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**HEALTH LITERACY AND PREGNANCY SURVEILLANCE**

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***Abstract***

Health literacy is a determinant of health and quality of life. During pregnancy, one can identify symptoms that may affect the evolution of the pregnancy. The objectives of the study were to determine the level of literacy in the health of pregnant women, and identify the sociodemographic, obstetric and prenatal care variables associated with the level of literacy in the health of pregnant women. The methods involved a cross-sectional study, using a quantitative, descriptive and correlational approach with non-probabilistic sample, intended for convenience ( $n = 404$  pregnant women) with a mean age of 32 years. The collection of data was carried out by applying a questionnaire consisting of sociodemographic questions, obstetrical questions and the HLS-EU-EN-scale (National School of Public Health, 2014). Using the HLS-EU-EN scale, 36.9% of pregnant women presented a problematic level of health literacy. However, a sufficient level of literacy about care was shown in 40.1% of the women, about prevention of diseases in 39.9% and about health promotion in 38.4%. The health literacy during pregnancy is influenced by nationality ( $p = 0.048$ ), place of residence ( $p = 0.000$ ), educational level ( $p = 0.000$ ), family income ( $p = 0.000$ ), internet within the household ( $p = 0.000$ ), planning and desire of pregnancy ( $p < 0.05$ ) preparation course for childbirth/parenting ( $p = 0.000$ ), prenatal care ( $p = 0.000$ ) and early prenatal care before 12 weeks ( $p = 0.000$ ). We obtained a problematic level of Literacy in Health that was associated with several sociodemographic and obstetric variables. This improved the result in pregnancy, which is essential for healthy motherhood and includes the development of skills and knowledge so that the pregnant woman has decision-making power and autonomy to make free and informed decisions.

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## 1. Introduction

The health system is increasingly focused on the user/citizen by giving them an active role in decision making. It is therefore crucial for citizens to acquire knowledge and skills to deal with and understand the health system and the management of their health and illness, as well as to demonstrate the ability to use these tools effectively. All citizens' decisions about their life project and the use of health services should be individual and informed decisions. The set of knowledge and skills that allow the patient/user to adopt healthy behaviours is broad and complex. In addition to factual knowledge (for example, what is bad or good for health), the adoption of health behaviours implies a set of emotional, cognitive and behavioural skills that allow the use of this knowledge in exclusive contexts (Santos, 2010). Health knowledge is part of a broader concept, currently known as health literacy. The World Health Organization (WHO) defines health literacy as the set of "cognitive and social skills and the ability of individuals to understand and use information in a way that promotes and maintains good health" (WHO, 1998): it is the ability to make informed health decisions in the course of everyday life - at home, in the community, in the workplace, in the market, when using the health system and in a political context; it makes it possible to increase people's control over their health, their ability to look for information and to take responsibility.

Health literacy is essential to the health of society and it is the first priority in promoting quality in health services (Ferreira, 2013). Literacy and health status are strongly related, especially female literacy, since it is the woman who, in most cases, provides care in the family, and therefore her actions may directly or indirectly influence family health (Kohan et al., 2007). Renkert and Nutbeam (2001, p. 382) identified the role of maternal health literacy as "the cognitive and social skills that determine women's motivation and ability to understand and use information in order to promote and maintain their health and that of their children" and to be able to experience their pregnancy in a harmonious, pleasant and healthy way (Martins, 2007; Graça, 2010). In pregnancy, literacy empowers women to make decisions during this period of the woman's due cycle (Majoyinola, 2011). It is essential for a healthy and safe motherhood, and includes the ability to diagnose symptoms that may be related to pregnancy complications. It also provides an opportunity for women to learn ways to manage pain and understand some obstetric interventions that allow them to actively participate when in labour (Kohan et al., 2007; Majoyinola, 2011). Prenatal surveillance should promote increased maternal knowledge to better adapt to the changes that may result from pregnancy (Renkert & Nutbeam, 2001). Health professionals should thus contribute to increasing health literacy in pregnancy by providing simple language educational resources and helping low-literate pregnant women to take healthier lifestyles, interpret medical prescriptions, label medications, and other essential information during a doctor's appointment so that they can experience a safe pregnancy (Majoyinola, 2011).

Some studies have demonstrated the importance of health literacy during pregnancy and childbirth. The study by Majoyinola (2011) with 250 pregnant women from Nigeria revealed that there was a significant and positive relationship between maternal health literacy and the level of prenatal care ( $r = 0.445$ ,  $df = 229$ ,  $P < 0.05$ ) and a healthy pregnancy ( $r = 0.367$ ,  $df = 229$ ,  $p < 0.05$ ). Another study in Chicago found that women with low health literacy were significantly more likely to have an unplanned pregnancy ( $p=0.02$ ) (Endres, Sharp, Haney and Dooley, 2004). The study by Bennett, Switzer, Aguirre,

Evans, Barg, 2006 showed that 61% of women with poor health literacy started their prenatal care late and 51% had a poor follow-up compared to women with good health literacy (Bennett, Switzer, Aguirre, Evans, Barg, 2006). A 2007 study by Kohan, Ghasemi and Dodangeh (2007) with 150 pregnant women in Iran showed that 18% of women had good health literacy, 48% had average health literacy, and 34% had poor health literacy. The same study also revealed that women with good health literacy start prenatal care earlier and go to more consultations during their pregnancy than pregnant women with low health literacy, with statistically significant differences ( $p < 0.01$ ). Another study (Majoyinola, 2011) concluded that there are positive relationships between literacy in maternal health, prenatal care and a healthy pregnancy.

## 2. Problem Statement

Nowadays, health systems are increasingly patient-centred, requiring them to play an active role so that they become an integral part of decision-making processes in health-related areas. Thus, it is essential that the person acquire knowledge and skills to deal with the health system and the management of their health and illness, as well as the ability to use these tools effectively. Knowledge about the factors that promote and protect one's health as well as the ability to effectively use and apply this knowledge/information is crucial for the adoption of healthy life behaviours. Inadequate or low-level health literacy is associated with poorer quality health care and higher costs. An adequate level of pregnancy literacy is critical to identify symptoms that may turn into complications during the pregnancy and provide pregnant women with the acceptance of well-balanced habits and lifestyles that are conducive to a healthy pregnancy without any complications (Kohan et al., 2007). Although the responsibility for promoting health literacy is collective, health professionals play an essential role in understanding the importance of increasing the level of health literacy and quality of life in pregnancy to improve the health of both the mother and the baby. The following question arises: What factors are related to the level of women's health literacy during pregnancy?

## 3. Research Questions

It seems pertinent to study the factors that are related to the level of health literacy of pregnant women, so the following research questions were asked:

Question 1: What is the level of health literacy of the pregnant woman?

Question 2: What sociodemographic, obstetric and pregnancy surveillance variables influence the pregnant woman's health literacy?

## 4. Purpose of the Study

In view of the aforementioned problems, we formulated the following objectives: to determine the pregnant woman's level of health literacy, to identify sociodemographic, obstetric and pregnancy surveillance variables associated with the level of health literacy in pregnant women.

## 5. Research Methods

A cross-sectional study, quantitative, descriptive and correlational with non-probabilistic sample, intended for convenience ( $n=404$  pregnant women) with a mean age of 32 years. The collection of data was carried out by applying a questionnaire consisting of sociodemographic questions, obstetrical questions and the European Health Literacy Survey in Portugal (HLS-EU-PT) (National School of Public Health, 2014). The questionnaire was applied to pregnant women who used the External Consultation service of a maternity centre in central Portugal from March 1st to October 1st, 2016. The criteria for inclusion were defined as being pregnant (regardless of gestational age), understanding the Portuguese language well, knowing how to read and write, being accompanied at the time and space, and accepting to participate in the study. All the information obtained through the data collection instrument was subject to statistical treatment and was processed using the Statistical Package for Social Science (SPSS) software, version 23.0 after the creation of the database.

The inferential analysis was performed using the Student's parametric t-test, nonparametric U of Mann-Withney to study the relationship between sociodemographic, obstetric and pregnancy surveillance variables and health literacy in pregnant women; with a significance level of 5%. The HLS-EU-PT is composed of 47 items/questions that includes three domains - health care: items 1-16, illness prevention: items 17-31 and health promotion: items 32-47. The scale ranges from 1 to 4 values (from very difficult to very easy), in which the person says how difficult they feel in performing relevant tasks in managing their health. The cut-off points used were: Scores  $\leq 25$  points = Inadequate Health Literacy; Scores 25-33 points = Problematic Health Literacy; Scores = 33-42 = Enough Health Literacy and Scores  $> 42-50$  = Excellent Health Literacy.

## 6. Findings

Of the 404 pregnant women interrogated, 371 were of Portuguese nationality (91.8%) and 33 foreign (8.2%); with ages between 19 and 48 years (mean age  $31.74 \pm 5.17$  years). The majority of the pregnant women are between 19 and 35 years old (76.2%). Regarding education, 49.3% of the total sample has higher education, 37.6% the 12th year of schooling or equivalent training, and 13.1% basic education. The majority of the pregnant women (79.2%) are married or live in a non-marital partnership and 20.8% have no partner. As for the area of residence, 39.1% live in the city; 32.4% in town and the remaining (28.5%) live in the village. Although the majority of sample participants were employed (79.7%), we highlight the 20.3% of pregnant women without any professional occupation. As for monthly family income, 36.6% of pregnant women reported having a family income of between 500 and 1000 euros per month; 27.7% between 1000 and 1500 euros, 24.3% a monthly family income higher than 1500 euros and 11.4% of pregnant women a monthly family income of less than 500 euros.

We found that 42.8% of the women were experiencing the first pregnancy and 32.9% of the pregnant women with a previous child were submitted to a dystocic delivery and 18.6% to a normal delivery. Having planned the pregnancy, 71.0% and 93.1% stated that the pregnancy was intended. Regarding the number of consultations, 94.6% of pregnant women performed an adequate number of consultations, taking into account the gestational age, up to the time the questionnaire was administered.

The majority (81.4%) started pregnancy surveillance up until the first trimester. Only 47.3% of pregnant women mentioned that they were attending or planned to attend the course of preparation for childbirth.

Regarding the level of health literacy, 36.9% presented a problematic level of health literacy; 33.7% a sufficient level of literacy; 15.8% an excellent level and 13.6% an inadequate level. Concerning the field of Health Care, about 40.1% of the sample has a sufficient level of health literacy and 29.5% a problematic level, with only 17.6% of pregnant women having an excellent literacy level in the field of Health Care. In the field of Illness Prevention, identical values were found at the sufficient and problematic levels with 39.9% and 30.0% respectively. In this field, the highest value of excellent was found in relation to the inadequate level (17.8% vs. 12.4%). Finally, in the field of Health Promotion, there was a higher percentage of health literacy: 38.4% and the lowest level in this area was excellent, with 14.8% (Table 1).

**Table 1:** Level of health literacy – HLS-EU-PT scale

Levels of Health Literacy	Domains							
	Health Care		Illness Prevention		Health Promotion		Global	
	N	%	n	%	n	%	n	%
Inadequate	52	12,9	50	12,4	90	22,3	55	13,6
Problematic	119	29,5	121	30,0	99	24,5	149	36,9
Sufficient	162	40,1	161	39,9	155	38,4	136	33,7
Excellent	71	17,6	72	17,8	60	14,8	64	15,8

In relation to the identification of sociodemographic variables, obstetric and prenatal care and the relation with the level of literacy in global health and its domains, an association was found between the nationality of the pregnant woman and the 'health care' domain ( $p<0.05$ ); the overall literacy level and the respective domains with the place of residence ( $p<0.001$ ), the literacy qualifications of the pregnant woman ( $p<0.001$ ); family income ( $p<0.001$ ); internet access at home ( $p<0.001$ ); the planning and desire of the pregnancy ( $p<0.05$ ); attendance or intention to attend the course of preparation for childbirth/parenting during pregnancy ( $p<0.001$ ); the correct pregnancy vigilance ( $p<0.001$ ).

## 7. Conclusion

According to the results obtained, it was verified that nationality influences the health literacy of the pregnant woman in the global and Health Care domains ( $p<0.05$ ). There are several authors who state that health literacy results from the convergence of numerous factors, such as social and cultural factors (Nutbeam, 2000; Nielsen-Bohlman Et Al., 2004; Freedman, 2009, Federman Et Al., 2009, Santos, 2010). Other studies have demonstrated the association between sociodemographic variables, such as age, area of residence, literacy, family income and access to the internet, as well as health literacy (Federman et al., 2009; Monteiro, 2009; Silveira e Ferreira 2011; Damásio, Henriques and Mackert 2012).

Most women are pregnant for the first time (42.8%). However, 78 women (19.3%) reported a history of two or more previous pregnancies. When analysing the relationship between the existence of a previous pregnancy and the level of health literacy, there was no association ( $p > 0.05$ ). Nevertheless, most of the literature mentions that information related to prior knowledge is considered acquired individual skills that are essential to an adequate level of health literacy (Berkman et al., 2004; Speros, 2005; Rudd, Anderson & Nath, 2007; Mancuso, 2009). Concerning the fact that the pregnancy was planned/anticipated, it was determined that the planned and intentional pregnancy frequency was 71% and 93.1%, respectively. There was a statistically significant relationship between both variables with health literacy. It is concluded that the promotion of health literacy involves the development of citizens' ability to make decisions about their life project, allowing them to make informed and substantiated choices, Antunes (2014).

There were no significant differences between the existence of problems prior to pregnancy or during pregnancy and the level of health literacy. Nearly half of the pregnant women (47.3%) attend or plan to attend the course of preparation for childbirth/parenting. It was found that there are statistical differences in the areas of health literacy as well as in the overall scale regarding the variable "the attendance or intention to be present at the course of preparation for childbirth/parenting during pregnancy" ( $p < 0.001$ ). This result is in agreement with the literature when supporting that the courses of preparation for childbirth were founded with the intention to fight the situation of passivity behalf of the woman in the pregnant-puerperal cycle. That is, with the lack of information that would grant her autonomy in health, she would submit herself to the health professionals' orders with no questions asked. Thus, childbirth/parenting courses promote the development of pregnant women's health literacy in which the goal is to play an active role in decision-making in all areas of health. On the other hand, maternal health literacy is an important tool for women to understand the lessons learned by health professionals and to use such information and services to improve their health (Kohan, Ghasemi and Dodangeh, 2007).

In the same way, corroborating results of other studies (Leitão, Mendes and Neto 2009, Kohan, Ghasemi and Dodangeh 2007; Majoyinola 2011) found an association between adequate pregnancy surveillance and the appropriate number of consultations, beginning at 12 weeks of pregnancy.

It was concluded that 36.9% of pregnant women, in general, present a problematic level of health literacy and 33.7% of women have a sufficient level of literacy. In the area of Health Care, 40.1% of women have a sufficient level of health literacy and 29.5% have a problematic level. In the field of Illness Prevention, values were found at the same sufficient and problematic levels (39.9% and 30.0%, respectively). In the field of Health Promotion, there was a higher percentage of health literacy (38.4%). An association was found between the sociodemographic variables (nationality, place of residence, literacy, family income and internet in the household) and the health literacy of the pregnant woman. The variables of the obstetric context - current pregnancy (pregnancy planning/pregnancy, preparation course for childbirth/parenting and pregnancy surveillance and the beginning of pregnancy) - were associated with the health literacy of the pregnant woman.

The level of health literacy among pregnant women is a real problem, which limits their ability to obtain and perceive health information. Improved literacy enables pregnant women to make informed and autonomous choices, and it is essential for a healthy and safe motherhood.

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## References

- Antunes, M. L. (2014). *A literacia em saúde: Investimento na promoção da saúde e na racionalização de custos* (Dissertação de mestrado, Escola Superior da Tecnologia da Saúde de Lisboa). Acedido em <http://repositorio.ipl.pt/handle/10400.21/3582>
- Bennett, I., Switzer, J., Aguirre, A., Evans, K., & Barg, F. (2006). Breaking it down': Patient-clinician communication and prenatal care among African American women of low and higher literacy. *Annals of Family Medicine*, 4(4), 334-340. Acedido em <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1522153/>
- Berkman, N. D., Dewalt, D. A., Pignone, M. P., Sheridan, S. L., Lohr, K. N., Lux, L., ... & Bonito, A. J. (2004). Literacy and health outcomes: Summary. In *AHRQ Evidence Report Summaries* (cap. 87). Rockville (MD): Agency for Healthcare Research and Quality (US).
- Damásio, M. J., Henriques, S., & Mackert, M. (2012). Saúde eletrónica e literacia em saúde: Uma revisão da metodologia de pesquisa. *Comunicação e Sociedade*, Especial, 171-183.
- Endres, L. K., Sharp, L. K., Haney, E., & Dooley, S. L. (2004). Health literacy and pregnancy preparedness in pregestational diabetes. *Diabetes Care*, 27(2), 331-334.
- Federman, A. D., Sano, M., Wolf, M. S., Siu, A. L., Halm, E. A. (2009). Health literacy and cognitive performance in older adults. *Journal of American Geriatrics Society*, 57(8), 1475-1480. doi: 10.1111/j.1532-5415.2009.02347.x.
- Ferreira, S. R. R. (2013). *Literacia na gravidez: Utilização da internet como fonte de informação* (Dissertação de mestrado. Acedido em <http://repositorio.esenfc.pt/rc/>
- Freedman, D. A., Bess, K. D., Tucker, H. A., Boyd, D. L., Tuchman, A. M., & Wallston, K. A. (2009). Public health literacy defined. *American Journal of Preventive Medicine*, 36(5), 446-451. doi: 10.1016/j.amepre.2009.02.001.
- Graça, L. M. (2010). *Medicina materno-fetal* (4ª ed.). Lisboa: Lidel.
- Kohan, S., Ghasemi, S., & Dodangeh, M. (2007). Associations between maternal health literacy and prenatal care and pregnancy outcome. *Iranian Journal of Nursing and Midwifery Research*, 12(4), 146-152.
- Leitão, P. I. L., Mendes, D. S. V., & Neto, S. S. S. (2009). *Ser mãe imigrante no contexto português: Cuidados pré-natais*. (Trabalho de Pós-licenciatura de especialização não publicada). Escola Superior de Saúde de Viseu, Instituto Politécnico de Viseu.
- Mancuso, J. M. (2009). Assessment and measurement of health literacy: An integrative review of the literature. *Nursing Health Science*, 11(1), 77-89. doi: 10.1111/j.1442-2018.2008.00408.
- Martins, M. F. S. V. (2007). *Mitos e crenças na gravidez: Sabedoria e segredos tradicionais das mulheres de seis concelhos do distrito de Braga*. Lisboa: Edições Colibri.
- Mojoyinola, J. K. (2011). Influence of maternal health literacy on healthy pregnancy and pregnancy outcomes of women attending public hospitals in Ibadan, Oyo State, Nigeria. *African Research Review*, 5(3), 28-39.
- Monteiro, M. M. M. C. F. (2009). *A literacia em saúde* (Dissertação de mestrado, Universidade Lusófona de Humanidades e Tecnologias, Lisboa). Acedido em <http://recil.ulusofona.pt/handle/10437/1161>
- Silveira, C. S. P., & Ferreira, M. M. C. (2011). Auto-conceito da grávida: Factores associados. *Millenium*, 40, 53-67.
- Nielsen-Bohlman, L., Panzer, A. M., Kindig, D.A. Committee on Health Literacy. (2004). *Health literacy: A prescription to end confusion*. Washington, D.C.: The National Academies Press. Acedido em <https://www.nap.edu/read/10883/chapter/1#xv>

- Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health Promotional International*, 15 (3), 259-267. Acedido em <https://academic.oup.com/heapro/article/15/3/259/551108/Health-literacy-as-a-public-health-goal-a>
- Organização Mundial de Saúde. (1998). *Health promotion glossary*. Geneva: WHO. Acedido em <http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf>
- Renkert, S., & Nutbeam, D. (2001). Opportunities to improve maternal health literacy through antenatal education: an exploratory study. *Health Promotional International*, 16(4), 381-388.
- Rudd, R. E., Anderson, J. E., Oppenheimer, S., & Nath, C. (2007). *Health literacy: An update of medical and public health literature*. Acedido em [http://www.ncsall.net/fileadmin/resources/ann\\_rev/rall\\_v7\\_ch6.pdf](http://www.ncsall.net/fileadmin/resources/ann_rev/rall_v7_ch6.pdf)
- Santos, O. (2010). O papel da literacia em saúde: Capacitando a pessoa com excesso de peso para o controlo e redução da carga ponderal. *Endocrinologia, Diabetes & Obesidade*, 4(3), 127-134. Acedido em <https://dspace.uevora.pt/rdpc/handle/10174/2320?locale=pt>
- Speros, C. (2005). Health literacy: Concept analysis. *Journal Advanced Nursing*, 50(6), 633-640.