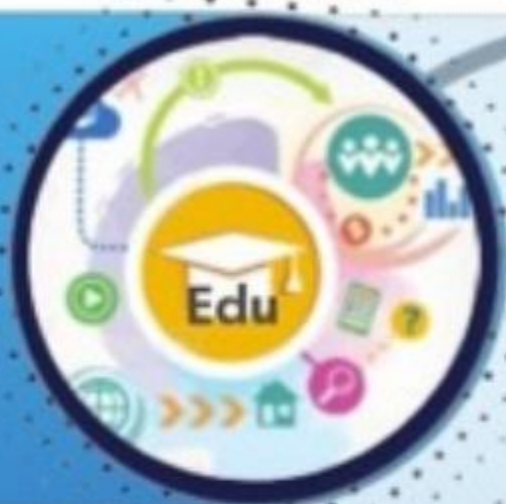




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## PREDICTIVE FACTORS IN WOMEN WITH RECURRENT ABNORMAL UTERINE BLEEDING AND ITS IMPACT ON QUALITY OF LIFE

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### ABSTRACT

**Background.** Abnormal uterine bleeding (AUB) is a common gynecological disorder that has a negative impact on women's health, particularly on their quality of life (QoL). The effects of recurrent AUB on physical and psychological health are not thoroughly studied, especially in the Uzbekistan setting.

**Purpose.** This study aims to investigate the clinical predictors of recurrent AUB and its subsequent effects on the quality of life, with an emphasis on psychosocial factors likely to result in recurrence.

**Material and methods.** A case-control study was conducted in Tashkent among 22 women with recurrent AUB and 20 healthy women as a control. Interviews were conducted using standard questionnaires, i.e., the SF-36 Health Survey, the Hospital Anxiety and Depression Scale (HADS), and the Wayne Index for autonomic dysfunction. Statistical analysis was conducted using Chi-square tests, binary logistic regression, and ROC curve analysis using Stata v14.

**Results.** Women in the case group showed significantly higher comorbidities, i.e., anemia (48,5%), cardiovascular disease (31,3%), acute respiratory infections (31,3%), chronic tonsillitis (26,9%), and chronic gastritis (20,9%). Menstrual features like excessive bleeding (>8 days) and heavy menstrual blood loss (>80 mL) were highly elevated in the AUB group ( $\chi^2=88,1$ ,  $\chi^2=72,82$ ;  $p<0,00001$ ). Moreover, chronic stress in the family was seen in 72,5% of the women with AUB ( $\chi^2=13,9$ ,  $p=0,0028$ ). Logistic regression showed heavy menstruation, chronic stress, chronic tonsillitis, and respiratory infections as independent predictors of AUB recurrence. Diagnostic value of the prognostic model was reliable (AUC=0,954,  $p=0,001$ ).

**Conclusion.** Recurrent AUB is a multifactorial condition with somatic and psychosocial components. The findings of the study suggest that incorporation of psychosocial evaluation and treatment of infections into gynecological services may improve patient outcome. These findings support biopsychosocial management of recurrent AUB.

**Keywords:** abnormal uterine bleeding, quality of life, psychosocial factors, women's health.

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### Residivlanuvchi bachadondan anomal qon ketishi mavjud ayollarda bashoratlovchi omillar va uning hayot sifatiga ta'siri

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**Kirish.** Bachadondan anomal qon ketishi (BAQK) ayollar salomatligiga, xususan, ularning hayot sifatiga (HS) salbiy ta'sir ko'rsatadigan ginekologik kasallikdir. Residivlanuvchi BAQK ning jismoniy va ruhiy salomatlikka ta'siri, ayniqsa, O'zbekiston sharoitida to'liq o'rganilmagan.

**Maqsad.** Ushbu tadqiqot residivlanuvchi BAQKning klinik ko'rsatkichlarini va uning hayot sifatiga ta'sirini, residivlanishga olib kelishi mumkin bo'lgan ijtimoiy omillarga urg'u berishni maqsad qilgan.

**Material va usullar.** Toshkent shahrida 22 nafar BAQK mavjud va 20 nafar amaliy sog'lom ayol o'rtasida tekshiruv o'tkazildi. Tekshiruv standart anketalar yordamida o'tkazildi, ya'ni SF-36, havotirlik va depressiyani o'rganuvchi shkala (HADS) va vegetativ disfunktsiya uchun Ueyn shkalasi. Statistik tahlil Stata v14 yordamida  $\chi^2$ , ikkilik logistik regressiya va ROC egri tahlili yordamida o'tkazildi.

**Natijalar.** Tadqiqot guruhidagi ayollarda yondosh kasalliklar, ya'ni kamqonlik (48,5%), yurak-qon tomir kasalliklari (31,3%), o'tkir respiratorli infeksiyalar (31,3%), surunkali tonsillit (26,9%) va surunkali gastrit (20,9%) sezilarli darajada

yuqori bo'lgan. Davomli qon ketish ( $>8$  kun) va ko'p qon yo'qotish ( $>80$  ml) kabi hayz ko'rish xususiyatlari BAQK guruhida yuqori darajada bo'lgan ( $\chi^2=88,1$ ,  $\chi^2=72,82$ ;  $p<0,00001$ ). Bundan tashqari, oilada surunkali stress BAQK bilan kasallangan ayollarning 72,5% da kuzatilgan ( $\chi^2=13,9$ ,  $p=0,0028$ ). Logistik regressiya ko'p hayz ko'rish, surunkali stress, surunkali tonzillit va respirator infeksiyalarni BAQK takrorlanishining prognostik omillari sifatida ko'rsatdi. Prognostik modelning ahamiyatligi ishonchli bo'ldi ( $AUC=0,954$ ,  $p=0,001$ ).

**Xulosa.** Residivlanuvchi BAQK somatik va ijtimoiy omillarga ega bo'lgan multifaktorial holatdir. Tadqiqot natijalari shuni ko'rsatadiki, ginekologik bemorlarni ijtimoiy holatini baholash va infeksiyalarni o'z vaqtida davolash tibbiy xizmat sifatini yaxshilashi mumkin. Ushbu natijalar residivlanuvchi BAQK ni oldini olish imkoniyatlarini oshiradi.

**Kalit so'zlar:** bachadondan anomal qon ketishi, hayot sifati, ijtimoiy omillar, ayollar salomatligi.

## ПРОГНОСТИЧЕСКИЕ ФАКТОРЫ У ЖЕНЩИН С РЕЦИДИВИРУЮЩИМИ АНОМАЛЬНЫМИ МАТОЧНЫМИ КРОВОТЕЧЕНИЯМИ И ИХ ВЛИЯНИЕ НА КАЧЕСТВО ЖИЗНИ

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**Ведение.** Аномальное маточное кровотечение (АМК) является распространенным гинекологическим заболеванием, которое оказывает негативное влияние на здоровье женщин, особенно на качество их жизни (КЖ). Влияние рецидивирующего АМК на физическое и психологическое здоровье изучено недостаточно, особенно в условиях Узбекистана.

**Цель.** Целью данного исследования является изучение клинических предикторов, рецидивирующих АМК и их последующего влияния на качество жизни с акцентом на психосоциальные факторы, которые могут привести к рецидиву.

**Материалы и методы.** Исследование случай-контроль было проведено в Ташкенте среди 22 женщин с рецидивирующими АМК и 20 здоровых женщин в качестве контроля. Интервью проводились с использованием стандартных анкет, т. е. опросника о состоянии здоровья SF-36, госпитальной шкалы тревоги и депрессии (HADS) и индекса Уэйна для вегетативной дисфункции. Статистический анализ проводился с использованием тестов  $\chi^2$ , бинарной логистической регрессии и анализа ROC-кривой с использованием Stata v14.

**Результаты.** Женщины в группе наблюдения показали значительно более высокую сопутствующую патологию, а именно анемию (48,5%), сердечно-сосудистые заболевания (31,3%), острые респираторные инфекции (31,3%), хронический тонзиллит (26,9%) и хронический гастрит (20,9%). Менструальные особенности, такие как чрезмерное кровотечение ( $>8$  дней) и обильная менструальная кровопотеря ( $>80$  мл), были значительно повышены в группе АМК ( $\chi^2=88,1$ ,  $\chi^2=72,82$ ;  $p<0,00001$ ). Более того, хронический стресс в семье наблюдался у 72,5% женщин с АМК ( $\chi^2=13,9$ ,  $p=0,0028$ ). Логистическая регрессия показала, что обильные менструации, хронический стресс, хронический тонзиллит и респираторные инфекции являются независимыми предикторами рецидива АМК. Диагностическая эффективность прогностической модели была достоверной ( $AUC=0,954$ ,  $p=0,001$ ).

**Заключение.** Рецидив АМК является многофакторным состоянием с соматическими и психосоциальными компонентами. Результаты исследования показывают, что включение психосоциальной оценки и лечения инфекций в гинекологические услуги может улучшить результаты лечения пациентов. Эти результаты подтверждают психосоциальное управление рецидивирующими АМК.

**Ключевые слова:** аномальное маточное кровотечение, качество жизни, психосоциальные факторы, женское здоровье.

## INTRODUCTION

Abnormal uterine bleeding (AUB) refers to any menstruation that is lighter or heavier, shorter, or at an improper time in contrast to the expected menstrual cycle [5, 9]. Recurrent AUB in the pattern of steady abnormal bleeding lasting for a lengthy period is a common condition in women of reproductive age [7]. It is associated with a range of complications like iron-deficiency anemia, infertility, and psychosocial issues, which all play significantly in the quality of life (QoL) of the woman [1, 6].

While structural and functional AUB categorizations, such as the PALM-COEIN classification, are convenient in identifying cause at diagnosis, fewer reports can be found with documented systemic infection and psychosocial factors of recurrence of AUB [5, 10]. Both causes of prevalence and recurrence of AUB are scarcely researched in Uzbekistan. This research seeks to bridge this gap by examining clinical and psychosocial predictors of recurrent AUB in Uzbek women, the effect these have on their quality of life [2, 4].

Since both physiological and psychological factors play such a significant role in recurrent AUB, it is essential that an integrated, biopsychosocial model of care be given due consideration [10]. It not only deals with physical health but also the psychological and social factors causing stress that could aggravate the condition [3, 8].

## MATERIALS AND METHODS

The present study applied a case-control study design, which is suitable for examining relationships between a specific exposure (recurring AUB) and given outcomes (such as comorbidities and quality of life). The sample comprised 42 subjects, among whom 22 suffered from recurring AUB and 20 healthy females in the control group. All the participants were enrolled at the 3rd Hospital of Tashkent, Uzbekistan. Study participants were women of childbearing age who had experienced at least two episodes of abnormal uterine bleeding during the previous six months. Excluded from the study were women with a history of pregnancy, known neoplasms, or recent surgery. Data were collected on clinical and psychosocial factors through structured interviews and administration of validated questionnaires, including SF-36 Health Survey, Hospital Anxiety and Depression Scale (HADS), Wayne Index for Autonomic Dysfunction. Clinical diagnoses were confirmed by ultrasound and laboratory workups. Data were analyzed with Stata v14 using chi-square tests to assess group differences, binary logistic regression to assess predictors, and ROC curve analysis to assess the predictive model's accuracy.

## RESULTS

The study revealed significant difference in the case and control groups regarding clinical comorbidities. The women with recurrent AUB had an increased prevalence of some chronic conditions that could be behind the AUB recurrence. Specifically, the study found the case group to have the following:

1. Anemia: 48,5% of women in the AUB group presented with anemia, which is commonly observed in heavy menstrual bleeding and can exacerbate manifestations of weakness and fatigue.
2. Cardiovascular Diseases: 31,3% had cardiovascular comorbidities, which can influence blood flow and cause abnormal bleeding.
3. Respiratory Infections: 31,3% had acute respiratory illness, indicating the effects of infections on systemic health and possibly menstrual function.
4. Chronic Tonsillitis and Gastritis: They occurred in 26,9% and 20,9% of the AUB group, respectively. Chronic infections or inflammation can possibly play a direct or indirect role with the reproductive apparatus.

The case group also experienced longer menstrual cycles ( $>8$  days) and more significant blood loss ( $>80$  mL), both of which were significantly different from the control group ( $\chi^2=88,1$ ,  $\chi^2=72,82$ ;  $p<0,00001$ ). This accords with the classical presentation of AUB, where women experience excessive bleeding, which then results in physical and emotional distress.

Psychosocial stressors, specifically family stress, was a major factor noted to affect the recurrence of AUB. Out of the 72,5% of the women with recurrence of AUB who indicated family stress as high, control group did not mention such stresses ( $\chi^2=13,9$ ,  $p=0,0028$ ). Chronic stress was established in research to exert harmful effects on hormonal stability and menstrual health, thus further establishing the need for an integrated treatment strategy in managing AUB.

The independent predictors of recurrent AUB, as determined through binary logistic regression analysis, were four variables:

- Heavy menstruation
- Chronic family stress
- Chronic tonsillitis
- Frequent respiratory infections

All the mentioned factors were found to be highly contributing to AUB recurrence. ROC curve analysis confirmed that the model possessed excellent predictive qualities with an Area Under the Curve (AUC) of 0,954 ( $p=0,001$ , 95% CI: 0,922–0,986) and demonstrated these factors together had the capability to predict the success of AUB recurrence.

## DISCUSSION

The findings of this research reiterate that recurrent AUB is influenced by a mixture of somatic and psychosocial causes. Somatic comorbidities such as anemia, cardiovascular disease, and respiratory infections were much more prevalent in women with recurrent AUB, which supports the fact that systemic health significantly influences menstrual health.

The impact of psychosocial stress, namely chronic family stress, is of particular interest. Chronic stress has been reported to disrupt the hypothalamic-pituitary-ovarian axis, leading to menstrual irregularities. Our findings are in agreement with other global studies that highlight that stress is a significant etiology of menstrual dysfunction.

Furthermore, the good performance of the prediction model (AUC=0,954) suggests that it can be a helpful clinical tool for the detection of high-risk women for recurrent AUB. Integrating an in-depth evaluation of menstrual history, psychosocial problems, and infection history into routine gynecological checkups could facilitate earlier detection and more focused intervention.

## CONCLUSION

Recurrent abnormal uterine bleeding has significant quality of life implications for women, with both somatic and psychosocial problems contributing significantly to recurrence likelihood. These observations underscore the relevance of a biopsychosocial approach to management that integrates medical and psychological assessment within gynecological practice. Standard practice might be psychosocial stress and recurrent infection screening combined with menstrual history as a matter of course, to maximize clinical outcomes. Multidisciplinary treatment and early intervention are required in the management of recurrent AUB and quality of life improvement in women.

**Consent for publication** – The study is valid, and recognition by the organization is not required. The author agrees to open publication.

**Availability on data and material** – available.

**Competing interest** – no.

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**Conflict of interests** – The authors declare that there is no conflict of interest.

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