**The Vicious Cycle of Inadequate Health Literacy:   
An Experimental Study Using Fake Search Engine Software**

**Introduction**  
Judgment skills are the critical component of health literacy (HL, Schulz & Nakamoto, 2013) and an important aspect in the evaluation of online material, especially in the context of mental health where Internet has become a primary source of health information (Dobransky & Hargittai, 2012). To measure HL necessary for using the rich supply of health information available online, the eHealth literacy scale was developed (eHEALS; Norman & Skinner, 2006). However, this scale was intended to cover all fields of health care, chronic diseases as well as acute, physical as well as mental. For the latter, specific considerations are often considered necessary.

In this direction, this paper presents two studies. The first one is the validation of the Italian version of Depression Literacy (DL), a form of mental health literacy. The Depression Literacy Scale (D-lit) was originally developed in English by Griffiths and colleagues (2004) and to the best of our knowledge has not been yet validated for the Italian population.

The second study will test whether persons with higher levels of HL (general and specific) be better able to recognize the quality of depression-related websites with respect of people with deficient HL.

The following research hypotheses will be tested:

*H1: Persons with higher levels of HL will better discriminate websites’ quality.*

*H2: Exposure to a higher share of pre-selected websites of high quality will go along with time spent with high-quality websites.*

*H3: Within the realm of their choice, persons with high HL will spend more time on good-quality websites.*

*H4: Persons who recognize high-quality websites will hold more positive attitudes to seeking professional psychological help.*

*H5: The relationship between exposure to good-quality websites and HL will be stronger for specific measures (D-lit) than general measures (eHEALS).*

**Methods**In the first study, according to guidelines (Van De Vijver & Hambleton, 1996), the D-lit was translated by an Italian expert and back-translated by an independent English translator. An expert panel was convened to discuss any discrepancies between the forward translation and the original version.

The finalversion was then administered to a sample of the intended respondents via Qualtrics and concurrent validity was assessed via two HL scales: Newest Vital Sign (NVS, Weiss et al., 2005) and HLS-EU-Q16 (Lorini et al., 2019).

In the second study, participants (n = 200) filled a Qualtrics survey to measure D-lit, and eHEALS, previous experience with depression and frequency of online health information–seeking behavior together with socio-demographic questions. They were then requested to search, for a time slot of 10 minutes, information regarding depression and treatment options with a search engine called the Health Service Engine (HSE). HSE mimics Google but allows the researcher to pre-select a set of websites from which the returns are chosen as if a Google search was run.

In this task, participants were randomly assigned to three experimental groups with different shares of good or bad quality websites (80% good quality, 20% bad; 50% good, 50% bad; 20% good, 80 % bad). Quality was assessed by the Discern tool (Charnock et al., 1999; inter-rater agreement was good, Kw = 0.89).

Participants were then redirected to Qualtrics for the manipulation check (What is the number of websites that gave you a deeper understanding of the topic?), and measure attitudes to seeking professional psychological help (Rossi & Mannarini, 2019).

An illustrated dialogue question about depression treatments forced the participants in one of two opinion camps. Finally, participants were debriefed with a summary of correct information about depression and related treatments. The major independent variable, health literacy, was measured by D-lit and eHEALS; the major dependent variable, recognition of website quality was indicated by perceived message cognition value (PMCV, Lane et al., 2006).

**Results**Concerning the first study, the mean score for DL was 15.05 (SD = 3.38). D-lit scale presentsgood internal consistency (α = .72, n = 286). A positive association between D-lit scores and NVS (rs(286) = .135, p < .05) and HLS-EU-Q16 (rs(286) = .231, p < .01) measures supports the concurrent validity with the concept of HL. Results of the second study will be presented to the conference as data collection is not concluded at the time of writing.

**Discussion**

The research validated the Italian D-lit scale and assessed its concurrent validity. The second study, if the hypotheses will be supported, will describe a vicious cycle in which persons with low HL turn to the Internet to circumvent their limits but, lacking ability to discriminate information quality, this will in turn widen their knowledge gap.

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