Postprint: Development of a Health Information Avoidance Scale for University Students

Authors: Zhang Shuai, Ma Feicheng

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Abstract

[Purpose/Significance] To develop a robust and practical Health Information Avoidance (HIA) scale for university students, providing a preliminary foundation for effectively measuring university students' HIA tendencies and HIA-related research, and offering useful references for health service institutions and university student populations to reasonably address HIA.

[Method/Process] Employing selective exposure theory and preliminary research to develop a preliminary HIA scale for university students; using the preliminary scale to test 277 university students and conducting exploratory factor analysis and confirmatory factor analysis on the obtained empirical data; forming the formal HIA scale for university students after reliability and validity testing.

[Results/Conclusion] University student HIA has a three-factor structure of negative emotions, cognitive conflict, and behavioral change; the overall scale test-retest reliability is 0.951, with the three dimensions'test-retest reliability ranging from 0.871 to 0.919; specifically involving 10 measurement items.

Full Text

Preamble

Construction of a Health Information Avoidance Scale for College Students

Zhang Shuai[1], Ma Feicheng[1,2]
[1]School of Information Management, Wuhan University, Wuhan 430072
[2]Center for Studies of Information Resources, Wuhan University, Wuhan 430072

Abstract:
[Purpose/Significance] This study constructs a robust and practical health information avoidance (HIA) scale for college students, aiming to provide a foundation for effectively measuring HIA tendencies and related research, and to offer

useful reference for health service institutions and college students in responding appropriately to HIA. [Method/Process] Using selective exposure theory and preliminary research, we developed an initial HIA scale for college students. The scale was administered to 277 college students, and exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed on the empirical data to form a formal scale after reliability and validity testing. [Result/Conclusion] HIA among college students exhibits a three-dimensional structure comprising negative emotions, cognitive conflict, and behavioral change. The test-retest reliability of the total scale is 0.951, with the three dimensions ranging from 0.871 to 0.919, encompassing 10 measurement items.

Keywords: health information avoidance; scale construction; empirical study; college students
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Health information avoidance (HIA) has become an increasingly important research topic in health information management, attracting widespread attention in the field of library and information science [1-2]. HIA represents a common information behavior when individuals face health issues. Survey data reveal that 39% of adults actively avoid information about their disease risks [3]; 40% of carriers of pathogenic genes and their relatives refuse free testing for pathogenic mutations [4]; and 60% of families with a history of colon cancer are unwilling to undergo preventive colonoscopies [5]. Particularly concerning is the trend of diseases affecting younger populations, making HIA among college students especially noteworthy. Research by D. Melnyk and J. A. Shepperd indicates that 21% of college students avoid obtaining health risk information, with some even avoiding reviewing their physical examination results or skipping routine health checks [6]. Compounded by college students' limited health literacy [7], lack of effective interpersonal relationships and social support resources [8], and insufficient capacity to process health information [9], HIA can cause serious harm to their physical and mental health, leading to delayed diagnosis, compromised prognosis, and even life-threatening consequences [11].

To enable timely and effective health interventions for college student HIA, constructing a scale that accurately identifies HIA tendencies is both necessary and urgent. However, no HIA scale specifically designed for college students currently exists. Therefore, this study attempts to construct and validate a college student HIA scale, providing valuable reference for effectively measuring and appropriately responding to HIA among this population.

2 Theoretical Foundation

2.1 Conceptual Definition

Existing research has reached consensus on defining "information avoidance" as the behavior of individuals avoiding or delaying access to valuable but unwanted information [12]. In this study's context, "information" specifically refers

to health information—encompassing all knowledge, techniques, skills, concepts, and behavioral information related to human health [13]. HIA is a multi-faceted concept: (1) HIA can be an active behavior driven by personal motivation or a passive behavior arising from curiosity, enjoyment, and worldview; (2) HIA is not limited to avoiding personal health information but also includes information about family members, friends, and partners; (3) HIA can be selective, where individuals may be interested in obtaining specific health information but have stronger motivations to avoid it, or comprehensive, where individuals refuse to access any resources that might provide unhealthy information [14]; (4) HIA is typically divided into two types: defensive and strategic. Defensive HIA is an information coping behavior triggered by anxiety, fear, and psychological dissonance, while strategic HIA primarily stems from regret, self-criticism, shame, and damage to self-image, representing deliberate avoidance of moral and social responsibilities [15-16].

This study focuses on active, selective, defensive HIA related to oneself, excluding passive, other-related, comprehensive, and strategic HIA. Its main manifestations include actively distancing oneself from people or things (information sources) that may reveal health information, diverting attention to avoid learning health information, or biased understanding and intentional forgetting of health information [17-18], such as deliberately avoiding medical care, health checks, and risk or prognosis information [19].

2.2 Related Research

Various disciplines have developed measures for information avoidance. Psychology has created the Experiential Avoidance Scale to reflect individuals' willingness to avoid contact with aversive sensations, emotions, and thoughts [20], which may contribute to avoidance of breast cancer screening [21]. This 7-item scale focuses on avoiding negative emotions but does not assess behavioral or cognitive aspects. The Cognitive Avoidance Questionnaire, another psychological instrument, includes 25 items across five dimensions: thought suppression, thought substitution, distraction, avoidance of threatening stimuli, and transformation of images into thoughts [22-23]. This questionnaire primarily addresses avoidance of negative emotions caused by intrusive thoughts but neglects other causes such as belief maintenance.

Health science research emphasizes disease denial tendencies, developing the Denial of Illness Scale. "Denial" here refers to consciously negating and avoiding stressful events as a psychological defense mechanism. This scale contains 24 subscales but lacks sufficient reliability and validity, focusing only on avoidance of disease or prognosis-related information [24]. Library and information science has also examined information avoidance tendencies, constructing an Information Avoidance Scale with 8 items that demonstrates good internal consistency and temporal stability [25]. However, this scale provides only coarse-grained measurement without distinguishing among behavioral outcomes of information avoidance.

In summary, although researchers across disciplines have explored information avoidance scales, these measures have limitations: (1) existing scales treat information avoidance merely as a limited means of emotion regulation without providing a more general HIA measurement tool; (2) existing scales are not specifically designed for health contexts, leaving their applicability for HIA measurement unverified; (3) existing scales overlook in-depth investigation of specific populations and have not targeted college students specifically. Consequently, relying on current measures to assess college student HIA may yield inappropriate conclusions. Therefore, this study builds upon existing scale research to develop a robust and generalizable scale for measuring college student HIA tendencies, promoting interdisciplinary understanding across psychology, health science, and library and information science.

2.3 Selective Exposure Theory

Selective exposure theory, derived from cognitive dissonance theory, is a psychological framework focusing on how people selectively contact information and serves as the primary theoretical framework for analyzing HIA [26]. The theory posits that individuals do not encounter information indiscriminately but preferentially select information consistent with their existing positions, beliefs, and attitudes while avoiding contradictory or conflicting information [27]. Selective exposure theory reveals a universal phenomenon: information seeking and evaluation exhibit confirmatory and asymmetric tendencies, with conscious preference for cognitively consistent information and avoidance of information that conflicts with prior knowledge or causes distress [28]. According to this theory, individuals tend to avoid health information that is inconsistent with their emotions, cognition, and behavior [29]. Therefore, this study adopts selective exposure theory as the theoretical basis for HIA scale construction.

3 Scale Construction

In preliminary research, we developed an initial college student HIA scale through literature review and in-depth interviews. First, we systematically reviewed relevant research on college student HIA and conducted in-depth interviews with 28 college students aged 18-23, using semi-structured interviews and 7-point rating scales for test items. Second, we established a theoretical model of college student HIA using grounded theory, encompassing 3 factors and 9 indicators (see reference [18]). Building upon this foundation and guided by selective exposure theory, we divided the antecedents of college student HIA behavior into three primary dimensions: negative emotion, cognitive conflict, and behavioral change, constructing a measurement model for college student HIA.

To ensure effective dimension identification, we not only revised, supplemented, and standardized indicators from our preliminary research but also referenced L. R. Fabrigar et al.' s study [30] by setting measurement items at 3-5 times

the number of dimensions, ultimately developing a preliminary scale with 12 measurement items, as shown in Table 1 .

4 Scale Testing and Optimization

4.1 Questionnaire and Sample

The questionnaire consisted of two parts: (1) basic personal information including gender, age, and grade; and (2) the HIA measurement scale using a 5-point Likert scale where "1-5" represented "strongly disagree," "disagree," "neutral,""agree,"and "strongly agree."To ensure both sample quality and distribution efficiency, the questionnaire was administered both in-person and through the "Wenjuanxing" platform from September 15-24, 2019. A total of 304 questionnaires were collected, with 277 valid responses (84.2% validity rate). All participants were college students with experience obtaining health information, including 129 males (46.6%) and 148 females (53.4%), aged 18-23, distributed across freshman (63, 22.7%), sophomore (71, 25.6%), junior (88, 31.8%), and senior (55, 19.9%) classes.

4.2 Reliability Testing

Reliability evaluates a scale' s consistency or stability by examining result consistency across repeated measurements, typically estimated using Cronbach' s alpha coefficient. A total scale $\alpha > 0.8$ and subscale $\alpha > 0.7$ represent minimum reliability standards [39]. Item quality was assessed using corrected item-total correlation (CITC) and Cronbach' s Alpha if item deleted (CAID), with items having CITC < 0.4 and CAID $>$ overall α coefficient recommended for deletion [40]. Statistical analysis revealed an overall Cronbach' s α of 0.96 for the scale. As shown in Table 2 , all 12 items met quality requirements for CITC, CAID, and Cronbach' s α, passing reliability tests and proceeding to validity testing.

4.3 Validity Testing

To examine the structural validity and content accuracy of measurement items, we conducted exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Since EFA and CFA require different data sources [41], the total sample was randomly divided into Sample A (n=139) for EFA and Sample B (n=138) for CFA.

4.3.1 Exploratory Factor Analysis EFA aims to reveal primary dimensions of measurement items and establish internal scale structure. Before conducting EFA, we assessed sample suitability: (1) Sample A' s item-to-subject ratio (1:11.6) far exceeded the reference standard of 1:4 [42], meeting EFA requirements; (2) KMO and Bartlett' s tests were performed, with KMO statistics examining inter-variable correlations (KMO > 0.9 indicates ideal factor analysis; KMO < 0.5 indicates unsuitability) and Bartlett' s test examining variable

independence [43]. Sample A yielded KMO = 0.934 > 0.9 and Bartlett' s test ^{2} = 3145.600, p < 0.01, confirming suitability for EFA.

During EFA, we employed principal component analysis with varimax rotation and Kaiser-normalized orthogonal rotation to explore internal structure, with rotation converging after 6 iterations. Results are shown in Table 3 . Items with factor loadings < 0.5 after orthogonal rotation or cross-loadings > 0.5 on two factors were eliminated. Table 3 shows that CD1 was a cross-loading factor and BC4 had low loading on Factor 3, both of which were removed. The final retained scale comprised 3 dimensions and 10 measurement items for CFA.

4.3.2 Confirmatory Factor Analysis CFA further tests and refines scale structure. Using Sample B data, we performed CFA on the revised scale with maximum likelihood estimation to calculate standardized regression coefficients (factor loadings), composite reliability, and average variance extracted (AVE). Results (Table 4) showed factor loadings ranging from 0.795 to 0.877 (all > 0.5), composite reliability ranging from 0.865 to 0.914 (all > 0.7), and AVE ranging from 0.681 to 0.726 (all > 0.5), indicating good convergent validity and adequate structural fit [44].

We further examined overall model fit indices. As shown in Table 5 , absolute fit indices (RMSEA, GFI), incremental fit indices (NFI, CFI, IFI), and parsimonious fit indices (CMIN/DF, PGFI, PCFI) all met acceptable standards, confirming reasonable scale structure.

4.4 Retest and Final Scale Formation

The revised scale retained 10 items from the original scale after reliability and validity testing. A retest using the full sample was conducted to establish the final scale. Retest results showed overall Cronbach' s $\alpha = 0.951$, with the three dimensions (negative emotion, cognitive conflict, behavioral change) yielding α coefficients of 0.919, 0.877, and 0.871 respectively. All 10 items had CITC > 0.4 and CAID < overall α, with acceptable item-to-dimension ratios, confirming adequate reliability. The revised scale was adopted as the final measurement instrument, presented in Table 6 .

5 Research Conclusions and Implications

Based on selective exposure theory and preliminary research, we developed and validated a college student HIA scale. Results demonstrate that the college student HIA scale possesses a three-dimensional structure (negative emotion, cognitive conflict, behavioral change) with 10 measurement items. While some items may require further refinement, the scale demonstrates good overall reliability and validity for measuring college student HIA.

The HIA scale offers two primary implications: (1) For HIA research, it provides reference for developing HIA scales for different age groups and enables compar-

ative studies across diverse college student populations (e.g., comparing HIA tendencies between students with low versus high health information literacy, or analyzing HIA among students with specific conditions such as AIDS or depression), facilitating deeper understanding of HIA mechanisms. (2) For health service institutions, the scale serves as a measurement tool to assess actual HIA tendencies among college students, providing effective means for bidirectional health communication and guiding interventions. However, institutions should recognize HIA as a psychological defense mechanism and avoid forcing students to access anxiety-inducing health information. Instead, they should conduct constructive health promotion activities to encourage students to accept and seek health information, enhancing their health self-efficacy.

Despite following rigorous scale development procedures, this study has limitations. Since participants were college students with relatively high education levels who could easily comprehend measurement items, the scale may produce measurement errors when applied to populations with different educational backgrounds. Therefore, further revision and validation in practice are needed. Future research should also increase sample size to enhance measurement precision.

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Author Contributions:
Zhang Shuai: Developed research plan, conducted data analysis, and wrote the manuscript;
Ma Feicheng: Defined research proposition, provided reference suggestions, and revised the manuscript.

Note: Figure translations are in progress. See original paper for figures.