

# BIOETHICAL-COMMUNICATIVE JUDGMENTS ACROSS TRAINING YEARS: CROSS-YEAR EVIDENCE FROM UZBEK MEDICAL EDUCATION

**Gulnoza Salimova**

Abu Ali ibn Sino Bukhara State Medical  
Institute, Uzbekistan

✉ [salimova.gulnoza@bsmi.uz](mailto:salimova.gulnoza@bsmi.uz)

## ABSTRACT

Whether bioethical-communicative judgments vary across stages of medical education remains underexplored in Central Asian contexts. This pilot cross-sectional study examined scenario-based judgments among 100 undergraduate medical students from six year groups and seven universities in Uzbekistan using a purpose-designed six-scenario Situational Judgment Test (SJT). Five Likert-format scenarios were analysed separately, with S4 and S5 reverse-coded only for directional consistency, while S6 used a forced-choice format. After Holm correction, significant year-group differences remained for patient autonomy and consent (S3:  $H(5) = 28.89$ ,  $p < .001$ ,  $\epsilon^2 = .254$ ), comprehension verification (S4:  $H(5) = 14.52$ ,  $p = .038$ ,  $\epsilon^2 = .101$ ), and emotional responsiveness (S5:  $H(5) = 18.72$ ,  $p = .009$ ,  $\epsilon^2 = .146$ ), but not for prognosis disclosure or hierarchical challenge. In Year 1 versus Years 2–6 comparisons, Year 1 students rated S2 and S3 higher, whereas Years 2–6 rated S4 and S5 higher; S1 did not differ significantly. S6 responses were divided among refusal, acceptance, and compromise. Overall, cross-year variation was domain-specific and bidirectional. Given the cross-sectional design, unequal group sizes, and exploratory instrument, the findings should be interpreted as hypothesis-generating rather than causal. They identify domains warranting further longitudinal, qualitative, and behaviourally validated investigation within Uzbek medical education settings.

## KEYWORDS

**Bioethical norms, Central Asian medical education, hidden curriculum, pragmatic socialization, professional responsibility, situational judgment test**

## HOW TO CITE

Salimova G. (2026) 'Bioethical-Communicative Judgments Across Training Years: Cross-Year Evidence from Uzbek Medical Education', *Journal on Efficiency and Responsibility in Education and Science*, vol. 19, no. 3, pp. 184–195. <http://dx.doi.org/10.7160/eriesj.2026.190301>

## Article history

**Received**

May 24, 2026

**Received in revised form**

August 10, 2026

**Accepted**

August 31, 2026

**Available on-line**

September 30, 2026

## Highlights

- Cross-year patterns were domain-specific and bidirectional.
- Year 1 rated autonomy and hierarchical challenge higher in focused comparisons.
- Later-year students rated comprehension and emotional responsiveness higher.
- Findings are exploratory and do not establish causal training effects.

## INTRODUCTION

Professional training can shape not only technical knowledge but also how practitioners judge context-sensitive communicative situations. In medical education, such judgments are particularly important in situations involving truth-telling, informed consent, professional hierarchy, patient comprehension, emotional distress, and professional boundaries (Ha and Longnecker, 2010). Pragmatic socialization research similarly suggests that sustained participation in institutional environments may influence communicative norms and expectations (Bardovi-Harlig, 1999; Duff, 2010). In the present study, however, scenario responses are treated as judgments of bioethical-communicative

appropriateness rather than direct measures of sociopragmatic competence or observed clinical behaviour.

Medical education research indicates that communicative and professional development does not necessarily follow a uniformly progressive trajectory. Previous studies have identified challenges involving empathy, hierarchy, speaking up, and patient-centred communication during training (Neumann et al., 2011; Salehi et al., 2020). Situational Judgment Tests (SJTs) have also been used to examine professionalism and context-sensitive decision-making among medical students, although their results should not be equated directly with actual behaviour (Sahota et al., 2023).

What remains insufficiently understood is whether bioethical-communicative judgments differ across year groups in culturally and institutionally distinctive medical education settings, and whether any observed differences are consistent across communicative domains. Evidence addressing these questions in Central Asian medical education remains particularly limited.

Accordingly, the objective of this pilot cross-sectional study was to examine whether scenario-based bioethical-communicative judgments differed across the six years of undergraduate medical education in Uzbekistan, to identify the communicative domains showing the strongest and weakest cross-year variation, and to determine whether the direction of these differences was consistent across dilemmas. Because the study compared different year-group cohorts at a single time point, its objective was comparative and exploratory rather than developmental or causal.

Clinical communication is also culturally and institutionally situated. Comparative research has shown that preferences concerning disclosure, patient involvement, family participation, and professional roles may vary across healthcare contexts, making it problematic to assume that a single communication model operates uniformly across settings (Surbone, 2006; Pun et al., 2018). In Central Asia, medical education has undergone substantial institutional change since the dissolution of the Soviet system, with reforms affecting curricula, training structures, accreditation, and professional education (Conaboy et al., 2005). Health-system analysis from Uzbekistan has likewise documented continuing reform in medical education, professional development, and quality-assurance structures (Ahmedov et al., 2014). These bodies of literature provide important contextual background, but they do not establish how Uzbek medical students evaluate specific bioethical-communicative dilemmas across year groups.

Three research questions guided the study:

- RQ1: Do scenario-based appropriateness ratings differ across year groups among Uzbek medical students?
- RQ2: Which scenarios show the strongest and weakest cross-year variation, and are the observed patterns consistent in direction?
- RQ3: What do these scenario-specific patterns suggest, cautiously, about the interaction between internationally promoted bioethical-communicative norms and culturally or institutionally salient expectations?

The study is relevant to questions of educational effectiveness and professional responsibility. From an educational perspective, it examines whether students at different stages of training evaluate key communicative dilemmas similarly or differently. From a professional perspective, it considers how principles such as informed consent, transparent communication, patient comprehension, and professional boundaries are judged within a specific medical education context. Because the design is cross-sectional, the study does not establish that training causes the observed differences.

The remainder of the paper reviews relevant literature on pragmatic socialization, the hidden curriculum, SJTs, and medical communication; describes the study design, instrument, sample, and statistical analysis; presents the scenario-level

results; discusses their implications and limitations; and concludes with directions for future research.

## **Pragmatic Socialization, Fossilization, and Professional Discourse**

Pragmatic socialization describes how communicative norms are learned through participation in social and institutional settings (Duff and Talmy, 2011). Pragmatic development is context-sensitive and may follow non-linear trajectories, while persistent non-target forms have been discussed as pragmatic fossilization (Kasper and Rose, 2002; Trillo, 2002). In this study, these concepts serve as theoretical analogies rather than demonstrated mechanisms of medical training.

Medical education similarly places learners within role-specific discourse communities where formal professional expectations may coexist with locally situated interactional practices (Lave and Wenger, 1991). Such tensions may concern authority, patient participation, disclosure, and professional communication. However, the present cross-sectional design cannot determine whether pragmatic socialization or fossilization explains year-group differences. Establishing such processes would require longitudinal and qualitative evidence.

## **The Hidden Curriculum and Communicative Competence**

The hidden curriculum comprises informal values and behavioural norms transmitted alongside formal instruction (Hafferty, 1998). In medical education, these influences may operate through role modelling, informal feedback, hierarchy, and observed clinical practice. Previous research has associated hidden-curriculum processes with empathy, communication, professional behaviour, and ethical reasoning (Neumann et al., 2011; Salehi et al., 2020; Ullah et al., 2025).

The hidden curriculum therefore provides a relevant interpretive framework, but it was not directly measured in this study. Cross-sectional scenario ratings cannot establish whether exposure to competing institutional norms produces pragmatic re-socialization. Longitudinal assessment, qualitative inquiry, and observation of clinical communication would be required to test this possibility.

## **Situational Judgment Tests in Undergraduate Medical Education**

Situational Judgment Tests are used in medical education to examine professionalism, interpersonal behaviour, and context-sensitive decision-making. A systematic review of 24 studies in undergraduate medical training found applications across professionalism, clinical skills, personality attributes, and later educational outcomes, while also highlighting heterogeneous evidence and the need for stronger prospective validation (Sahota et al., 2023). SJT responses should therefore be interpreted as judgments about hypothetical situations rather than direct demonstrations of behaviour.

Supporting evidence includes associations between lower professionalism-based SJT scores and recorded professionalism concerns (Sahota and Taggar, 2020), as well as acceptable reliability for an adapted professionalism-focused SJT across health-professions students (Hosseinpour and Keshmiri,

2024). These findings support SJTs as exploratory measures of professional judgment without equating them with validated communicative competence.

### **Family-Mediated Decision-Making, Hierarchy, and Emotional Responsiveness**

Several study scenarios reflect communicative tensions documented in other healthcare contexts. Family involvement in disclosure and decision-making is one example. Wang et al. (2013) reported substantial family support for withholding a cancer diagnosis because of concern about psychological harm, whereas Wu et al. (2021) found stronger preferences for full disclosure among patients than among relatives or medical professionals. These findings illustrate tensions between patient autonomy and family-protective reasoning.

Professional hierarchy presents a distinct challenge. Trainees may recognise safety or professionalism concerns while remaining reluctant to challenge senior colleagues. Martinez et al. (2017) reported reduced willingness to speak up to attending physicians, while Carrillo et al. (2024) linked speaking-up behaviour with psychological safety. Hierarchical power relations may therefore influence participation and communication in medical education (Salehi et al., 2020; Vanstone and Grierson, 2022; Singh et al., 2025).

Emotional responsiveness is also distinct from general empathy. LaNoue and Roter (2018) linked emotionally responsive communication with patient-centred interaction, whereas Brodahl et al. (2021) showed that biomedical tasks may take priority when patients express emotional concerns. Gift acceptance represents another distinct domain because gratitude and reciprocity may conflict with professional boundaries and obligation (Zolkefli, 2021). These findings support analysing the scenarios as distinct communicative judgments rather than indicators of a single competence.

### **Year-Group Differences in Pragmatic and Sociolinguistic Awareness**

Research on pragmatic awareness across educational levels suggests that development is neither linear nor uniform. Matsumura (2003) showed that proficiency and exposure interact non-linearly, with contextual factors shaping pragmatic trajectories. However, few studies compare scenario-based communicative judgments across all stages of undergraduate medical training. The present study addresses this gap by comparing all six year groups in an Uzbek medical education sample while treating the observed differences as cross-sectional rather than developmental.

### **Sociopragmatic Competence in the Uzbek Medical Education Context**

Research on bioethical-communicative judgments among medical students in Uzbekistan remains limited. Existing Central Asian literature has focused mainly on post-Soviet reforms in curricula, accreditation, professional training, and institutional capacity (Conaboy et al., 2005). Uzbekistan has also undergone reforms in medical education, professional development, treatment standards, and quality assurance (Ahmedov et al., 2014). At the same time, substantial

variation among former Soviet health systems cautions against treating the region as a single explanatory cultural category (Rechel et al., 2014).

The specific gap concerns how Uzbek medical students evaluate dilemmas involving autonomy, family participation, professional hierarchy, comprehension, emotional responsiveness, and professional boundaries, and whether these judgments differ consistently across year groups. Evidence from other Asian settings shows variation in family involvement, disclosure, patient participation, and culturally situated communication expectations (Pun et al., 2018; Surbone, 2006), but such findings cannot be assumed to apply directly to Uzbekistan.

The present study uses the five MedSPC components as an analytical scaffold: Sociopragmatic Knowledge (Kasper and Rose, 2002), Discourse Organizational Competence (Bardovi-Harlig, 1999), Interactional Role Competence (Lave and Wenger, 1991), Face Management Competence (Brown and Levinson, 1987), and Pragmatic Adaptability (Duff, 2010). MedSPC (Salimova, 2026) is used heuristically rather than treated as an independently validated theoretical or psychometric model.

Accordingly, the SJT should be regarded as an exploratory scenario-based instrument, not a validated psychometric scale. Its five Likert-format scenarios represent distinct communicative domains and are analysed separately rather than assumed to measure a common latent construct. The present study does not establish structural, criterion-related, temporal, or behavioural validity. Further validation should include cognitive interviewing, test-retest assessment, independent behavioural or educational criteria, larger item pools, and more balanced samples.

## **MATERIALS AND METHODS**

### **Research Design**

This pilot study used a cross-sectional quantitative design with a purpose-built Situational Judgment Test (SJT) as the primary research instrument. SJTs have been used in medical education to examine context-sensitive professional judgment, interpersonal reasoning, and professionalism-related decision-making, although evidence of validity depends on the specific instrument, population, and external criterion against which performance is evaluated (Patterson et al., 2016; Sahota et al., 2023). The present SJT was therefore used as an exploratory scenario-based instrument rather than as an established measure of clinical competence. Given the study's applied-linguistic component, the methodological decisions and statistical reporting were made explicit in accordance with broader recommendations concerning transparency and quality in quantitative applied-linguistics research (Plonsky and Gass, 2011). A cross-sectional design captures differences between year groups at a single point in time; it does not track individuals as they progress through training. This matters for interpretation because the observed differences are compatible with several plausible explanations, including cohort effects, selection bias, and measurement artefact. They are therefore treated throughout as exploratory, hypothesis-generating findings rather than evidence of developmental change.

## Ethical Considerations

The study was conducted with reference to the ethical principles of the Declaration of Helsinki (World Medical Association, 2013) and the British Psychological Society (2021) Code of Human Research Ethics. Participation was voluntary and anonymous, and no personally identifying data were collected. No deception was used. Formal institutional ethics committee approval was not obtained before data collection. This governance limitation is acknowledged explicitly, and future replication studies should obtain prospective ethics review through an appropriate institutional mechanism where available.

## Instrument

The Situational Judgment Test (SJT) was developed as a purpose-designed exploratory instrument for the present study rather than as an established or previously validated psychometric scale. Scenario construction was theory-driven and was guided by the five components represented in the MedSPC framework, together with established literature on sociopragmatic competence, pragmatic socialization, face management, interactional roles, and discourse organization in professional communication. The final instrument comprised six scenarios designed to sample distinct bioethical-communicative tensions relevant to medical interaction: prognosis disclosure, hierarchical challenge, patient autonomy and consent, comprehension verification, emotional management, and professional gift acceptance. The six scenarios were intended to provide focused coverage of theoretically salient communicative dilemmas rather than exhaustive representation of the full domain of medical sociopragmatic competence.

## Scenario Development and Content Review

Each scenario was constructed to represent a clinically recognizable situation in which an internationally promoted bioethical or communicative principle could come into tension with a culturally or institutionally salient competing expectation. Scenario content was mapped onto the MedSPC components before administration. S1 addressed prognosis disclosure and family-mediated communication; S2 addressed hierarchical challenge and professional accountability; S3 addressed patient autonomy in the presence of spousal objection; S4 addressed judgments about the adequacy of communication when patient comprehension had not been actively verified; S5 addressed judgments about continuing information delivery while disregarding a patient's acute emotional distress; and S6 addressed professional boundaries in the context of culturally meaningful gift giving.

The scenario set was independently reviewed by two bilingual academics whose combined expertise encompassed applied linguistics, medical education, clinical medicine, and intercultural communication. Review focused on four criteria: cultural appropriateness for the Uzbek medical education context, conceptual clarity, comprehensibility of the scenario wording, and consistency between each scenario's intended communicative dilemma and the response task presented to participants. Feedback from the reviewers was considered

during revision of the instrument before data collection, and wording was refined where necessary to improve clarity and cultural appropriateness.

The review process was formative rather than a formal quantitative content-validity study. Reviewers did not provide standardised numerical ratings of item relevance, and no content validity index or inter-rater agreement coefficient was calculated. Accordingly, the expert review provides preliminary support for the conceptual and cultural plausibility of the scenarios but should not be interpreted as formal evidence of content validity. Future validation studies should employ a predefined candidate-item pool, structured expert-rating procedures, quantitative content-validity indices, cognitive interviewing, and independent replication before the instrument is used as a validated assessment measure.

This scenario-to-domain mapping was retained throughout the analysis and interpretation of the scenario-level results.

S1-S5 used a five-point Likert-type appropriateness scale, whereas S6 used three nominal forced-choice options and was analysed separately. Because S4 and S5 were worded in the opposite evaluative direction to S1-S3, they were reverse-coded as 6 minus the original response solely to provide a consistent direction for scenario-level interpretation. No aggregate SJT score was calculated.

The SJT was developed and administered in Uzbek. Corresponding English renderings were prepared for international reporting and reviewed by bilingual academics for conceptual clarity and semantic correspondence. Formal independent back-translation was not undertaken because English was not the administered instrument. Cross-language equivalence should therefore not be assumed, and future cross-language validation should include independent translation, blinded back-translation, reconciliation, and cognitive interviewing. The final Uzbek instrument was administered via Google Forms with mandatory response settings.

The complete SJT instrument is provided in Supplementary Appendix A, including the administered Uzbek wording of all six scenarios, the corresponding English renderings prepared for international reporting, the response anchors for S1-S5, and all forced-choice response options for S6.

One interpretive boundary applies throughout: responses to the SJT represent scenario-based judgments of communicative appropriateness rather than behaviourally demonstrated sociopragmatic competence. Higher or lower scenario ratings should therefore not be interpreted as direct measures of clinical communication ability. The instrument remains exploratory, and the observed scenario-level patterns require replication and further validation before they can support educational or policy decisions.

## Participants

Undergraduate medical students were recruited through purposive sampling across seven medical universities in Uzbekistan: Bukhara State Medical Institute, Tashkent State Medical University, Tashkent Medical Academy, Samarkand State Medical University, Andijan State Medical Institute, Fergana Public Health Medical Institute, and the First Moscow State Medical University (Sechenov) branch in Tashkent.

Recruitment across multiple institutions was intended to broaden institutional representation within the sample rather than to support institution-level comparisons. The study was not powered to examine differences between individual universities. Eligibility was limited to undergraduate medical students enrolled in the invited student groups at the participating institutions. Only completed questionnaire submissions were included in the analysis.

Participation was voluntary and anonymous throughout. Recruitment was facilitated through academic contacts across the participating institutions, who distributed the survey invitation to 11 existing student groups comprising 176 eligible undergraduate medical students in total. Of these, 100 students completed the questionnaire and were included in the final analysis, yielding an overall response rate of 56.8%. The final sample represented all six years of undergraduate medical training: Year 1 ( $n = 43$ ), Year 2 ( $n = 8$ ), Year 3 ( $n = 10$ ), Year 4 ( $n = 16$ ), Year 5 ( $n = 10$ ), and Year 6 ( $n = 13$ ).

Year 1 students constituted 43% of the final sample, reflecting differential availability across the participating student groups rather than a deliberate sampling preference. This imbalance has important analytical implications because statistical power is concentrated disproportionately in comparisons involving Year 1, including the focused comparison between Year 1 and Years 2-6. Effect-size estimates derived from these comparisons should therefore be interpreted cautiously given the unequal and relatively small subgroup sizes. Future replication studies should employ stratified recruitment procedures aimed at achieving substantially more balanced representation across year groups and should determine the required sample size prospectively through an appropriate power analysis.

## Scoring and Statistical Analysis

Responses to S1-S5 were analysed at the individual scenario level rather than aggregated into a total score. Ratings for S1-S3 were retained in their original 1-to-5 coding. Because S4 and S5 were phrased in the opposite evaluative direction, these two items were reverse-coded using the transformation 6 minus the original rating. Following this direction standardisation, higher values on all five scenarios consistently indicated stronger endorsement of the target bioethical-communicative position represented by that scenario. Reverse-coding was used solely to facilitate consistent interpretation across scenarios and did not create an aggregate psychometric scale.

For each Likert-format scenario, descriptive statistics were calculated for the full sample and by year group. Because each scenario consisted of a single ordinal Likert-type rating and several year groups were small and unequal in size, inferential comparisons were conducted using rank-based procedures. Differences across the six year groups were examined separately for S1-S5 using the Kruskal-Wallis test, with epsilon-squared ( $\epsilon^2$ ) reported as the effect-size measure for each scenario. To control the family-wise error rate arising from the five scenario-level omnibus tests,  $p$  values were adjusted using the Holm procedure.

For scenarios whose Holm-adjusted omnibus test remained statistically significant, exploratory pairwise comparisons across the six year groups were conducted using Dunn's

test. Holm adjustment was applied separately across the 15 pairwise comparisons within each scenario. Full pairwise matrices, including non-significant contrasts, are reported in Supplementary Table S1.

A substantively motivated focused comparison between Year 1 and Years 2-6 combined was also examined separately for each of the five Likert-format scenarios using two-sided Mann-Whitney U tests. Rank-biserial correlation was reported as the effect-size measure for these comparisons, and Holm adjustment was applied across the five scenario-level contrasts. This focused analysis was treated as exploratory and complementary to, rather than a substitute for, the six-group omnibus tests. No internal-consistency coefficient, item-total correlation, aggregate SJT score, or sensitivity analysis based on removal of individual items was used because the scenarios were treated as distinct judgments rather than indicators of a single unidimensional scale.

For the forced-choice S6 scenario, the association between year group and response category was initially examined using Pearson's chi-square test of independence, with Cramér's  $V$  reported as the effect-size measure. Because several expected cell frequencies were below five, the asymptotic chi-square result was supplemented by a Monte Carlo test conditional on the observed row and column marginal totals. The Monte Carlo procedure was based on 100,000 randomly generated contingency tables using a fixed random seed of 20260807. An exploratory post-hoc comparison of Year 1 with Years 3-5 was subsequently conducted because Years 3-5 showed a common descriptive pattern in which Options B and C predominated. Responses were collapsed into Option A versus Options B and C combined for this comparison. Statistical significance for this  $2 \times 2$  comparison was assessed using a two-sided Fisher's exact test, with the odds ratio reported as an effect-size estimate. Because the contrast was selected after inspection of the descriptive pattern, its  $p$  value was not treated as confirmatory evidence and no multiplicity-adjusted claim is made for this post-hoc comparison.

Given the pilot nature of the study, the unequal year-group sizes, and the relatively small numbers of participants in several senior-year groups, all scenario-level inferential results and effect-size estimates were interpreted cautiously and treated as exploratory. All statistical tests were two-sided, with statistical significance evaluated at  $p < .05$ . Statistical analyses were conducted in Python 3.11 using NumPy and SciPy. Monte Carlo contingency tables were generated using `scipy.stats.random_table` with a fixed random seed of 20260807, and the exploratory  $2 \times 2$  comparison was evaluated using `scipy.stats.fisher_exact`. The commented analysis script and de-identified participant-level dataset are provided as supplementary reproducibility materials.

## RESULTS

### Scenario-Level Descriptive Statistics

Following direction standardisation, the five Likert-format scenarios showed clearly different response profiles (Table 1). Mean ratings were lower for S1, prognosis disclosure ( $M = 1.86$ ,  $SD = 1.03$ ), S2, hierarchical challenge ( $M = 2.20$ ,  $SD = 1.13$ ),

and S3, patient autonomy and consent ( $M = 2.15$ ,  $SD = 1.24$ ). In contrast, the direction-standardised means were higher for S4, comprehension verification ( $M = 3.84$ ,  $SD = 1.16$ ), and S5, emotional responsiveness ( $M = 4.04$ ,  $SD = 1.02$ ). For S4 and S5, the displayed values reflect reverse-coded

ratings, such that higher scores consistently indicate stronger endorsement of the target bioethical-communicative position. These descriptive differences indicate substantial variation across communicative domains and reinforce the rationale for reporting the five scenarios separately.

| Scenario | Theme                                     | $M$  | $SD$ |
|----------|-------------------------------------------|------|------|
| S1       | Prognosis disclosure vs. family wishes    | 1.86 | 1.03 |
| S2       | Hierarchical challenge and patient safety | 2.20 | 1.13 |
| S3       | Patient autonomy vs. spousal objection    | 2.15 | 1.24 |
| S4       | Comprehension verification                | 3.84 | 1.16 |
| S5       | Emotional responsiveness                  | 4.04 | 1.02 |

*Note: Ratings ranged from 1 to 5. S1-S3 retain their original coding. S4 and S5 were reverse-coded using 6 minus the original response so that higher values consistently indicate stronger endorsement of the target bioethical-communicative position. No total score was calculated across the five scenarios.*

**Table 1: Scenario-Level Descriptive Statistics for Direction-Standardised Ratings ( $N = 100$ ), 2026 (source: own calculation)**

### Item-Level Response Distributions

Response distributions further demonstrated that endorsement varied substantially by scenario (Table 2). For S1-S3, direction-standardised ratings of 1-2 predominated, accounting for 75%, 72%, and 67% of responses, respectively. In contrast, after reverse-coding S4 and S5, ratings of 4-5 accounted for 73% of responses to S4 and

80% of responses to S5. Thus, the response pattern differed in direction across communicative domains: target positions relating to prognosis disclosure, hierarchical challenge, and autonomous consent received relatively limited endorsement, whereas target positions relating to verification of patient comprehension and responsiveness to emotional distress received substantially stronger endorsement.

| Scenario                       | $M$  | $SD$ | % Rating 1-2 | % Rating 3 | % Rating 4-5 |
|--------------------------------|------|------|--------------|------------|--------------|
| S1: Prognosis disclosure       | 1.86 | 1.03 | 75%          | 16%        | 9%           |
| S2: Hierarchical challenge     | 2.20 | 1.13 | 72%          | 12%        | 16%          |
| S3: Patient autonomy/consent   | 2.15 | 1.24 | 67%          | 16%        | 17%          |
| S4: Comprehension verification | 3.84 | 1.16 | 14%          | 13%        | 73%          |
| S5: Emotional responsiveness   | 4.04 | 1.02 | 9%           | 11%        | 80%          |

*Note: S1-S3 retain their original coding, whereas S4 and S5 were reverse-coded for directional consistency. Across all five scenarios, ratings of 1-2 therefore indicate weaker endorsement and ratings of 4-5 indicate stronger endorsement of the target bioethical-communicative position. Percentages may not sum to 100% because of rounding.*

**Table 2: Direction-Standardised Scenario Response Distributions ( $N = 100$ ), 2026 (source: own calculation)**

### Year-Group Differences Across the Likert-Format Scenarios

Kruskal-Wallis tests showed that evidence of year-group differences varied across the five Likert-format scenarios (Table 3). After Holm correction for five scenario-level comparisons, statistically significant year-group differences remained for S3, patient autonomy and consent,  $H(5) = 28.89$ , Holm-adjusted  $p < .001$ ,  $\epsilon^2 = .254$ ; S4, comprehension verification,  $H(5) = 14.52$ , Holm-adjusted  $p = .038$ ,  $\epsilon^2 = .101$ ; and S5, emotional responsiveness,  $H(5) = 18.72$ , Holm-adjusted  $p = .009$ ,  $\epsilon^2 = .146$ .

The omnibus difference for S2, hierarchical challenge, was statistically significant before multiplicity adjustment,  $H(5) = 11.78$ , unadjusted  $p = .038$ , but did not remain significant after Holm correction (adjusted  $p = .076$ ,  $\epsilon^2 = .072$ ). No statistically significant year-group difference was observed for S1, prognosis disclosure,  $H(5) = 7.50$ , adjusted  $p = .186$ ,  $\epsilon^2 = .027$ . These results indicate that cross-year variation was scenario-specific rather than uniformly distributed across the five communicative domains.

| Scenario                       | $H(5)$ | Unadjusted $p$ | Holm-adjusted $p$ | $\epsilon^2$ |
|--------------------------------|--------|----------------|-------------------|--------------|
| S1: Prognosis disclosure       | 7.50   | .186           | .186              | .027         |
| S2: Hierarchical challenge     | 11.78  | .038           | .076              | .072         |
| S3: Patient autonomy/consent   | 28.89  | < .001         | < .001            | .254         |
| S4: Comprehension verification | 14.52  | .013           | .038              | .101         |
| S5: Emotional responsiveness   | 18.72  | .002           | .009              | .146         |

*Note.  $df = 5$  for all Kruskal-Wallis tests. Holm-adjusted  $p$  values control the family-wise error rate across the five scenario-level omnibus tests. S4 and S5 were reverse-coded before analysis. Epsilon-squared ( $\epsilon^2$ ) is reported as the effect-size measure.*

**Table 3: Kruskal-Wallis Tests of Year-Group Differences Across Direction-Standardised SJT Scenarios, 2026 (source: own calculation)**

Exploratory Dunn-Holm comparisons for S3, S4, and S5 are reported in Supplementary Table S1. For S3, Year 1 ratings were higher than those of Years 3, 4, and 5 (Holm-adjusted  $p = .001$ ,  $.005$ , and  $.005$ , respectively). For S4, Year 4 ratings were higher than Year 1 ratings (adjusted  $p = .012$ ). For S5, Years 4 and 5 ratings were higher than Year 1 ratings (adjusted  $p = .013$  and  $.047$ , respectively). No other pairwise comparison remained statistically significant after Holm adjustment.

### Scenario-Level Analysis by Year Group

Descriptive year-group means showed that cross-year differences were not uniform in direction across the five Likert-format scenarios (Table 4). For S1-S3, Year 1 students showed higher direction-standardised mean ratings than students in Years 2-6 combined. The largest descriptive difference occurred for S3, patient autonomy and consent, with a Year 1

mean of 2.84 compared with 1.63 in Years 2-6, corresponding to a difference of 1.21 points. The corresponding differences were 0.87 points for S2, hierarchical challenge, and 0.49 points for S1, prognosis disclosure.

A contrasting pattern was observed for S4 and S5 after direction standardisation. For S4, comprehension verification, the Year 1 mean was 3.35 compared with 4.21 in Years 2-6, corresponding to a difference of -0.86 points. For S5, emotional responsiveness, the respective means were 3.60 and 4.37, corresponding to a difference of -0.76 points. Thus, later-year students showed lower endorsement than Year 1 students for the target positions represented by S1-S3, but higher endorsement for those represented by S4 and S5. This pattern indicates domain-specific cross-year variation rather than a common directional shift across all communicative scenarios.

| Scenario | Year 1<br>( <i>n</i> = 43) | Year 2<br>( <i>n</i> = 8) | Year 3<br>( <i>n</i> = 10) | Year 4<br>( <i>n</i> = 16) | Year 5<br>( <i>n</i> = 10) | Year 6<br>( <i>n</i> = 13) | Years 2-6<br>( <i>n</i> = 57) | Difference<br>Y1 - Y2 - 6 |
|----------|----------------------------|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-------------------------------|---------------------------|
| S1       | 2.14                       | 1.62                      | 1.70                       | 1.31                       | 1.70                       | 2.00                       | 1.65                          | +0.49                     |
| S2       | 2.70                       | 2.12                      | 1.70                       | 1.69                       | 1.80                       | 1.92                       | 1.82                          | +0.87                     |
| S3       | 2.84                       | 2.25                      | 1.20                       | 1.50                       | 1.30                       | 2.00                       | 1.63                          | +1.21                     |
| S4       | 3.35                       | 3.75                      | 4.10                       | 4.50                       | 4.40                       | 4.08                       | 4.21                          | -0.86                     |
| S5       | 3.60                       | 3.88                      | 4.30                       | 4.56                       | 4.60                       | 4.31                       | 4.37                          | -0.76                     |

*Note.* All values are direction-standardised item means on a 1-to-5 scale. S1-S3 retain their original coding, whereas S4 and S5 were reverse-coded using 6 minus the original response. Higher values therefore consistently indicate stronger endorsement of the target bioethical-communicative position. The Difference column represents the Year 1 mean minus the Years 2-6 combined mean. Positive values indicate higher Year 1 endorsement, whereas negative values indicate higher endorsement among Years 2-6. Descriptive comparisons should be interpreted cautiously given the unequal year-group sizes.

**Table 4: Direction-Standardised Mean Scenario Ratings by Year Group, 2026 (source: own calculation)**

The focused Year 1 versus Years 2-6 comparisons further showed that the direction and magnitude of group differences varied across scenarios. After Holm correction for five comparisons, Year 1 students showed significantly higher ratings for S2,  $U = 1668.0$ , adjusted  $p = .002$ , rank-biserial  $r = .361$ , and S3,  $U = 1878.5$ , adjusted  $p < .001$ , rank-biserial  $r = .533$ . The difference for S1 was smaller and did not reach statistical significance after adjustment,  $U = 1482.0$ , adjusted  $p = .055$ , rank-biserial  $r = .209$ .

The direction was reversed for S4 and S5. Students in Years 2-6 showed significantly higher direction-standardised ratings than Year 1 students for S4,  $U = 770.5$ , adjusted  $p = .002$ , rank-biserial  $r = -.371$ , and S5,  $U = 696.0$ , adjusted  $p < .001$ , rank-biserial  $r = -.432$ . Taken together, these focused contrasts provide no evidence of a uniform Year 1 advantage across the SJT scenarios. Instead, they show opposing cross-year patterns across different communicative domains.

| Scenario                       | Mann-Whitney <i>U</i> | Unadjusted <i>p</i> | Holm-adjusted <i>p</i> | Rank-biserial <i>r</i> |
|--------------------------------|-----------------------|---------------------|------------------------|------------------------|
| S1: Prognosis disclosure       | 1482.0                | .055                | .055                   | .209                   |
| S2: Hierarchical challenge     | 1668.0                | .001                | .002                   | .361                   |
| S3: Patient autonomy/consent   | 1878.5                | < .001              | < .001                 | .533                   |
| S4: Comprehension verification | 770.5                 | < .001              | .002                   | -.371                  |
| S5: Emotional responsiveness   | 696.0                 | < .001              | < .001                 | -.432                  |

*Note:* Two-sided Mann-Whitney *U* tests were used for all comparisons. Holm-adjusted *p* values control the family-wise error rate across the five focused scenario-level comparisons. Rank-biserial correlation is reported as the effect-size measure. Positive values indicate higher ratings in Year 1, whereas negative values indicate higher ratings in Years 2-6. S4 and S5 were reverse-coded before analysis.

**Table 5: Focused Year 1 Versus Years 2-6 Comparisons Across Direction-Standardised SJT Scenarios, 2026 (source: own calculation)**

S1 showed the least evidence of cross-year differentiation. Although the Year 1 mean was descriptively higher than the Years 2-6 mean by 0.49 points, the focused rank-based comparison was not statistically significant (unadjusted  $p = .055$ ; Holm-adjusted  $p = .055$ ). This finding is consistent with the nonsignificant six-group omnibus result for S1

and suggests comparatively limited year-group variation in responses to the prognosis-disclosure scenario.

S3 showed the most pronounced cross-year variation among the scenarios in which Year 1 students had higher ratings. The mean was 2.84 in Year 1, compared with 2.25 in Year 2, 1.20 in Year 3, 1.50 in Year 4, 1.30 in Year

5, and 2.00 in Year 6. Year 3 produced the lowest mean for this scenario ( $M = 1.20$ ,  $SD = 0.42$ ), while the Year 6 mean was higher than those observed in Years 3-5 but remained below the Year 1 level. The six-group difference remained statistically significant after Holm adjustment, and the focused Year 1 versus Years 2-6 comparison produced the largest positive rank-biserial effect among the five scenarios ( $r = .533$ ). Because the data are cross-sectional, however, these differences should not be

interpreted as evidence of within-person decline, recovery, or developmental change.

### Forced-Choice Scenario (S6): Gift Acceptance

For S6, which addressed gift acceptance from a grateful patient's family, no single response option achieved majority endorsement across the full sample: Option A was selected by 30% of participants ( $n = 30$ ), Option B by 37% ( $n = 37$ ), and Option C by 33% ( $n = 33$ ) (Table 6).

| Year   | <i>n</i> | Option A: Refuse (%) | Option B: Accept (%) | Option C: Compromise (%) |
|--------|----------|----------------------|----------------------|--------------------------|
| Year 1 | 43       | 49                   | 23                   | 28                       |
| Year 2 | 8        | 38                   | 25                   | 38                       |
| Year 3 | 10       | 0                    | 60                   | 40                       |
| Year 4 | 16       | 19                   | 50                   | 31                       |
| Year 5 | 10       | 10                   | 60                   | 30                       |
| Year 6 | 13       | 15                   | 38                   | 46                       |
| Total  | 100      | 30                   | 37                   | 33                       |

*Note: Percentages represent the proportion of respondents within each year group selecting each response option and are rounded to the nearest whole number; totals may therefore differ slightly from 100%. Option a = refuse on professional ethics grounds; Option B = accept in accordance with culturally embedded reciprocity norms; Option C = pragmatic compromise through acceptance for departmental use. S6 used a nominal forced-choice response format and was analysed separately from the five Likert-format scenarios. Percentages for the smaller year groups should be interpreted cautiously.*

**Table 6: S6 Gift-Acceptance Response Distribution by Year Group, 2026 (source: own calculation)**

Response-option distributions varied across the six year groups,  $\chi^2 (10, N = 100) = 18.53$ ,  $p = .047$ , Cramér's  $V = .304$ . However, 13 of the 18 expected cell frequencies were below five, with a minimum expected count of 2.40, making reliance on the asymptotic chi-square approximation alone inappropriate. The supplementary Monte Carlo procedure, based on 100,000 randomly generated contingency tables with a fixed seed of 20260807, produced a similar result (Monte Carlo  $p = .043$ ). The association between year group and S6 response category should nevertheless be interpreted cautiously because of the sparse contingency table and small sizes of several year groups.

An exploratory post-hoc comparison was conducted between Year 1 and Years 3-5 because Years 3-5 showed a common descriptive pattern in which Options B and C predominated. For this comparison, responses were collapsed into Option A versus Options B and C combined. Options B and C were selected by 51% of Year 1 students (22 of 43) compared with 89% of students in Years 3-5 (32 of 36). A two-sided Fisher's exact test yielded  $p < .001$ , with an odds ratio of 7.64. The odds of selecting Option A rather than Options B or C were approximately 7.6 times higher among Year 1 students than among students in Years 3-5. Because this contrast was selected post hoc after inspection of the descriptive pattern, the  $p$  value is exploratory and unadjusted and should not be interpreted as confirmatory evidence. The small subgroup sizes should also be considered when interpreting the effect-size estimate.

Descriptively, Option A was the most frequently selected response among Year 1 students (49%,  $n = 21$ ), whereas Options B and C predominated in Years 3-5. No Year 3 participant selected Option A, while 60% selected Option B and 40% selected Option C. Year 6 showed the highest

proportion selecting Option C (46%,  $n = 6$ ). These year-specific percentages should be interpreted cautiously because several groups contained relatively few participants.

## DISCUSSION

### Principal Findings and Research Questions

The present pilot study identified domain-specific and bidirectional cross-year variation in Uzbek medical students' scenario-based bioethical-communicative judgments. After multiplicity adjustment, significant omnibus differences were observed for S3, patient autonomy and consent, S4, comprehension verification, and S5, emotional responsiveness, whereas evidence was weaker for S1, prognosis disclosure, and S2, hierarchical challenge. In the focused Year 1 versus Years 2-6 comparison, Year 1 students rated S2 and S3 higher, whereas Years 2-6 rated S4 and S5 higher; S1 showed no significant difference.

These findings address the first two research questions by showing that cross-year differences were scenario-specific rather than uniformly directional. S3 showed the strongest Year 1 versus later-year difference, while S1 showed comparatively little differentiation. The opposite patterns for S4 and S5 further indicate that later-year students were not uniformly less aligned with the target bioethical-communicative positions.

This bidirectional pattern is consistent with literature showing that disclosure, family participation, patient involvement, and professional role expectations vary across and within cultural settings (Surbone, 2006; Pun et al., 2018). Medical SJT research likewise suggests that scenario-based judgments can inform professional reasoning but remain dependent on scenario content and require validation against independent educational or behavioural outcomes (Patterson et al., 2016;

Sahota et al., 2023). The present findings extend this literature by identifying distinct cross-year patterns across autonomy, hierarchy, comprehension, emotional responsiveness, and professional boundaries in an Uzbek medical education sample. The third research question concerns how these patterns may relate to culturally or institutionally salient expectations. The present data identify where judgments differ but cannot establish why. Because participants provided appropriateness ratings rather than qualitative explanations or observed behaviour, interpretations involving hierarchy, family orientation, institutional socialization, or cultural norms remain theoretically informed possibilities rather than demonstrated mechanisms.

### **Prognosis Disclosure, Family Involvement, and Patient Autonomy**

S1 and S3 both involved tensions between patient autonomy and family participation but produced different cross-year patterns. S1 ratings were relatively low across year groups and showed little systematic differentiation, suggesting that family-mediated approaches to difficult disclosure may remain salient across training stages.

This interpretation is consistent with evidence that disclosure preferences differ among patients, relatives, and clinicians. Wang et al. (2013) reported substantial family support for withholding a cancer diagnosis because of concern about psychological harm, whereas Wu et al. (2021) found stronger preferences for full disclosure among patients than among relatives or medical professionals. Surbone (2006) similarly emphasizes that truth-telling involves interactions among autonomy, relationships, individual preferences, and cultural context. These studies do not establish the reasoning of Uzbek students, but they show that disclosure and family involvement are multidimensional communicative issues. The relatively stable S1 pattern therefore warrants further qualitative investigation.

S3 showed a different pattern, with Year 1 students more strongly endorsing the patient's own consent despite spousal objection. This scenario showed the clearest cross-year differentiation among the autonomy-related items, although the mechanism underlying this pattern remains unresolved. Taken together, S1 and S3 indicate that family involvement does not produce a single response pattern. Disclosure, consent, prognosis, and spousal involvement may be evaluated according to different pragmatic and ethical considerations, cautioning against treating collectivism or family orientation as a single explanatory variable.

### **Hierarchy and Speaking Up**

S2 examined the appropriateness of openly challenging a senior physician's potentially serious error in front of a patient. Year 1 students rated this scenario higher than Years 2-6 in the focused comparison, although the six-group omnibus result did not remain significant after multiple-testing correction. This mixed pattern warrants caution but is consistent with evidence that hierarchy can influence speaking-up behaviour in clinical settings.

Martinez et al. (2017) found that trainees were less likely

to raise professionalism-related concerns with attending physicians, while Carrillo et al. (2024) linked speaking-up behaviour with psychological safety. More broadly, hierarchical power relations may shape participation, communication, and professional interaction in medical education (Salehi et al., 2020; Vanstone and Grierson, 2022; Singh et al., 2025).

Importantly, S2 assessed the appropriateness of a public challenge rather than actual speaking-up behaviour. Lower ratings may therefore reflect disagreement with the manner or setting of the challenge rather than unwillingness to address a clinical error. The finding should consequently be treated as a basis for further investigation rather than evidence of deficient patient-safety communication.

### **Comprehension Verification and Emotional Responsiveness**

S4 and S5 showed the opposite pattern to S2 and S3. After direction standardisation, later-year students more strongly endorsed verification of patient comprehension and responsiveness to emotional distress, arguing against a general decline in patient-centred communicative judgments across training.

For S4, higher ratings reflected stronger rejection of communication that did not verify patient understanding. This pattern may indicate greater sensitivity to the practical importance of comprehension, particularly where linguistic, educational, or contextual barriers are present (Ha and Longnecker, 2010). The finding, however, concerns scenario-based judgment rather than observed clinical behaviour.

S5 similarly showed stronger later-year endorsement of responding to patient distress rather than continuing information delivery without acknowledging the patient's emotional state. Previous research links emotionally responsive communication with patient-centred interaction, while also showing that biomedical task demands may compete with attention to emotional concerns (LaNoue and Roter, 2018; Brodahl et al., 2021).

Together, S4 and S5 complicate a simple hidden-curriculum explanation. Later-year students were less supportive of some target positions but more supportive of others, indicating that cross-year variation was domain-specific and bidirectional rather than uniformly directional.

### **Gift Acceptance and Professional Boundaries**

S6 used a forced-choice rather than Likert format, and responses were distributed relatively evenly across refusal, acceptance, and pragmatic compromise, with no majority option. This suggests that gift acceptance was a contested judgment within the sample rather than a domain with a single preferred response.

Patient gifts may involve competing considerations of gratitude, reciprocity, professional boundaries, obligation, and institutional policy (Zolkefli, 2021). The divided responses are therefore consistent with multiple professional and relational considerations. However, because participants did not explain their choices, Option B should not be assumed to represent cultural reciprocity, nor Option A stronger professional ethics. Response distributions also differed across year groups.

The exploratory Year 1 versus Years 3-5 comparison showed greater selection of refusal among Year 1 students, but this finding should be interpreted cautiously because of the small subgroup sizes, sparse cells, and data-driven post-hoc selection of the contrast. The unadjusted result is therefore best treated as hypothesis-generating rather than as evidence of a stable training-stage pattern.

### Interpreting Cross-Year Variation

Taken together, the scenario-level results do not support a single developmental account of cross-year variation. The bidirectional patterns across S1-S5 make a uniform process of pragmatic erosion, re-socialization, or normative decline difficult to sustain. Hidden-curriculum theory remains one possible interpretive framework because informal role modelling, institutional hierarchy, and clinical practices can influence professional learning (Hafferty, 1998; Ullah et al., 2025), but the present study did not measure such exposure directly.

Several alternative explanations remain plausible, including cohort composition, prior experience, selection processes, unequal group sizes, institutional variation, and differences in how students interpreted the scenarios. Year group should therefore be treated as a cross-sectional grouping variable rather than as a proxy for within-person development. Longitudinal follow-up, qualitative investigation of reasoning, and observation of clinical communication are required before claims about professional socialization or developmental change can be evaluated more confidently.

### Implications for Applied Linguistics and Sociopragmatic Research

The findings have two tentative implications for sociopragmatic research. First, professional pragmatic development may be more domain-specific than a single aggregate competence trajectory would imply. The opposing patterns observed across autonomy, hierarchy, comprehension, and emotional responsiveness illustrate why theoretically distinct communicative judgments should not automatically be combined into a single developmental score.

Second, scenario-based pragmatic assessment is necessarily situated within a normative framework. The present SJT operationalised particular internationally promoted bioethical-communicative positions, but lower endorsement should not automatically be interpreted as weaker communicative competence. A learner may reason effectively within locally salient relational or institutional expectations while diverging from the target position embedded in a particular scenario. This reinforces the importance of distinguishing scenario-based normative judgment from behaviourally demonstrated competence.

The MedSPC framework provides one theoretical structure for organising these domains, but the present study should be understood as an initial empirical application rather than a validation of the framework. Further research is required to establish the dimensional structure of the construct, its relationship to observed communication, and its applicability across linguistic and cultural settings.

### Implications for Medical Education

The current findings do not provide sufficient evidence to recommend specific curricular interventions. They do, however, identify several domains that merit closer educational investigation: autonomous consent in the presence of family opposition, communication across professional hierarchies, verification of patient comprehension, responsiveness to emotional distress, and professional boundaries around gifts.

For educators, the most appropriate next step would therefore be needs assessment rather than immediate curriculum redesign. Qualitative interviews, focus groups, observed simulations, or structured debriefing could help determine why students evaluate these scenarios differently and whether the underlying reasoning reflects ethical knowledge, cultural expectations, clinical experience, role hierarchy, or pragmatic considerations not captured by the SJT. Only after these mechanisms are better understood would it be possible to determine whether particular communication-training approaches require modification.

Simulation, role-play, and other experiential approaches may eventually offer useful means of exploring competing communicative expectations, but the present pilot data do not establish their effectiveness in the Uzbek context. Any educational intervention derived from these findings should therefore be evaluated prospectively and should distinguish changes in scenario judgments from changes in actual communicative behaviour.

### Limitations

The most important limitation is the cross-sectional design. Students from different year groups were assessed at one point in time, so the study cannot determine whether individual students' judgments changed as they progressed through medical school. Cohort effects, differences in prior experience, selection processes, and other unmeasured factors remain plausible explanations for the observed cross-year patterns.

The unequal year-group distribution is also substantial. Year 1 participants accounted for 43% of the sample, whereas several later-year groups contained only 8 to 16 students. This imbalance reduces the stability of year-specific estimates and is a central reason why all inferential findings should be considered exploratory. Recruitment was purposive and was conducted through 11 existing student groups across seven universities, with an overall response rate of 56.8%. Non-response bias therefore cannot be excluded. Although recruitment across several institutions broadened representation, the study was not designed to estimate institution-specific effects or establish national representativeness. Because institution-by-year composition was not modelled, some observed year-group differences may also reflect differences in institutional composition rather than year of training alone.

A further limitation concerns the instrument. The six-scenario SJT was purpose-built for this pilot study and has not yet undergone full psychometric validation. The five Likert-format scenarios represented distinct communicative judgments and were therefore analysed separately rather than combined into a total score. S4 and S5 required reverse-coding because their administered wording was evaluatively opposite to S1-S3. Direction standardisation facilitated interpretation but does

not establish that the five scenarios represent a common latent construct. The forced-choice S6 scenario was also structurally different and was analysed separately.

Cross-language equivalence has not yet been independently established. The Uzbek instrument was the version administered to participants, whereas the English rendering was prepared for international reporting. Although bilingual review was used to examine conceptual clarity and semantic correspondence, formal back-translation and cognitive interviewing were not conducted. The English rendering should therefore not be treated as a separately validated version of the instrument.

The SJT measured reported judgments about hypothetical situations rather than actual clinical communication. Judgment-behaviour correspondence remains unknown, and social desirability may have influenced responses despite anonymous administration. The study also did not collect open-ended explanations for participants' choices, which limits the extent to which observed ratings can be attributed to particular cultural, ethical, or institutional orientations. Five Likert-format scenarios and one forced-choice scenario cannot capture the full range of sociopragmatic demands encountered in clinical practice.

Finally, the findings derive from a relatively small, unevenly distributed sample within one national educational context. They should not be generalised to all Uzbek medical students or to other post-Soviet, Central Asian, or collectivist contexts without replication. Larger studies with balanced year-group recruitment, independent samples, behavioural measures, qualitative reasoning data, and longitudinal follow-up are needed before stronger developmental, theoretical, or curricular claims can be made.

## CONCLUSION

This pilot study provides exploratory cross-year evidence on bioethical-communicative judgments among medical students in Uzbekistan. Cross-year variation was domain-specific and bidirectional rather than uniformly developmental. The strongest differences concerned patient autonomy and consent, comprehension verification, and emotional responsiveness, whereas prognosis disclosure showed limited differentiation. Responses to the forced-choice gift-acceptance scenario were also divided, suggesting variation in how professional boundaries and relational considerations are evaluated.

These findings should be interpreted cautiously. The study was cross-sectional, year-group sizes were unequal, and the SJT measured judgments about hypothetical situations rather than observed behaviour. The results therefore cannot establish causal effects of clinical training or within-person change over time. Cohort composition, prior experience, institutional variation, selection processes, and measurement factors remain plausible explanations. MedSPC should likewise be viewed here as an exploratory analytical framework rather than a validated model.

The study's main contribution is to identify communicative domains that warrant more rigorous investigation in Uzbek medical education. Future research should use larger and more balanced samples, longitudinal and qualitative designs, direct observation of clinical communication, and further validation of the SJT before stronger conclusions are drawn about professional socialization, communicative development, or curriculum design.

## REFERENCES

- Ahmedov, M., Azimov, R., Mutalova, Z., Huseynov, S., Tsoyi, E. and Rechel, B. (2014) 'Uzbekistan: Health system review', *Health Systems in Transition*, Vol. 16, No. 5, pp. 1–137.
- Salimova, G. (2026) 'Sociopragmatic Competence in Medical Higher Education: Structure, Criteria, and Measurement Methods', *Journal of Applied Linguistics and Applied Literature: Dynamics and Advances*, Iss. 1, article accepted and in press. <https://doi.org/10.22049/jalda.2026.31530.1982>
- Bardovi-Harlig, K. (1999) 'Exploring the interlanguage of interlanguage pragmatics: A research agenda for acquisitional pragmatics', *Language Learning*, Vol. 49, No. 4, pp. 677–713. <http://dx.doi.org/10.1111/0023-8333.00105>
- British Psychological Society (2021) *BPS Code of Human Research Ethics*, Leicester: British Psychological Society. <https://doi.org/10.53841/bpsrep.2021.inf180>
- Brodahl, K. Ø., Finset, A., Storøy, H.-L. E. and Pedersen, R. (2021) 'Medical students' expressions of empathy: A qualitative study of verbal interactions with patients expressing emotional issues in a medical interview', *Patient Education and Counseling*, Vol. 104, No. 12, pp. 2936–2943. <http://dx.doi.org/10.1016/j.pecc.2021.03.042>
- Brown, P. and Levinson, S. C. (1987) *Politeness: Some universals in language usage*, Cambridge: Cambridge University Press.
- Carrillo, I., Serpa, P., Landa-Ramírez, E., Guilbert, M., Gómez-Ayala, Y., López-Pineda, A. and Mira, J. J. (2024) 'Speaking up about patient safety, withholding voice and safety climate in clinical settings: A cross-sectional study among Ibero-American healthcare students', *International Journal of Public Health*, Vol. 69, p. 1607406. <http://dx.doi.org/10.3389/ijph.2024.1607406>
- Conaboy, K. A., Nugmanova, Z., Yeguebaeva, S., Jaeger, F. and Daugherty, R. M. (2005) 'Central Asian republics: A case study for medical education reform', *Journal of Continuing Education in the Health Professions*, Vol. 25, No. 1, pp. 52–64. <http://dx.doi.org/10.1002/chp.9>
- Duff, P. A. (2010) 'Language socialization into academic discourse communities', *Annual Review of Applied Linguistics*, Vol. 30, pp. 169–192. <http://dx.doi.org/10.1017/S0267190510000048>
- Duff, P. A. and Talmy, S. (2011) 'Language socialization approaches to second language acquisition: Social, cultural, and linguistic development in additional languages', in: Atkinson, D. (ed.), *Alternative approaches to second language acquisition*, London: Routledge, pp. 95–116. <https://doi.org/10.4324/9780203830932-5>
- Ha, J. F. and Longnecker, N. (2010) 'Doctor-patient communication: A review', *Ochsner Journal*, Vol. 10, No. 1, pp. 38–43.
- Hafferty, F. W. (1998) 'Beyond curriculum reform: Confronting medicine's hidden curriculum', *Academic Medicine*, Vol. 73, No. 4, pp. 403–407. <http://dx.doi.org/10.1097/00001888-199804000-00013>

- Hosseinpour, A. and Keshmiri, F. (2024) 'Professionalism assessment of students in clinical education through Situational Judgment Test (SJT)', *BMC Medical Education*, Vol. 24, No. 1, p. 1291. <http://dx.doi.org/10.1186/s12909-024-06205-4>
- Kasper, G. and Rose, K. R. (2002) *Pragmatic development in a second language*, Malden, MA: Blackwell Publishers.
- LaNoue, M. D. and Roter, D. L. (2018) 'Exploring patient-centeredness: The relationship between self-reported empathy and patient-centered communication in medical trainees', *Patient Education and Counseling*, Vol. 101, No. 6, pp. 1143–1146. <http://dx.doi.org/10.1016/j.pec.2018.01.016>
- Lave, J. and Wenger, E. (1991) *Situated learning: Legitimate peripheral participation*, Cambridge: Cambridge University Press.
- Martinez, W., Lehmann, L. S., Thomas, E. J., Etchegaray, J. M., Shelburne, J. T., Hickson, G. B., Brady, D. W., Schleyer, A. M., Best, J. A., May, N. B. and Bell, S. K. (2017) 'Speaking up about traditional and professionalism-related patient safety threats: A national survey of interns and residents', *BMJ Quality & Safety*, Vol. 26, No. 11, pp. 869–880. <http://dx.doi.org/10.1136/bmjqs-2016-006284>
- Matsumura, S. (2003) 'Modelling the relationships among interlanguage pragmatic development, L2 proficiency, and exposure to L2', *Applied Linguistics*, Vol. 24, No. 4, pp. 465–491. <http://dx.doi.org/10.1093/applin/24.4.465>
- Neumann, M., Edelhäuser, F., Tauschel, D., Fischer, M. R., Wirtz, M., Woopen, C., Haramati, A. and Scheffer, C. (2011) 'Empathy decline and its reasons: A systematic review of studies with medical students and residents', *Academic Medicine*, Vol. 86, No. 8, pp. 996–1009. <http://dx.doi.org/10.1097/ACM.0b013e318221e615>
- Patterson, F., Rowett, E., Hale, R., Grant, M., Roberts, C., Cousans, F. and Martin, S. (2016) 'The predictive validity of a situational judgement test and multiple-mini interview for entry into postgraduate training in Australia', *BMC Medical Education*, Vol. 16, No. 1, p. 87. <http://dx.doi.org/10.1186/s12909-016-0606-4>
- Plonsky, L. and Gass, S. (2011) 'Quantitative research methods, study quality, and outcomes: The case of interaction research', *Language Learning*, Vol. 61, No. 2, pp. 325–366. <http://dx.doi.org/10.1111/j.1467-9922.2011.00640.x>
- Pun, J. K. H., Chan, E. A., Wang, S. and Slade, D. (2018) 'Health professional-patient communication practices in East Asia: An integrative review of an emerging field of research and practice in Hong Kong, South Korea, Japan, Taiwan, and Mainland China', *Patient Education and Counseling*, Vol. 101, No. 7, pp. 1193–1206. <http://dx.doi.org/10.1016/j.pec.2018.01.018>
- Rechel, B., Richardson, E. and McKee, M. (eds.) (2014) *Trends in health systems in the former Soviet countries, Observatory Studies Series*, No. 35, Copenhagen: European Observatory on Health Systems and Policies.
- Sahota, G. S. and Taggar, J. S. (2020) 'The association between Situational Judgement Test (SJT) scores and professionalism concerns in undergraduate medical education', *Medical Teacher*, Vol. 42, No. 8, pp. 937–943. <http://dx.doi.org/10.1080/0142159X.2020.1772466>
- Sahota, G. S., Fisher, V., Patel, B., Ju, J. K. and Taggar, J. S. (2023) 'The educational value of situational judgement tests (SJTs) when used during undergraduate medical training: A systematic review and narrative synthesis', *Medical Teacher*, Vol. 45, No. 9, pp. 997–1004. <http://dx.doi.org/10.1080/0142159X.2023.2168183>
- Salehi, P. P., Jacobs, D., Suhail-Sindhu, T., Judson, B. L., Azizzadeh, B. and Lee, Y. H. (2020) 'Consequences of medical hierarchy on medical students, residents, and medical education in otolaryngology', *Otolaryngology-Head and Neck Surgery*, Vol. 163, No. 5, pp. 906–914. <http://dx.doi.org/10.1177/0194599820926105>
- Singh, P. K., Singh, S., Ahmad, S., Singh, V. K. and Kumar, R. (2025) 'Navigating power dynamics and hierarchies in medical education: Enhancing faculty experiences and institutional culture', *Journal of Postgraduate Medicine*, Vol. 71, No. 2, pp. 82–90. [http://dx.doi.org/10.4103/jpgm.jpgm\\_728\\_24](http://dx.doi.org/10.4103/jpgm.jpgm_728_24)
- Surbone, A. (2006) 'Telling the truth to patients with cancer: What is the truth?', *The Lancet Oncology*, Vol. 7, No. 11, pp. 944–950. [http://dx.doi.org/10.1016/S1470-2045\(06\)70941-X](http://dx.doi.org/10.1016/S1470-2045(06)70941-X)
- Trillo, J. R. (2002) 'The pragmatic fossilization of discourse markers in non-native speakers of English', *Journal of Pragmatics*, Vol. 34, No. 6, pp. 769–784. [http://dx.doi.org/10.1016/S0378-2166\(02\)00022-X](http://dx.doi.org/10.1016/S0378-2166(02)00022-X)
- Ullah, H., Huma, S., Tahir, N., Yasin, G., Ashraf, M., Shabana, H., Gabr, B. M., Yunus, M. and Khan, J. S. (2025) 'Effects of hidden curriculum on medical education and strategies to reshape hidden curriculum as a curriculum promotor: A systematic review', *Advances in Medical Education and Practice*, Vol. 16, pp. 2087–2098. <http://dx.doi.org/10.2147/AMEP.S561248>
- Vanstone, M. and Grierson, L. (2022) 'Thinking about social power and hierarchy in medical education', *Medical Education*, Vol. 56, No. 1, pp. 91–97. <http://dx.doi.org/10.1111/medu.14659>
- Wang, D.-C., Peng, X., Guo, C.-B. and Su, Y.-J. (2013) 'When clinicians telling the truth is de facto discouraged, what is the family's attitude towards disclosing to a relative their cancer diagnosis?', *Supportive Care in Cancer*, Vol. 21, No. 4, pp. 1089–1095. <http://dx.doi.org/10.1007/s00520-012-1629-y>
- World Medical Association (2013) *Declaration of Helsinki: Ethical principles for medical research involving human subjects*, [Online], Available at: <https://www.wma.net/wp-content/uploads/2024/10/DoH-Oct2013.pdf> [7 August 2026].
- Wu, J., Wang, Y., Jiao, X., Wang, J., Ye, X. and Wang, B. (2021) 'Differences in practice and preferences associated with truth-telling to cancer patients', *Nursing Ethics*, Vol. 28, No. 2, pp. 272–281. <http://dx.doi.org/10.1177/0969733020945754>
- Zolkefli, Y. (2021) 'Healthcare dilemma towards gift giving by patients', *Malaysian Journal of Medical Sciences*, Vol. 28, No. 5, pp. 137–141. <http://dx.doi.org/10.21315/mjms2021.28.5.14>