STROBE Statement—checklist of items that should be included in reports of observational studies

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|  | Item No. | Recommendation | Page  No. | Relevant text from manuscript |
| **Title and abstract** | 1 | (*a*) Indicate the study’s design with a commonly used term in the title or the abstract | 1 | a retrospective observational study |
| (*b*) Provide in the abstract an informative and balanced summary of what was done and what was found | 1 | A longitudinal retrospective cohort study using a hospital-based survey |
| Introduction | | | |  |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported | 1 | Low anterior resection syndrome (LARS) is a common complication of anus-preserving surgery in patients with colorectal cancer |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses | 1 | establish a LARS prediction model to allow perioperative precision nursing. |
| Methods | | | |  |
| Study design | 4 | Present key elements of study design early in the paper | 4 | the LARS Score questionnaire, the third edition of the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30) and the Colorectal Cancer Module (EORTC QLQ-CR29) *questionnaire* |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection2 | 4 | To ensure patient compliance, each hospital assigned a responsible person to supervise and inspect the completion of the questionnaires. Researchers from the three hospitals met once a week to discuss the content of the study and the completion of the questionnaires |
| Participants | 6 | (*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up  *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls  *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants | 5 | The inclusion criteria were as follows: (1) completed preoperative colonoscopy and postoperative pathological confirmation of colorectal cancer; (2) elective colorectal cancer surgery with definite indications and without contraindications; (3) age ≥18 years; and (4) ability to complete the questionnaires.  The exclusion criteria were as follows: (1) palliative colorectal resection; (2) history of immune system disorders, uremia, or severe preoperative renal impairment; (3) concurrent other primary malignant tumors, except for gastric cancer; (4) emergency surgery due to ileus; and (5) incomplete or otherwise disqualified questionnaire data. |
| (*b*)*Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed  *Case-control study*—For matched studies, give matching criteria and the number of controls per case |  |  |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable | 5 | Relevant clinical, surgical, and pathological data were extracted from the patient medical records which included age, sex, preoperative radiotherapy, neoadjuvant chemotherapy, tumor size, length, resection margin (cm), TNM stage, degree of differentiation (01/23), total/partial mesorectal excision (TME/PME), anal distance (cm), presence of stoma, lymphatic dissection, and surgery type (open or endoscopic). |
| Data sources/ measurement | 8\* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | *6* | *The LARS group included patients with mild and severe LARS. The above clinicopathological factors were compared between the groups.* |
| Bias | 9 | Describe any efforts to address potential sources of bias | 6 | IBM SPSS Statistics version 23.0 (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Statistical significance was set at P<0.05. All P values were two-tailed. |
| Study size | 10 | Explain how the study size was arrived at |  | Based on the accuracy required by the study |

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| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | 5 | For analyses, patients were divided into no-LARS and LARS groups based on the LARS score results. The LARS group included patients with mild and severe LARS. The above clinicopathological factors were compared between the groups. |
| Statistical methods | 12 | (*a*) Describe all statistical methods, including those used to control for confounding | 6 | Continuous variables were expressed as the mean values with standard deviation or median values with interquartile ranges and were compared using Student’s t test or Mann‒Whitney’s U test, as appropriate. Categorical variables were expressed as frequencies with percentages and compared using the Chi-square test. |
| (*b*) Describe any methods used to examine subgroups and interactions | 6 | LASSO regression was employed to select significant clinicopathological factors associated with LARS. Based on the selected independent risk factors, a visual prediction model of LARS risk and survival line chart were constructed. |
| (*c*) Explain how missing data were addressed | 6 | 19 patients were excluded |
| (*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed  *Case-control study*—If applicable, explain how matching of cases and controls was addressed  *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy |  |  |
| (*e*) Describe any sensitivity analyses | 6 | Multivariate logistic regression analysis was performed based on the univariate analysis results, and odds ratios (ORs) and 95% confidence intervals (CIs) were calculated. |
| Results | | | | |
| Participants | 13\* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed | 6 | Of the 312 patients who underwent colorectal surgery during the study period,Therefore, a total of 293 patients received questionnaires, of whom 265 (90.4%) patients returned completed questionnaires. Among them, 42 patients who completed the questionnaires in less than 300 s were excluded. Finally, 223 (84.15%) patients with qualified questionnaires were included in the analysis. |
| (b) Give reasons for non-participation at each stage | 6 | a total of 19 patients were excluded for the following reasons: seven due to preoperative metastasis to other sites and palliative surgical treatment, three due to preoperative diagnosis of severe renal failure, and nine due to discrepancy between the pre- and postoperative diagnosis. |
| (c) Consider use of a flow diagram |  |  |
| Descriptive data | 14\* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders | 6 | There were 65 women (25.12%) and 158 men (74.88%), with an average age of 59.21 (52−68) years. According to the LARS score results, 59 (26.45%) patients did not have LARS, 42 (18.83%) had mild LARS, and 125 (56.05%) had severe LARS. |
| (b) Indicate number of participants with missing data for each variable of interest | 6 | a total of 19 patients were excluded |
| (c) *Cohort study*—Summarise follow-up time (eg, average and total amount) | 1 | from April 2013 to June 2020 |
| Outcome data | 15\* | *Cohort study*—Report numbers of outcome events or summary measures over time |  | *According to the findings of the LARS score assessment, there were 99 patients that scored low and 124 patients that scored high. A comparison of clinicopathological factors between the groups showed that TME/PME, ostomy, preoperative radiotherapy, and neoadjuvant chemotherapy significantly correlated with LARS scores (P<0.05).* |
| *Case-control study—*Report numbers in each exposure category, or summary measures of exposure |  |  |
| *Cross-sectional study—*Report numbers of outcome events or summary measures |  |  |
| Main results | 16 | (*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 7 | These factors were used to establish the prediction model, which had an area under the receiver operating characteristic curve of 0.808 for predicting LARS |
| (*b*) Report category boundaries when continuous variables were categorized | 7 | LASSO regression analysis showed that TME/PME, ostomy, preoperative radiotherapy, and neoadjuvant chemotherapy were independent risk factors for the occurrence of LARS after colorectal surgery (P<0.05). |
| (*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period |  |  |

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| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses | 7 | Perioperative precision nursing was associated with lower LARS scores and higher QLQ-C30 and QLQ-CR29 scores (P<0.05). |
| Discussion | | | | |
| Key results | 18 | Summarise key results with reference to study objectives | 7 | a LARS prediction model |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | 7 | LARS is a common complication of anus-preserving surgery, for which a targeted and effective treatment is not available |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | 7-8 | This is consistent with the results of a prior study that identified the anastomotic site-anal edge distance, anastomotic leakage, radiotherapy, neoadjuvant chemotherapy, TNM stage, and sex as risk factors for LARS after surgery for low rectal cancer.Most prior studies on LARS have focused on the causes and risk factors for LARS without exploring factors that may help reduce LARS incidence and severity [36]. |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results | 8 | we established a LARS risk prediction model, which had an accuracy of over 80%. |
| Other information | |  | | |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based | 1 | the Zhejiang Provincal Education Dpartment Project ( No.202249777 and NO.Y201941473) |

\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.