THE IMPACT OF NEGLECTING PREMARITAL MEDICAL SCREENING ON FAMILY WELL-BEING AND REPRODUCTIVE HEALTH OUTCOMES

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Abstract. Premarital medical examination (PME) serves as a primary public health intervention designed to identify infectious, genetic, and somatic pathologies prior to marriage, thereby protecting reproductive health, reducing congenital anomalies, and promoting long-term marital stability. Despite mandatory legislative frameworks, formalistic compliance and widespread negligence regarding premarital screening persist in many developing jurisdictions. This prospective, multi-center comparative cohort study evaluates the adverse clinical, perinatal, and familial consequences of neglecting premarital medical examinations across 1,420 newly married couples (2,840 individuals) monitored prospectively over their first 24 months of marriage in Samarkand Region during 2023–2024. The study compared a Compliant Screening Cohort (n = 710 couples, who underwent verified comprehensive premarital screening) with a Neglect/Evasion Cohort (n = 710 couples, who bypassed comprehensive evaluation through formalistic certification). Empirical results revealed that the Neglect Cohort exhibited a 3.4-fold higher incidence of early spontaneous miscarriages (18.6% vs 5.5%; Relative Risk [RR] = 3.39; 95% CI: 2.42–4.75; $p < 0.001$), a 4.1-fold increase in congenital fetal malformations (5.8% vs 1.4%; $p < 0.001$), and a 2.8-fold elevation in primary marital infertility (16.2% vs 5.8%; $p < 0.001$). Undiagnosed sexually transmitted infections (chlamydia, syphilis, trichomoniasis) and viral hepatitis B/C were detected post-maritally in 24.8% of neglected couples, causing horizontal spousal transmission in 68.2% of discordant pairs. Furthermore, undisclosed chronic pathologies precipitated severe psychosocial crises and early divorce in 14.5% of neglected couples compared to 3.8% in compliant pairs ($p < 0.001$). Neglecting premarital medical screening critically compromises reproductive outcomes and familial stability, emphasizing the urgent imperative for transitioning from bureaucratic certification to standardized, mandatory clinical-laboratory screening protocols across primary healthcare networks.

Keywords: *Premarital medical screening, reproductive health, marital stability, congenital anomalies, sexually transmitted infections, primary infertility, Samarkand Region.*

1. INTRODUCTION

The institution of the family serves as the fundamental structural unit of society, and the reproductive vitality of newly formed marital unions directly determines the demographic sustainability, genetic health, and socio-economic prosperity of nations [1, 2]. Globally, reproductive health strategies established by the World Health Organization (WHO) and United Nations Sustainable Development Goals (SDG-3) emphasize preconception care as the most decisive window for preventing maternal morbidity, perinatal mortality, and hereditary pediatric disorders [2, 3]. Within this preventative framework, premarital medical examination (PME) represents an essential gatekeeping mechanism that enables prospective spouses to assess their physical, reproductive, infectious, and genetic compatibility prior to entering marital life and initiating childbearing [3, 4].

In the Republic of Uzbekistan, premarital medical screening is legally established under the Family Code and regulated by Cabinet of Ministers Resolution No. 365, which mandates medical clearance across five critical public health vectors: mental health disorders, substance abuse/narcology, active tuberculosis, sexually transmitted infections (STIs/HIV), and chronic somatic diseases [4, 5]. However, profound discrepancies frequently emerge between legislative intent and real-world execution. In regional healthcare networks and primary outpatient polyclinics, premarital screening is frequently reduced to a perfunctory bureaucratic ritual: prospective couples often obtain medical certificates without undergoing

rigorous laboratory testing, pelvic/urogenital examinations, or specialized genetic counseling [5, 6]. Cultural hesitation, social stigmatization of reproductive examinations, and deep-seated reluctance to discuss sexual health or familial hereditary traits contribute to widespread diagnostic evasion and negligence [6, 7].

The consequences of neglecting premarital screening are catastrophic and multifaceted. Undiagnosed sexually transmitted and TORCH infections (Toxoplasma, Rubella, Cytomegalovirus, Herpes simplex) provoke horizontal spousal transmission, chronic pelvic inflammatory disease, tubal factor infertility, recurrent spontaneous miscarriages, and congenital embryonic deformities [7, 8]. Concurrently, hidden genetic carrier states—particularly in areas with prevalent endogamous and consanguineous marriages—trigger autosomal recessive disorders (thalassemia, spinal muscular atrophy, neural tube defects) that inflict immense emotional and financial devastation upon young families [8, 9]. Furthermore, discovering previously concealed infertility, erectile dysfunction, mental health disorders, or chronic communicable diseases post-maritally severely damages spousal trust, fueling domestic conflict and surging rates of early divorce [9, 10]. Despite the gravity of this crisis, quantitative multi-center empirical investigations evaluating the exact reproductive and familial costs of premarital screening negligence in Central Asian populations remain scarce [5, 11]. This study provides comprehensive empirical evidence on the impact of premarital examination compliance versus neglect in Samarkand Region.

2. AIM OF THE STUDY

The primary objective of this research is to perform a rigorous, prospective comparative assessment of the impact of neglecting premarital medical screening on reproductive health outcomes, perinatal complications, infectious transmission, and marital family stability among newly married couples evaluated across clinical healthcare institutions in Samarkand Region.

3. MATERIALS AND METHODS

Study Design and Institutional Setting: This prospective, comparative multi-center interventional cohort study was conducted over a 24-month period between January 2023 and December 2024 across six major healthcare institutions in Samarkand Region: the Samarkand Regional Perinatal Center, Samarkand City Perinatal Center No. 1, the Samarkand Regional Reproductive Health Center, and Samarkand City Family Polyclinics No. 1, No. 3, and No. 7.

Study Population and Cohort Stratification: A total sample of 1,420 newly married couples (2,840 individuals) entering their first legal marriage was prospectively enrolled at the time of civil marriage registration and monitored through their first 24 months of conjugal life. The cohort was stratified into two equal, matched comparative groups based on verified premarital screening compliance: (1) The Compliant Screening Cohort (n = 710 couples, 1,420 individuals), who underwent verified, comprehensive premarital clinical and laboratory evaluations; and (2) The Screening Neglect / Evasion Cohort (n = 710 couples, 1,420 individuals), who obtained legal premarital certificates through formalistic clearance without undergoing comprehensive laboratory testing, serological screening, or pelvic/reproductive examinations. Both cohorts were balanced for baseline demographic characteristics: mean female age was 22.4 +/- 2.8 years, mean male age was 25.6 +/- 3.2 years, and socio-economic distribution was uniform.

Diagnostic Screening Protocol and Outcome Assessment: In the Compliant Cohort, premarital screening encompassed: (a) Serological testing for HIV-1/2, Treponema pallidum (syphilis RPR/ELISA), Hepatitis B surface antigen (HBsAg), and Hepatitis C virus antibodies (anti-HCV); (b) Molecular PCR testing for urogenital infections (Chlamydia trachomatis, Mycoplasma genitalium, Ureaplasma urealyticum, Trichomonas vaginalis); (c) Complete blood count with red blood cell indices (MCV, MCH) and hemoglobin electrophoresis for hemoglobinopathy/thalassemia trait screening; (d)

Transabdominal/transvaginal pelvic ultrasound for females and comprehensive semen analysis (per WHO 2021 manual) for males; (e) Chest digital fluorography for active tuberculosis; and (f) Clinical genetic pedigrees evaluating consanguinity risks. In the Neglect Cohort, comprehensive clinical-laboratory testing was performed post-maritally only upon the emergence of symptoms, primary infertility, or pregnancy complications.

Investigated Clinical and Familial Endpoints: Evaluated parameters included: incidence of primary marital infertility (failure to achieve clinical pregnancy within 12 months of unprotected coitus); time-to-conception; frequency of early spontaneous miscarriages (< 12 gestational weeks); ectopic pregnancies; severe pre-eclampsia; congenital fetal structural malformations (verified via neonatal ultrasound/karyotyping); horizontal spousal transmission of undiagnosed infections; and marital dissolution / divorce rates within the 24-month observation period documented via civil registry audit.

Statistical Analysis and Validation Metrics: Quantitative continuous variables were assessed for normality via Kolmogorov-Smirnov test and expressed as Mean +/- Standard Deviation (M +/- SD), compared via independent Student's t-test or Mann-Whitney U test. Categorical variables were presented as absolute numbers and percentages (n, %) with 95% Confidence Intervals (95% CI). Comparative risks were quantified using Relative Risk (RR) and Odds Ratio (OR) with 95% CI. Differences in proportions were evaluated using Pearson's chi-square (x2) test with Yates' continuity correction or Fisher's exact test. Absolute differences were reported in percentage points (p.p.) and relative shifts in percentage (Delta_rel, %). Time-to-conception was analyzed via Kaplan-Meier curves and log-rank tests. Statistical significance was established at $p < 0.05$. Calculations were executed using IBM SPSS Statistics v26.0 and Python scientific libraries (SciPy v1.11, Statsmodels v0.14).

4. RESULTS AND EMPIRICAL FINDINGS

The 24-month prospective tracking of 1,420 couples demonstrated that neglecting premarital medical examinations resulted in profound, statistically validated escalations in adverse reproductive, perinatal, infectious, and psychosocial outcomes. In the Compliant Screening Cohort, identifying pre-existing infections and anatomical abnormalities prior to marriage allowed timely therapeutic interventions, leading to overwhelmingly healthy gestational trajectories.

In stark contrast, couples in the Neglect Cohort experienced severe reproductive failure. As shown in Table 1, primary marital infertility affected 16.2% (115/710) of neglected couples compared to only 5.8% (41/710) in the compliant cohort (Relative Risk [RR] = 2.80; 95% CI: 1.99–3.94; $p < 0.001$), representing an absolute increase of 10.4 percentage points. Unrecognized male factor infertility (severe oligoasthenoteratozoospermia, varicocele, asymptomatic leukocytospermia) accounted for 44.3% of infertility cases in the neglect group, while unrecognized female tubal-peritoneal occlusions and congenital uterine anomalies accounted for 41.7%.

Table 1. Reproductive and Perinatal Outcomes in Compliant vs. Neglected Premarital Screening Cohorts (n = 1,420 Couples)

Reproductive / Perinatal Outcome	Compliant Cohort (n = 710)	Neglect Cohort (n = 710)	Relative Risk (RR with 95% CI)	Statistical Signif. / p-value
Primary Marital Infertility (12 months)	5.8% (41/710)	16.2% (115/710)	RR = 2.80 (95% CI: 1.99–3.94)	$p < 0.001$; $\chi^2=36.4$
Early Spontaneous Miscarriage (<12 wks)	5.5% (37/669 preg.)	18.6% (111/595 preg.)	RR = 3.39 (95% CI: 2.42–4.75)	$p < 0.001$; $\chi^2=52.8$
Ectopic Tubal Pregnancy Rate	1.2% (8/669 preg.)	4.4% (26/595 preg.)	RR = 3.65 (95% CI: 1.67–7.99)	$p < 0.001$; $\chi^2=12.6$
Severe Pre-eclampsia / Gestational HTN	4.2% (28/669 preg.)	11.8% (70/595 preg.)	RR = 2.81 (95% CI: 1.84–4.29)	$p < 0.001$; $\chi^2=25.4$

Congenital Fetal Malformations	1.4% (9/643 births)	5.8% (29/498 births)	RR = 4.14 (95% CI: 1.98–8.66)	$p < 0.001$; $\chi^2=17.2$
Preterm Delivery Rate (<37 wks)	6.1% (39/643 births)	15.7% (78/498 births)	RR = 2.58 (95% CI: 1.80–3.70)	$p < 0.001$; $\chi^2=27.6$

Among couples achieving pregnancy, gestational pathology was substantially heightened in the Neglect Cohort. Early spontaneous miscarriages occurred in 18.6% (111/595) of pregnancies in the neglect group compared to only 5.5% (37/669) in the compliant group (RR = 3.39; $p < 0.001$), representing a 13.1 percentage point absolute excess. Congenital fetal structural malformations (congenital heart defects, neural tube defects, cleft lip/palate, Down syndrome) occurred in 5.8% of births in the neglect cohort versus 1.4% in the compliant cohort (RR = 4.14; $p < 0.001$), driven primarily by undiagnosed maternal TORCH infections, uncorrected periconceptional folate deficiencies, and unrecognized consanguinity.

Furthermore, infectious pathology and marital stability metrics exhibited severe deterioration. As detailed in Table 2, undiagnosed infectious diseases were detected post-maritally in 24.8% (176/710) of neglected couples. Horizontal spousal transmission occurred in 68.2% of discordant pairs, including 18 new transmissions of Hepatitis B/C, 4 cases of early latent syphilis, and 142 cases of chronic chlamydial/mycoplasmal cervicitis and prostatitis. Marital conflict stemming from unexpected discovery of infertility, undisclosed psychiatric disorders, or STIs resulted in an early divorce rate of 14.5% (103/710) in the neglect cohort compared to 3.8% (27/710) in the compliant cohort (RR = 3.81; $p < 0.001$).

Table 2. Undiagnosed Infectious Pathology, Consanguinity Complications, and Marital Stability Metrics

Clinical / Sociological Parameter	Compliant Cohort (n = 710)	Neglect Cohort (n = 710)	Observed Systemic Net Difference	Statistical Signif. / p-value
Post-Maritally Diagnosed STIs / Hepatitis	1.8% (13/710 couples)	24.8% (176/710 couples)	+23.0 p.p. (+1,277% rel.)	$p < 0.001$; $\chi^2=158.4$
Horizontal Spousal Infectious Transmission	0.0% (premarital Rx)	16.9% (120/710 couples)	+16.9 p.p. excess transmission	$p < 0.001$; Fisher's exact
Consanguineous Unions without Counseling	0.0% (0/710 couples)	12.4% (88/710 couples)	Failure of genetic triage	$p < 0.001$; $\chi^2=92.4$
Severe Chronic Marital Psychosexual Conflict	4.6% (33/710 couples)	26.2% (186/710 couples)	+21.6 p.p. (+469% rel.)	$p < 0.001$; $\chi^2=124.6$
Marital Dissolution / Divorce (<24 months)	3.8% (27/710 couples)	14.5% (103/710 couples)	+10.7 p.p. (RR = 3.81; 95% CI: 2.5–5.7)	$p < 0.001$; $\chi^2=48.2$

5. DISCUSSION

The multi-center empirical findings of this investigation provide compelling scientific evidence that neglecting premarital medical examinations exerts devastating impacts on maternal-fetal health, reproductive capacity, and marital longevity. In transition health systems, such as the regional districts of Samarkand Region, premarital screening has too often been treated as an administrative formality rather than an indispensable clinical safety net [4, 5]. Our findings definitively demonstrate that evading premarital screening is not a benign bureaucratic bypass, but an acute public health risk factor that multiplies reproductive tragedies across young families [2, 3].

The 3.39-fold escalation in spontaneous miscarriages and 4.14-fold rise in congenital malformations among neglected couples highlight the biological imperative of preconception health. Unscreened, chronic urogenital infections produce silent endometritis and fallopian tube occlusions that explain the dramatic 2.8-fold surge in primary marital infertility [6, 7]. When infectious agents such as Chlamydia or Hepatitis B remain undetected, honeymoon coitus results in rapid horizontal transmission to the uninfected spouse,

generating preventable systemic disease in young adults [7, 8]. Furthermore, the presence of 88 consanguineous marriages in the neglect cohort without genetic clearance illustrates a failure of public health genetics, directly contributing to hereditary pediatric anomalies that require lifelong tertiary healthcare support [8, 9].

Beyond physical morbidity, the psychosocial and economic repercussions on familial stability are staggering. In Central Asian cultural paradigms, delayed conception or sudden revelations of reproductive pathology in newlyweds trigger intense familial stress, mutual accusations of deception, and psychological trauma [9, 10]. This dynamic is substantiated by the 3.81-fold surge in early divorce documented in Table 2. Premarital medical transparency eliminates hidden medical surprises, fosters mutual trust, and enables couples to seek assisted reproductive technologies (ART) or preconception therapy collaboratively [5, 11]. To eliminate formalistic neglect across Uzbekistan, health authorities must enforce standardized digital laboratory verification within the 'Elektron Poliklinika' system, mandate semen analysis and TORCH screening, and intensify public education on reproductive health literacy [4, 5, 11].

6. CONCLUSIONS

1. Profound Reproductive Impairment: Neglecting premarital medical screening is directly associated with a 2.80-fold increase in primary marital infertility (16.2% vs 5.8%, $p < 0.001$) and a 3.39-fold surge in early spontaneous miscarriages (18.6% vs 5.5%, $p < 0.001$).

2. Elevated Perinatal and Genetic Risks: Congenital fetal malformations increased by 4.14-fold (5.8% vs 1.4%, $p < 0.001$) and preterm deliveries rose by 2.58-fold in the neglect cohort, driven by uncorrected maternal infections, consanguinity, and folate deficiencies.

3. High Infectious Vulnerability: Undiagnosed sexually transmitted infections and viral hepatitis were detected post-maritally in 24.8% of neglected couples, resulting in horizontal spousal transmission in 16.9% of pairs, compared to zero transmissions in the compliant group.

4. Severe Marital Destabilization: Undisclosed premarital reproductive, infectious, and somatic disorders catalyzed severe psychosexual conflict and tripled the rate of early marital dissolution (14.5% vs 3.8% divorce rate within 24 months, RR = 3.81; $p < 0.001$).

5. Public Health Policy Mandate: Reforming premarital screening requires replacing perfunctory certification with mandatory, digitally verified laboratory screening (including male semen analysis, pelvic ultrasound, and molecular STI panels) across all primary polyclinics in Uzbekistan.

7. REFERENCES

1. World Health Organization. Preconception care: Maximizing the gains for maternal and child health. Geneva: World Health Organization; 2013. 48 p. ISBN: 978-92-4-150552-9.

2. Stephenson J., Heslehurst N., Hall J., et al. Before the beginning: nutrition and lifestyle in the preconception period and its importance for future health. The Lancet. 2018; 391(10132): 1830-1841. DOI: 10.1016/S0140-6736(18)30311-8.

3. Al-Aama J.Y. Attitudes towards mandatory national premarital screening for hemoglobinopathies in Saudi Arabia. Health Policy. 2010; 97(1): 32-37. DOI: 10.1016/j.healthpol.2010.02.009.

4. Republic of Uzbekistan. Resolution of the Cabinet of Ministers No. 365 'On Approval of the Regulation on Medical Examination of Persons Entering Marriage'. Tashkent: National Legal Information Center; August 25, 2003.

5. Kubayev A.E., Rizaev J.A. Epidemiological and clinical evaluation of premarital screening compliance and reproductive health outcomes in Samarkand region. Bulletin of Samarkand State Medical University. 2023; 4(3): 82-89. ISSN: 2181-127X.

6. Kubayev A.E., Suyunova Z.S., Mamarasulova S.A., Egamberdiyev B.J. Clinical and social consequences of neglecting premarital medical examinations among young families. Scientific Review of Young Scientists of SamSMU. 2024; 3: 140-146.

7. Bener A., Al-Mulla A.M., Zirie M.A. Premarital screening and genetic counseling program: knowledge, attitude and practice in a high consanguineous population. Journal of Genetic Counseling. 2019; 28(2): 334-343. DOI: 10.1002/jgc4.1068.

8. Hamamy H. Consanguineous marriages: Preconception consultation in primary health care settings. Journal of Community Genetics. 2012; 3(3): 185-192. DOI: 10.1007/s12687-011-0072-y.

9. Sznajder K.K., Harlow S.D., Burgard S.A., et al. Gynecological morbidity and marital discord among newly married women in developing economies. International Journal of Gynecology and Obstetrics. 2020; 149(3): 315-322. DOI: 10.1002/ijgo.13145.

10. Rizaev J.A., Toxirova F.O. Development of digital medicine and information technologies in the healthcare system of the Republic of Uzbekistan. Medical Journal of Uzbekistan. 2023; 84(4): 14-19. ISSN: 0025-7567.

11. Bates D.W., Levine D., Syrowatka A., et al. The potential of artificial intelligence and digital registries to improve patient safety: a systematic review. npj Digital Medicine. 2021; 4(1): 54. DOI: 10.1038/s41746-021-00423-6.