Validation of Urdu Translation of DREEM Inventory in a Medical College of Lahore

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ABSTRACT

Background and Objective: Measurement of learning environment is a big challenge in medical education due to complex nature of educational environment such as interaction between students and teachers, learning venue, use of multimedia and other modalities. Introduced in 1997, Dundee Ready Educational Environment Measure (DREEM) is claimed to be a cultural free tool to measure educational environment at undergraduate level. DREEM has been translated and validated in different languages but no study has reported DREEM translation and validation in Urdu Language. This study was carried out to determine validity of Urdu translation of DREEM inventory at an undergraduate medical college in Lahore.

Methods: This cross-sectional study was carried out at University of Health Sciences Lahore and Fatima Jinnah Medical College Lahore over 2 years (2015-2016) after approval by Institutional Review Board of University of Health Sciences Lahore. Data was collected from 325 undergraduate students using survey method. Urdu translation of DREEM was done by two experts using computer program in page Urdu 2013. Firstly, DREEM questionnaire in English was filled by the participant students. After two weeks, DREEM questionnaire in Urdu was filled by the same students. The DREEM scores in English and Urdu were comparedby applying paired t-test.

Results: There is no significant difference (P > 0.05) between the DREEM scores in English and Urdu. The reliability index between 0.7-0.9 was recorded.

Conclusion: DREEM Inventory has the same validity in Urdu at undergraduate level as in English.

KEYWORDS: Validation, Translation, DREEM Inventory, Urdu, Medical, Undergraduate, Pakistan.

INTRODUCTION

In modern medical education, educational environment plays a central role in student

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centered curriculum. The word learning environment means the environment or milieu in which students learn. It includes the learning context, culture, setting, interaction among students, facilitators, patients, administration, public etc. It also includes the decoration of building or rooms and how the learning material is displayed.

However, the availability and arrangements of audiovisual facilities matters too. It covers diverse aspects of students learning i.e. emotional, psychosocial, and physical.[1] This diversity makes it a complex entity to measure. Any educational tool that is claimed to measure learning environment must be able to assess all aspects of learning

environment.[1,2]

Understanding learning environment is fundamentally based on language built upon a silent agreement between learners in a conversation. Words of a language attain meanings from the open world of day to day living conversation. Making meaning of something taught, plays a crucial role in transformative learning and adult education. Language is a part and parcel of everything we do. We use language in two contexts; context of culture whereby people from the same culture share an understanding of that culture and context of situation whereby language is used according to situation. The conceptual equivalence of inventories to measure learning environment in different languages remains a big challenge in research.[3]

Practical approach to develop such an educational tool is difficult hence an already validated tool can be translated into the language of interest. Literature review shows that the use of established Western instrument like Dundee Ready Educational Environment Measure (DREEM) in languages other than English is a growing area of research globally.[3,4] Roff et al.[4] developed DREEM which has been claimed to be a culture free generic tool to evaluate learning environment at the level of undergraduate medical education.

It is believed that the measuring tool should be in the learner's language in which they have developed a peculiar concept of their environment. The validity and reliability of DREEM inventory in English has been established & claimed to be a culture free tool, yet its validity in languages other than English needs to be established.[4,5] It has been translated into multiple languages like Greek, Arabic, Persian, Portuguese, Swedish, Turkish, Malaysian, Spanish, etc. with internal consistency and validity claimed to be equal or close to that in English.[6,7,8,9]

The validity and reliability are two important psychometric properties of an educational tool. Validity is defined as the ability of a measurement to measure attributes that it intended to measure while Reliability is defined as the consistency or reproducibility of a measurement over time and occasions and is expressed in the form of internal consistency or Cronbach's alpha.[10]

The validation of Urdu translation of DREEM inventory is a step to assess our learner's perception of their learning environment in their national language (Urdu) compared to that in English.[11] This is an area that is deficient in literature and needs to be addressed. The purpose of the present study is to translate and validate DREEM in Urdu language for use in medical colleges of Pakistan.

METHODS

This cross-sectional study was carried out in University of Health Sciences and Fatima Jinnah Medical College Lahore over 2 years (2015-2016) after ethical approval from the two institutions. Urdu translation of DREEM was carried out by two experts using computer program in page Urdu 2013. The language experts were the professional translator. A total of 325 undergraduate medical students (Final year MBBS) were included in the study. All participants were Pakistani. Foreign students were excluded from the study as they could not read and/or understand proforma in Urdu. At the start of study, DREEM questionnaire in English was given to participant students and their responses were recorded. After 2 weeks, DREEM questionnaire in Urdu was given to the students to be filled. The 3 scores (item scores, 5 sub-scales score and Global DREEM scores) were calculated in English and Urdu and compared with each other.

Total DREEM Score is 200 (sum of 5 subscales scores: students' perception of learning (SPL48) + students' perception of teachers (SPT 44) + students' academic self-perception (SASP 32) + students' perception of atmosphere (SPA48) + students' social self-perception (SSSP 28). Likert scale was used for grading with score ranging between 0-4. Negative impact questions (9, 12, 15, 16, 21, 23, 34, 39, and 45) were scored in reverse order.

STATISTICAL ANALYSIS

Computer software Statistical Package for the Social Sciences (SPSS) Version 20 for windows has been used for statistical analysis. Student's paired t test was used to compare data in English and Urdu with P-value of $\leq$ 0.05 taken as significant. Reliability Index (Cronbach's alpha) was also calculated for both versions of DREEM.

RESULTS

Study included 325 medical students of Final year MBBS. All were females (Fatima Jinnah Medical College is exclusively for female students) and Pakistani. Mean age of students recorded was 24.37 ± 2.13 years.

DREEM Global score & 5 sub-scores were calculated in English and Urdu languages (Table-1).

Table-1: Calculation of DREEM Inventory scores in English and Urdu Languages.

DREEM Sub-scores	Mean Score (English)	Mean Score (Urdu)
Student's perception of learning (48)	27.86	27.86
Student's perception of teachers (44)	24.48	24.50
Students' academic self-perception (32)	19.86	19.95
Student's perception of atmosphere (48)	27.61	27.81
Student's social self-perception (28)	17.12	17.0
Global DREEM scores (200)	116.09	117.22

Gross DREEM score was calculated to be 116.09 for English and 117.22 for Urdu. For DREEM subscales the scores recorded were; SPL 27.86 and 27.86 out of 48, SPT 24.48 and 24.50 out of 44, SASP 19.86 and 19.95 out of 32, SPA 27.61 and 27.81 out of 48 and SSSP 17.12 and 17.0 out of 28 in English and Urdu respectively. No significant difference in DREEM 5 sub-scores and Gross DREEM scores between English and Urdu was recorded *(P > 0.05)*.

Table 2: Cronbach's Alpha for DREEM inventory sub-scales in English and Urdu.

DREEM Inventory Sub-Scales	English Version	Urdu Version
Student's perception of learning	0.756	0.722
Student's perception of teachers	0.517	0.692
Students' academic self-perception	0.781	0.709
Student's perception of atmosphere	0.751	0.682
Student's social self-perception	0.473	0.465
Global DREEM Inventory Scores	0.891	0.885

The Cronbach's Alpha (Reliability index) for DREEM sub-sores remained high (0.7 – 0.8) in both in English and Urdu. For gross DREEM score, Reliability index was recorded to be 0.891 for English and 0.885 for Urdu.

DISCUSSION

Learning environment plays a significant role in student's learning and is a difficult entity to measure in different cultures and settings. DREEM has been translated and validated in many languages worldwide to evaluate learning environment in specific settings.[11,12] The authors translated DREEM in Urdu language which is the national language of Pakistan. Some difficulties were noted in the understanding of commands in Urdu but overall, the response rate remained good. This shows interests of students in evaluation of their educational environment. Student's perception of their learning environment was recorded to be more positive in Fatima Jinnah Medical College Lahore.

No significant difference (P-value >0.05) between DREEM scores in English and Urdu for Global DREEM score and DREEM 5 sub-scales was found. Results of this study coincide with results of other studies published on DREEM translation and validation in languages other than English.[12-20] Dimoliatis et al.[12] conducted a study using DREEM Inventory and translated it into Greek language. The authors reported Reliability index to be 0.9 in Greek version. Similarly, Riquelme et al.[18] translated DREEM into Spanish language to find students perception of the educational environment following major curriculum reforms and recorded Reliability index to be 0.91.

Students needed some explanation to fill the proforma particularly the item no.45 "*I am too tired to enjoy this course*"; its response remained variable. This is because of the fact that over the period of a whole course, sometimes students feel tired but they enjoy some part of the course again indicating deficiencies in the validity of DREEM score as supported by Dimoliatis et al.[12] and Yusaf.[13]

DREEM has diagnostic as well as therapeutic role in the evaluation and improvement of educational milieu.[15,16] In the present study, the mean score of 5 domains shows some deficient areas of learning environment i.e. in the domain of 'student perception of teachers', the score remained relatively low in both languages emphasizing on the need for faculty training to improve learning environment.

Cronbach's alpha or Reliability index remained high for English (0.891) as well as in Urdu (0.885) for gross DREEM score. This remained above average and coincides with results of other studies; for original English version (0.7-0.9),[4,14,15] Chinese language (0.7-.8),[16] Thai (0.91),[17] Spanish (0.91),[18] Greek (0.9),[12] Swedish (0.8),[19] Portuguese (0.93),[20]

Persian/Farsi (0.89)[21] and Arabic language (0.8).[7]

Few studies addressed the use of DREEM in cultural setting of Pakistan.[22,23] Khan et al.[23] conducted a study on validation of DREEM in medical educational environment of Punjab with Cronbach's alpha calculated to be 0.9.

Results from the current study show that DREEM questionnaire is as valid in Urdu as in English with some areas where it may be modified according to setting, culture and peculiar mind set in a particular learning environment. Earlier some studies were conducted on student's perception of their learning environment using DREEM in Pakistan but the study addressing translation of DREEM in Urdu is published for the first time.[22-24]

CONCLUSION

From the results of the present study, it is concluded that DREEM Inventory remains as valid in Urdu as in its English version, if required changes in its construct are applied to suit the special needs of our readers and learners. The Urdu Version of DREEM can be used in Pakistan to assess educational environment at undergraduate level in future.

LIMITATIONS OF STUDY

This was a limited study conducted in one medical college due to time constraints of degree programme, as this study is a part of Masters in Health Profession Education thesis from University of Health Sciences Lahore, Pakistan. We could not include male students in this study as Fatima Jinnah Medical College, from where the principal author belongs, is exclusively for female students.

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CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

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Author's Contribution

NM: Conception and acquisition of data, drafting and critical revision for important intellectual content.

KJS: Critical revision for important intellectual content and final approval of version.