Health Literacy of Parents/Caregivers of Paediatric Surgical Patients: A Study on 1,000 Individuals

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Abstract

Purpose: There is a paucity of studies concerning health literacy (HL) of parents/guardians of patients in paediatric surgery. The purpose of our study is to measure HL levels of parents/guardians of paediatric surgery patients and to explore the determinants of low HL levels in this population. Materials and Methods: We conducted a cross-sectional study from December 2016 to July 2018 through in-person interviews of parents/guardians of paediatric surgical patients. Sociodemographic and clinical data were recorded, and HL levels were calculated using a validated tool (HLS-EU-Q16). In order to examine the impact of various sociodemographic variables and clinical data on HL, a multivariate regression model was run. Results: A total of 1000 participants were recruited (recruitment rate 93.5%). Slightly less than half (44.2%) presented problematic or inadequate HL levels. The results of the regression analysis showed that nationality other than Greek (β = −2.180, P < 0.001) and lower health insurance status (β = −0.461, P < 0.05) were associated with lower HL levels. HL was found positively associated with the educational level of the parent (β = −0.775, P < 0.001) and being a health professional (β = 1.791, P < 0.001). Conclusion: The prevalence of low HL levels in the parents/guardians of paediatric surgical patients is high and should not be neglected both in the pre-operative and post-operative setting. Communication should be tailored to the specific needs of each individual to achieve better engagement and quality of care.

Keywords: Demographics, health literacy, parents, paediatric surgery

Introduction

In recent years, the concept of health literacy (HL) has been very popular in medical research.[1] It is defined as ‘the knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgements and take decisions in everyday life concerning health care, disease prevention and health promotion to maintain or improve quality of life throughout the course of life’.[2]

In relevant studies, up to 50% of parents have been found with low HL levels.[3] This phenomenon, which is most of the time neglected in daily practice, has potentially serious complications in child health.[3,4] Especially in paediatric surgery, HL levels of parents or guardians are of utmost importance on the comprehension of surgical pathologies, risks and benefits of surgical procedures and implementation of instructions in the pre-operative and post-operative periods.[5,6] It has also been found to be associated with anxiety levels during surgical consultations and the quality of informed consent provided preoperatively.[7]

Given the paucity of studies on HL in the paediatric surgical setting,[6] our study aims to analyse HL levels of parents/guardians of children hospitalised in the paediatric surgery department or being examined at the outpatient clinic and to explore potential determinants of adequate HL.

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MATERIALS AND METHODS

Study design and participants

The presented analyses are part of a cross-sectional study, which was carried out in the Department of Pediatric Surgery, ‘Agia Sofia’ Children’s hospital in Athens in Greece, through a period of 20 months from December 2016 to July 2018. Using convenience sampling, we recruited parents and guardians of children aged 0–16 years, waiting for their appointment at the outpatient clinic or being hospitalised for elective or emergency surgery in the department of paediatric surgery. The survey was conducted through in-person interviews in Greek. The interview consisted in completing an anonymous standardised questionnaire after providing informed consent. Exclusion criteria were the failure to comprehend the Greek language both in writing and speaking or the willingness to participate in the study. The participants had the opportunity to quit at any point during the interview. The study received institutional review board approval (ID: 23473/12-16).

Variables and measures

Sociodemographic data

The questionnaire included questions on sociodemographic data and a tool of HL measurement. The socioeconomic information of the participants was self-reported and included age, sex, nationality, educational level, employment status, health insurance status, household region, being a health professional, having previous experience of surgery or caring for other people with severe health problems. In addition, we enquired about the number of children under their jurisdiction, as well as possible morbidities in the household. The surgical condition of their child, previous surgery and number and age of siblings were also recorded. The surgical pathologies of the child were classified as ones needing conservative treatment (zero severity cases) and those who required surgical interventions as minor 1 surgical procedures (e.g., skin biopsy, skin abscess drainage etc.), minor 2 surgeries (e.g., circumcision), intermediate-severity surgeries (e.g., orchioepxy, inguinal hernia surgery), major surgeries (e.g., incisional hernia repair, branchial cleft cyst removal) and complex 1 surgeries (e.g., laparoscopic cholecystectomy, pyeloplasty and hypospadias reconstruction surgery) and complex 2 surgeries (e.g., Hirschsprung disease surgeries and anorectal malformation surgeries).

Health literacy assessment

To access the participants’ HL levels, the Greek short version of the European HL Survey (HLS-EU-Q16) was used. It consists of 16 questions with answers on a 4-point Likert-scale (1 = ‘very difficult’, 2 = ‘fairly difficult’, 3 = ‘fairly easy’ and 4 = ‘very easy’). The answers were dichotomised for each item: ‘fairly easy’ and ‘very easy’ (1 point) and ‘fairly difficult’ and ‘very difficult’ (0 points). A sum score (0–16 points) was calculated for those who have answered 14 or more of the 16 questions. Participants were assigned to HL categories according to their score: scoring 13 or more points on the HLS-EU-Q16 scale suggests adequate HL. Persons with 9–12 points show problematic HL, and ones with 8 or fewer points are assigned to the group of inadequate HL.

Data were tested for normality using the Kolmogorov–Smirnov test and Q-Q plots. They were analysed descriptively using counts, mean and standard deviation for normally distributed data and median and interquartile range for non-normally distributed data. Correlation analysis between HL and various variables of interest was done with independent sample t-test, one-way analysis of variance with post hoc Tukey honestly significant difference test and Pearson’s and Spearman’s correlation coefficient, where appropriate. In order to examine the impact of various sociodemographic variables to HL levels of the studied population, a multivariate regression model (ENTER method) was run. For all analyses, significance was accepted at \( P < 0.05 \). Statistical analyses were performed using SPSS Statistics (Version 24.0. IBM Corp., Armonk, NY, USA).

The internal consistency reliability of the scales was assessed by calculating Cronbach’s alpha, thus ensuring the inter-relatedness of the items within each scale. Reliability was considered acceptable when Cronbach’s alpha values were ≥0.7.

RESULTS

During the study period, 1000 parents/caregivers were recruited (recruitment rate 93.5%) [Figure 1]. The age of the participants was 38.93 ± 7 years, while the majority was female (62.9%). Only 6.5% of the participants were not Greeks and 10.2% had not completed upper secondary education. Details about the descriptive sociodemographic data of the sample are presented in Table 1. Almost half of the participants presented problematic or inadequate HL (44.2%). The results of HL evaluation are shown in Figure 2. The calculated Cronbach’s alpha value of the HLS-EU-Q16 was 0.84.

Concerning subdimensions of HL, as represented in the HLS-EU-Q16 scale, almost half of the participants (48.2%) answered that finding information on how to manage mental...
health problems such as stress or depression is fairly or very difficult. Moreover, the participants seemed sceptical about information on the media regarding health in general and also disease prevention. Judging when to get a second opinion from another doctor also appeared to be problematic, as almost 30% of the participants regarded it as fairly or very difficult. The results are shown in detail in Table 2.

### Table 1: Demographic characteristics of the sample

| Variable                                             | Total (n=1000) |
|------------------------------------------------------|----------------|
| Age of guardian (years), mean±SD                     | 38.93±7        |
| Age of child (months), median (IQR)                  | 60 (95)        |
| Number of children, n (%)                            |                |
| 1                                                    | 302 (30.2)     |
| 2                                                    | 514 (51.4)     |
| More than 2                                          | 184 (18.4)     |
| Gender, n (%)                                        |                |
| Male/female                                          | 371/629 (37.1/62.9) |
| Nationality, n (%)                                   | 935 (93.5)/65 (6.5) |
| Severity of surgical pathology, n (%)                |                |
| Conservative treatment                               | 75 (7.5)       |
| Low                                                  | 211 (21.1)     |
| Medium                                               | 564 (56.4)     |
| High                                                 | 150 (15)       |
| Educational level, n (%)                             |                |
| < High school                                        | 102 (10.2)     |
| High school                                          | 419 (41.9)     |
| Bachelor degree                                      | 359 (35.9)     |
| Postgraduate studies                                 | 120 (12)       |
| Insurance type, n (%)                                |                |
| Public                                               | 778 (77.8)     |
| Private                                              | 181 (18.1)     |
| No insurance                                         | 41 (4.1)       |
| Place of residence, n (%)                            |                |
| Urban/non-urban                                      | 861 (86.1)/139 (13.9) |
| Previous surgical experience or caring for people with severe health problems, n (%) | 481 (48.1) |
| Health professionals, n (%)                          | 84 (8.4)       |
| SD: Standard deviation                               |                |

Correlational analysis showed that HL is associated with nationality (P < 0.001), educational level of the parent (P < 0.001), job status (P < 0.001), insurance type (P < 0.001), previous surgical experience or caring for people with severe health problems (P < 0.001), and health professional status (P < 0.001).

### Table 2: Results of the comparison and correlation analysis between health literacy score and various variables of interest

| Comparison analysis                  | HL score (mean; SD) | Test (P) |
|--------------------------------------|---------------------|----------|
| Sex                                  |                     |          |
| Male                                 | 12.57 (2.78)        | −0.852* (0.394) |
| Female                               | 12.73 (2.70)        |          |
| Nationality                          |                     |          |
| Greek                                | 12.83 (2.68)        | 6.41** (<0.001) |
| Other                                | 10.85 (2.68)        |          |
| Job status                           |                     |          |
| Other                                | 12.84 (2.64)        | −3.414** (<0.001) |
| Employed                             | 12.17 (2.94)        |          |
| Insurance status                     |                     |          |
| Public                               | 12.75 (2.63)        | 13.71** (<0.001) |
| Private                              | 12.81 (2.78)        |          |
| No                                   | 10.51 (3.44)        |          |
| Health professional                  |                     |          |
| No                                   | 12.50 (2.75)        | −6.283** (<0.001) |
| Yes                                  | 14.43 (1.69)        |          |
| Previous surgical experience or caring for people with severe health problems | 12.48 (2.67) | 2.069* (0.039) |
| No                                   |                     |          |
| Yes                                  |                     |          |

### Table 3: Multiple regression analysis results with Health Literacy Survey-Europe-16 Questions score as a dependant variable (R²=0.181)

| Independent variables | B coefficient | P       | 95% CI      |
|-----------------------|---------------|---------|-------------|
| Parent/guardian age   | −0.006        | 0.724   | −0.026-0.038 |
| Educational level     | 0.775         | 0.000** | 0.510-1.041 |
| Age of child          | −0.25*        | 0.421   |             |
| Number of children    | −0.038*       | 0.236   |             |

*P<0.05, **P<0.001. CI: Confidence interval
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Concerning the limitations of our study, persons not speaking Greek language were excluded. They represent individuals at high risk of low HL, and this could have led to an underestimation of low health literate parents/guardians in our sample. Added to this, the tool used to measure HL levels is based on self-reporting, raising the possibility of bias in some of the answers.

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Conflicts of interest
There are no conflicts of interest.

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