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Short research communication

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Abstract

Background: The World Health Organization has often reiterated its recommendations for the prevention of COVID-19, however, the success of these measures largely depends on public knowledge and attitudes.

Aims: This study assessed the relationship between knowledge, attitude, behaviour and preventive measures for COVID-19 infection in a Lebanese population.

Methods: This cross-sectional study was conducted between September and October 2020 using the snowball sampling technique and an online self-administered questionnaire. The questionnaire had 4 parts targeting sociodemographic characteristics; medical history; knowledge, attitude and practices (preventive measures and behaviours related to COVID-19); and mental health variables such as psychological distress. Two models were derived using multivariable binomial logistic regression to optimize the picture of COVID-19 correlates.

Results: Our sample comprised 1119 adults. Being older, female, a regular alcohol consumer, waterpipe smoker, having low level of education, low family income, and having contact with a COVID-19 patient correlated with increased odds of ever having been diagnosed with COVID-19. Participants who had ever been diagnosed with COVID-19 had a significantly better knowledge and a higher risky practice scale [adjusted odds ratio (ORa) = 1.49; 95% CI 1.27–1.74; P

Conclusion: The most important predictors of COVID-19 infection appear to be generally well-known among the general population, however, their knowledge and adherence to preventive measures should be continuously re-evaluated. This study highlights the need for greater awareness to improve precautionary behaviours among the public.

Keywords: COVID-19, risky behaviours, knowledge, attitude, preventive measures, Lebanon

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Introduction

COVID-19 was first officially reported in Lebanon on 21 February 2020 (1). Since then, the Lebanese population has encountered significant disruptions to the diverse facets of life, as they were already experiencing serious political and financial difficulties (2). Awareness was raised by the Lebanese government and the Ministry of Public Health to minimize the number of cases, however the number of confirmed cases steadily increased, reaching 177 996 by the end of December 2020, with 1443 recorded deaths (3).

The World Health Organization (WHO) recently reinforced its recommendations to the public to continue observing the COVID-19 preventive measures (4). A number of studies have demonstrated that the success of preventive measures is largely dependent on public attitudes, knowledge, mental health and comorbidities. However, knowledge about health-related problems may vary within a population (5,6). This study aimed to assess the relationship between knowledge, attitude, risky behaviours and preventive measures and COVID-19 infection in the Lebanese population.

Methods

Study design and sampling

This cross-sectional study was conducted in all Lebanese regions between September and October 2020. A snowball sampling technique was used, utilizing an electronic questionnaire, to enrol all non-hospitalized COVID-19 patients aged 18 years and above. The sample representativeness was then optimized via a weighting procedure in line with figures from the Central Administration of Statistics (7). A gender-group structure was considered, and weighting coefficients were associated with participants to obtain a final sample with a structure similar to that of the Lebanese population.

The ethical committee of the Lebanese University approved the study protocol. As an observational study, participants' confidentiality was maintained and none of them was traceable.

Questionnaire and variables

A standardized questionnaire that required around 30 minutes to complete was sent to participants for self-administration. The dependent variable was the answer to the question “Ever having been diagnosed with COVID-19?” The independent variables were divided into 4 parts. Part 1 covered sociodemographic characteristics (age, sex, socioeconomic status through household income, marital status, employment status, education level). Part 2 included personal medical history (diabetes, cardiovascular disease, cancer) and risk factors for chronic diseases (smoking, alcohol consumption, hypertension). Part 3 included questions related to knowledge, attitude and practice (preventive measures and risky behaviours) related to COVID-19 (8). The

knowledge scale comprised 12 questions (Cronbach's alpha = 0.713); there were 4 questions on preventive measures (wearing a mask outside, washing hands frequently, avoiding touching the face and wearing a mask in crowded places; Cronbach's alpha = 0.650); there were 3 questions on risky behaviours (going to a crowded place, going to work and going to work during lockdown periods; Cronbach's alpha = 0.654). The attitude questions were measured on a scale of 1–10. Part 4 included assessment of mental health variables such as psychological distress using the BDS-22 scale (9), family related satisfaction through the APGAR scale (10) and overall well-being through the WHO-5 scale (11).

The BDS-22 is a scale validated in Lebanon, used to measure the level of stress in the general Lebanese adult population. It comprises 22 questions exploring 6 domains: depressive symptoms, demotivation, psychosomatic symptoms, mood deterioration, intellectual inhibition and anxiety. Cronbach's alpha for this scale was 0.962 in our sample. The family APGAR scale is a short, self-reported instrument evaluating satisfaction with global family function. It has 5 questions, each corresponding to a component of family function, i.e. adaptation, partnership, growth, affection and resolve (APGAR). The total score is obtained by summing the answers to all items, and ranges from 0 to 10. Higher scores indicate greater satisfaction with family function. Cronbach's alpha for this scale was 0.912 in our sample. The 5-item World Health Organization Well-Being Index (WHO-5) is among the most widely used questionnaires assessing subjective psychological well-being. This short self-reported tool is widely used in Lebanon and comprises 5 questions graded from 0 to 5 to evaluate mental well-being in the past month. The total score ranges from 0 to 25; higher scores indicate better mental well-being (Cronbach's alpha = 0.898).

Minimum sample size calculation

The minimum sample size was calculated using G-Power, version 3.0.10. The calculated effect size was 0.0526, expecting a squared multiple correlation of 0.05 (R2 deviation from 0) related to the Omnibus test of multiple regression. The minimum required sample size was 454, considering an alpha error of 5%, a power of 80%, and allowing 25 predictors to be included in the model. The target sample size was doubled to allow for additional analyses to be conducted.

Statistical analysis

Data were analysed using SPSS, version 23.0. A descriptive analysis was first conducted to evaluate sample characteristics. Normal distribution of variables was evaluated using the Shapiro–Wilk test. Means were compared using the Student t-test and percentages using the chi-squared test.

A multivariable analysis was also conducted using binomial logistic regression; a backward stepwise likelihood ratio method was used. We derived 2 models to optimize the picture of COVID-19 correlates by including variables with P-values