Peer Review File

Reviewer A

Firstly, I commend the authors for their extensive and detailed work, and for their attempt to improve the treatment of this disease.
Now my comments and suggestions:

Thank you very much for your comments, for all of the helpful suggestions and for giving us a chance to revise our manuscript. Thank you very much for taking the time to review our responses and paper. We believe that you are a very friendly reviewer and famous academic reviewer who provided many good suggestions. Therefore, after receiving your email feedback, we immediately revised the manuscript. We have corrected the paper according to your suggestion, include the comments below and provide point-by-point responses:

Intro:
Scrotal abscess enlargement? Perhaps scrotal abscess formation.
Response: Dear reviewer, thank you for your comments. We have modified our text as advised (see Page 3, line 53).

In the next line, I fail to see the reason by which "fluid administration" would play a major role in treating appendage torsion -- adequate or sufficient analgesia suffices.
Response: Dear reviewer, thank you for your comments. According to literature reports, testicular appendage torsion can be treated with conservative anti-infective treatment and adequate analgesic drugs without surgical intervention. "Because the disease is self-limiting and testicular appendage has no physiological function, it can heal itself or cause only mild epididymitis with no obvious adverse consequences during conservative treatment." When it causes epididymitis, anti-infective treatment is needed at the same time. We have explained the reasons for anti-infection treatment (lines 56-59). I hope our answers can meet your requirements, thank you!

The paragraph beginning in line 59 has a flaw in its premises, as it pictures scrotal exploration as detrimental because of untoward effects in testicular function due to breaches in the testicular blood barrier.But there is no need to invoke this unproven argument, as one simply should not operate what is not to operate...
Response: Dear reviewer, thank you for your valuable suggestions. At your suggestion, we removed the relevant description of the possible damage to the blood-testis barrier caused by emergency scrotal surgery in the manuscript.

The rest of the intro is somewhat OK.

Methods:
As a general note, I do not favor this "hunting of variables", as expressed in univariate (actually bivariate) regression to include in the "final" regression equation, since it signals a limited understanding of the disease's pathophysiology. Furthermore, discriminative ability will increase concomitant with the increase in the number of predictors. Still, I acknowledge that this unfortunately still constitutes common analytical practice.
Response: Dear reviewer, thank you for your question. As you said, what you are worrying about is what we are concerned about. We used multivariate analysis in this study in order to avoid the mutual interference between multiple variables. To ensure the accuracy of our conclusions. However, as you said, the inclusion of multiple variables does have some impact on the accuracy of the prediction model. However, at present, the construction of prediction models based on the results of univariate and multivariate analysis is a relatively mature method, which is internationally recognized [1-3].

References

[1]Zhang Z, Cai Q, Wang J, Yao Z, Ji F, Hang Y, Ma J, Jiang H, Yan B, Zhanghuang C. Development and validation of a nomogram to predict cancer-specific survival in nonsurgically treated elderly patients with prostate cancer. Sci Rep. 2023 Oct 18; 13(1):17719. doi: 10.1038/s41598-023-44911-z. PMID: 37853026; PMCID: PMC10584808.

[2]Tang J, Zhanghuang C, Yao Z, Li L, Xie Y, Tang H, Zhang K, Wu C, Yang Z, Yan B. Development and validation of a nomogram to predict cancer-specific survival in middle-aged patients with papillary thyroid cancer: A SEER database study. Heliyon. 2023 Feb 10;9(2):e13665. doi: 10.1016/j.heliyon.2023.e13665. PMID: 36852028; PMCID: PMC9958280.

[3]Wang J, Zhanghuang C, Tan X, Mi T, Liu J, Jin L, Li M, Zhang Z, He D. Development and Validation of a Nomogram to Predict Distant Metastasis in Elderly Patients With Renal Cell Carcinoma. Front Public Health. 2022 Jan 28;9:831940. doi: 10.3389/fpubh.2021.831940. PMID: 35155365; PMCID: PMC8831843.

Also, there is a problem with the definition of the variables. We read, in the nomogram, that points are assigned to "not clear on display", but I cannot find what does this mean. That is, the authors should effectively stated not only which variables were collected, but also what they in fact mean, most of all in categorical variables such as these.

Response: Dear reviewer, thank you for your question. In Figure 2, there is one item defined as "not clear on display" within our three predictive model variables. The three variables are the epididymal blood flow signal, the testicular blood flow signal, and the ultrasonic appearance of the echo of the testicular parenchyma. "not clear on display" here means that the results of the ultrasound report are unclear epididymal blood flow signal display, testicular blood flow signal display and testicular parenchyma echo display.I hope our explanation will satisfy you.

If you have any further queries about our paper, please do not hesitate to ask. We hope that our responses and change are satisfactory. Thank you very much.

Results:

Somewhat OK, but which were the predictors included in the final model? They should be in the text...

Response: Dear reviewer, thank you for your suggestions. Through univariate and multivariate analysis, we found that side, neutrophil count, MER, epididymal blood flow signal in ultrasound, testicular parenchyma echo and testicular blood flow signal were independent risk factors for predicting testicular torsion in children with scrotal emergency, and were included in the construction of the final prediction model. We have supplemented this part of the content in the text (lines 159-162). I hope our supplement can meet your requirements, thank you!

Discussion:

The first paragraph must be re-written: How can a patient with an "absent spermal cord" be at risk for testicular torsion? What are high connexion points between the tunica and cord? How can one have excessive activity of the cremaster? How can the vagus interfere with the cremaster, which it does not innervate?

Response: Dear reviewer, thank you for your valuable suggestions. We rewrote the first paragraph of the discussion section. First, we refer to the absence of the gubernaculum testis, not the spermatic cord. In addition, we want to express that the connection point between the parietal layer of the tuniculus of the testis and the spermatic cord is too high. We speculate that these errors are related to the lack of understanding of our professional content by the polishing agency. We have rewritten the whole first paragraph: "TT can occur in men of all ages, but it is most common in children, affecting about 1 in 4,000 men under the age of 25, with a higher incidence on the left side than on the right side. Long or absent gubernaculum testis, high connection point between parietal layer of tunica vaginae and spermatic cord, resulting in "pendulum-like malformation", cryptorchidism and other congenital dysplasia or malformations are risk factors for TT [17]. "It may be caused by compression or collision of the testes due to exercise or trauma, torsion induced by excessive activity of the cremaster muscle, vagal excitation during sleep, and contraction or spasm of the cremaster muscle." (Lines 179-186)

I hope our modification can meet your requirements, thank you!

The rest of the discussion goes on with one paragraph dedicated to each of the variables included in the

nomogram -- although one would not know, since they were not explicitly stated in the Results section. It is also somewhat alright, but more work is required. For example, let us take the paragraph on hematological markers, my comments in (parentheses).

Response: Dear reviewer, thank you for your comments. We summarize the different nomograms in the background section. "There are few predictive models for testicular torsion. Hideki et al. constructed a nomogram to predict testicular torsion in Japanese patients with acute scrotal pain using physical examination and environmental factors [14], but ignored the role of important auxiliary examinations such as color Doppler ultrasound in the diagnosis of TT. Pengyu Chen et al. conducted a retrospective analysis of testicular torsion patients in a single center for 12 years using hematological indicators and constructed a prediction model based on factors such as white blood cells, lymphocytes and monocytes [15]. "However, this prediction model was only studied for hematological indicators, which may cause some bias in the results."

The factors included in our nomogram included laboratory tests such as blood and urine, imaging tests such as ultrasound, and physical examinations such as TWIST score. Therefore, a similar model of our nomogram has not been reported.

In summary, we did not summarize similar nomorgam in the discussion section. However, paragraphs 3-5 are a summary and discussion of the factors we incorporated into the prediction model.I hope our explanation can meet your requirements.

If you have any further queries about our paper, please do not hesitate to ask. We hope that our responses and change are satisfactory. Thank you very much.

Additionally, a lower neutrophil count was associated with TT. This may be due to the fact that epididymal-orchitis is usually accompanied by bloodstream infection (not true, perhaps an inflammatory response, although usually not), while TT children typically have normal blood cell counts (the comparison is or should be between standardized values, so this justification is very weak). Interestingly, there are significant differences in the reported results among existing studies on hematological indicators. This may be related to the different detection devices (detection devices? Perhaps equipment) used in different centers and the differences in normal reference values for children of different age groups (which argues against using this variable in the nomogram -- as these values values should perhaps be normalized to age-specific references, further complexifying the model and rendering it of little practical use).

Response: Dear reviewer, thank you for your valuable suggestions. As you are concerned, we have also focused on hematologic measures. However, our analysis showed that the factor of neutrophils had better predictive power. This is consistent with the currently available reports on testicular torsion [1-2], which has also been demonstrated in animals [3]. Therefore, we did not remove this factor. In addition, the results of existing studies on hematological indicators are different, which may be related to the limited reports of relevant studies and the insufficient sample size of included patients. At the same time, there is a lack of relevant research reports on children. According to our literature review, the 283 children in the current study are the largest sample size of testicular torsion in children reported in China. Therefore, our conclusion is of great reference value.

For the above reasons, we rewrote this section "In addition, lower neutrophil count was associated with TT. This may be due to the fact that epididymo-orchitis is usually accompanied by a systemic inflammatory response such as fever, which in children with TT is usually not manifested or appears at an advanced stage of the disease. Interestingly, there are significant differences in the results reported by the existing studies of hematological indicators. This may be related to the limited reports of relevant studies and the insufficient sample size of included patients. At the same time, there is a lack of relevant research reports on children [25]."(Line 216-222)

I hope our explanation and modification can meet your requirements, thank you!

References

[1] Delgado-Miguel C, García A, Muñoz-Serrano AJ, López-Pereira P, Martínez-Urrutia MJ, Martínez L. The role of neutrophil-to-lymphocyte ratio as a predictor of testicular torsion in children. J Pediatr Urol. 2022 Oct;18(5):697.e1-697.e6. doi: 10.1016/j.jpurol.2022.09.010. Epub 2022 Sep 14. PMID: 36175289.

[2] Bitkin, A, Aydın, M, Özgür, BC, Irkilata, L, Akgunes, E, Keles, M, Sarıcı, H, Atilla, MK. Can haematologic parameters be used for differential diagnosis of testicular torsion and epididymitis?

ANDROLOGIA. 2018-02-01; 50 (1): doi: 10.1111/and.12819. PMID: 28497463;
[3] Lysiak, JJ, Turner, SD, Nguyen, QA, Singbartl, K, Ley, K, Turner, TT. Essential role of neutrophils in germ cell-specific apoptosis following ischemia/reperfusion injury of the mouse testis. BIOL REPROD. 2001-09-01; 65 (3): 718-25. doi: 10.1095/biolreprod65.3.718. PMID: 11514333;

The authors should be commended for undertaking this study, as the negative exploration for acute testicular pain remains high worldwide. Efforts, such as this nomogram, undertaken to reduce rates of negative explorations are scare and have been fraught with controversy given the old surgical adage of "cut first, ask questions later", which is taught to residents.

Thank you for your comments concerning our manuscript entitled "A Novel Nomogram to Predict Testicular Torsion in Children with Acute Scrotum Pain: A Single-Center Retrospective Study in Western China". I should like to express my appreciation to you for suggesting how to improve our paper. The following is a point-to-point response：

Questions/Comments for authors

Introduction:
1. Paragraph 2 - I don't think it is appropriate to start a paragraph with "However"
Response: Dear reviewer, thank you for your comments. We have carefully read the part of your question, and we find that you are right, and we support your opinion. We have modified our text as advised (see Page 3, line 61).

2. Paragraph 3 - Some of the wording here is extreme. (i)"misdiagnosis of TT" A scrotal exploration is a diagnostic test as much as a therapeutic intervention. A negative exploration should not considered a misdiagnosis when there is concern for testicular torsion.
Response: Dear reviewer, thank you for your question. We agree with you. However, we want to point out that TT still has a high rate of misdiagnosis, not non-TT using surgical exploration, but TT is misdiagnosed as orchitis or testicular appendage torsion, and conservative observation treatment is used to delay the timing of surgery, which leads to a high rate of testicular loss. We have supplemented the manuscript for ease of understanding (lines 67-69). I hope our explanation and modification can meet your requirements, thank you!

3. Paragraph 3 - It Is not accurate to say that diagnosis of torsion requires U/S.
Response: Dear reviewer, thank you for your comments. We believe that the diagnosis of TT requires a comprehensive evaluation based on the patient's history, physical examination, and Doppler ultrasonography of the scrotum and testis. For ease of understanding, we have changed "color Doppler ultrasonography" here to "Doppler ultrasonography of the scrotum and testis" (line 66). I hope our modification can meet your requirements, thank you!

RE METHODS:
1. Are these consecutive patients? If not, the nomogram is going to biased as obvious cases of torsions would have been excluded. In which case, this should be a nomogram to be used for scrotal pain with atypical features of torsion.
Response: Dear reviewer, thank you for your question. Our study included all children with scrotal emergencies who were admitted to our medical center during a consecutive period of 8 years (2014-2022), after excluding children who declined surgery due to age and parental requirements.
According to the 2014 annual meeting of Chinese Pediatric Urology, all emergency children with scrotum

should be sexually active surgical exploration. Therefore, we recommend emergency surgical exploration for all children with ASP. Therefore, we do not believe that our included patients were subject to significant selection bias.

I hope our explanation can meet your requirements.If you have any further queries about our paper, please do not hesitate to ask. We hope that our responses and change are satisfactory. Thank you very much.

2. If this is a retrospective series, how did you get written consent from 283 patients?? In any case, I don't think written conent is necessary if the ethics allows of retrospective access of data for publication.

Response: Dear reviewer, thank you for your valuable suggestions. We were concerned that some highly demanding journals would require informed consent because of the use of partial data from ultrasound. However, to the best of our knowledge, retrospective analyses using only case information do not require written informed consent from patients. Therefore, we support your opinion and delete the part of the informed consent form. I hope our modification can meet your requirements, thank you!

3. If this is a retrospective series, how do you justify all patients with acute scrotal pain having a U/S?

Response: Dear reviewer, thank you for your valuable questions. In our center, specialized ultrasonography is available for emergency scrotal care. Therefore, ultrasonography is routinely performed in our children with acute scrotal diseases. Therefore, all children included in our study had the results of ultrasonography.

Another objective of this study is to explore whether it is possible to avoid ultrasound examination in some ASP children through the construction of relevant models. So that patients can get appropriate treatment as soon as possible.

I hope our explanation can meet your requirements, thank you!

RE Discussion:

Line 177 - absent spermatic cords?

Response: Dear reviewer, thank you for your valuable suggestions. We rewrote the first paragraph of the discussion section. First, we refer to the absence of the gubernaculum testis, not the spermatic cord. In addition, we want to express that the connection point between the parietal layer of the tuniculus of the testis and the spermatic cord is too high. We speculate that these errors are related to the lack of understanding of our professional content by the polishing agency. We have rewritten the whole first paragraph (Lines 179-186).

I hope our modification can meet your requirements, thank you!

Reviewer C

1) General comments

This paper created a nomogram for diagnosing TT using cases with scrotal incision. Additionally, the authors conducted validation using cases from their own institution.

There is no problem with the methodology, but there are concerns about the population setting.

In this population, the authors found testicular blood flow abnormalities in 48.8% and normal testicular blood flow in 51.2%. As the authors also mention in their manuscript, color Doppler US has a sensitivity and specificity of over 80%, making it a definitive test for diagnosing testicular torsion.

However, CDUS abnormalities were detected in only 50% of their population, and other factors probably determine the indication for surgical exploration, which is different from our daily clinical practice. In fact, of the 2012-2017 cases in which surgical incision was performed at our institution, 74% had CDUS abnormalities, and 83% were ultimately diagnosed as TT. Recently, more emphasis has been placed on CDUS findings when selecting surgical candidates. Therefore, the nomogram in this paper is difficult to use in our daily clinical practice.

Due to technological advances, CDUS images are becoming clearer. Because CDUS has such a strong impact on TT diagnosis, it is difficult to establish a nomogram that includes other factors like physical findings simultaneously as CDUS findings, which is why Takeshita et al. [14] did not include CDUS findings in their nomogram.

Additionally, the authors compared the nomogram with TWIST score, but this comparison is meaningless because TWIST score does not include the strongest CDUS results. TWIST score was originally created as an outcome of whether CDUS could be omitted.

Response: Dear reviewer, thank you for your constructive comments. Please allow me to reply to your comments step by step:

1, you pointed out that the proportion of children with abnormal testicular blood flow signals on ultrasound is low, while the proportion of children with normal blood flow is nearly half. This is because the group of children included in our study is all scrotal swelling and pain. We did not judge whether the children should undergo surgical exploration based on the results of ultrasound, but followed the consensus recommended by the National annual meeting of pediatric Urology: "All children with scrotal swelling and pain should actively undergo surgical exploration". This is why our study was not subject to selection bias. Because of this, we found that many children with scrotal swelling do not need surgical exploration.

"We wanted to use objective, routine preoperative tests to determine whether a child with painful scrotum needs emergency surgery." This is the main purpose of this study. I hope our explanation can meet your requirements. Thank you.

2, The nomogram is constructed as a modal graph based on multivariate regression analysis. It integrates multiple predictors through regression analysis and represents the relationship between variables in the prediction model with a scale line. It has been widely used in clinical prognosis prediction of various malignant solid tumors and has shown good predictive effect.

After screening for interfering factors through univariate and multivariate analyses, we included key factors, including physical examination, laboratory testing, and imaging studies. The combination of these factors can make the model more efficient and clinically instructive. The reference 14 you show is a study by a Japanese scholar whose starting point, like TWIST score, is the hope that ultrasound can be avoided. However, our institution is equipped with 24-hour emergency scrotal ultrasound equipment and technicians. This test can be completed at the bedside in a matter of minutes. Therefore, our starting point was to construct the prediction model with the highest efficiency and the most suitable for children in southwest China. Not to avoid a test.

I hope our explanation can make you satisfied, thank you!

2) Minor comments

a) Table 1: I don't really understand the difference between "absent/loss" and "disappear/not clear" CDUS findings.

Response: Dear reviewer, thank you for your comments. In the ultrasound report given by our hospital, the description of blood flow signals mainly included: abundant, normal, weakened or absent, and unclear display. This is the difference between "absent/loss" and "disappear/not clear".

I hope our explanation will satisfy you. If you have any further queries about our paper, please do not hesitate to ask. We hope that our responses and change are satisfactory. Thank you very much.

b) Table 1: The authors should display the actual numbers of TT and non-TT. 134/149.

Response: Dear reviewer, thank you for your suggestions. Figure 1 is to show that the training and validation sets are comparable. We then performed comparisons and tabulated P values between patients with TT and those without TT in the training set (Table 2). Therefore, the relevant comparison results between TT and non-TT are presented in Table 1 without repeatability. Our research framework is consistent with the existing prediction model construction nomogram [1-2]. I hope our explanation will satisfy you. Thank you.

References

[1] Zhang Z, Cai Q, Wang J, Yao Z, Ji F, Hang Y, Ma J, Jiang H, Yan B, Zhanghuang C. Development and validation of a nomogram to predict cancer-specific survival in nonsurgically treated elderly patients with prostate cancer. Sci Rep. 2023 Oct 18;13(1):17719. doi: 10.1038/s41598-023-44911-z. PMID: 37853026; PMCID: PMC10584808.

[2] Wang J, Zhanghuang C, Tan X, Mi T, Liu J, Jin L, Li M, Zhang Z, He D. Development and Validation of a Nomogram to Predict Distant Metastasis in Elderly Patients With Renal Cell Carcinoma. Front Public

Health. 2022 Jan 28;9:831940. doi: 10.3389/fpubh.2021.831940. PMID: 35155365; PMCID: PMC8831843.

c) Table 1: The unit of "symptom duration" should be displayed. Is it "hours"?
Response: Dear reviewer, thank you for your comments. As you said, the unit of duration of our symptoms is "hours". For ease of understanding, we have followed your suggestion and added units to the table. I hope our modification can meet your requirements, thank you!

d) Table 2: The multivariate HR of "Laterality Right" is very large at 23.061, but is this a mistake?
Response: Dear reviewer, thank you for your comments. According to your suggestion, we used our original data to verify again by the multiple logistic regression operation of spss, and we found that the results obtained were consistent with those in our manuscript.

e) Table 2: The 95% CI of Univariate for "Platelet" is "1月1日", but this should be corrected correctly.
Response: Dear reviewer, thank you for your comments. I'm sorry for our mistake. We have modified the corresponding contents in Table 2. I hope our modification can meet your requirements. Thank you!

f) Line 233: "ischemia or necrosis of the brain parenchyma" "brain"? Is "testiclar" a mistake?
Response: Dear reviewer, thank you for your comments. I'm sorry for our mistake. We apologize for the misspelling of "brain parenchyma". We modified this section (Lines 237-238). I hope our modification can meet your requirements, thank you!

g) Line 118: It is necessary to explain the 7:3 division in detail. Were you divided by time period, or did you select specific cases to maintain balance?
Response: Dear reviewer, thank you for your comments. In the related articles on nomogram construction, the most mainstream diversity method is to distinguish the training set and the validation set with a ratio of 7:3 [1-3]. Therefore, this study of ours also performed diversity at a ratio of 7:3. I hope our explanation can meet your requirements, thank you!

References
[1] Tang X, Zhou X, Li Y, Tian X, Wang Y, Huang M, Ren L, Zhou L, Ding Z, Zhu J, Xu Y, Peng F, Wang J, Lu Y, Gong Y. A Novel Nomogram and Risk Classification System Predicting the Cancer-Specific Survival of Patients with Initially Diagnosed Metastatic Esophageal Cancer: A SEER-Based Study. Ann Surg Oncol. 2019 Feb;26(2):321-328. doi: 10.1245/s10434-018-6929-0. Epub 2018 Oct 24. PMID: 30357578.
[2] Tang G, Jiang Z, Xu L, Yang Y, Yang S, Yao R. Development and validation of a prognostic nomogram for predicting in-hospital mortality of patients with acute paraquat poisoning. Sci Rep. 2024 Jan 18;14(1):1622. doi: 10.1038/s41598-023-50722-z. PMID: 38238454; PMCID: PMC10796350.
[3] Zhanghuang C, Wang J, Zhang Z, Jin L, Tan X, Mi T, Liu J, Li M, He D. A Web-Based Prediction Model for Cancer-Specific Survival of Elderly Patients With Clear Cell Renal Cell Carcinoma: A Population-Based Study. Front Public Health. 2022 Mar 3;9:833970. doi: 10.3389/fpubh.2021.833970. PMID: 35310783; PMCID: PMC8929444.

h) Line 76: His last name is Takeshita, not Hideki.
Response: Dear reviewer, thank you for your comments. Thank you again for your careful review and correction of many errors in our manuscript. Your revision suggestions have greatly helped to improve the quality of our manuscript. We correct the author's last name (line 78). I hope our modification can meet your requirements, thank you!

We are grateful for your valuable feedback, which has guided these improvements. We look forward to your further comments and hope that our revised manuscript meets the esteemed standards of your journal.

<mark>Reviewer D</mark>

The pediatric testicular torsion is an emergency, and both families and pediatricians have major concerns about addressing it properly. The authors propose a nomogram. It is not innovative, but according to the data provided by the authors, it seems working quite well. I would suggest adding a better benchmark analysis on nomograms used in pediatric testicular torsion and similar pediatric urologic conditions. Moreover, the authors should add a SWOT analysis of this nomogram with professional advice.

Response: Dear reviewer, thank you for your comments. In the background section, we have benchmarized the available studies on testicular torsion in children. "Hideki et al. used physical examination and environmental factors to construct a nomogram to predict testicular torsion in Japanese patients with acute scrotal pain [14], but ignored the role of important auxiliary examinations such as color Doppler ultrasound in TT diagnosis. Pengyu Chen et al. conducted a retrospective analysis of testicular torsion patients in a single center for 12 years using hematological indicators and constructed a prediction model based on factors such as white blood cells, lymphocytes and monocytes [15]. "However, this prediction model was only studied for hematological indicators, which may cause some bias in the results." And through benchmarking analysis, we elicited the novelty and originality of our study. Our study is currently the largest sample size study of testicular torsion in children in southwestern China.

Second, after the guidance of professionals, we conducted the content writing of SWOT of this study, as follows:

The establishment of predictive models is of great strategic significance in the selection of treatment options for children with acute scrotum. Through SWOT analysis, we will evaluate the strengths, weaknesses, opportunities, and threats of the program.
Strengths:
1. Technical expertise: The team has leading data analysis technology, which provides a solid foundation for the accuracy of the prediction model.
2. Innovation ability: continue to pay attention to the trends of medical research to ensure that the prediction model always stays in the leading position.
3. Industry experience: The team has rich experience in the medical industry, and can accurately grasp the market demand and competition situation.
Weaknesses:
1. Data resource limitation: Limited data sources may limit the training and prediction effect of the model.
2. High cost: data collection and processing require a large amount of resources.
3. Market awareness: the market awareness of the new model needs to be improved, and the marketing efforts need to be intensified.
Opportunities:
1. Market demand growth: the public's attention to children's health issues has increased, and the market demand shows an increasing trend.
2. Technological progress: Technological development provides possibilities for the improvement of model accuracy.
3. Policy support: may obtain policy support from the government or relevant institutions to promote the development of the project.
Threats:
1. Competitors: Other medical institutions may develop similar predictive models and become strong competitors.
2. Regulatory risk: regulatory changes may affect project implementation and promotion.
3. Technical risk: the emergence of new technologies may bring uncertainty, which may affect the stability and reliability of the model.

We put the "SWOT analysis" in the result section, hope our modification can meet your requirements, thank you!