Objective: To construct and test the reliability of the Laparoscopic Skills Index (LSI) as a new, multi-item, objective measure of laparoscopic skills in gynaecology. Methods: Construction of the LSI involved (1) item selection, (2) choosing a method to scale responses, (3) design, and (4) choosing a scoring method.

To institute and validate the Global Assessment of Laparoscopic Surgery score as a measure of intraoperative performance. The observational study was conducted at the Services Hospital, Lahore, and the National Hospital and Medical Centre, Lahore, from August 1, , to February 28, , and comprised Residents, Senior Registrars and Consultants who were divided into 3 groups. The Junior group comprised Residents from years 1, 2 and3; the Intermediate group had year 4 Residents and Senior Registrars; and the Senior group included Consultants. All participants had their evaluation using Global Assessment of Laparoscopic Surgeryscore while performing dissection of gall bladder from the liver bed during laparoscopic cholecystectomy. SPSS 20 was used for statistical analysis. The mean score for Junior group was 7. Global Assessment of Laparoscopic Surgery was found to be a valid and reliable measure of intraoperative laparoscopic skills. Introduction Over the last 30 years there has been an explosive growth in the use of laparoscopic surgery for routine as well as complicated procedures. Laparoscopic surgery requires additional training compared with open surgery. Adding to it, the rising costs of operation theatre times, and the teaching of this modality becomes very cumbersome. Simulators are being used more and more for teaching and testing laparoscopic skills in a cost-effective and controlled environment. A study9 involving surgeons from 5 countries showed that even laparoscopy experts can improve their performance by practising on simulators. This system is based on skills unique to laparoscopic surgery which have been modelled into exercises that can be carried out in a physical simulator a simple box trainer in our case. The most important aspect of this system is to evaluate the relationship between the skills acquired through the box trainers and actual skills shown in the operating theatre. There is evidence for transferability of skills acquired in the simulator to operating room. To assess the level of intraoperative laparoscopic skills various scores have been developed. It evaluates performance in five domains depth perception, bimanual dexterity, efficiency, tissue handling, and autonomy , and each domain is scored with an integer rating from 1 to 5. A descriptive anchor is provided for scores of 1, 3, and 5 for each domain Table. Construct validity means that the test has the ability to discriminate between novice and expert surgeons. Experienced surgeons and surgeons with more training experts should perform better than surgeons with less experience or less training novices. The Junior group comprised Residents from years 1, 2 and 3; the Intermediate group had year 4 Residents and Senior Registrars; and the Senior group included Consultants. All participants had their evaluation using Global Assessment of Laparoscopic Surgery score while performing dissection of gall bladder from the liver bed during laparoscopic cholecystectomy. After approval from the institutional review committee and taking informed consent from all the participants, the subjects were required to perform dissection of gall bladder from the liver bed. The average of the two scores was taken as the final score for each individual. Data was analysed using SPSS P Results Of the 24 subjects in the study 10 belonged to Junior group, 8 to Intermediate group and 6 to Senior group. An intergroup comparison using one-way analysis of variance ANOVA with post-hoc analysis showed a significant improvement of scores from Junior to Intermediate group p Goals assessment was done by two independent raters Figure Assessment of laparoscopic skills will not only help the training Residents improve on their skills but also provide a system to assess the level of a surgical resident. This assessment is necessary to make sure that resident has acquired enough skills before letting him operate on patients independently. The score could easily differentiate Junior from Intermediate and Intermediate from Senior groups. There was a progressive increase in score as the level of training improved. This is at par with a lot of international studies which also show GOALS score to have construct validity. Again our results were similar to other international studies. Assessment of GOALS score through video recordings was not difficult and both assessors were very

comfortable with the assessment. Video recordings though they increase cost, are definitely a great tool as they also help to identify areas of skill deficiency that require improvement and is in fact a very good way of removing any bias. A study16 has proved that video tape assessment of laparoscopic skills is reliable, feasible and valid. Conclusion As shown by the study, GOALS is an easy-to-use, valid and reliable tool and can easily be done postoperatively by a consultant in no more than a few minutes. Fundamental aspects of learning minimally invasive surgical skills. Minim Invasiv Ther Allied Technol ； Force feedback and basic laparoscopic skills. Surg Endosc ； Evolution of surgical skills training. World J Ggastroenterol ； Proving the value of simulation in laparoscopic surgery. Ann Surg ； An evaluation of the feasibility, validity, and reliability of laparoscopic skills assessment in the operating room. Laparoscopic training on bench models: J Ame Coll Surg ； Development of assessing generic and specific technical skills in laparoscopic surgery. Am J Surg ； Using simulators to assess laparoscopic competence: A global assessment tool for evaluation of intraoperative laparoscopic skills. A tool for training and evaluation of laparoscopic inguinal hernia repair: Simulator training for laparoscopic suturing using performance goals translates to the operating room. J Am Coll Surg ； Reliability of laparoscopic skills assessment on video: J Endourol ； Toward reliable operative assessment:

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of laparoscopic skills in gynecology to be used in the human model. Methods The construction of the LSI invoived (1) item selection (2) selecting a method to scale.

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In present study Laparoscopic skills index (LSI) builds with selection of item, method to scale responses, Design and choosing method. Reliability was evaluated by four raters reviewed 40 videotaped procedures. Cronbach's alpha was , which indicating a high level of internal consistency.