The electronic questionnaire consisted of three parts: the first part included demographic characteristics, the second part included the assessment of Transtheoretical model structures regarding physical activity (stages of change, self-efficacy, change processes, decision-making balance) and the third part included the IPAQ questionnaire for measuring Physical activity behavior was (light, moderate or intense).

**Demographic information section:** this section includes the variables of grade, economic situation (weak, medium, good, and excellent), parental physical activity (yes/no), parents encourage physical activity (yes/no), places and equipment needed for physical activity (yes /no), interest in physical activity (yes/no) was evaluated by the student.

**The part related to the** Transtheoretical model **structures:** to determine the stages of physical activity change, the five-part algorithm (yes or no) prepared by Marcus et al. was used(1). Norman's questionnaire was used to measure the structure of change processes (cognitive behavior)(2). The change processes included 34 questions, each question studied one of 10 processes, including: increasing self-awareness (4 questions), dramatic relief (4 questions), marketization-environment (3 questions), self-evaluation (4 questions), self-liberation (3 questions), social liberation. (5 questions), reciprocal conditioning (3 questions), reinforcement management (2 questions), supportive relationships (3 questions), stimulus control (3 questions) were used. The answers were in the form of five options (never, rarely, sometimes, often or always); which was given from 1 to 5 respectively.

To determine the self-efficacy of performing physical activity, Nig et al.'s questionnaire prepared based on the Likert scale was used(3). The questions of this questionnaire had 5 options (completely agree, agree, somewhat agree, disagree, completely disagree) which were graded from 1 to 5. The minimum self-efficacy score was 9 and the maximum score was 45.

Blanchard et al.'s questionnaire was used for decision-making to check decision-making balance(4). The balance structure, which determined the positive and negative aspects of regular physical activity, includes four questions for perceived benefits with a score range of 4 to 20, four questions for perceived obstacles with five-choice answers (very important, important, somewhat important, unimportant, unimportant) were measured.

**The section related to physical activity:** the International Physical Activity Questionnaire for Children and Adolescents (IPAQ) was used to obtain information about the types of physical activity that students do(5). This section of the questionnaire had 22 questions in 3 sections, including physical activity during free time, physical activity during the week, and the number of times each activity was performed during the week. The validity and reliability of this questionnaire has been confirmed by previous studies in Iran(6).

To check content validity quantitatively and qualitatively, in the quantitative validity method, two content validity ratio coefficients and content validity index were used. The content validity ratio shows the necessity of an item and the content validity index shows the appropriateness, clarity and relevance of the items to the research objectives from the experts' point of view. In qualitative validity, experts were asked to write down any comments they had about the questions.

**Content validity ratio (CVR)**

The group of experts in this study included 10 health education and health promotion specialists and 1 sports medicine specialist. To determine the content validity ratio, the experts were asked to evaluate each question using a three-part scale including necessary, useful but not necessary, and not necessary. Then the index was calculated based on the following formula.

According to the number of experts and based on the Lauche table(7), questions whose CVR values were higher than 0.8 were selected. Also, according to the opinion of health education and health promotion experts, a series of changes were made according to the target group and the conditions created due to the outbreak of the Covid-19 disease.

**Content Validity Index (CVI)**

To check the content validity index with three criteria of relevance (completely relevant, relevant, relatively relevant and not relevant), clarity (completely clear, clear, relatively clear, not clear) and simplicity (quite simple, simple, relatively simple and not simple) on a Likert scale for each question was examined by experts and calculated through the following formula.

CVI, values higher than 0.8 were accepted (8). According to the findings, all the investigated questions had an acceptable CVI. We also calculated the CVI for each question and all were >0.8 (acceptable range).

**Tool reliability**

After the experts approved the questionnaire, in order to check the reliability of the tool using Cronbach's alpha method, 60 students entered the study and the electronic link of the questionnaire was available to them. The students were asked to complete the questionnaires and comment on the simplicity and clarity of the questions in the questionnaire. According to the opinions of the students, minor changes were made in some items of the questionnaire to improve transparency and comprehensibility.

Cronbach's alpha coefficients of 0.5 and above were acceptable, so that α<0.5 was unacceptable, 0.5-0.6 weak, 0.6-0.7 moderate, 0.7-0.8 good, 0.9 - 0.8 was considered very good and above 0.9 was considered excellent(9).

**Table S1. The results of content validity and reliability of questionnaire questions**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| structure | | | Number of questions | Total CVI score | Total CVR score | [Cronbach Alpha Coefficient](https://www.sciencedirect.com/topics/nursing-and-health-professions/cronbach-alpha-coefficient" \l ":~:text=Cronbach's%20alpha%20is%20a%20way,the%20amount%20of%20overall%20variance.) |
| Cognitive process | Increasing self-awareness | | 4 | 0.850 | 0.800 | 0.927 |
| Theatrical relief activities | | 4 | 0.820 | 0.920 | 0.735 |
| Self-evaluation | | 4 | 0.970 | 0.960 | 0.835 |
| Environmental assessment | | 3 | 0.930 | 0.850 | 0.757 |
| Social liberation | | 5 | 0.890 | 0.740 | 0.810 |
| Behavioral process | | Self-release | 3 | 0.950 | 0.840 | 0.784 |
| Reinforcement Management | 2 | 0.820 | 0.800 | 0.820 |
| Helping relationships | 3 | 0.880 | 0.640 | 0.876 |
| Stimulus control | 3 | 0.940 | 0.810 | 0.764 |
| Countervailing conditioning to | 3 | 0.900 | 0.770 | 0.837 |
| Decision balance | | | 8 | 0.849 | 0.849 | 0.830 |
| Self-efficacy | | | 9 | 0.838 | 0.838 | 0.830 |
| Physical activity | | | 22 | 0.905 | 0.905 | 0.943 |

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