
Deterrence Credibility and the Nuclear Escalation Ladder: India's Quest for Limited War Under Nuclear Threshold

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ABSTRACT

This research paper explores the changing aspects of the deterrence stability between Pakistan and India, with specific emphasis on India's quest for limited or conventional warfighting capabilities under the nuclear overhang and the potential risks of escalation on the nuclear ladder. The study brings evidence from the two recent crises of escalating risk patterns in South Asia through analysis of the Pulwama-Balakot confrontations of 2019 and the Pahalgam-Operation Sindoor/Operation Bunyan-un-Marsoos conflict of 2025, based on the escalation ladder model, stability-instability paradox, and deterrence theory of Herman Kahn, Glenn Snyder, and Thomas Schelling respectively. The paper uses a qualitative desk research methodology and is a synthesis of primary and secondary sources that encompass official government statements, prominent think tank crisis reporting and scholarly analysis from peer-reviewed journal research papers. According to the findings, India's shift from the Cold Start Doctrine to the Dynamic Response Strategy reflects its effort to create space for limited conventional operations below Pakistan's nuclear threshold. In response, Pakistan's Full Spectrum Deterrence doctrine relies on tactical nuclear weapons, including the Nasr (Hatf-9) missile, to deter such actions. The 2025 crisis marked a significant escalation in South Asia, involving unprecedented missile and drone exchanges between two nuclear-armed states. Combined with doctrinal uncertainty, rapid decision-making pressures, and limited confidence-building measures, these developments highlight the risk of inadvertent escalation and raise questions about the stabilizing role of nuclear deterrence in the region

Key words: Nuclear Deterrence, Limited War, Escalation Ladder, Cold Start Doctrine, Full Spectrum Deterrence, South Asia.

Introduction

The South Asian subcontinent is one of the most perilous nuclear flash points in the present-day international system. Since the May 1998 nuclear tests by both countries, the India-Pakistan hostile relationship is defined by an interesting paradox: the advent of nuclear weapons has at the same time helped to prevent a full-scale war between these two nations, and has also caused lower-intensity conflicts, proxy wars, and sub-conventional wars that have repeatedly spanned the escalation tolerance limits. This phenomenon was first theorized by Glenn Snyder in 1961 and has most clearly manifested itself in the India-Pakistan dyad, having been tested repeatedly over the past six decades in the form of eight major crises since 1986: the Kargil War (1999), the Twin Peaks standoff (2001–2002), the Pulwama-Balakot (2019), and most recently the Pahalgam-Operation Sindoor/ Operation Bunyan-un-Marsoos conflict (2025), all of which occurred in an environment of extreme political tension and operational complexity (Snyder, 1961; Krepon, 2004).

India's strategic thinkers always looked for a remedy to what it views as a basic imbalance in the so-called nuclear equation in South Asia: the lack of any leverage to effectively respond to terrorism and sub-conventional conflicts without risking nuclear retaliation. It is doctrinally manifested in the evolution of India's conventional warfighting posture from the Sunderji Doctrine (1980s) to the early 2000s' Cold Start doctrine and more recently, the Dynamic Response Strategy (DRS), which allows for rapid, limited, conventional strikes, seeks to inflict punitive costs on Pakistan without going over the nuclear threshold (Zaman, 2025; MEAGI, 2003). Pakistan, on the other hand, has been steadily moving down its own nuclear threshold by developing tactical nuclear weapons (TNWs), and by articulating a 'full spectrum deterrence' posture, which explicitly states that Pakistan will not hesitate to use nuclear weapons first if India cross the defined Pakistan's doctrinal redline. (Kidwai, 2015; CSIS, 2024).

The stakes in this competition are more than just about regional security in South Asia. The concepts of escalation ladder (Kahn, 1965), credible commitment theory (Schelling, 1966) and posture optimization (Narang, 2014) are key pillars of deterrence theory which form the starting point of the India-Pakistan nuclear dyad. If two nuclear powers can fight limited conventional wars, go on striking each other's territories with missiles and use drone warfare without nuclear escalation, then some of the assumptions of nuclear deterrence might be right. On the other hand, if crises continue to rise the escalation ladder, come closer to approaching the nuclear threshold and show how fragile the crisis management mechanisms are, then the

pessimistic predictions of other scholars, such as Paul Kapur (2007) and Scott Sagan and Waltz (1995), about nuclear instability in South Asia can be given empirical weight.

The 2025 crisis was a qualitative leap from past confrontations. This is the first time in the history of the nuclear era that two nuclear armed states have had missile strikes against each other, deployed drones, and experienced aerial engagements using advanced 4th and 5th generation fighter aircraft (Cohen, 2025; Soufan Center, 2025). The May 2025 crisis was not just larger than previous ones but marked a new more dangerous benchmark for future incidents “in a dangerous escalation sequence that extended upwards the well-known escalation ladder of Kahn” (BASIC, 2026). In this way, this paper contends that the nature of India-Pakistan crises since 1998 shows a gradual erosion of the ‘firewalls’ between conventional and nuclear war, stemming from their doctrinal upgrades, modernization of technology and the unresolved long-standing territorial and political rivalry.

Thus, this study has three contributions to existing literature. First, it offers a theoretically informed comparative study of the crises in 2019 and 2025 against the backdrop of the escalation ladder developed by Kahn, highlighting the unprecedented rungs by which the latter crisis was raised. Second, it looks at the doctrinal underpinning of escalation risk and places India's small war fighting ambitions in the context of a larger deterrence theory, and Pakistan's countervailing posture of Full Spectrum Deterrence. Third, it provides policy-relevant implications on the lack of impartial crisis management mechanisms in South Asia and the need for the upgraded confidence building measures.

Literature Review

The study of South Asian nuclear deterrence is largely informed by the theoretical foundations established by Glenn Snyder (1961), whose concept of the stability-instability paradox argues that strategic stability may encourage lower-level conflicts by reducing the likelihood of full-scale war under the nuclear shadows. This framework has been widely applied to South Asia to explain the persistence of limited wars and sub-conventional conflicts in the post 1998 scenario. S. Paul Kapur's book *Dangerous Deterrent: Nuclear Weapons Proliferation and Conflict in South Asia* (2007) provides one of the most significant empirical examinations of this argument. Kapur contends that nuclear proliferation in South Asia increased rather than reduced instability by encouraging risk-taking behaviour and intensifying interstate disputes. Complementing this perspective, Robert Jervis (1989) argues that while nuclear deterrence may prevent major wars, it can also generate uncertainty and miscalculation at lower levels of

conflict. Michael Krepon (1995) further emphasizes the importance of confidence-building measures and crisis-management mechanisms as essential components of maintaining strategic stability in the region.

Another major contribution to the literature comes from Herman Kahn's *On Escalation* (1965), which introduced the escalation ladder as a framework for understanding the progression of conflicts from conventional confrontation to nuclear war. Although developed during the Cold War, the model continues to shape analyses of India–Pakistan crises. More recently, Vipin Narang's *Nuclear Strategy in the Modern Era* (2014) shifted scholarly attention from nuclear possession to nuclear posture, identifying catalytic, assured retaliation, and asymmetric escalation as distinct deterrence strategies. Narang's analysis of Pakistan's transition to an asymmetric escalation posture and India's adherence to an assured retaliation strike has become central to understanding contemporary South Asian deterrence dynamics. In addition, studies by (Kidwai, 2015) on Pakistan's Full Spectrum Deterrence and (Zaman, 2025) on India's limited war doctrines highlight the growing doctrinal competition between the two states and its implications for escalation risks and regional stability.

Theoretical Framework

This study adopts an eclectic theoretical framework that integrates Herman Kahn's Escalation Ladder Theory (1965), Glenn Snyder's Stability-Instability Paradox (1961), and Vipin Narang's Posture Optimization Theory (2014) to analyse deterrence dynamics between India and Pakistan. Kahn's Escalation Ladder Theory provides a framework for examining how crises progress through different escalation stages and assessing the intensity of the 2019 and 2025 crises. Snyder's Stability-Instability Paradox explains why strategic nuclear stability can coexist with conventional and sub-conventional conflicts, helping to understand the persistence of recurring crises despite mutual nuclear deterrence. Narang's Posture Optimization Theory highlights how India's assured retaliation posture and Pakistan's asymmetric escalation posture influence deterrence behaviour and escalation risks. Together, these theories offer a comprehensive framework explaining crisis escalation, deterrence stability, and the impact of competing India-Pakistan nuclear doctrines.

Research Methodology

This study is qualitative desk research, based on the interpretive approach of international relations. Desk research or the secondary analysis also referred to as documentary research is a systematic approach to reviewing, analysing, and synthesizing available data and literature to answer a research question (Kazmi & Sahgal, 2025). Primary field research (interviews with policy makers, classified documents on India and Pakistan nuclear forces) is relatively unavailable because of the classified nature of nuclear strategy. Desk research hence is not only a pragmatic alternative, but also the methodologically suitable one to study publicly available evidence concerning the dynamics of South Asian nuclear deterrence.

Data Collection and Source Triangulation

The study relies on the four types of sources which have been triangulated to minimize bias while maximizing reliability. First, official documents and statements from the Indian government, such as India's 2003 nuclear doctrine, and military press releases by the Inter-Services Public Relations (ISPR) of Pakistan, and official crisis communications by the Ministry of External Affairs, Government of India (2003; 2025).

Secondly, authoritative think tank analyses from SIPRI, CSIS, FAS, Belfer Center and BASIC (SIPRI, 2025; CSIS, 2025; Belfer Center, 2025; BASIC, 2026). Third, scholarly research papers published in peer reviewed journals and research volumes such as *International Security*, *Survival*, *The Non-proliferation Review* and *Strategic Thought* (Narang, 2009; Zaman, 2025). Fourth, coverage in the media from credible news sources such as Reuters, BBC, *The Diplomat*, and the *Financial Times* (Cohen, 2025; Soufan Center, 2025).

To validate crisis event claims, source triangulation was used, especially in the case of the 2025 conflict, which was the subject of conflicting narratives by both countries. For example, some statements regarding losses in airspace during the aerial engagements of 2025 were verified between Pakistani official reports, Indian government sources, and analyses from the open sources (BASIC, 2026; Belfer Center, 2025).

Limitations

This study is subject to several methodological caveats typical of desk studies on nuclear deterrence. First, the information is open and does not provide a direct view of the classified parts of nuclear command-and-control, readiness of forces, and crisis decision-making. Secondly, there is a national bias in the Indian and Pakistani sources in their interpretation of crisis events, so it is important to triangulate the sources to make balanced assessments. Third, this is a recent crisis (2025), and the complete documentary record may not yet exist. Fourthly, the escalation ladder framework, although analytically valuable, overlooks the psychological, organizational and bureaucratic forces affecting decision-making under pressure. The limitations are offset using transparent sourcing, the explicit representation of uncertainty where they apply, and triangulation with respect to sources.

The Pulwama-Balakot Crisis (2019): Testing the Waters of Limited War

In February 2019, the Pulwama-Balakot crisis was the most severe military clash between India and Pakistan since the 1971-war and the first-ever direct air strike by one nuclear armed state against another since the dawn of the nuclear era. The crisis started with a suicide attack in Indian-controlled Kashmir's Pulwama area on 14 February 2019, where 40 Central Reserve Police Force (CRPF) soldiers lost their lives (NIDS, 2023).

On 26 February 2019, India's reaction was aerial strikes by Indian Air Force (IAF) Mirage 2000 aircraft on an alleged training camp at Balakot in Khyber Pakhtunkhwa (KP) province in deep inside Pakistani territory after 12 days. The attack was the first time since 1971 that Indian planes had crossed the Line of Control (LoC) to bomb targets in Pakistan (not Kashmir controlled by Pakistan). Indian Prime Minister Narendra Modi characterized the strikes as a

'non-military pre-emptive action' against terrorism, and Pakistan has criticized them as an infringement of the sovereignty and a dangerous escalation (Kazmi & Sahgal, 2025; Cohen, 2025).

On 27th February 2019, Pakistan's Operation Swift Retort retaliated with airstrikes on Indian military targets in Indian-administered Kashmir. During the subsequent aerial battle, one Pakistani F-16 had shot down one Indian MiG-21 Bison, capturing its pilot Wing Commander Abhinandan Varthaman. The most critical tipping point was when Pakistan's Prime Minister Imran Khan announced in parliament that the captured pilot would be released the next day as a "gesture of peace" that seems to have been under the influence of back-channel diplomacy from the United States and Saudi Arabia and several third parties (Kazmi & Sahgal, 2025; Cohen, 2025).

Putting the 2019 crisis on Kahn's escalation ladder, the confrontation reached around rung 18 ("Controlled Military Clash") and came close to rung 20 ("Breaking off Negotiations"), but not the next rungs of large-scale conventional war (rungs 24-26) or nuclear alerting (rungs 27-29) (Cohen, 2025; Belfer Center, 2025). There was nuclear signaling, albeit indirect: Pakistan called a meeting of its National Command Authority (NCA) on 27 February, and both sides increased the military alert level. But no nuclear threats were made, and the crisis subsided within 72 hours of its maximum intensity (Kazmi & Sahgal, 2025). There were several significant lessons to be learnt from the crisis of 2019 for the South Asian version of deterrence theory. It proved that India could conduct limited air strikes across the international border, militarily and politically, which was a key part of the strategic rationale for the Cold Start doctrine and its successors. It also demonstrated that Pakistan could retaliate with a conventional response without relaying in the nuclear domain on its own part, thereby setting a precedent for "quid pro quo plus" response to be repeated and escalated in 2025 (Zaman, 2025; CSIS, 2025). Most importantly, the crisis highlighted the essentiality of third-party intervention and decision-making at the highest levels for de-escalation efforts, which is an unpredictable process, and cannot be assured of working the same way in the next crisis (Kazmi & Sahgal, 2025).

A New Escalation Baseline 2025

The 2025 crisis was more than just a quantitative jump; it marked a qualitative leap in the strategic contestation of the South Asian regional politics. On 22 April 2025, 26 tourists (mainly Hindu pilgrims) were killed in a terrorist attack at Baisaran Valley near Pahalgam in Indian-occupied Kashmir that was carried out by gunmen affiliated to The Resistance Front (TRF). According to reports, the attacks victims were asked about their religion prior to being

shot, furthering a communal element and leading to significant public outrage in India and substantial political pressure on the Modi government to take strong action (Cohen, 2025; ICCT, 2025). India responded in multifaceted and swift manner. It suspended the Indus Waters Treaty, which Pakistan called an “act of war”, expelled Pakistani diplomats, closed the Attari-Wagah border, suspended bilateral trade and revoked visas for all Pakistani nationals in India within hours. (Cohen, 2025; ICCT, 2025). On 7 May 2025, India initiated Operation Sindoor, a synchronized missile attack on “infrastructure” of JeM and LeT in Pakistan-administered Kashmir and Punjab province of Pakistan. Strikes were made with precision-guided weapons HAMMER fired by Rafale aircraft and the SCALP cruise missiles, which were for the first time used in combat (PIB, 2025; ICCT, 2025).

In response, Pakistan struck back at Indian military installations with its own series of missile and drone attacks named Operation Bunyan-un-Marsoos. The conflict quickly expanded into various spheres: (1) missile strikes on military and civilian targets; (2) drone warfare, with Pakistan launching over 50 drones against Indian targets and India using Harpy drones that are capable of destroying drones; (3) aerial engagements involving more than 120 combat aircraft from both sides, including Pakistani JF-17 Thunder, J-10C and F-16, and Indian Rafale, Su-30MKI and MiG-29; and (4) cyber operations and information warfare (BASIC, 2026; Belfer Center, 2025). On 7 May, the aerial engagement was described by the Belfer Center as “the first-ever jet-era dogfight between two nuclear-armed states”—a historic event in the nuclear age (Belfer Center, 2025).

On 10 May 2025, Pakistan used its combat drones, called the Fateh, and missile strikes to attack over 25 Indian military locations in the Indian states of Gujarat, Punjab, Rajasthan, and Jammu and Kashmir. India responded with strikes against some of Pakistan's airbases and radar installations in Lahore and near Gujranwala (Soufan Center, 2025; ORF, 2025). Both sides announced a ceasefire on the same day, following communication via the United States (Vice President JD Vance and Secretary of State Marco Rubio) on the hotline maintained by the Défense General Staff of the Ministry of Défense (DGMO).

Applying Kahn’s escalation ladder to both crises reveals a dramatic difference in escalation trajectories. The table below maps key crisis events onto representative rungs of the ladder:

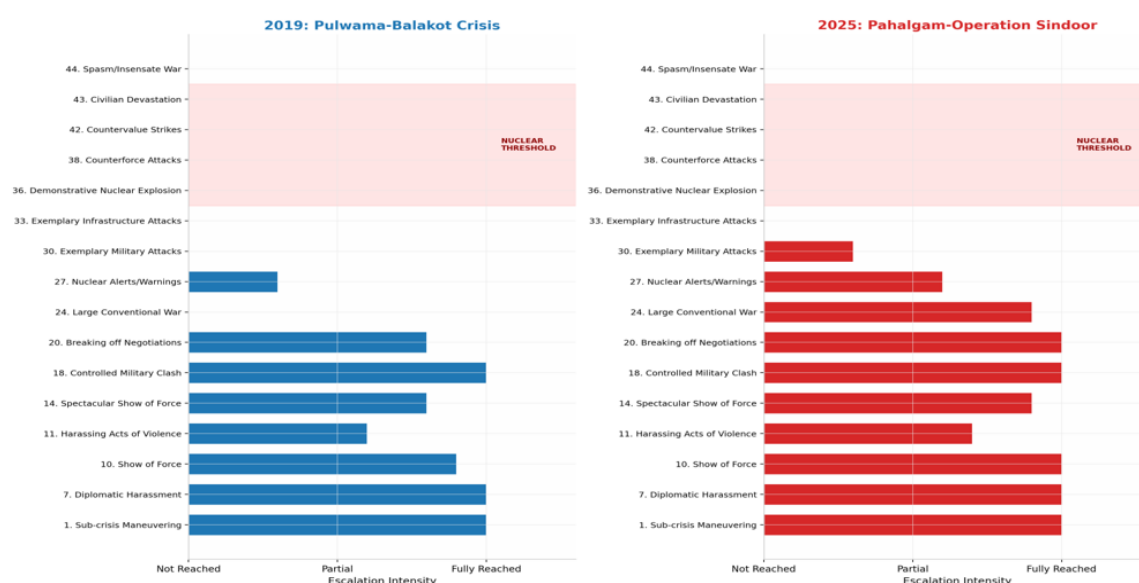
Table 1: *Comparative Escalation Analysis: 2019 vs. 2025*

Kahn's Escalation Rung	2019 Pulwama-Balakot Crisis	2025 Pahalgam Crisis
1–6: Sub-crisis Maneuvering	Diplomatic statements; troop alertness	IWT suspension; border closure; trade suspension; visa revocation (Cohen, 2025)
7–9: Diplomatic Harassment	Expulsion of diplomats; trade restrictions	Mutual diplomatic expulsions; Shimla Agreement suspension (ICCT, 2025)
10: Show of Force	Military mobilization near LoC	Naval posturing (Arabian Sea); missile tests (Abdali, Fatah) (Strategic Vision Institute, 2025)
11–13: Harassing Violence	LoC firing	Intensified LoC shelling; drone shootdowns (Soufan Center, 2025)
14–17: Spectacular Show of Force	—	Drone saturation raids (50 Pakistani drones); Harpy radar neutralization (Belfer Center, 2025)
18: Controlled Military Clash	Balakot airstrikes (26 Feb); Op Swift Retort (27 Feb) (Kazmi & Sahgal, 2025)	Op Sindoor missile strikes; Op Bunyan-un-Marsoos retaliation (PIB, 2025)
20: Breaking Negotiations	DGMO hotline delays; PM call unanswered (Kazmi & Sahgal, 2025)	Public refusal of de-escalation; ISPR hardline statements (BASIC, 2026)
24–26: Large Conventional War	Not reached	Sustained missile, drone, artillery exchanges (7–10 May) (BASIC, 2026)
27–29: Nuclear Alerts	NCA meeting (27 Feb); elevated alert (Kazmi & Sahgal, 2025)	NCA meeting scheduled/pulled back; muted nuclear signaling (ORF, 2025)
30: Exemplary Military Attacks	Not reached	Strikes on airbases (Lahore, Gujranwala radar); runway cratering (Belfer Center, 2025)
33+: Infrastructure/Civilian	Not reached	Not reached
36+: Nuclear Use	Not reached	Not reached

Note. The table maps key crisis events onto representative rungs of Kahn's escalation ladder. The placement of events on individual rungs represents the authors' analytical interpretation rather than a direct classification by the cited sources. LoC = Line of Control; IWT = Indus Waters Treaty; NCA = National Command Authority; DGMO = Director General of Military Operations.

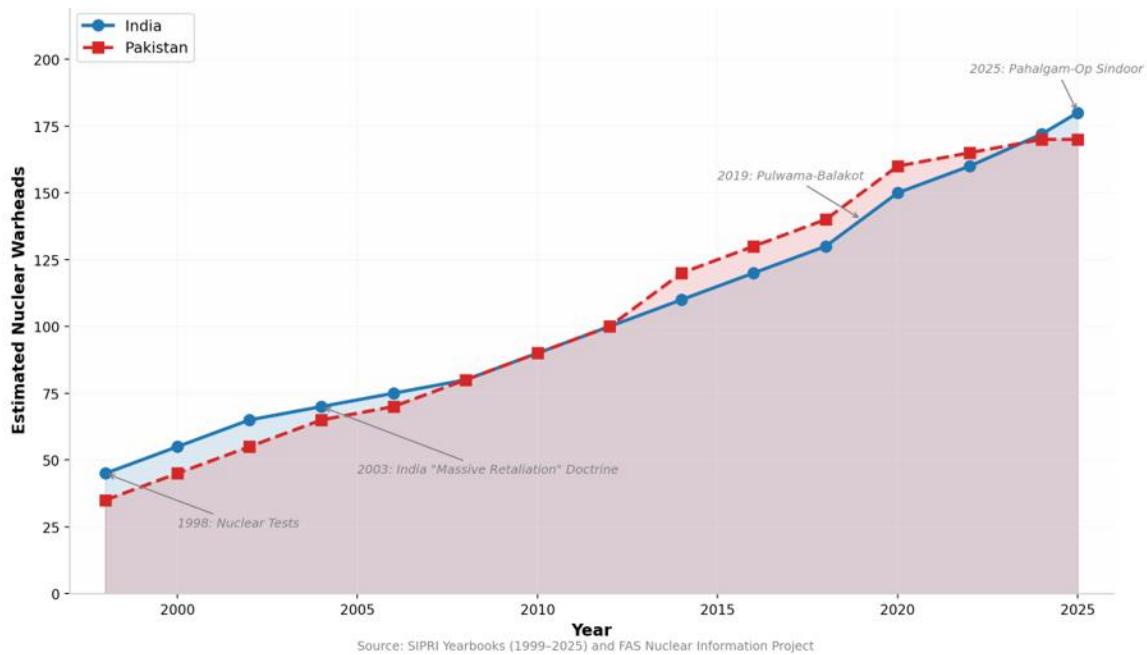
The comparison shows that the 2025 crisis moved up at least 6–8 steps on the escalation ladder in comparison to the 2019 crisis. Most importantly, the 2025 war saw the first missile exchanges between nuclear armed states, first drone warfare between nuclear armed states, first large-scale conventional warfare (rungs 24, 25 and 26) since 1971 and exemplary attacks on military targets (rung 30) that came close to threatening strategic command and control infrastructure (Belfer Center, 2025; BASIC, 2026). This was “an escalatory rung far higher than any reached during previous India-Pakistan crises” (BASIC, 2026) as the BASIC analysis concluded.

Figure 1: *Mapping South Asian Crises on Herman Kahn’s Escalation Ladder*



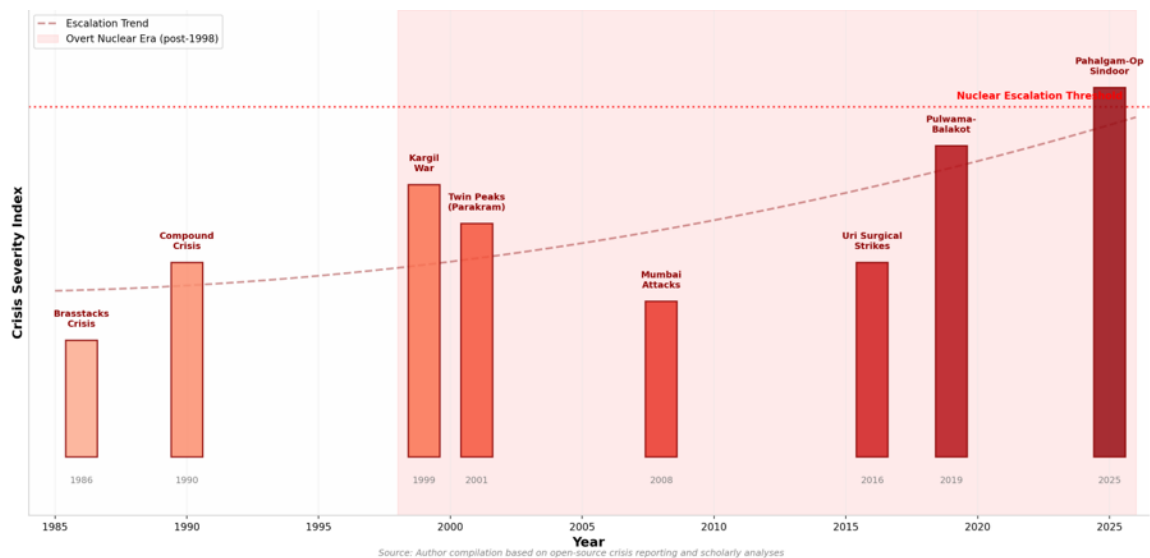
Note. The figure maps selected events from the 2019 Pulwama–Balakot crisis and the 2025 Pahalgam–Operation Sindoor crisis onto representative levels of Herman Kahn’s escalation ladder. “Not Reached,” “Partial,” and “Fully Reached” indicate the authors’ assessment of escalation intensity at each rung. The mapping is an analytical interpretation by the authors based on the events and sources discussed in the study.

Figure 2: *Estimated Nuclear Warhead Stockpiles: India vs. Pakistan, 1998–2025*



Note. The figure presents estimated nuclear warhead stockpiles for India and Pakistan from 1998 to 2025. The underlying estimates are based on SIPRI Yearbooks (1999–2025) and the Federation of American Scientists (FAS) Nuclear Information Project. Annotations indicate selected contextual milestones, including the 1998 nuclear tests, India’s 2003 “Massive Retaliation” doctrine, the 2019 Pulwama–Balakot crisis, and the 2025 Pahalgam–Operation Sindoor crisis.

Figure 3: *Escalation Trajectory and Crisis Severity in India-Pakistan Relations (1986–2025)*



Note. Severity index of major India-Pakistan crises relative to the upward escalation trend line and the nuclear escalation threshold. Shaded region indicates the overt nuclear era post-1998.

Data sourced from author compilation based on open-source crisis reporting and scholarly analyses.

Doctrinal Drivers: India's Limited War Doctrine and Pakistan's Full Spectrum Response

The real strategic issue has been that of India's response to the terrorism, without running the risk of nuclear escalation that will cause catastrophic damage to both states. The shift in doctrine is a sign of India's increased assurance in its conventional military strength and its frustration with Pakistan's use of the nuclear umbrella to deter India without consequences (Zaman, 2025; CSIS, 2025).

The Cold Start evolved in the early 2000s, as a response to the lessons learned from the slow mobilization of Operation Parakram (2001-2002), and was based on the idea of sending Integrated Battle Groups (IBGs) to make quick, shallow raids into Pakistani territory, seeks to achieve limited objectives and inflict losses to Pakistan before it could mobilize its army or resort to nuclear weapons (Zaman, 2025; CSIS, 2025). The doctrine was based on the premise that if a war were fought in conventional mode, which was believed to be short and swift, the strategic goals could be achieved while not crossing the nuclear thresholds. More recently, Indian strategists have expressed a Dynamic Response Strategy with the use of stand-off precision strikes (using cruise missiles, drones, and air-launched munitions) and a threat of deeper conventional operations if Pakistan retaliates – exactly the strategy adopted in Operation Sindoor (Zaman, 2025).

The doctrinal reaction of Pakistan has been to steadily reduce nuclear thresholds to deprive India of any room for maneuver to pursue a limited war. The Full Spectrum Deterrence posture, that is embodied in the deployment of tactical nuclear weapons (the Nasr/Hatf-9 missile with a 60–70 km range), explicitly threatens nuclear first use against Indian conventional forces on Pakistani soil (Arms Control Association, 2013; Missile Threat, CSIS, 2024). Lieutenant General Khalid Ahmed Kidwai said Pakistan's spectrum “encapsulates adequate range coverage from zero meters to 2,750 kilometres”, which means that “India would have no place to hide” (Kidwai, 2015). The Nasr missile is specifically meant to deter India's Cold Start doctrine, which seeks to make the costs of conventional invasion at the tactical level unacceptably high for India, having been tested multiple times between 2011 and 2017 (CSIS, 2024).

The doctrinal competition leads to what this study calls an “escalation compression” dynamic: while India develops capabilities for increasingly effective limited conventional strikes, Pakistan lowers the nuclear thresholds to counter them; while both sides modernize, the

firebreak between conventional and nuclear conflict narrows; and as Pakistan deploys TNWs, India invests in stand-off precision weapons that can strike from outside TNW range. Such a dynamic is structurally unstable, as it relies on the ability of both actors to precisely calibrate their actions so that they do not cross the other side's “red lines” and does not necessarily rule out misperception, miscalculation, and unintended escalation (BASIC, 2026; SVI, 2025).

Table 2: *Doctrinal comparison of India and Pakistan by the Authors.*

Dimension	India	Pakistan
Declared Doctrine	Credible minimum deterrence; No First Use; Massive retaliation (Ministry of External Affairs, Government of India, 2003)	Full Spectrum Deterrence within credible minimum deterrence (Kidwai, 2015)
Nuclear Posture	Assured retaliation (Narang, 2014)	Asymmetric escalation (Narang, 2014)
Estimated Warheads (2025)	180 (SIPRI, 2025)	170 (SIPRI, 2025)
Delivery Triad	Land-based missiles; air-delivered; sea-based (Arihant SSBN) (FAS, 2025)	Land-based missiles; air-delivered (Ra'ad); sea-based (Babur) (Strafasia, 2024)
Longest-Range Missile	Agni-V (~5,000–7,000 km) (Strafasia, 2024)	Shaheen-III (2,750 km) (Strafasia, 2024)
Tactical nuclear weapon	Prahaar (150 km; conventional/nuclear ambiguous) (The Wire, 2025)	Nasr/Hatf-9 (60–70 km; explicit TNW role) (Missile Threat, CSIS, 2024)
Key Doctrinal Innovation	Cold Start → Dynamic Response Strategy (Zaman, 2025)	Full Spectrum Deterrence (2011) (Kidwai, 2015)
Command & Control	Assertive civilian control (NCA: Political Council) (Ministry of External Affairs, Government of India, 2003)	Delegative military influence (NCA with service commands) (Narang, 2010)

Note. NCA = National Command Authority; SSBN = nuclear-powered ballistic missile submarine; TNW = tactical nuclear weapon. The table presents a comparative summary of publicly documented doctrinal positions and capabilities.

The Nuclear Threat: Approaching the Threshold

The 2025 crisis escalated the nuclear threat to an unprecedented level in the history of South Asia. Neither side threatened nuclear use explicitly, but there were several clues that indicated nuclear considerations played a prominent role in two-sided crisis decision making on both sides. Pakistan is known to have sent mixed but clear signals towards the possibility of nuclear escalation by scheduling an NCA meeting on 8 May 2025, which was later cancelled (ORF, 2025). The mobilization of the nuclear ballistic missile submarine INS Arihant and forward deployment of nuclear-capable aircraft during the crisis had been viewed as nuclear brinkmanship on Pakistan's part (BASIC, 2026).

The most alarming aspect of the crisis of 2025 was the targeting military infrastructure which could have been misinterpreted as nuclear-related. India's attacks against the Pakistani radar stations and airbases, along with Pakistan's attacks against the Indian military, brought about a scenario that, as the Belfer Center noted, “the combination of strikes on nuclear-related military infrastructure and third-party disinformation risked turning a conventional conflict into a nuclear crisis” (Belfer Center, 2025). Given the fog of war, the time pressure on both sides, and the issues of electronic warfare and cyber operations that impacted situational awareness, the likelihood of wrongly identifying a conventional military target as a nuclear facility—or a nuclear facility as a conventional military target—was significantly higher (BASIC, 2026; ORF, 2025).

The low-key nuclear messaging in the 2025 crisis, in contrast to the more overt nuclear brinkmanship of 2001-2002 and 2019, could be a sign of strategic sophistication or a potentially hazardous confusion. On the other hand, both sides might have been wised up from past crises that such explicit nuclear threats may be counterproductive because they invite international condemnation and, in turn, create the possibility of unintended escalation. But with no clear nuclear red lines — and the level of conventional exchanges unprecedented — neither side had a clear template for escalation or for indicating restraint. As one interviewee from Pakistan explained to BASIC researchers, the crisis was “managed by taking it up a notch,” reflecting an incremental and uncoordinated escalation that Kahn warned could spiral out of control.

Other figures for the nuclear threat can be found in the SIPRI 2025 Yearbook on nuclear arsenals. India's nuclear stockpile increased to 180 warheads in 2025 (from 172 in 2024), surpassing Pakistan's 170 warheads for the first time in 25 years (SIPRI, 2025; The Hindu, 2025). India has been working on "canisterised" missiles that can be moved with mated warheads during peacetime, thereby increasing the operational readiness, and Pakistan has been busy with devising new delivery systems and stockpiling fissile materials for future expansion (SIPRI, 2025; Dawn, 2025). Both are developing Multiple Individuated Targetable Re-entry Vehicle (MIRV) capabilities, the Pakistani Ababeel (range 2200 km) and Indian Agni-V have both been tested with MIRV configuration (Strafasia, 2024). Such modernization trends make any nuclear exchange that might happen even more devastating and add to the trouble of signaling a crisis by creating a more ambiguous situation regarding the nature and scale of a potential response.

Discussion: The Erosion of Deterrence Stability in South Asia

The empirical facts of the 2019 and 2025 crises, as part of India-Pakistan confrontations since 1998, are more than enough to make one pessimistic about the stability of deterrence in South Asia. There are three key findings from this analysis.

First, the Escalation ladder shows systematic progression in the 'escalation' of crisis. Since 1998 each of the major crises has escalated on Kahn's ladder relative to its predecessor: the Brasstacks crisis (1986-87) and the Compound Crisis (1990) were barely in the sub-crisis maneuvering and diplomatic harassment categories; the Kargil War (1999) was in the controlled military clash category (rung 18); the Twin Peaks standoff (2001-02) almost reached the large conventional mobilization category (rungs 10-14); the Pulwama-Balakot crisis (2019) was in the controlled military clash with air strikes (rung 18) category; and the Pahalgam-Sindoor/ Operation Bunyan-un-Marsoos conflict (2025) was in the exemplary attacks on military targets (rung 30) and large conventional war (rungs 24-26) category (Krepon, 2004; BASIC, 2026). This is not just because of the rising intensity of triggering factors, but rather also because of the doctrinal and technological enablers of escalation on both sides which have steadily increased the scope of militarily feasible options at each level.

Second, the "firebreak" between the conventional and nuclear war has been reduced quite significantly. As a result of the deployment of TNWs and the Full Spectrum Deterrence posture adopted by Pakistan, there has been a reduction in the nuclear threshold to tactical level and India's development of stand-off precision strike capabilities and its Dynamic Response

Strategy has increased the range of conventional operations that can escalate to Pakistan's nuclear response. The combination of missiles, drones, and the 2025 crisis proved that two nuclear countries can engage in missile exchanges and drone warfare while targeting each other's military facilities without even touching the nuclear part of the armory—now, though, the margin for error in such operations is vanishingly small. One misidentified target, one technical glitch in a command-and-control system or one decision-maker's error under extreme pressure may make the difference between conventional and nuclear war (Belfer Center, 2025; ORF, 2025).

Third, crisis management mechanisms have not caught up with escalation enablers. The main bilateral communication channel (DGMO hotline) was not found to be effective during the 2019 and 2025 periods. It was said to have been delayed and/or underused in 2019 and was only used at the eleventh hour in 2025 when it was used to negotiate a ceasefire after 4 days of heavy fighting (Kazmi & Sahgal, 2025; ICCT, 2025). There are no institutionalized crisis communication procedures, no pre-negotiated “off-ramps,” and no third-party monitoring mechanisms; and de-escalation relies on ad-hoc diplomatic intervention and decisions made by leaders under extreme pressure, with all these being inherently unreliable. Unfortunately, the best chance of defusing nuclear danger and controlling escalation lies in political engagement (Krepon, 1995), but bilateral political dialogue has been virtually shut down since 2019 and was further hindered by the crisis of 2025.

The theoretical implications of these findings are important more generally for the study of nuclear deterrence. They argue that Waltz's sanguine forecast of “measured spread” of nuclear weapons in the hands of states is significant to qualify when examined in terms of regional nuclear dyads with longstanding rivalries, perpetual territorial conflicts and an explicit asymmetric conventional power balance. (Waltz, 1981). The South Asian experience suggests that Scott Sagan's counterargument that organizational, political and technological pathologies can lead to the rational deterrence model on which Waltz's reliance on optimism (Sagan & Waltz, 1995) is correct. It also confirms Paul Kapur's suggestion that “nuclear weapons in fact have had destabilizing effects on the subcontinent” by providing an opportunity for the weaker state to adopt revisionist strategies with nuclear insurance and for the stronger state to have increasingly risky conventional response options (Kapur, 2007).

Escalation dominance” as coined by Kahn to the ability to enjoy significant gains at specific positions of the escalation ladder is of special interest in the South Asian context (Kahn, 1965).

India and Pakistan have been competing for escalation dominance along conventional rungs – India with its conventional military strength and precision strike capability, and Pakistan with the option of tactical nuclear weapons and asymmetric warfare. Neither has been able to predominate and together their rivalry for predominance has led to the spiraling pattern of crises described in this paper. This finding indicates that escalation dominance does not only exist in theory but also in practice as a possible instrument to arms racing and crisis behavior in regional nuclear dyads, which was not always fully expected in a Cold War perspective.

Conclusion

The dynamics of nuclear deterrence between Pakistan and India has been explored in this study through the lenses of two recent crises: the Pulwama-Balakot confrontation of 2019 and the Pahalgam-Operation Sindoor/ Operation Bunyan-un-Marsoos conflict of 2025, employing Herman Kahn's escalation ladder theory, Glenn Snyder's stability-instability paradox, and Vipin Narang's posture optimization theory as integrated analytical frameworks. The results inform three main conclusions. First, India's pursuit of a limited range of conventional warfighting options in the nuclear shadow has systematically ratcheted up South Asian crises in the escalation ladder by increasing the scope for militarily viable conventional operations, as seen in the Cold Start Doctrine and Dynamic Response Strategy. This doctrinal path culminates in the 2025 crisis, where missile exchanges for the first time, drones for the first time, and large-scale conventional conflict between nuclear-armed countries for the first time, all take place (BASIC, 2026; SVI, 2025). Second, Pakistan's Full Spectrum Deterrence posture, based on tactical nuclear weapons such as the Nasr missile, has not been as effective as intended in deterring Indian conventional strikes, but rather has led to the compression of escalation as both sides race to gain an upper hand at conventional levels while the threshold between conventional and nuclear escalation is lowered. Indo-Pakistani dynamics, especially India's limited warfighting doctrines and Pakistan's nuclear-first-use threats, drive the structural conditions that make India a hotspot for inadvertent escalation, countering optimistic assumptions about the stability of nuclear deterrence in regional contexts (Zaman, 2025; CSIS, 2024). Third, the lack of adequate crisis management systems, confidence building arrangements, and bilateral political dialogue makes the South Asian nuclear deterrence system susceptible to misperceptions, miscalculations and inadvertent escalation. The 2025 crisis was defused not through institutionalized arrangements, but through ad hoc third-party intervention and hot-line communications via the DGMO after four days of heavy fighting, which is hardly reliable and unlikely to produce the same results in the future in other crises (Krepon, 1995;

BASIC, 2026). The policy consequences from these results are obvious. There's an urgent need to restore those firebreaks – by way of renewed confidence-building measures such as hotline modernization, prior notification agreements for missile tests, and crisis communication protocols, because of the crises of 2019 and 2025. Political involvement in the root causes of frequent crisis, especially Kashmir, is a necessity. And third-party diplomatic architecture, via the United Nations, regional organizations or great power mediation should be reinforced to give off-ramps when bilateral architecture fails. The South Asian nuclear dyad is a key test case for deterrence theory, and the last six years have led towards a form of “precarious stability”—whereby nuclear weapons deter the onset of full-scale war, but allow for a series of limited wars of escalating intensity to repeatedly come close to the brink. This situation is a tenable one until there is a final collapse, if there is the political will from the leadership of both countries to invest in the institutional and diplomatic framework of crisis prevention, which, sadly, both governments have been reluctant to do.

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