



DEVELOPMENT AND VALIDATION OF A TOOL TO ASSESS PERCEPTION OF MBBS STUDENTS REGARDING SELF DIRECTED LEARNING

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ABSTRACT This study was undertaken to develop a tool that can be used to assess the perception of first phase MBBS students regarding Self-directed learning. In the first phase of the study, a 10-item questionnaire was developed through review of literature, and focus group discussion. In the second phase, evaluation of questionnaire was carried out by 20 experts to find content validity and face validity. Then cross-sectional survey was performed on 112 participants. The construct validity was calculated via principal component analysis. Cronbach's alpha coefficient value was determined to assess the reliability of the questionnaire. The developed tool was found to be valid and reliable to assess the perception of students regarding self-directed learning.

KEYWORDS : SDL, Questionnaire, validity, reliability

INTRODUCTION

Medicine is a continuously changing subject. To remain updated, a medical professional need to be a learner throughout his life. With this idea, newly introduced Competency-based Medical Education (2019) declared that one of the roles of Indian Medical Graduate is to become a lifelong learner. To fulfil this criterion, The Medical Council of India (MCI) proposed incorporation of self-directed learning (SDL) during the entire MBBS course. But students' attitudes on SDL is not very much well - known. The term "attitude" is explained by Gan in 2004. He stated that "attitudes consist of three aspects such as cognitive, evaluative and behavioural components. Cognitive component refers to the perceptions about situations or objects. Then, evaluative refers to like and dislike. Behavioural is the tendency of the learners to adopt certain learning behaviour" (1).

It seems to be obvious to understand the perception of students regarding SDL. Unless students feel that SDL is useful to them, they will remain reluctant to adopt the method. Hence this study was undertaken to develop and validate a questionnaire, from which the perception of the students on SDL can be understood.

Methodology

The questionnaire was developed and validated using standardized methodology in two-phases (2). In 1st Phase, questionnaire was developed and in 2nd Phase, validation of the questionnaire was performed. The informed consent along with all data collection for all participants was obtained through email and the Google Form created for the purpose. The study was approved by Institutional Ethics Committee.

Phase 1: The Steps Followed In This Phase Has Been Summarised Below:

a) Review of literature: To develop the questionnaire extensive literature review was carried out using standard search engines to find out the works already carried out regarding perception of SDL among Medical students.

b) Focus group discussion (FGD): This was carried out among members of Medical Education Unit (MEU), NRS Medical College.

c) Development of Questionnaire:

i) To assess the cognitive component of attitude or perception, 7 close-ended questions in Likert scale was prepared regarding perceptions about SDL.

ii) For evaluative component, 2 open ended questions were framed where they were asked to reflect their like and dislike regarding SDL.

iii) Then another open-ended question was framed to obtain suggestion for improvement of SDL.

Thus, it was a 10-item questionnaire, which was revised several times following the guideline suggested for item writing.

Phase 2: The steps followed in 2nd phase has been summarised below:

a) Expert evaluation: The questions were sent by email to faculties of Biochemistry, who had attended Revised Basic Course Workshop. A total number of 20 experts participated voluntarily in the study.

b) Validation of the questionnaire: The questionnaire was distributed via Google form to the students of NRS Medical College, who were already exposed to SDL in Department of Biochemistry. They were introduced briefly to the objectives of the study and only

willing students were included in the study. A total number of 112 students responded via google form.

Statistical Analysis

All data, obtained by expert evaluation and FGD were tabulated in MS excel. The content validity and face validity of the questionnaire were established through a satisfactory level of agreement among panellists, which is expressed by Content Validity Index (CVI). Item CVI and scale CVI was calculated using the formula (3). A value of 0.80 or higher is considered as acceptable.

The data obtained by google form was analysed using IBM SPSS Statistics 22 software.

The test reliability was assessed using Cronbach's alpha. If the value of Cronbach's alpha was found to be 0.7 or higher, the test was found to be reliable.

For construct validity, the factor analysis was carried out. Correlation matrix was used to assess the degree of correlation followed by component matrix by principal factor analysis. Sample adequacy was measured by The Kaiser–Mayer–Olkin (KMO) measure. If value was found to be more than 0.5, then the data was found to be suitable for factor analysis. p values < 0.05 was considered as significant.

RESULT AND DISCUSSION

The questionnaire developed by review of literature and FGD is given in table 1. This questionnaire was sent to 20 experts for their agreement in Yes/No format. Mean Item CVI and Scale CVI is given in Table 2. The result (0.97) showed satisfactory level of content validity and face validity.

Then the link of google form of questionnaire was shared in the WhatsApp group of the students for validation. Sample adequacy of study population was confirmed by KMO measure, which was found to be adequate (0.860) and significant (Table 3).

The construct validity was established by using factor analysis. Correlation matrix was the first step used to assess the degree of correlation. This matrix depicts the correlation between all the possible pairs of values, which is followed by estimate of communalities. These are **estimates of the variance in each variable accounted for by the factors in the factor solution.**

Small values indicate variables that do not fit well with the factor solution, and should be dropped from the analysis. Finally, the dataset of correlation matrix was reduced to the component matrix, which shows the Pearson correlations between the items and the components (Table 4). Principal component analysis showed that there is only 1 component in the questionnaire.

Cronbach's alpha coefficient of the questionnaire suggest a good reliability (0.915) (5).

CONCLUSION

A reliable and validated questionnaire has been developed in this study to assess the perception of students regarding SDL. This will help the medical faculties to plan and implement the new curriculum more successfully and efficiently.

Table 1: Student Perception Regarding Self Directed Learning (SDL)

Close Ended Question: Please give your answer in 5-point rating:
 1 = “strongly disagree,” 2= “disagree,” 3= “neutral,” 4 = “agree,” and 5= “strongly agree.”

1. I think it is beneficial for my examination
2. I think it is beneficial for my study in future
3. I think it causes better understanding of the subject
4. I think it improves team work
5. I think it increases my leadership skill
6. I think it improves my communication skill
7. I think I got adequate support from my facilitator

Open Ended Question:

Please express your opinion /suggestion

8. How do you think that this exercise can be improved in future?
9. What did you like best in this exercise?
10. What did you dislike most in the exercise?

Table 2: Content Validity Of Questionnaire As Expressed From Agreement Among Experts

Parameter	Score
mean item CVI	0.97
mean proportion relevant	0.955
scale CVI	0.97

Table 3: Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy

Parameter	Score
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.860
Bartlett's Test of Sphericity Approx.	
Chi-Square	541.096
df	21
Sig.	.000

Table 4: Costuct Validity Of Questionnaire As Expressed By Component Matrix

Item	Component
item1	.787
item2	.744
item3	.801
item4	.829
item5	.784
item6	.716
item7	.835

Extraction Method: Principal Component Analysis

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REFERENCES

1. Reethesh S.R., Ranjan P., Arora C., Kalojya G.S., Vikram N.K., Dwivedi S.N. Development and validation of a questionnaire assessing knowledge, attitude, and practices about obesity among obese individuals. *Indian J Endocrinol Metab.* 2019;23(1):102.
2. Hinkin TR. A brief tutorial on the development of measures for use in survey questionnaires. *Organ Res Methods.* 1998; 2:104–21.
3. Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. *Educ Med J* 2019; 11:49-54.
4. Kim H, Ku B, Kim JY, Park YJ, Park YB. Confirmatory and exploratory factor analysis for validating the phlegm pattern questionnaire for healthy subjects. *Evid Based Complementary Altern. Med.* 2016; 2016:2696019. doi: 10.1155/2016/2696019. Epub 2016 Mar 9.
5. Tavakol M., Dennick R. Making sense of Cronbach's alpha. *Int J Med Educ.* 2011; 2:53.