

Abstract

Introduction: Health-risk-behaviours (HRBs) among undergraduates have a significant impact on the occurrence of acute and chronic non-communicable diseases, leading to premature death and poor quality of life. Emotional Intelligence (EI) plays a buffering role in the prevention of HRBs.

Objectives: To develop, translate and validate a tool to measure HRBs, validate a tool to measure Emotional-Intelligence (EI) and describe the prevalence of selected HRBs and their associated factors, including EI among second-year undergraduates in state universities in Sri Lanka

Methods:

Component-1: The University-Health-Risk-Behaviour (UniHRB)-Inventory (Sinhala) was developed using a seven-step design process for tool development, which includes deductive and inductive methods including literature survey and qualitative techniques. Nine Key Informant Interviews(KII) and five Focus Group Discussions(FGD) were conducted. Content and consensual validity were assessed using the modified Delphi process. Cognitive interviews and pre-testing were carried out. A validation study was conducted among 666, second-year undergraduates at the University of Kelaniya selected using multistage cluster sampling. Construct-validity of UniHRB-Inventory-Sinhala was assessed using Principal-Component-Analysis (PCA), Confirmatory-Factor-Analysis (CFA), multi-trait scaling analysis and convergent validity with Sensation-Seeking-Scale (SSS). Internal consistency and test-retest reliability were assessed in a sub-sample (n=25) in two weeks intervals. **Component-2:**Construct validity of Schutte's Self-reported-Emotional-Intelligence-Tool (SSEIT) Sinhala was carried out using hypothesis testing of known group comparison among a randomly selected sub-sample (n=85) from Component-1. Reliability was assessed using internal consistency and test-retest assessment. **Component-3:**A descriptive-cross-sectional study was carried out among 1290, second-year undergraduates using multistage stratified cluster sampling. Four universities were randomly selected and from each, three faculties were selected randomly. The cluster size was 30 and 43 clusters were allocated proportionately to the total second-year undergraduate population in each university and faculty. In each faculty, clusters were proportionately allocated to general-degree programmes with more than 100 students. Within the degree programme, clusters were selected randomly. UniHRB-Inventory, SSEIT and a questionnaire to assess associated factors were used as self-administered questionnaires.

Results: Component-1: 90 items developed from inductive and deductive method after synthesizing findings from literature and qualitative study. Following expert validation and cognitive interview the 70 items UniHRB-Inventory (Sinhala) showed adequate face, content and consensual validity. Overall response-rate for validation-study was 92.3%. A seven-factor model was formed through PCA, which was confirmed through CFA(Satorra-Bentler-scaled-chisquare:104.58;p=1.0, RMSEA:0.0, GFI:0.99, CFI:0.98, NNFI:0.95, PGFI:0.90, PNFI:0.67). UniHRB-Inventory domains and SSS total score showed correlations between 0.39-0.67, supporting convergent-validity. Cronbach's alpha-coefficient of 0.77 and test-retest reliability-coefficients of seven-domains ranging between 0.74-0.82 indicated high reliability. **Component-2:** Response-rate was 100%. Construct validity of SSEIT (Sinhala) was established through significant differences in EI scores with gender, mental health, relationship and academic performance. Cronbach's alpha of 0.95, and test-retest correlation coefficients of 0.92-0.95 supported reliability. **Component-3:** Overall response-rate for the study was 88.1% (n=1136). Prevalence of HRBs were as follows; dismissive-attitude-towards-violence 82.2% (95%CI:79.9%-84.4%), undue-risk-taking 14.7% (95%CI:12.7%-16.8%), poor-personal-hygiene 12.0% (95%CI:10.2%-14.0%), risky-substance-use 6.9% (95%CI:5.5%-7.8%), unhealthy-sleeping-behaviour 6.3% (95%CI:5.0%-7.8%), harmful-Internet-use 4.1% (95%CI:3.1%-5.4%), sexual-risk-behaviour 3.5% (95%CI:2.6%-4.7%) and aggressive-and-violent-behaviour 2.6% (95%CI:1.8%-3.7%). Only 15% (95%CI:13.0%-17.1%) of undergraduates had no HRBs, while 57.7% (95%CI:54.8%-60.5%) had one, and 12.2% (95%CI:10.6%-14.4%) of them had three or more HRBs.

EI was high among females ($p<0.0001$), less than 24 years ($p<0.05$), those with good perceived health ($p<0.0001$), good academic performance ($p<0.0001$), good mental health ($p<0.05$), good relationship with batchmates ($p<0.05$) and Arts faculty-student ($p<0.01$). There is no significant difference was seen among undergraduates of other faculties.

Significant positively associated factors of aggressive-and-violent-behaviour were having sexual-risk-behaviour without risky-substance-use(AOR=1.8;95%CI:1.2-1.9), and with risky substance use(AOR=7), presence of undue-risk-taking (AOR=8.3;95%CI:4.6-15.1), low standard-of-living (AOR=8.6; 95%CI:4.8-15.3), poor relationship with seniors (AOR=6.2;95%CI-1.5-25.8), no safe access to common-room (AOR=8.3;95%CI:4.1-16.8) and EI was negatively associated (AOR=0.91; 95%CI:0.87-0.93).

Risky-substance-use was positively associated with sexual-risk-behaviour without unhealthy-sleeping behaviour (AOR=3.3;95%CI:1.6-6.5), and with unhealthy-sleeping behaviour (AOR=13.5) and those perceived inadequate economic status (AOR=8.6; 95%CI:3.3-22.4), poor-relationship with lecturers (AOR=3.4; 95%CI: 1.6-7.1), visiting nightclubs (AOR=4.7;95%CI:1.5-14.7), discrimination due to religion (AOR=5.9; 95%CI 2.1-16.2) and negatively associated with EI (AOR=0.93; 95%CI:0.9-0.97).

Undue-risk-taking behaviour was positively associated with living away from home (AOR=2.4;95%CI:1.3-4.6), presence of risky-substance-use (AOR=6.6; 95%CI:3.7-12.0), sexual-risk-behaviour (AOR=8.9;95%CI:4.0-19.5), presence of adverse childhood events (AOR=2.7;95%CI:1.6-4.6), perpetrating physical bullying at school (AOR=6.9;95%CI:2.8-16.9), poor relationship with lecturers (AOR=2.9;95%CI:1.5-5.6), participating in political activities/meetings (AOR=6.4; 95%CI: 4.0-10.0), not engaging in sports (AOR=3.5;95%CI:1.4-8.6), discrimination due to religion (AOR=2.9;95%CI: 1.1-7.8) and income-status (AOR=2.5;95%CI: 1.2-5.0) and negatively associated with dismissive-attitude-towards-violence (AOR=0.2;95%CI:0.06-0.8) and EI (AOR=0.92;95%CI=0.89-0.95).

Sexual risk behaviour was significantly associated with risky-substance-use (AOR=5.7; 95%CI:1.7-18.4),undue-risk-behaviour(AOR=9.0;95%CI:2.6-30.4), being emotionally abused during childhood (AOR=5.9; 95%CI:1.6-20.9), perpetrating physical bullying (AOR=2.2;95%CI 1.5-3.1), discrimination due to religion (AOR=4.1;95%CI:1.2-14.2) and negatively associated with EI (AOR=0.96;95%CI 0.92-0.99).

Harmful Internet use was positively associated with the presence of unhealthy sleeping behaviour without aggressive and violent behaviour (AOR=1.7;95%CI:1.2-2.4), with aggressive-and-violence-behaviour(AOR=4.6), high impulsive-behaviour (AOR=1.2; 95%CI:1.05-1.4), being emotionally abused (AOR=6.2;95%CI:1.9-20.2), not engaging in sports (AOR=7.1;95%CI:1.9-26.1) and negatively associated with EI (AOR=0.9;95%CI :0.82-0.98).

Unhealthy sleeping behaviour was significantly associated with having a chronic illness (AOR=3.2;95%CI:1.8-5.9), having harmful-Internet-use (AOR=4.8;95%CI:2.2-10.4), income less than Rs.25,000/- of the family(AOR=2.4;95%CI:1.3-4.2), poor-relationship with family (AOR=2.5;95%CI:1.3-4.8) and lecturers (AOR=2.6;95%CI:1.4-4.9) and engaging in ragging (AOR=2.5;95%CI:1.4-4.6), and negatively associated with EI (AOR=0.97;95%CI:0.94-0.99).

Poor-personal-hygiene was positively associated with age<24years (AOR=1.9;95%CI: 1.1-3.4), having risky-substance-use (AOR=8.6;95%CI:4.6-16.3), and negatively

associated with higher self-esteem (AOR=0.86;95% CI:0.81-0.91), studying in a science-based faculty (AOR=0.4;95% CI:0.2-0.7), and EI (AOR=0.96;95% CI:0.94-0.97).

Significant associated factors of dismissive-attitude-towards-violence were, poor relationships with teachers and friends (AOR=2.9;95% CI:1.8-4.5), lecturers (AOR=4.8; 95% CI:1.4-16.2), batchmates (AOR=3.8;95% CI:1.4-9.8) and seniors (AOR=0.7;95% CI:0.5-0.9), having peers with high delinquency-behaviour (AOR=11.2; 95% CI:4.6-27.2), participating in ragging without political activities (AOR=1.2;95% CI:1.1-1.3), involving in political activities without engaging in ragging (AOR=1.8; 95% CI:1.1-3.1) and take part in both ragging and political activities (AOR=16.4) and negatively associated with EI (AOR=0.91;95% CI:0.87-0.97).

Conclusions and Recommendations:

Component-1:The UniHRB-Inventory is a comprehensive tool to assess Multiple HRBs among undergraduate students with adequate judgmental and construct validity and good reliability. **Component-2:**The SSEIT is suitable to be used among undergraduates with good construct validity and reliability. **Component-3:**It is evident that a considerable proportion of undergraduates have multiple HRBs. There significant co-existence of HRBs were noticed. Several common and unique modifiable determinants were significantly associated with HRBs. A significant negative association was seen between EI and all HRBs, with each one-unit increase in EI, reducing the odds of HRBs by 3% to 10%. The findings of this study show the importance of the establishment of an HRB surveillance system in universities. UniHRB-Inventory can be used for this purpose. The protective role of EI highlights the importance of providing means to develop EI in universities. Individual and family level, school and university level interventions should be targeted for the prevention of HRBs among undergraduates in future. It is recommended to conduct further studies on the clustering pattern of HRBs and DAV among undergraduates.

Keywords: health-risk-behaviours, undergraduates, emotional intelligence, prevalence, associated factors