondary care in the 12 months preceding the interview. Lastly, the survey included several items which were intended to provide a brief socio-demographic profile of the respondents. In sum, as reported in Table 2, the survey consisted of 38 items, including:

- 6 questions attached to the NVS screening tool;
- 10 items concerning self-efficacy perceptions;
- 10 items concerning self-assessed awareness of health-related issues;
- 4 items related to the self-reported use of health services;
- and 8 items to outline a socio-demographic profile of the respondents.

Tab. 2: An overview of the survey

Construct	Description	Index	No. of items	Reliability
Health literacy	Ability to access, understand and act on health information and to navigate the health care service system	NVS screening tool	6	$\alpha = 0.86$
Self-Efficacy	Confidence in performing basic tasks within the health care environment	SE Index	10	$\alpha = 0.787$
Awareness	Consciousness of health-related issues and of available resources to protect and promote one's own/individual health status	AW Index	10	$\alpha = 0.745$
Health services' use	Self-reported use of emergency services, hospital care, primary care and secondary care	N/A	4	N/A
Socio-demographic variables	Gender, age, education, social status, living conditions, civil status, status of employment, and financial deprivation of respondents	N/A	8	N/A

Source: Authors' elaboration

All the measures used for this research showed acceptable reliability, as assessed by Cronbach's Alpha. In particular, the NVS score revealed good internal consistency ( $\alpha = 0.86$ ); both indices assessing self-efficacy and awareness of health related issues exceeded the 0.70 threshold for reliability. The participants' anonymity was guaranteed and ethical issues were handled by explaining the study's research aims and scopes to the respondents in advance (Barnes, 1977).

### 3.3 Sample Characteristics

Table 3 illustrates the sample characteristics. Respondents were balanced in terms of gender, with women (52.7%) slightly prevailing over men (47.3%). Mean age was 47 years ( $\sigma = 16.8$ ; ranging from 19 to 90 years). Respondents showed various levels of education. Most of them reported either lower (21.5%) or upper secondary education (24.7%); about 15% of the sample showed primary or pre-primary education; one out of four respondents stated having completed first stage or second stage tertiary education. The sample was heterogeneous in regard to employment status: more than one out of three respondents had a full time (24.9%) or a part time job (12.8%); about 9% reported to be involved in an apprenticeship or to perform unpaid work; one out of ten respondents was unemployed (10.5%). About half of the sample (45.2%) reported to be married; 142 respondents were unmarried, while about 20% were either divorced or widowed. Lastly, most of the respondents lived in a shared household (70.8%); about one out of four respondents (26.9%) lived alone.

Tab. 3: Sample Characteristics

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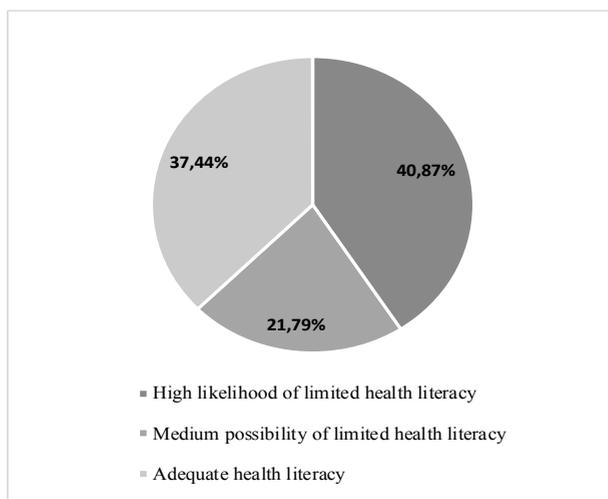
Variable		Total	
		No.	%
<i>Gender</i>			
	Male	207	47.3
	Female	231	52.7
<i>Age Groups</i>			
	18-25	36	8.2
	26-39	139	31.7
	40-54	115	26.3
	55-64	60	13.7
	65-74	62	14.2
	75+	26	5.9
<i>Education</i>			
	Pre-primary	2	0.5
	Primary	64	14.6
	Lower secondary	94	21.5
	Upper secondary	108	24.7
	Post-secondary	70	16
	First stage of tertiary	44	10
	Second stage of tertiary	54	12.3
	Do not know	2	0.5
<i>Employment</i>			
	Unpaid work, traineeship and/or apprenticeship	40	9.1
	Full time	109	24.9
	Part time	56	12.8
	Unemployed	46	10.5
	Student	24	5.5
	Retired	76	17.4
	Permanently disabled	12	2.7
	Military/Community service	5	1.1
	Full time homemaker	45	10.3
	Inactive	7	1.6
	Other	18	4.1
<i>Civil status</i>			
	Unmarried	142	32.4
	Married	198	45.2
	Divorced	46	10.5
	Widow	43	9.8
	Do not know	9	2.1
<i>Living conditions</i>			
	Living alone	99	22.6
	Shared household	310	70.8
	In a relationship, but living alone	19	4.3
	Do not know	10	2.2

Source: Authors' elaboration

#### 4. Findings

The sample was fairly distributed in terms of health literacy skills, as measured by the NVS screening tool. As depicted in Figure 1 and Table 4, more than a third of the sample (about 41%) showed a high likelihood of problematic health literacy, scoring between “0” and “1” in the NVS test. On the other hand, 164 respondents (37.4%) showed adequate health literacy, reporting a score which ranged between “4” and “6” in the NVS. About one out of five people (21.7%) revealed medium likelihood of marginal health literacy, with a score ranging between “2” and “3” in the NVS.

Fig. 1: NVS score (n = 438)



Source: Authors' elaboration

About one out of six respondents (16.4%) showed inadequate self-efficacy (SE index  $\leq 25$ ), demonstrated being unable to perform basic tasks within the health care environment. Besides, 24.3% of the sample revealed problematic self-efficacy ( $25.01 \leq \text{SE index} \leq 33$ ), by reporting meeting significant barriers in dealing with health-related issues. About half of the respondents (47.5%) declared sufficient self-efficacy ( $33.01 \leq \text{SE index} \leq 42$ ) and more than one out of ten people (11.8%) disclosed excellent self-efficacy (SE index  $\geq 42.01$ ). Performances in terms of health-related awareness were quite different. Actually, about a third of the respondents (36.8%) self-reported inadequate awareness of health issues (AW index  $\leq 25$ ), while about 30% of the sample disclosed problematic awareness ( $25.01 \leq \text{AW index} \leq 33$ ) of health promotion and protection initiatives. Therefore, more than half of the sample (66.8%) was found to be unaware of timely health topics. On the other hand, only a quarter of the sample (27.2%) demonstrated sufficient health-related awareness ( $33.01 \leq \text{AW index} \leq 42$ ), while 6% of the respondents revealed excellent awareness (SE index  $\geq 42.01$ ). Table 5 synthesizes the self-efficacy and health awareness scores, providing an overview of the respondents' performances.

Tab. 4: NVS scores (n = 438)

NVS Score	Frequency	%	Valid %	Cumulative %
High likelihood of Limited Health Literacy	179	40,9	40,9	40,9
Possibility of Limited Health Literacy	95	21,7	21,7	62,6
Adequate Health Literacy	164	37,4	37,4	100,0
Total	438	100,0	100,0	

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Source: Authors' elaboration

Tab. 5: SE index (n = 432) and AW index (n = 397) scores

SE index	Frequency	Percent	Valid Percent	Cumulative Percent
Inadequate SE	71	16.2	16.4	16.4
Problematic SE	105	24	24.3	40.7
Sufficient SE	205	46.8	47.5	88.2
Excellent SE	51	11.6	11.8	100,0
Missing	6	1.4		
Total	438	100,0	100,0	
AW index	Frequency	Percent	Valid Percent	Cumulative Percent
Inadequate AW	146	33.3	36.8	36.8
Problematic AW	119	27.3	30	66.8
Sufficient AW	108	24.7	27.2	94
Excellent AW	24	5.5	6	100
Missing	41	9.4		
Total	438	100,0	100,0	

Source: Authors' elaboration

As previously anticipated, Pearson Product-Moment Correlations were used in order to delve into the relationships between the NVS score, the SE index, and the AW index. Table 6 provides a snapshot of the correlations between these variables, suggesting a tentative answer to the first and second research questions at the base of this study. The NVS score was found to be positively and significantly (0.01 level, 2 tailed) related to the SE index ( $r = 0.361$ ). In fact, people reporting inadequate health literacy (NVS score ranging between “0” and “1”) were likely to show problematic self-efficacy in performing everyday tasks within the health care service system, with an average SE index = 29.48 ( $\sigma = 7.76$ ). On the opposite, people who disclosed adequate health literacy (NVS score ranging between “4” and “6”) had higher self-efficacy perceptions ( $\mu = 38.88$ ;  $\sigma = 7.54$ ).

Similar findings described the relationship between health literacy and awareness of health-related issues. In fact, these variables were positively and significantly (0.01 level, 2 tailed) related ( $r = 0.279$ ). On the one hand, the respondents who revealed inadequate health literacy (NVS score ranging between 0 and 1) had an average AW index = 25.88 ( $\sigma = 8.89$ ), which suggested poor awareness of timely topics related to health protection and promotion. Otherwise, those living with adequate health literacy (NVS score ranging between “4” and “6”) reported higher awareness of health related issues ( $\mu = 32.18$ ;  $\sigma = 9.11$ ) as compared with their low health

literate counterparts. Table 6 figures out a positive and significant (0.01 level, 2-tailed) correlation between self-efficacy perception and awareness ( $r = 0.670$ , indicating that the higher the self-assessed ability to navigate the health care service system, the stronger the consciousness of health-related issues and vice versa).

*Tab. 6: Pearson Product-Moment Correlations between NVS score, SE index and AW index*

	NVS score	SE index	AW index
NVS score	1		
SE index	.361*	1	
AW index	.279*	.670*	1

\* Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' elaboration

As reported in Table 7, Spearman's rank correlations were employed to obtain some insights into the relationship between respondents' self-efficacy perception, awareness of health-related issues, health status, and health services' use. Both self-efficacy ( $\rho = 0.198$ ) and awareness ( $\rho = 0.254$ ) were found to be positively and significantly (0.01 level, 2-tailed) associated with self-assessed health status: those who disclosed greater self-efficacy in navigating the health care system were more likely to report better health conditions. The same was true for those who revealed stronger awareness of current health topics. Self-efficacy ( $\rho = -0.167$ ) and awareness ( $\rho = -0.212$ ) showed weak, but significant (0.01 level, 2-tailed) negative correlation with the presence of chronic conditions: people who revealed greater proficiency in dealing with health affairs were less likely to show long-term illnesses. Finally, significant (0.01 level, 2-tailed) negative correlations were found between limitations in daily life and both the SE index ( $\rho = -0.288$ ) and AW index ( $\rho = -0.274$ ).

*Tab. 7: Spearman Correlations between SE index, AW index and health services' use*

	Self-assessed health status	Long-term conditions	Limitations in daily life	Access to emergency care	Use of primary care	Access to hospital care	Use of specialist services
SE Index	.198**	-.167**	-.288**	-.309**	-.060	-.241**	.032
AW Index	.254**	-.212**	-.274**	-.309**	-.096	-.248**	-.117*

\*\* Correlation is significant at the 0.01 level (2-tailed);

\* Correlation is significant at the 0.05 level (2-tailed)

Source: Authors' elaboration

It is worth noting that self-efficacy ( $\rho = -0.309$ ) and awareness ( $\rho = -0.309$ ) showed significant (0.01 level, 2-tailed) and negative correlations with access to emergency care. In fact, the respondents who disclosed better self-efficacy perceptions and greater consciousness of health

protection and health promotion initiatives reported lower access to emergency services. The same was true for access to hospital care, which was negatively and significantly (0.01 level, 2-tailed) related with both the SE index ( $\rho = -0.241$ ) and AW index ( $\rho = -0.248$ ). Self-efficacy was not found to be associated with access to primary care and with the use of specialist services. Also, awareness of health-related issues did not show significant relationships with the use of primary care, while it was weakly related to the use of specialist services ( $\rho = -0.117$ ), significant at the 0.05 level, 2-tailed).

Lastly, Table 8 illustrates the Spearman Rank correlations between health literacy skills, self-efficacy perception, health-related awareness, and socio-demographic variables. Gender was not found to be associated with self-efficacy; however, it showed a weak significant (0.01 level, 2-tailed) and positive relationship with awareness of current health topics ( $\rho = 0.148$ ): women, on average, disclosed greater consciousness of health protection and health promotion initiatives. Besides, gender was positively and significantly (0.05 level, 2-tailed) related with the NVS score ( $\rho = 0.103$ ), suggesting that - on average - women performed better in terms of health literacy skills. Interestingly, age did not reveal any associations with self-efficacy and awareness. Nonetheless, a weak, but significant (0.01 level, 2-tailed) relationship between age and NVS score was found: the elderly were more likely to show inadequate health literacy (NVS score ranging between 0 and 1) than their younger counterparts. These considerations could be replicated for civil status, which showed a significant relationship with the NVS score ( $\rho = -0.192$ ), even though it was not associated with the SE index and AW index. In particular, unmarried people stated better health literacy than married ones. Living conditions were not related to either health literacy skills, self-efficacy perception, or awareness of health issues.

*Tab. 8: Spearman's Rank Correlations between NVS score, SE index, AW index, and socio-demographic variables*

	Gender	Age	Education	Social Status	Civil Status	Employment Status	Financial Deprivation
NVS score	.103*	-.186**	.450**	.245**	-.192**	-.340**	-.475**
SE Index	.094	-.086	.261**	.235**	-.045	-.112*	-.375**
AW Index	.148**	-.042	.198**	.142**	-.020	-.088	-.399**

\*\*Correlation is significant at the 0.01 level (2-tailed)

\*Correlation is significant at the 0.05 level (2-tailed)

Source: Authors' elaboration

The respondents' status of employment was not found to be related to awareness of health issues, but it disclosed a significant (0.05 level, 2-tailed) and negative relationship with self-efficacy perception ( $\rho = -0.112$ ). Going more into detail, full-time and part-time workers were likely to report greater self-efficacy as compared with people who were either unemployed or are not part of the workforce. Similarly, the status of employment was significantly (0.01 level, 2-tailed) and negatively associated with the NVS

score ( $\rho = -0.340$ ), pointing out that employed respondents performed better in terms of functional health literacy skills as compared with unemployed ones. Interestingly, education, social status and financial deprivation were the most important correlates of health literacy skills, self-efficacy perceptions, and awareness of health promotion and health protection topics. Education showed a significant (0.01 level, 2-tailed) and relatively strong correlation with the NVS score ( $\rho = 0.450$ ), pointing out that those who reported higher education achievements were more likely to obtain better performances in terms of health literacy skills. Also, education was significantly (0.01 level, 2-tailed) and positively related with both SE index ( $\rho = 0.261$ ) and AW index ( $\rho = 0.198$ ). Social status revealed significant (0.01 level, 2-tailed) and positive relationships with the health-related abilities of respondents ( $\rho = 0.245$ ), their self-efficacy perceptions ( $\rho = 0.235$ ), and their awareness of health issues ( $\rho = 0.142$ ), suggesting that the higher the respondents' self-assessed social status, the better their ability to navigate the health care environment and to handle health-related information. Financial deprivation showed the strongest correlations with the indices arranged for the purpose of this study. In fact, it was negatively and significantly related with the NVS score ( $\rho = -0.475$ ), with people suffering from financial deprivation being more likely to report limited health literacy (NVS score ranging between "0" and "1"). Those who reported greater problems of financial deprivation disclosed lower self-efficacy in dealing with the health care service system and poorer awareness of timely health topics. In fact, both SE index ( $\rho = 0.375$ ) and WE index ( $\rho = -0.399$ ) showed negative and significant (0.01 level, 2-tailed) correlations with financial deprivation.

## 5. Discussion

The limitations of this study should be taken into account to contextualize the research findings. Since a convenience approach was adopted to arrange the research strategy and design, the sample was not representative of the whole population of Italian patients; hence, the study's results could not be generalized. Moreover, the correlation analysis did not allow the researchers to obtain in-depth evidence about the relationship between health literacy skills, self-efficacy perception, and awareness of health-related issues. Lastly, yet importantly, it was not possible to claim a causal relationship between the respondents' health literacy skills, self-efficacy perceptions, and awareness of health topics. In spite of these limitations, some interesting insights could be drawn from the findings in order to provide a tentative answer to the research questions at the basis of this paper. The correlation analysis pointed out that health literacy, self-efficacy, and awareness of health-related issues were weakly associated by a positive and statistically significant relationship. This finding is consistent with studies claiming that better health literacy engenders greater confidence in navigating the health care service system (Osborn *et al.*, 2010; Donovan-Kicken *et al.*, 2012; Bohanny *et al.*, 2013). However, it is worth noting that several scholars have questioned the association between

health literacy and self-efficacy, maintaining that different confounding factors may influence the relationship between these variables (DeWalt *et al.*, 2007; Colbert *et al.*, 2013). Health literacy has also been linked with increased awareness of health-related topics and with patients' desire for involvement in health decision making (Gazmararian *et al.*, 2003; Seo *et al.*, 2016); from this point of view, low health literate patients may be less willing to partner with health care providers for the purpose of value co-creation (Aboumatar *et al.*, 2013).

Ultimately, low health literate people are at risk of perceiving poorer self-efficacy in interacting with the health care service system. Moreover, they are likely to show lower awareness of health promotion and health protection initiatives that are available in their everyday life. In turn, poor self-efficacy and low awareness produce unwillingness to be engaged in the provision of care, leading to patient disempowerment (Fuertes *et al.*, 2007; Palumbo and Manna, 2018). Therefore, it could be assumed that inadequate health literacy performs as a barrier to initiatives aiming at exploiting patient engagement in order to achieve quality improvement in health services' provision. In fact, inadequate health literacy may entail value co-destruction in the health care environment, involving the establishment of biased relationships between patients and health care providers (Robertson *et al.*, 2014; Palumbo, 2015).

Both self-efficacy and awareness were found to be significantly related with the use of health services. Those who reported lower self-efficacy perceptions and awareness showed greater use of hospital and emergency care. These results echoed the scientific literature which maintained that the problematic individual ability to navigate the health care service system generates higher risks of hospitalization and access to emergency care (Baker *et al.*, 2002; Schumacher *et al.*, 2013; Bauer *et al.*, 2016; Leung *et al.*, 2016). Hence, it could be claimed that people reporting lower self-efficacy and awareness show a limited ability to navigate the health care system and to properly access health services, with unavoidable drawbacks on both the quality of care and the sustainability of the health care service system. Also, it is interesting to note that individual self-efficacy and awareness of health-related topics were associated with self-assessed health status, presence of chronic conditions, and limitations in daily life. The lower the respondents' self-efficacy perception and consciousness of health prevention and promotion initiatives, the poorer their health status (Sørensen *et al.*, 2015). In accordance with these findings, the enhancement of individual health literacy may lead to increased self-efficacy and awareness, to more appropriate access to care, and - eventually - to better health outcomes (Batterham *et al.*, 2016).

Women were more likely to be aware of timely health topics than men, thus supporting the argument of the scientific literature that asserted the presence of gender differences in people's approach to health services (Stewart *et al.*, 2004). However, gender was not found to be related to individual health literacy skills and self-efficacy perception. Older patients were consistent in reporting lower health literacy as compared with their younger counterparts; nonetheless, age was not associated with self-efficacy and awareness. From this standpoint, it could be maintained that

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elderly people are expected to meet greater difficulties in navigating the health care service system and in participating in health services' design and delivery; this is mainly due to the decline in cognitive functions of this category of patients (Baker *et al.*, 2000). People who were employed and unmarried reported better health literacy skills, even though they did not usually show stronger awareness of health-related topics. These results are in line with previous studies showing a significant relationship between employment status and health literacy (von Wagner *et al.*, 2009), while they challenged authors who found greater risk of limited health literacy among unmarried people (Murray *et al.*, 2009).

Education levels, self-reported social status, and financial deprivation disclosed the strongest correlations with self-efficacy perceptions and awareness of health-related issues. In particular, people showing higher education achievements performed better in terms of NVS score and were more likely to report adequate self-efficacy perceptions and awareness of health issues (Kumar *et al.*, 2017). The lower the respondents' self-assessed social status, the poorer their self-efficacy in navigating the health care environment and the greater their difficulties in handling health-related information (Berens *et al.*, 2016). Last, but not least, people suffering from financial deprivation showed problematic health literacy, impaired self-efficacy perceptions and inadequate awareness of health-related issues (Palumbo *et al.*, 2016a). From this standpoint, tailored initiatives should be targeted to the disadvantaged population in order to promote individual health literacy levels, self-efficacy perceptions and consciousness of timely health topics among categories of people who meet greater difficulties in navigating the health care environment (Barry *et al.*, 2013).

## 6. Conclusions

The implications of this study are twofold. Firstly, it emphasizes the relationship between individual health literacy, self-efficacy perceptions, and awareness of health-related issues. Adequate health literacy paves the way for greater consciousness of health resources available in the community and, consequently, produces greater willingness to be engaged in the provision of care, which is instrumental to better quality of care. Health literacy, self-efficacy perceptions, and awareness of health-related issues seem to be related to appropriate access to care. Conversely, people reporting to be unable to deal with health-related issues show greater risks of hospitalization and are more likely to improperly use emergency services, generating spiralling health care costs, which undermine the sustainability of the health care system. Secondly, this study provides both scholars and practitioners with interesting insights about the main correlates of health literacy. Disadvantaged people are at special risk of limited health literacy. At the same time, those reporting lower educational attainments are consistent in disclosing an impaired ability to navigate the health care environment. Tailored interventions to promote health literacy in these groups of the population are especially needed, in an attempt to enhance the functioning of the health care system and to improve the

quality of health services. In fact, if health literacy is missing, patients are likely to perceive low self-efficacy and inadequate awareness of health-related issues, revealing themselves to be unwilling to be involved in the provision of care and, consequently, to have an active role in achieving excellence in the provision of health services.

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