

論文の内容の要旨

論文題目 Health literacy as a key to improving weight status among Palestinian adolescents living in chronic conflict conditions (慢性的紛争下にあるパレスチナにおける思春期青年の体重改善の鍵としてのヘルスリテラシー)

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Introduction: Health literacy has emerged as a promising public health topic since its inception in the mid-1970s. It is now recognized as one of the important health determinants. Higher health literacy can assist adolescents in navigating the healthcare system and utilizing its resources. It also increases their participation in health-promoting activities and community health initiatives, making better use of preventative services.

Despite its importance, health literacy research with adolescents remains limited. In the Arab world, much research has examined health literacy with adults, and little is known about health literacy for adolescents using context-specific health literacy scales in Arabic language. In Palestine, only one qualitative study investigated how adolescents understood the concept of health and their perceptions towards health literacy. The same study proposed developing a health literacy scale specific to the Palestinian context to investigate the association between health literacy and the health outcomes of adolescents.

Because of the high exposure to violence and war-like situations, Palestinian adolescents are at an increased risk of health problems such as obesity and overweight. Health literacy may reduce the detrimental health effects of long-term violence exposure among adolescents. In Palestine, previous research has focused on the prevalence of overweight and obesity among adolescents, showing that the prevalence of overweight and obese individuals has increased in the past decade. However, only a handful of studies have investigated the risk factors of obesity and overweight individuals. The association between exposure to violence and weight status has not been addressed among Palestinian adolescents. Moreover, research regarding health literacy's effect on reducing the negative impact of exposure to violence remains lacking among adolescents. Evidence is also limited on how health literacy can help achieve a better weight status among Palestinian adolescents regardless of exposure to violence.

Objectives: This study aimed to 1) develop an Arabic version of the Health Literacy Assessment Scale for Adolescents (HAS-A) and culturally adapt it to the Palestinian context; 2) evaluate the psychometric properties of the newly adapted scale among Palestinian adolescents; and 3) examine whether three health literacy-related constructs: communication, confusion and functional literacy can moderate the association between exposure to different forms of violence and Palestinian adolescents weight status, especially overweight and obesity. It was hypothesized that the positive association between exposure to violence and weight status is stronger among adolescents with low health literacy and weaker if they had high health literacy.

Methods: This study was conducted using a cross-sectional household survey in the Ramallah and al-Bireh district, Palestine. The district was divided into three strata by locality type to sample the eligible households. A total of 1200 households were selected, consisting of 460 urban, 440 rural, and 300 refugee camp households. The eligible criteria were Palestinian households with adolescents who finished 6th to 9th grade in 2017 and living in the study district.

For the first objective of this study, the Arabic version of the HAS-A (HAS-A-AR) was derived through a forward-backward translation by multiple experts. The final translated version was conceptually equivalent to the original scale. The HAS-A-AR was piloted among 30 adolescents (15 boys and 15 girls) to assess the clarity and comprehensibility of the questions and measure interview duration. To adapt HAS-A to the Palestinian context, a sixth option was added to each item to reflect that health care professionals talk with parents about the adolescent health, not directly with the adolescent.

For the second objective, multiple methods were used to examine the psychometric properties of HAS-A-AR. First, face and content validity were evaluated during the translation process. Second, exploratory factor analysis (EFA) was performed to check the construct validity of the HAS-A-AR. Factors were retained based on the scree plot with an eigenvalue >1 . Last, internal consistency was tested using Cronbach's alpha, MacDonald's omega, and the greatest lower bound (GLB) tests. The scale's average inter-item correlation was calculated.

For the final objective, this research assessed whether health literacy moderates the association between exposure to violence and weight status among adolescents. The

weight status measurements included were body weight in kilograms and height in centimeters according to World Health Organization (WHO) guidelines. Then, the z-score of BMI-for-age for each adolescent was calculated and used to classify adolescents into overweight ($>+1.0$ SD), obesity ($>+2.0$ SD), and underweight (<-2.0 SD).

HAS-A-AR was used to assess the health literacy of adolescents, which includes three important health literacy-related constructs: communication, confusion, and functional literacy. The primary concern of the communication subscale is oral communication and comfort while interacting with healthcare professionals and asking questions during the consultation. The confusion subscale measures adolescents' confusion regarding the received health information. Functional health literacy evaluates their ability to read and understand health information.

To measure direct exposure to violence, eleven questions were asked regarding their experiences during the past year (0=never, 1=exposed). The questions were divided into two components. The first component examined the exposure to Israeli army political violence using five items: physical abuse by a soldier, nonphysical humiliation by a soldier, exposure to tear gas, passing by checkpoints to go to school, or to be unable to reach school because of a checkpoint that is closing the road to school. The second component assessed the exposure to domestic and school violence with six items: physical abuse or nonphysical humiliation by a family member at home, by the principal or a teacher, or by colleagues at school. The "exposure to any type of violence" variable was created by adding eleven items.

Moderation analysis was performed to examine whether health literacy moderates the association between direct exposure to violence and weight status among adolescents. Nine multinomial logistic regression models were conducted by including the main and the interaction terms between each of the three variables of exposure to violence with each of the three health literacy subscales.

Results: EFA showed that HAS-A-AR has a similar structure to the original HAS-A. It extracted three factors (communication, confusion and functional health literacy) whose eigenvalues were >1 . Together they explained 57% of the total variance. Cronbach's alpha, MacDonald's omega and the GLB values for the three subscales were ≥ 0.77 .

The HAS-A-AR subscale results showed that 55%, 31% and 20% of adolescents had a low

health literacy in the communication, confusion and functional subscales respectively. A high percentage (62.1%) of the adolescents were directly exposed to violence. Of those adolescents, 16.4% were exposed to political violence, while 56.6% were exposed only to domestic and school violence. The prevalence of obesity, overweight and underweight among adolescents was 6.3%, 16.7% and 2.2%, respectively.

Adolescents who were not exposed to domestic and school violence were 2.8 more likely to be obese, when they had low health literacy in the communication subscale. Adolescents who had high functional health literacy were 62% and 59% less likely to be obese even when they were exposed to domestic and school violence and to any form of violence respectively. Adolescents who were not exposed to political violence were 4.4 times more likely to be obese when they had low health literacy in the communication subscale. Moreover, adolescents who were not exposed to political violence were 4.1 times more likely to be obese when they had low functional health literacy. Adolescents who were not exposed to any form of violence were 3.2 times more likely to be obese when they had low health literacy in the communication subscale. Among adolescents who were not exposed to any form of violence, those who had high health literacy in the communication subscale were 72% less likely to be obese compared to those who had low health literacy. Adolescents who were not exposed to any form of violence were 3 times more likely to be obese when they had low health literacy in the confusion subscale.

Conclusions: The HAS-A was translated into the Arabic language (HAS-A-AR) in this study. The translated version was found to be clear, understandable and comprehensible for the adolescents. The HAS-A-AR was also culturally adapted to the Palestinian context by adding an extra option to the questions reflecting adolescents' lack of active involvement with their health care management. HAS-A-AR is a valid and reliable scale to measure health literacy with appropriate psychometric properties. It is currently available for use among adolescents in Palestine and the surrounding Arab countries with similar language, culture, and political instability. This study then showed that health literacy moderated the association between direct exposure to violence and weight status among adolescents. When adolescents had higher levels of health literacy, lower obesity rates were predicted among adolescents who were directly exposed to 'any form of violence' or being exposed either to 'political violence only' or 'domestic and school violence only'. This study warrants further investigating the role of health literacy on the health of adolescents. Policymakers are recommended to integrate the health literacy concept within education and health systems.