Health Literacy in Residential Addiction Treatment Programs: Study Protocol of a Cross-Sectional Study in People with Substance Use Disorders

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INTRODUCTION: Health literacy (HL) has increasingly been recognized as an important determinant of individual and population health. We have only limited evidence of health literacy and its predictors in people with substance use disorders or addictive behaviours. Our aim is to assess the level of health literacy and its relationship with socio-demographic characteristics, self-perceived health indicators, and substance use behaviour in this group of population. **METHODS AND ANALYSIS:** The conceptual model of health literacy proposed by the European Health Literacy Consortium (HLS-EU Consortium) was followed in this study. We performed a cross-sectional survey to assess health literacy in people undergoing residential addiction treatment programs in the Czech Republic. Respondents were selected from multiple facilities offering medical detoxification, long-term institutional treatment, or socio-therapeutic care in therapeutic communities. The respondents' level of health literacy was assessed using the 47-item version of the European Health Literacy Survey Questionnaire (HLS-EU-Q47). The association between health literacy and socio-demographic, health-related, and substance use-related factors will be analyzed using linear regression analysis. **DISCUSSION:** We will determine the level of health literacy in people undergoing addiction treatment using the current comprehensive approach to health literacy. Our study investigates the potential risk factors of limited health literacy in this group of population.

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● 1 INTRODUCTION

Interest in health literacy (HL) research has been increasingly growing in the past two decades (Berkman, Davis, & McCormack, 2010; Peerson & Saunders, 2009). Studies on health literacy indicate that there is a potential in health literacy to improve individual (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011) and population health indicators (Nutbeam, 2000), reduce health inequalities (Batterham, Hawkins, Collins, Buchbinder, & Osborne, 2016), prevent non-communicable diseases (Kickbusch, Pelikan, Apfel, & Tsouros, 2013), and increase the availability of health services (Levy & Janke, 2016). Consequently, the policymakers at both national and international levels implement health literacy into health policies, strategies, and plans to promote health and address modern healthcare challenges (Kickbusch, 2001; Sørensen, Trezona, Levin-Zamir, Kosir, and Nutbeam, 2019).

The current approach to health literacy represents a wide range of individual, social, and cognitive competencies, including information-seeking, decision-making, problem-solving, critical thinking, and communication, which are alongside basic skills of reading, writing, and numeracy considered to be essential for health maintenance and navigating today's healthcare system (Nutbeam, 2008; Sørensen et al., 2012).

Health literacy is recognized as an important social determinant of health following the social gradient (Sørensen et al., 2015). Older age, lower education levels, financial deprivation, and belonging to the racial and ethnic minorities are considered risk factors of lower health literacy (Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005; Sørensen et al., 2015). Individuals with lower levels of health literacy are at risk of many negative health consequences, including a higher risk of worse health status, higher mortality rates, increased hospitalization, and emergency care use, lower medication adherence, poorer ability to understand written health information, and lower use of preventive health services (Berkman et al., 2011). Inconsistent findings have been reported on the relationship between health literacy and adverse health behaviour such as insufficient physical activity, poor eating habits, and substance use (Aaby, Friis, Christensen, Rowlands, & Maindal, 2017; Geboers, Reijneveld, Jansen, & de Winter, 2016; Husson, Mols, Fransen, Van De Poll-Franse, & Ezendam, 2015; Von Wagner, Knight, Steptoe, & Wardle, 2007; Wolf, Gazmararian, & Baker, 2007).

Health literacy research in the general population is now well established, and the body of evidence is still growing worldwide (Okan, Bauer, Levin-Zamir, Pinheiro, & Sørensen, 2019). However, little attention has been paid to disadvantaged and marginalized groups of the population who can be especially vulnerable to lower health literacy due to multiple risk factors of whom they possess (Kickbusch, 2001).

Substance use is one of the leading risk factors for morbidity and mortality worldwide and is related to further drug-related high-risk behaviours (Degenhardt et al., 2018; Schulte & Hser, 2013). To date, only two previous studies (Degan, Kelly, Robinson, & Deane, 2019; Rolova, Bartak, Rogalewicz, & Gavurova, 2018) examined health literacy in small samples of people treated with substance use disorders using the contemporary comprehensive approach to health literacy (Sørensen et al., 2012). Little is known about the predictors of health literacy in people with substance use disorders.

1.1 Objectives

We aim to examine health literacy and its associated factors in individuals with substance use disorders or addictive behaviours in residential addiction treatment programs.

The specific aims are as follows: (1) to determine health literacy in individuals undergoing residential addiction treatment programs using the instrument following the current approach to health literacy, (2) to identify socio-demographic factors associated with health literacy, (3) to investigate the relationship between health literacy and self-perceived health indicators, and (4) to investigate the relationship between health literacy and substance use behaviour.

● 2 METHODS AND ANALYSIS

This cross-sectional study will measure health literacy in people with substance use disorders or addictive behaviours in multiple residential addiction treatment programs in the Czech Republic.

2.1 Conceptual framework

This study's design follows the definition and conceptual model developed by European Health Literacy Consortium (HLS-EU Consortium) (Sørensen et al., 2012).

The HLS-EU Consortium defines health literacy in the following way: "Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course". The Conceptual Model of Health literacy refers to individuals' knowledge, competencies, and motivation to access, understand, appraise, and apply health-related information within the three domains of health literacy – healthcare, disease prevention, and health promotion (Sørensen et al., 2012).

2.2 Study population and sampling

The study sample consists of people undergoing residential addiction treatment for substance use disorders or addictive behaviours. Sampling was carried out in the following way:

First, we selected facilities providing residential addiction treatment for the recruitment of participants. We selected all detoxification units with dedicated detoxification beds, state-run psychiatric hospitals with addictions treatment departments, and therapeutic communities to be eligible for the study. Selected facilities cover all types of programs providing residential addiction treatment to individuals with substance use disorders or addictive behaviour in the Czech Republic (medical detoxification, long-term institutional treatment, and socio-therapeutic care).

We invited the representatives of the selected facilities to cooperate on the study via email communication. Second, we selected the eligible respondents from each facility involved. Respondents are considered eligible if they meet the inclusion criteria, which were set as follows: man or woman, 15 years and older, fluent in Czech, diagnosed with substance use disorders or addictive behaviours, and undergoing either medical detoxification program, long-term institutional treatment, or socio-therapeutic treatment in a therapeutic community in the time of the data collection.

We calculated the sample size based on the pilot study of health literacy in people treated with alcohol use disorders of Rolova et al. (2018). The proportion of the sample with limited health literacy was up to 46.9%. Considering the 95% confidence interval and a 5% margin of error (Daniel & Cross, 2018; Naing, Winn, & Rusli, 2006), we calculated that the sample of 382 participants should be sufficient to detect statistically significant effects. We plan to enroll at least 500 individuals in this study.

2.3 Data collection

Sampling and data collection started in May 2019 and ended in January 2021. Respondent recruitment and data collection take place simultaneously during the one day visit to each facility involved.

On-site of the facility, each eligible respondent is provided with the paper-and-pencil questionnaire. Respondents can either refuse to be provided with the questionnaire or express their denial to participate by not completing the questionnaire provided. Respondents agree to participate in the study by completing and submitting the questionnaire to the administrator.

Respondents are provided with sufficient time to complete the questionnaires. It takes around 15–30 minutes to complete the questionnaire.

2.4 Measurement

This section introduces the measurement of health literacy and socio-demographic, health-related, and substance use-related variables.

2.4.1 Health literacy

Health literacy among respondents is assessed using the 47-item version of the European Health Literacy Survey Questionnaire (HLS-EU-Q47) (Sørensen et al., 2013). Czech translation of the HLS-EU-Q47 was obtained from the National Institute of Public Health (Ref. PID UK1LF18G/03010 001).

In the self-administered survey, the respondents are asked to evaluate how difficult it is to perform various health-related tasks. Respondents' responses are recorded on a 4-point Likert scale ranging from "very easy" to "very difficult". The HLS-EU-Q47 is evaluated through health literacy indices. Health literacy indices represent the level of health literacy of the study sample. The indices are calculated using the following formula:

$$Index = (mean - 1) \times (50/3)$$

"*Index* is the specific index calculated, *mean* is the mean of all participating items for each individual, 1 is the minimal possible value of the mean, 3 is the mean range, and 50 is the chosen maximum value of the new metric. Index 0 represents the lowest possible health literacy and 50 the highest health literacy" (Pelikan, Rothlin, & Ganahl, 2012).

According to the indices, these are the four levels of health literacy: "inadequate" (0–25), "problematic" (> 25–33), "sufficient" (> 33–42), and "excellent" (> 42–50). For analysis purposes, health literacy levels can be dichotomized into "adequate health literacy" (sufficient and excellent levels) and "limited health literacy" (inadequate and problematic levels) (Pelikan et al., 2012).

Psychometric properties of the HLS-EU-Q47 have been tested in prior studies in diverse populations with satisfactory outcomes (Duong et al., 2015; Rolova et al., 2018; Sørensen et al., 2015; Toci, Burazeri, Sørensen, Kamberi, & Brand, 2015).

2.4.2 Independent variables

Independent variables such as socio-demographic characteristics, self-perceived health indicators, and substance use behaviour of the respondents and their values were measured as described below.

Socio-Demographic Characteristics: Socio-demographic data including gender, age, marital status, educational attainment, formal health education, and household net income were taken from the extended version of HLS-EU-Q86 (HLS-EU Consortium, 2013). Respondents could choose from either men or women. Marital status is assessed by asking the question: What is your legal marital status? Re-

spondents could choose from: Married, non-married, separated/divorced, widowed. Educational attainment is assessed by asking the question: What is the highest level of education you have successfully completed? Answer options being: Incomplete primary education, primary education, secondary education without graduation, secondary education with graduation, higher professional education, university degree, academic degree. Formal health education is assessed by asking the question: Have you ever been trained or employed in a healthcare profession, e.g. as a nurse, doctor, pharmacist? With the response alternatives either yes or no. Household net income is assessed by asking the respondents to state their average household net income per month (responses ranging from EUR < 562 to EUR > 2,249).

Single-item questions measure other socio-demographic characteristics. Housing condition is assessed by asking the question: What living environment do you live in? This question's response options are: Living in a family house, living in an apartment, living in a dormitory, squatting, without a home. Household size is assessed by asking the respondents to state the number of people living in their household. Employment status is assessed by asking the question: What is your employment status? Respondents choose from: Full-time employee, part-time employee, self-employed person, unemployed. Respondents were also asked about debts by this question: Do you have any debts? They could choose either yes or no. The size of a place of residence is assessed by asking the respondents to state the number of inhabitants living in the area of their residency (response alternatives: > 100,000, 50–100,000, 20–49,999, 5–19,999, < 5,000 inhabitants).

Self-Perceived Health: Psychiatric comorbidity is assessed by asking the question: Have you ever been diagnosed with any psychiatric/mental illness except substance use disorders or addictive behaviours? Respondents could choose from either yes or no.

Self-perceived health indicators of general health status, mental health status, physical condition, and quality of life are assessed by asking the question: How do you assess your current general health status/mental health status/physical condition/quality of life? Respondent's responses are recorded on a 5-point Likert scale with the response alternatives: Bad, rather bad, neither bad nor good, rather good, good.

Substance Use Behaviour: Respondent data on cigarette smoking, alcohol drinking, substance use, and substance use behaviour are collected in this part.

Cigarette use is assessed by asking the question: Do you smoke cigarettes? With the response alternatives: I currently smoke, I occasionally smoke, I have never smoked, I quit smoking. Smokers are asked to state the number of cigarettes smoked per day.

Alcohol use is assessed by asking the question: How often have you drunk any alcoholic beverage (at least 500ml of beer, 2dcl of wine, or 4cl of distillate) in the last 12 months? Binge drinking is assessed by asking the question: How often have you drunk five or more glasses of alcohol (1 glass = 500ml of beer, 2dcl of wine, or 4cl of distillate) on one occasion in the past 12 months? Alcohol intoxication is assessed by asking the question: How many times have you been so drunk in the last 12 months that you had trouble walking, talking, vomited, or could not remember what happened? Respondents could choose from these options when answering the questions about alcohol use: Daily, 3–4x per week, 1–2x per week, 1–3x per month, 1–6x per year, never.

Lifetime illicit drug use is assessed by asking the respondents to mark all illicit substances (cannabinoids, MDMA/ecstasy, methamphetamine, and other amphetamines, cocaine, heroin, buprenorphine and methadone, hallucinogens, inhalants, prescription medications, new psychoactive substances, other) they have used at least once during the lifetime. Illicit drug use in the past year is assessed by asking the question: How often have you used the given illegal drugs in the past 12 months? (response alternatives same as in case of alcohol use). Participants are asked to state their onset age for alcohol use, alcohol intoxication, marijuana use, substance use, and injection drug use (if applicable).

The drug of the first choice is determined by asking the respondents to state the most often used substance/s before entering treatment. The preferred drug administration method is assessed by asking the question: How do you apply your preferred substance? Respondents could choose from these options: Injecting, oral, sniffing, smoking, inhalation, none of the alternatives (gambling, gaming). Respondents are asked to state the number of premature addiction treatment termination. Drug-related infectious diseases are assessed by asking the question: Have you ever been diagnosed with hepatitis or any other infectious disease (e.g. HIV/AIDS) related to substance use? With the response alternatives: Yes, hepatitis, yes, sexually transmitted disease, yes, other infectious diseases, no.

2.5 Statistical analysis

Descriptive statistics (frequencies or mean and standard deviation) will be used to describe the characteristics of the study population. Indices of health literacy will be calculated to determine the level of health literacy in the respondents.

Preliminary analysis will be performed to determine the correlations between the variables and test the assumptions of regression analyses. Cronbach's alpha will be used to test the internal consistency of the HLS-EU-Q47.

Univariate and multiple linear regression analyses will be used to investigate the relationship between health literacy (dependent variable) and socio-demographic, health-related, and substance use-related factors (independent variables).

Statistical analysis will be performed using the IBM SPSS Statistics 23.

2.6 Ethics and dissemination

This study was approved by the Ethics Committee of the General University Hospital in Prague (Ref. 88/18 Grant GA UK 1. LF UK). The study is conducted with respect to the seventh revision of the World Medical Association Declaration of Helsinki (World Medical Association, 2013) and the second revision of the Farmington Consensus (International Society of Addiction Journal Editors, 2017).

Prior to the data collection, all respondents are asked to provide their verbal consent regarding their involvement in the study and data processing. Respondents confirm their agreement to participate in the study by personally submitting a completed questionnaire. Written informed consent requiring the respondents' data are not collected to preserve the anonymity of those involved.

Outcomes of this study will be presented in a doctoral thesis, peer-reviewed scientific journals, and at scientific conferences. Moreover, the survey results from each facility involved will be communicated to their representatives for educational purposes.

● 3 DISCUSSION

The proposed design of the study has several strengths and limitations that should be acknowledged. The implications for policy and practice are discussed as well.

3.1 Strengths and limitations

This study will determine the health literacy in the population who may be vulnerable to lower health literacy due to multiple risk factors. Our research will provide interested parties with evidence on which they will be able to implement adequate programs to promote health literacy in this population group. Moreover, we will provide a basis and experiences for further research concerning people with substance use disorders and other disadvantaged and marginalized population groups.

We use the current comprehensive approach to health literacy (Sørensen et al., 2012), which allows us to identify the respondents' strongest and weakest health-related competencies. With this knowledge, the interested parties can target the interventions more efficiently to promote health literacy. Furthermore, we will investigate the wide range of potential influencing factors of health literacy to determine their role in health literacy in this group of the population.

Important limitations of this study must be acknowledged. We used the cross-sectional design precluding causality from being established. However, the cross-sectional design is suitable for estimating the frequency of limited health literacy and exposure to risk factors in this population group (Levin, 2006), which aligns with our objectives. Moreover, this study's findings will be promptly available to stakeholders to take appropriate actions on this matter.

We measured health literacy using the self-report measuring tool. Self-report questionnaires are known to be prone to social desirability and recall biases, which may affect the results' validity (Latkin, Edwards, Davey-Rothwell, & Tobin, 2017). Previous population-based studies (Duong et al., 2015; Sørensen et al., 2015; Toci et al., 2015) used the HLS-EU-Q47 and confirmed its good psychometric properties.

3.2 Implications for policy and practice

Our findings may serve researchers, practitioners, as well as policymakers. Future research will be able to build on our results and further develop evidence about health literacy in people with substance use disorders.

One of the most important aspects of this study is to provide essential evidence for the development of unique health literacy-promoting programs. Universal health literacy-promoting programs may not be appropriate or compatible with residential addiction treatment facilities' current practice. Thus, it is necessary to develop health literacy programs tailored to the needs of both patients and healthcare providers of addiction treatment.

The health literacy concept is yet not well known in the practice of addiction treatment services. We will provide the necessary knowledge about the prevalence of limited health literacy in the patients of addiction treatment and identify its potential risk factors, which is the very first step towards addressing this issue in the practice of addiction treatment. Current evidence suggests that promoting health literacy should improve the patients' health indicators and maximize the potential of the treatment process (Berkman et al., 2011).

Improving clinical health and the health of the population through health literacy has a strong potential to increase access to health care and improve health equity for disadvantaged groups (Levy & Janke, 2016; Stormacq, Van den Broucke, & Wosinski, 2019).

REFERENCES

Aaby, A., Friis, K., Christensen, B., Rowlands, G., & Maindal, H. T. (2017). Health literacy is associated with health behaviour and self-reported health: A large population-based study in individuals with cardiovascular disease. *European journal of preventive cardiology, 24*(17), 1880–1888.
doi: 10.1177/2047487317729538

Batterham, R. W., Hawkins, M., Collins, P., Buchbinder, R., & Osborne, R. H. (2016). Health literacy: Applying current concepts to improve health services and reduce health inequalities. *Public health, 132*, 3–12.
doi: 10.1016/j.puhe.2016.01.001

Berkman, N. D., Davis, T. C., & McCormack, L. (2010). Health literacy: What is it? *Journal of health communication, 15*(S2), 9–19.
doi: 10.1080/10810730.2010.499985.

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine, 155*(2), 97–107.
doi: 10.7326/0003-4819-155-2-201107190-00005

Daniel, W. W., & Cross, C. L. (2018). *Biostatistics: A foundation for analysis in the health sciences*. New York: Wiley.

Degan, T. J., Kelly, P. J., Robinson, L. D., & Deane, F. P. (2019). Health literacy in substance use disorder treatment: A latent pro le analysis. *Journal of substance abuse treatment, 96*, 46–52. doi: 10.1016/j.jsat.2018.10.009

Degenhardt, L., Charlson, F., Ferrari, A., Santomauro, D., Erskine, H., Mantilla-Herrara, A., ...others (2018). The global burden of disease attributable to alcohol and drug use in 195 countries and territories, 1990–2016: A systematic analysis for the global burden of disease study 2016. *The Lancet Psychiatry, 5*(12), 987–1012. doi: 10.1016/S2215-0366(18)30337-7

Duong, V. T., Lin, I., Sorensen, K., Pelikan, J. M., Van Den Broucke, S., Lin, Y., & Chang, P. W. (2015). Health literacy in Taiwan: A population-based study. *Asia-Pacific Journal of Public Health, 27*(8), 871–880.
doi: 10.1177/1010539515607962

Geboers, B., Reijneveld, S. A., Jansen, C. J. M., & de Winter, A. F. (2016). Health literacy is associated with health behaviors and social factors among older adults: Results from the lifelines cohort study. *Journal of health communication, 21*, 45–53. doi: 10.1080/10810730.2016.1201174

HLS-EU Consortium. (2012). HLS-EU-Q. *Measurement of health literacy in Europe: HLS-EU-Q47; HLS-EU-Q16; and HLS-EU-Q86* (Tech. Rep.). European Health Literacy Consortium.

Husson, O., Mols, F., Fransen, M. P., Van De Poll-Franse, L. V., & Ezendam, N. P. M. (2015). Low subjective health literacy is associated with adverse health behaviors and worse health-related quality of life among colorectal cancer survivors: Results from the pro les registry. *Psycho-oncology, 24*(4), 478–486. doi: 10.1002/pon.3678

International Society of Addiction Journal Editors. (2017). *The Farmington Consensus*. Retrieved from http://www.isaje.net/farmington-consensus.html.

Kickbusch, I. (2001). Health literacy: addressing the health and education divide. *Health promotion international, 16*(3), 289–297. doi: 10.1093/heapro/16.3.289

Kickbusch, I., Pelikan, J., Apfel, F., & Tsouros, A. (2013). *Health literacy: The solid facts*. Copenhagen: World Health Organization.

Latkin, C. A., Edwards, C., Davey-Rothwell, M. A., & Tobin, K. E. (2017). The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland. *Addictive behaviors, 73*, 133–136.
doi: 10.1016/j.addbeh.2017.05.005

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-based dentistry, 7*(1), 24–25.

Levy, H., & Janke, A. (2016). Health literacy and access to care. *Journal of health communication, 21*(Sup1), 43–50. doi: 10.1080/10810730.2015.1131776

Naing, L., Winn, T., & Rusli, B. (2006). Practical issues in calculating the sample size for prevalence studies. *Archives of orofacial Sciences, 1*, 9–14.

Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health promotion international, 15*(3), 259–267.
doi: 10.1093/heapro/15.3.259

Nutbeam, D. (2008). The evolving concept of health literacy. *Social science & medicine, 67*(12), 2072–2078. doi: 10.1016/j.socscimed.2008.09.050

Okan, O., Bauer, U., Levin-Zamir, D., Pinheiro, P., & Sørensen, K. (2019). *International handbook of health literacy: Research, practice and policy across the lifespan*. Bristol: Policy Press.

Paasche-Orlow, M. K., Parker, R. M., Gazmararian, J. A., Nielsen-Bohlman, L. T., & Rudd, R. R. (2005). The prevalence of limited health literacy. *Journal of general internal medicine, 20*(2), 175–184. doi: 10.1111/j.1525-1497.2005.40245.x

Peerson, A., & Saunders, M. (2009). Health literacy revisited: What do we mean and why does it matter? *Health promotion international, 24*(3), 285–296.
doi: 10.1093/heapro/dap014

Pelikan, J., Rothlin, F., & Ganahl, K. (2012). Comparative report of health literacy in eight EU member states. (Tech. Rep.).

Rolová, G., Barták, M., Rogalewicz, V., & Gavurová, B. (2018). Health literacy in people undergoing treatment for alcohol abuse – A pilot study. *Kontakt, 20*(4), e394–e400. doi: 10.1016/j.kontakt.2018.09.003

Schulte, M. T., & Hser, Y.-I. (2013). Substance use and associated health conditions throughout the lifespan. *Public health reviews, 35*(2), 3.
doi: 10.1007/BF03391702

Sørensen, K., Trezona, A., Levin-Zamir, D., Kosir, U., & Nutbeam, D. (2019). Transforming health systems and societies by investing in health literacy policy and strategy. *Public Health Panor, 5*(6).

Sørensen, K., Van den Broucke, S., Pelikan, J. M., Fullam, J., Doyle, G., Slonska, Z., ...Brand, H. (2013). Measuring health literacy in populations: Illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC public health, 13*(1), 948.
doi: 10.1186/ 1471-2458-13-948

Sørensen, K., Pelikan, J. M., Rothlin, F., Ganahl, K., Slonska, Z., Doyle, G., ...Brand, H. (2015). Health literacy in Europe: Comparative results of the European health literacy survey (HLS-EU). *European journal of public health, 25*(6), 1053–1058. doi: 10.1093/eurpub/ckv043

Sørensen, K., Van Den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health, 12*(1).
doi: 10.1186/1471-2458-12-80

Stormacq, C., Van den Broucke, S., & Wosinski, J. (2019). Does health literacy mediate the relationship between socioeconomic status and health disparities? Integrative review. *Health promotion international, 34*(5), e1–e17.
doi: 10.1093/heapro/day062

Toci, E., Burazeri, G., Sørensen, K., Kamberi, H., & Brand, H. (2015). Concurrent validation of two key health literacy instruments in a south Eastern European population. *The European Journal of Public Health, 25*(3), 482–486.
doi: 10.1093/eurpub/cku190

Von Wagner, C., Knight, K., Steptoe, A., & Wardle, J. (2007). Functional health literacy and health-promoting behaviour in a national sample of British adults. *Journal of epidemiology and community health, 61*(12), 1086–1090.
doi: 10.1136/jech.2006.053967

Wolf, M. S., Gazmararian, J. A., & Baker, D. W. (2007). Health literacy and health risk behaviors among older adults. *American Journal of Preventive Medicine, 32*(1), 19–24. doi: 10.1016/j.amepre.2006.08.024

World Medical Association. (2013). *World Medical Association Declaration of Helsinki – Ethical principles for medical research involving human subjects*. Retrieved from https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/.