



Research Postgraduate Student Oral Presentation

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Date : 20 May 2020, Wednesday
Time : 3:00 p.m.
Venue : The presentation will be conducted via Zoom.
<https://hkbu.zoom.us/j/93352123826>



Web-based Sequentially Delivered Interventions on Health-Enhancing Physical Activity and Fruit-Vegetable Consumption in Chinese College Students

Abstract

Background: Evidence has indicated a high prevalence of physical inactivity and insufficient consumption of fruit and vegetables among Chinese college students. As college students are in a crucial transition stage from adolescent to adulthood, such unhealthy lifestyle behaviors at this stage can result in numerous negative consequences for both individuals and society. Therefore, it is urgently necessary to promote health-enhancing physical activity (HEPA) and fruit-vegetable consumption (FVC) among Chinese college students.

Interventions targeting multiple health behavior change (MHBC) have shown advantages over those focusing only a single health behavior, and have therefore gained popularity over the last decade. Under the topic of MHBC, several research and application gaps need to be addressed, including: 1) the best timing of intervention delivery; 2) dropout in the web-based MHBC interventions; and 3) psychological mechanisms behind MHBC.

Purpose: The main purposes of the thesis were to (1) examine the comparative effectiveness of two web-based health interventions (with different sequential delivery timing) for HEPA and FVC in Chinese college students, from both quantitative and qualitative perspectives; (2) investigate characteristics of dropouts (using quantitative method) and the underlying reasons for dropping out during the previous web-based MHBC interventions (using qualitative method); and (3) identify the key mediators of successful health interventions for changing each single health behavior (HEPA or FVC), and examine the psychological mechanisms of MHBC (HEPA and FVC) in Chinese college students based on an integrated social-cognitive model.

Methods: First, an 8-week web-based health program was developed based on the health action process approach (HAPA) model. In a randomized controlled trial, with three-arm parallel and double-blinded design, 552 eligible college students ($M = 19.99$ years, $SD = 1.04$, 58.3% female) were randomly assigned to one of three groups: HEPA-first (4 weeks of HEPA followed by 4 weeks of FVC intervention), FVC-first (4 weeks of FVC followed by 4 weeks of HEPA intervention), or Control (8 weeks of placebo treatment unrelated to HEPA or FVC). Data were collected at four time points: at baseline (T1, the beginning of the intervention), after 4 weeks (T2, after the first behavior intervention), after 8 weeks (T3, after the second behavior intervention), and after 12 weeks (T4, 1-month post-intervention follow-up).

Following the quantitative intervention study, 30 students ($M = 19.53$ years, $SD = 0.92$, 56.7% female) who had participated in the health interventions (18 completers and 12 dropouts), were invited to attend one-to-one and face-to-face semi-structured interviews. The interviews covered three topics: 1) students' experiences of participating in the web-based health program, 2) students' user experience and suggestions related to the design of the intervention content and the website layout and functionality, and 3) the reasons for dropping out.

In addition, based on the hypotheses of HAPA model and Compensatory Carry-Over Action Model (CCAM), important constructs were extracted to constitute a new integrated social-cognitive model targeting College students' MHBC. With a prospective design, 322 college students ($M = 19.47$ years, $SD = 0.99$, 55.6% female) were invited to report their past HEPA and FVC behavior, HEPA and FVC intentions, age, and gender at baseline. After two months, an online questionnaire survey was used to collect data on their compensatory cognitions, combined volitional predictors of behavior change (self-efficacy + planning), and current HEPA and FVC behavior.

Results: (1) Both the quantitative and the qualitative data fully supported the effectiveness of the web-based health interventions for HEPA and FVC behavior. In addition, the effects on social-cognitive determinants of behavior change were partially supported by the quantitative data, and fully supported by the qualitative data. For health outcomes, the quantitative data supported the intervention effects on body mass index (BMI), and the qualitative data supported the effects on both BMI and perceived quality of life. Moreover, the two delivery sequences did not show significantly different effects on HEPA after either 8 weeks or 12 weeks, whereas the FVC-first sequence showed superior effects over the HEPA-first sequence for FVC behavior after 12 weeks.

(2) In terms of dropout, more male than female students withdrew from the interventions, and the dropouts showed lower HEPA self-efficacy, lower FVC planning, and inferior BMI status than completers. The interview results indicated two themes of dropout reasons: internal reasons (e.g., participants perceiving the health interventions as less necessary and less important) and external reasons (e.g., unfavorable living surroundings and problems with the program's delivery mode, intervention content, and technology).

(3) In terms of the mediators of successful interventions for changing single health behavior, the RCT results indicated that self-efficacy and intention mediated the effectiveness of the intervention on immediate changes (after 8 weeks) in HEPA and FVC, and that intention had a mediating effect on sustained change (after 12 weeks) in both HEPA and FVC. In addition, the prospective study found that the two-layer integrated social-cognitive model proposed in this thesis successfully explained the psychological mechanisms of MHBC in Chinese college students. In particular, the first layer identified the mediating effects of the volitional predictors on the intention-behavior relation for each type of health behavior. The second layer identified a positive association between volitional predictors of HEPA and volitional predictors of FVC, as well as a mediating effect of compensatory cognition between FVC intention and HEPA behavior.

Discussion and Conclusions: To the best of our knowledge, this is the first study to examine the comparative effectiveness of sequentially delivered web-based health interventions on HEPA and FVC in Chinese college students, as well as the first to identify the psychological mechanisms of MHBC in a Chinese context. The findings provide both theoretical and practical implications for future research and the application of MHBC.

*** All are welcome ***