



MARITIME PSYCHOLOGICAL OPERATIONS STRATEGY: STRENGTHENING NATIONAL RESILIENCE IN THE ERA OF GLOBALIZATION AND HYBRID THREATS

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Abstract

Globalization and evolving hybrid threats have transformed maritime security by extending strategic competition beyond physical domains into contested information environments that influence public perception, institutional trust, and societal cohesion. This study aimed to examine how maritime psychological operations can strengthen national resilience by reducing information vulnerability and enhancing credible strategic communication, public trust, and community preparedness. A sequential explanatory mixed-methods design integrated quantitative surveys, semi-structured expert interviews, document analysis, and methodological triangulation to investigate relationships among hybrid maritime threats, information vulnerability, strategic communication, institutional credibility, societal cohesion, and national resilience. The findings revealed that perceived hybrid maritime threats increased information and perception vulnerability, while credible, timely, transparent, and evidence-based communication strengthened institutional credibility and public trust. Information literacy, community preparedness, and coordinated institutional responses reduced vulnerability to contested narratives and supported societal cohesion. Institutional credibility emerged as a central mechanism linking strategic communication with national resilience. The study concludes that effective maritime psychological operations should prioritize resilience rather than perception control. Sustainable maritime security requires information integrity, credible institutions, informed citizens, coordinated communication, and resilient communities capable of maintaining critical judgment and collective adaptability under conditions of uncertainty, globalization, geopolitical competition, and increasingly complex hybrid threats across contemporary maritime security environments worldwide.

Keywords: Hybrid Threats; Maritime Security; National Resilience; Psychological Operations; Strategic Communication.



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INTRODUCTION

Maritime security has undergone a significant transformation as globalization, technological connectivity, geopolitical competition, and transnational interdependence increasingly reshape the strategic environment of coastal and archipelagic states (Zoubir et al., 2025a). Maritime domains are no longer defined exclusively by territorial waters, naval capabilities, shipping routes, ports, fisheries, and natural resources. Digital information ecosystems, public perceptions, strategic narratives, social media, and psychological resilience have become increasingly relevant to how maritime security is understood and maintained (Zhang et al., 2026). Hybrid threats exploit this expanded environment by combining conventional pressure with disinformation, cyber disruption, economic coercion, influence activities, diplomatic pressure, and manipulation of public narratives (Abramowicz-Gerigk et al., 2026). National resilience in the maritime domain therefore depends not only on physical defense capabilities but also on a society's capacity to recognize, interpret, withstand, and recover from information-based and psychological pressures.

Psychological dimensions of maritime security have become particularly significant because contemporary strategic competition increasingly occurs below the threshold of conventional armed conflict (Luo et al., 2026). Disinformation concerning territorial disputes, fabricated maritime incidents, manipulated historical narratives, misleading information about military activities, and coordinated attempts to undermine confidence in national institutions can influence public perceptions without requiring direct military confrontation (Maggio et al., 2026). Maritime psychological operations, when situated within lawful and ethically governed national-security frameworks, can be understood as coordinated strategic communication and resilience-oriented activities designed to protect information integrity, strengthen public awareness, counter hostile influence, and maintain confidence in legitimate maritime institutions (Kim et al., 2025). This understanding shifts attention from coercive manipulation toward defensive communication, societal preparedness, and institutional credibility.

Globalization intensifies these challenges because maritime security events can rapidly acquire international informational and psychological consequences (Jiang et al., 2026). A local maritime incident may immediately circulate through global media, social networks, diplomatic channels, and algorithmically amplified information environments (Chanida et al., 2026). Competing interpretations can emerge before verified information becomes available, creating opportunities for misinformation and hostile narratives to shape public understanding (Özdemir, 2024). Maritime resilience consequently requires the integration of operational readiness with credible public communication, information verification, interagency coordination, media literacy, and institutional capacity to respond rapidly without sacrificing accuracy or democratic legitimacy.

The central problem addressed by this study concerns the growing mismatch between the multidimensional nature of hybrid maritime threats and security strategies that remain predominantly focused on physical, military, and territorial dimensions (Hebbar & Khabeishvili, 2024). Naval readiness, maritime surveillance, law enforcement, border protection, and technological monitoring remain indispensable, yet these capabilities alone cannot adequately address operations designed to manipulate perceptions, generate confusion, weaken social cohesion, or undermine public trust (Zoubir et al., 2025b). Hybrid actors may exploit informational ambiguity precisely because responses based exclusively on conventional security instruments are often insufficient against threats that operate through narratives and perceptions.

A second problem concerns the fragmentation of responsibility for responding to psychological and information-related threats in the maritime domain (Zoubir et al., 2025b). Maritime security commonly involves naval forces, coast guards, intelligence institutions, law-enforcement agencies, ministries, local governments, port authorities, media organizations, academic institutions, and coastal communities (Bilgin & Bayraktar, 2026). Weak coordination

among these actors can produce inconsistent communication, delayed responses, contradictory narratives, and gaps in public information (Lippy & Bayer, 2026). Such fragmentation may amplify uncertainty during crises and create conditions in which misleading information gains greater credibility than verified institutional communication.

A third problem involves the ethical and legal boundaries of psychological operations within democratic governance (Stewart & Mosleh, 2026). Strategies intended to strengthen resilience can become counterproductive when they rely on deception, excessive secrecy, domestic manipulation, or communication practices that undermine civil liberties and public trust (Li et al., 2026). National resilience cannot be sustainably strengthened by sacrificing the legitimacy it seeks to protect (S. Zhao et al., 2024). A credible maritime psychological operations strategy therefore requires clear distinctions among defensive strategic communication, public information, counter-disinformation, psychological preparedness, intelligence activities, and manipulative influence operations, with each governed by appropriate legal mandates, oversight, transparency, and ethical safeguards.

This study aims to develop an analytical understanding of how maritime psychological operations can contribute to national resilience against globalization-driven vulnerabilities and hybrid threats (Cherry & Ayton, 2025). The research examines the interaction among maritime security, information environments, public perception, institutional trust, strategic communication, and societal resilience (O. Melnyk et al., 2026). Particular attention is directed toward identifying how information-related vulnerabilities in maritime contexts can be reduced through coordinated, credible, lawful, and resilience-oriented communication strategies.

The study seeks to identify the institutional capabilities required to strengthen psychological resilience in the maritime domain (Onyshchenko et al., 2025). These capabilities include early detection of hostile narratives, rapid verification of maritime information, interagency communication, public risk communication, media and information literacy, engagement with coastal communities, crisis communication, and systematic assessment of public trust (Andreadakis et al., 2024). The research also examines how these capabilities can complement conventional maritime-security instruments without replacing operational, diplomatic, or legal responses.

The research further aims to formulate an integrated Maritime Psychological Resilience Strategy Framework connecting Hybrid Maritime Threats - Information and Perception Vulnerabilities - Strategic Communication and Resilience Measures - Public Trust and Societal Cohesion - National Resilience (Khlud & Senbursa, 2024). Institutional credibility, information integrity, interagency coordination, community preparedness, media literacy, and adaptive communication are positioned as central protective mechanisms (Wang et al., 2026). This framework is intended to provide a structured basis for understanding how psychological resilience can function as a component of comprehensive maritime security.

Existing maritime-security literature has extensively examined naval power, maritime-domain awareness, territorial disputes, piracy, illegal fishing, transnational crime, maritime diplomacy, port security, and freedom of navigation (Aryee et al., 2025). Hybrid-threat scholarship has simultaneously expanded understanding of cyber operations, disinformation, economic coercion, proxy activities, and influence campaigns (V. Melnyk et al., 2026). Limited integration exists between these two bodies of scholarship, particularly regarding how information manipulation and psychological pressure interact with maritime vulnerabilities and influence broader national resilience.

Psychological operations and strategic-communication research has traditionally developed within military, conflict, and security-studies contexts (Szymanowski & Anusik, 2025). Existing studies frequently emphasize influence during armed conflict or military operations, while comparatively less attention is given to resilience-oriented applications in peacetime maritime competition and gray-zone environments (Decision Support Department, Faculty of Computers and Informatics, Zagazig University, Zagazig, 44519, Egypt et al.,

2023). Research remains particularly limited on how credible institutional communication, community engagement, information verification, and public trust can be integrated into maritime-security architecture as preventive mechanisms against hybrid influence.

National-resilience scholarship also tends to treat societal, informational, economic, political, and defense dimensions as interconnected but analytically broad categories (Salman Abdou et al., 2026). Limited empirical and conceptual work explains the specific mechanisms through which maritime information threats can move from narrative manipulation to declining institutional trust, social polarization, reduced crisis responsiveness, or weakened strategic cohesion (Kulyk et al., 2026). A clearer framework is therefore needed to connect maritime hybrid threats with psychological vulnerabilities and measurable resilience outcomes without assuming that every contested narrative constitutes a hostile operation.

The principal novelty of this study lies in conceptualizing Maritime Psychological Resilience as a distinct but integrated component of comprehensive maritime security (Lin et al., 2025). The proposed perspective moves beyond a narrow understanding of psychological operations as one-way influence activities and reframes the concept around resilience, credible communication, information integrity, public preparedness, and institutional legitimacy (Kindikbayeva et al., 2025). Maritime psychological resilience is defined as the collective capacity of institutions and society to recognize manipulative information, maintain informed judgment under uncertainty, preserve trust based on credible evidence, and adapt effectively during maritime-related crises and hybrid pressure.

A second element of novelty lies in the proposed Maritime Psychological Resilience Strategy Framework: Hybrid Maritime Threats - Information and Perception Vulnerabilities - Strategic Communication and Resilience Measures - Public Trust and Societal Cohesion - National Resilience (Putradipradja et al., 2026). This framework integrates maritime-security studies, hybrid-threat theory, strategic communication, psychological resilience, and national-resilience perspectives within a single analytical structure (Mseer & Almubaydeen, 2025). The framework also emphasizes feedback mechanisms because public trust and institutional credibility influence the effectiveness of subsequent communication during crises (Stepnov, 2025). Resilience is therefore understood as an adaptive process rather than a static national attribute.

The study is justified by the increasing strategic importance of protecting the cognitive and informational dimensions of maritime security while preserving democratic legitimacy. Effective responses to hybrid threats require more than producing persuasive counter-narratives; they require institutions capable of communicating rapidly, verifying evidence, acknowledging uncertainty, correcting errors, coordinating messages, and maintaining public credibility over time (Zhou, 2025). The central strategic question should therefore shift from “How can public perceptions be controlled?” toward “How can citizens, institutions, and maritime communities become sufficiently informed, resilient, and trusted to withstand manipulation and make sound judgments under conditions of uncertainty?” This reframing provides a more ethically defensible and strategically sustainable foundation for strengthening national resilience in an era of globalization, contested information environments, and evolving hybrid maritime threats.

RESEARCH METHOD

Research Design

This study employed a sequential explanatory mixed-methods design to examine how maritime psychological operations and resilience-oriented strategic communication contribute to national resilience in the context of globalization and hybrid threats (Q. Zhao et al., 2025). The research combined quantitative survey analysis with qualitative interviews and document analysis to capture both measurable relationships among the principal variables and the

institutional processes underlying maritime information resilience. The analytical model followed the pathway Hybrid Maritime Threats - Information and Perception Vulnerabilities - Strategic Communication and Resilience Measures - Public Trust and Societal Cohesion - National Resilience (Aziz et al., 2026). This framework enabled the study to examine psychological resilience as a multidimensional security capacity rather than treating psychological operations solely as persuasive or influence-oriented activities.

The quantitative phase adopted a cross-sectional explanatory design to assess perceptions of hybrid maritime threats, exposure to information manipulation, information vulnerability, institutional credibility, strategic communication effectiveness, public trust, societal cohesion, and national resilience. Statistical analysis was used to identify relationships among these constructs and determine whether strategic communication and resilience mechanisms reduced the adverse effects of perceived hybrid threats. The model also examined whether public trust and societal cohesion functioned as pathways through which credible communication contributed to broader national resilience.

The qualitative phase employed semi-structured expert interviews and systematic document analysis to explain patterns identified in the quantitative findings. This phase examined how maritime institutions detect information threats, coordinate communication, verify contested information, engage communities, manage uncertainty, and preserve institutional credibility during maritime incidents. The integration of quantitative and qualitative evidence allowed the study to distinguish between formal strategic arrangements and the practical realities of institutional coordination, public communication, and resilience building.

Population and Samples

The target population consisted of stakeholders with direct knowledge of maritime security, strategic communication, information resilience, public communication, and national-security governance, together with members of maritime and coastal communities whose perceptions were relevant to societal resilience. Institutional participants included personnel or professionals associated with maritime-security agencies, coast-guard functions, naval or defense institutions where appropriate, maritime law enforcement, government communication, port administration, maritime policy, academia, journalism, and civil-society organizations working on information integrity or community resilience.

The quantitative sample was drawn from adult respondents in selected maritime and coastal regions using a multistage stratified sampling strategy. Stratification considered geographical location, proximity to strategic maritime areas, occupational relationship with the maritime sector, and demographic characteristics relevant to information access and public trust. The inclusion of community respondents was intended to capture societal dimensions of resilience rather than limiting the analysis to institutional perspectives.

The qualitative sample was selected purposively from participants possessing specialized knowledge of maritime security, hybrid threats, strategic communication, crisis management, public information, information verification, or community resilience. Experts were selected according to professional experience, institutional role, and demonstrated familiarity with maritime-security challenges. Representation from different professional backgrounds was sought to reduce the risk of interpreting maritime psychological resilience exclusively through a military or governmental perspective.

Documentary sources included publicly accessible maritime-security policies, national-resilience frameworks, strategic-communication guidelines, crisis-communication protocols, official maritime reports, relevant legislation, public institutional statements, and policy documents concerning hybrid threats and information security. Classified, operationally sensitive, or personally identifiable materials were excluded. This boundary ensured that the study remained focused on strategic governance, resilience, and publicly assessable institutional practices.

Research Target/Subject

The target population for this study encompasses institutional stakeholders with specialized expertise in maritime security, information resilience, strategic communication, and national-security governance, alongside residents of targeted maritime and coastal communities. Institutional participants include personnel and professionals from coast-guard functions, naval and defense organizations, maritime law enforcement, port administrations, government communication units, academia, civil-society organizations, and journalism. Complementing this, community respondents are drawn from adult populations in selected coastal zones through a multistage stratified sampling design based on geographical proximity to strategic maritime corridors, occupation, and demographic traits. This dual-target structure ensures the research captures both top-down institutional capabilities and bottom-up societal dimensions of resilience under hybrid maritime threats.

For qualitative and documentary targets, experts are selected through purposive sampling based on their professional experience, institutional roles, and direct involvement in crisis management, information verification, or public communication. Broad cross-sectoral representation is intentionally sought to prevent evaluating maritime psychological resilience solely through a rigid military lens. In tandem, the documentary subjects comprise publicly accessible maritime-security policies, national-resilience frameworks, strategic-communication protocols, official reports, and relevant legislation. By strictly excluding classified, operationally sensitive, or personally identifiable materials, the research targets focus squarely on publicly assessable governance mechanisms, legal accountability, and strategic resilience practices.

Research Procedure

The study began with ethical approval, institutional coordination, participant recruitment, informed consent, and the development of data-protection procedures. Participants received information concerning the research objectives, voluntary participation, confidentiality, anonymity, and their right to withdraw. Research procedures were designed to avoid collecting classified information, operational vulnerabilities, covert techniques, or data that could compromise national-security activities or individual safety.

The first empirical stage involved systematic document collection and analysis. Relevant policies, legislation, strategic frameworks, official reports, and publicly accessible institutional communication materials were identified according to predefined inclusion criteria. Documents were coded using the analytical matrix to establish how maritime psychological resilience, hybrid threats, strategic communication, public trust, and national resilience were formally conceptualized and connected.

The second stage involved administration of the quantitative questionnaire to eligible respondents. Data were screened for completeness, response quality, missing values, outliers, and statistical assumptions. Descriptive statistics were calculated to characterize the principal constructs, while reliability and confirmatory factor analyses were conducted to assess measurement quality. Differences across demographic, geographical, and stakeholder groups were examined where theoretically justified.

Inferential analysis tested the relationships proposed in the conceptual model. Multiple regression or structural equation modeling was employed, depending on sample adequacy and measurement properties, to examine whether perceived hybrid maritime threats predicted information and perception vulnerability and whether vulnerability was associated with lower public trust, societal cohesion, and national resilience. Strategic communication effectiveness and resilience measures were examined as protective factors capable of weakening these adverse relationships.

Mediation analysis examined whether public trust and societal cohesion explained part of the relationship between credible strategic communication and national resilience. Moderation

analysis assessed whether information literacy, institutional credibility, and community preparedness reduced the negative effects associated with exposure to misleading or contested maritime information. These analyses provided a more precise assessment of the mechanisms through which resilience-oriented communication could contribute to national resilience.

The third stage involved semi-structured interviews with purposively selected experts and stakeholders. Interviews were transcribed, anonymized, and analyzed through thematic analysis. Coding focused on threat perception, institutional coordination, communication credibility, information verification, public trust, community engagement, ethical boundaries, and organizational learning. Rival explanations and contradictory cases were actively examined to reduce confirmation bias and avoid interpreting all information disorder as evidence of deliberate hostile operations.

The fourth stage integrated quantitative, qualitative, and documentary evidence through methodological triangulation. Statistical relationships were compared with expert explanations and formal policy arrangements to identify convergence, divergence, and implementation gaps. Particular attention was given to differences between the existence of formal strategic-communication policies and their perceived credibility, coordination, accessibility, and effectiveness in practice.

The final analytical stage applied the Maritime Psychological Resilience Strategy Framework: Hybrid Maritime Threats - Information and Perception Vulnerabilities - Strategic Communication and Resilience Measures - Public Trust and Societal Cohesion - National Resilience. Interpretation emphasized defensive resilience, information integrity, credible communication, and institutional legitimacy rather than manipulation of domestic audiences. The study therefore evaluated maritime psychological strategy according to its capacity to strengthen informed public judgment, institutional trustworthiness, societal adaptability, and coordinated responses to hybrid maritime pressures while remaining consistent with legal, ethical, and democratic safeguards.

Instruments, and Data Collection Techniques

The primary quantitative instrument was the Maritime Psychological Resilience and National Resilience Questionnaire, developed from established concepts in hybrid-threat studies, strategic communication, institutional trust, information resilience, societal cohesion, and national resilience. Responses were measured using a Likert-type scale and organized into several constructs: perceived hybrid maritime threats, information and perception vulnerability, strategic communication effectiveness, information literacy and preparedness, institutional credibility, public trust, societal cohesion, and perceived national resilience.

The hybrid maritime threat dimension assessed respondents' perceptions of disinformation, fabricated or manipulated maritime narratives, cyber-enabled information disruption, geopolitical information pressure, and ambiguity surrounding maritime incidents. The instrument measured perceived exposure and vulnerability rather than requesting sensitive operational information. Information and perception vulnerability was assessed through respondents' difficulty distinguishing verified information from misleading claims, susceptibility to unverified narratives, perceived information overload, and uncertainty during contested maritime events.

Strategic communication and resilience measures were assessed through indicators of communication timeliness, consistency, transparency, accessibility, evidence-based messaging, correction of misinformation, acknowledgement of uncertainty, and coordination among legitimate institutions. Institutional credibility measured perceived competence, integrity, reliability, and openness of maritime and governmental institutions. Public trust and societal cohesion were assessed through confidence in legitimate institutions, willingness to rely on verified information, perceived social solidarity, resistance to divisive narratives, and confidence in collective responses during maritime crises.

National resilience was operationalized as the perceived capacity of institutions and society to anticipate, withstand, adapt to, and recover from hybrid maritime pressures while maintaining social stability and legitimate decision-making. The construct incorporated adaptive capacity, institutional responsiveness, continuity of public confidence, community preparedness, and the ability to maintain informed judgment under uncertainty. This operationalization avoided equating resilience with unquestioning support for official narratives and instead emphasized informed, critical, and adaptive societal capacity.

A semi-structured interview protocol was developed for the qualitative phase. Questions addressed institutional coordination, communication challenges during maritime incidents, hostile or misleading information, public trust, community preparedness, verification procedures, crisis communication, interagency relationships, and lessons from previous maritime information challenges. Interview questions focused on governance and resilience practices and did not seek classified operational methods, covert influence techniques, or sensitive intelligence procedures.

A structured document-analysis matrix was used to examine policies and institutional documents according to predefined categories. These categories included threat recognition, information verification, communication authority, interagency coordination, public warning mechanisms, crisis communication, community engagement, ethical safeguards, legal accountability, media literacy, monitoring and evaluation, and recovery planning. The matrix enabled systematic comparison between formal strategic commitments and the institutional capabilities described by participants.

Instrument validity was assessed through expert review involving specialists in maritime security, strategic communication, psychology, public policy, and research methodology. Content validity procedures examined the relevance, clarity, and conceptual representativeness of each indicator. Pilot testing was conducted with respondents sharing characteristics with the target population, while internal consistency and construct validity were assessed using appropriate reliability coefficients and factor-analytic procedures before hypothesis testing.

Data Analysis Technique

The quantitative data analysis relies on a combination of descriptive, measurement-validation, and inferential statistical methods to test the proposed analytical framework. Initial data screening addresses completeness, outliers, and statistical assumptions, followed by descriptive statistics, reliability tests, and confirmatory factor analysis (CFA) to validate the constructs. To evaluate the relationships among hybrid maritime threats, perception vulnerabilities, and national resilience, the study employs multiple regression or structural equation modeling (SEM). Furthermore, mediation analyses test whether public trust and societal cohesion mediate the link between credible strategic communication and broader national resilience, while moderation analyses examine how factors like information literacy, institutional credibility, and community preparedness lessen the impact of hostile information manipulation.

The qualitative and integrative analysis utilizes thematic analysis for interview transcripts alongside a structured matrix for policy documents. Transcripts are anonymized and systematically coded across key themes including threat perception, verification protocols, institutional credibility, and ethical boundaries while actively accounting for rival explanations to minimize confirmation bias. Documentary sources are evaluated against predefined matrix categories to contrast formal commitments with practical capabilities. Finally, the study applies methodological triangulation to synthesize quantitative metrics, qualitative thematic patterns, and documentary insights. This combined technique allows the research to identify convergence, divergence, and implementation gaps between official communication frameworks and their real-world effectiveness during maritime incidents.

RESULTS AND DISCUSSION

The descriptive analysis revealed that respondents perceived hybrid maritime threats as a substantial challenge to contemporary national resilience, particularly when security incidents were accompanied by rapidly circulating, contested, or misleading information. The study involved 624 adult respondents from selected maritime and coastal regions, including community members and stakeholders with professional connections to maritime affairs. Perceived hybrid maritime threats reached a relatively high mean score ($M = 3.91$, $SD = 0.68$), while information and perception vulnerability remained moderate ($M = 3.46$, $SD = 0.72$). Strategic communication effectiveness ($M = 3.62$, $SD = 0.67$), institutional credibility ($M = 3.71$, $SD = 0.65$), public trust ($M = 3.58$, $SD = 0.70$), societal cohesion ($M = 3.66$, $SD = 0.64$), and national resilience ($M = 3.73$, $SD = 0.63$) showed moderate-to-high levels. The descriptive pattern suggested that respondents recognized significant information-related risks while retaining comparatively positive assessments of institutional and societal resilience capacities.

Table 1. Descriptive Statistics of Maritime Psychological Resilience and National Resilience Variables

Variable	Mean	SD	Interpretation
Perceived Hybrid Maritime Threats	3.91	0.68	High
Information and Perception Vulnerability	3.46	0.72	Moderate
Strategic Communication Effectiveness	3.62	0.67	Moderate–High
Information Literacy and Preparedness	3.54	0.69	Moderate–High
Institutional Credibility	3.71	0.65	Moderate–High
Public Trust	3.58	0.70	Moderate–High
Societal Cohesion	3.66	0.64	Moderate–High
Community Preparedness	3.49	0.71	Moderate
National Resilience	3.73	0.63	Moderate–High
Variable	Mean	SD	Interpretation
Perceived Hybrid Maritime Threats	3.91	0.68	High

Secondary analysis of publicly accessible maritime-security policies, national-resilience frameworks, official reports, and strategic-communication documents revealed broad recognition of cyber threats, disinformation, geopolitical competition, and information manipulation as emerging security concerns. Formal policy documents generally emphasized maritime-domain awareness and operational preparedness more consistently than psychological resilience, community information preparedness, or systematic mechanisms for evaluating public trust. Strategic communication was frequently recognized as important, yet explicit integration among maritime security, information integrity, community resilience, and public confidence remained uneven across the reviewed documents.

The descriptive findings indicate that contemporary maritime insecurity extends beyond physical violations of territorial or jurisdictional boundaries. Respondents perceived maritime incidents as increasingly embedded within broader information environments in which competing interpretations, unverified claims, manipulated content, and geopolitical narratives could influence public understanding. Information vulnerability therefore appeared to function as a secondary layer of exposure that could amplify the social and psychological consequences of maritime security events.

The relatively moderate level of information vulnerability should not be interpreted as evidence of widespread susceptibility to manipulation. Interview and documentary evidence indicated that vulnerability was highly dependent on situational conditions, including uncertainty, delayed official communication, conflicting information, emotional intensity, and the perceived credibility of available sources. Respondents were more likely to experience

uncertainty when verified information was unavailable during the early stages of an incident, suggesting that information vacuums may create greater vulnerability than exposure to misleading content alone.

Analysis of the strategic communication indicators showed that timeliness, consistency, evidence-based communication, and accessibility were among the strongest determinants of perceived communication effectiveness. Respondents expressed greater confidence in information when institutions communicated clearly, acknowledged uncertainty, provided verifiable evidence, and corrected inaccurate information transparently. Communication was perceived as less effective when multiple institutions issued inconsistent statements or when official clarification arrived substantially later than rapidly circulating unofficial narratives.

Qualitative evidence revealed three recurring dimensions of maritime psychological resilience: institutional credibility, community information preparedness, and interagency coordination. Experts emphasized that public trust could not be generated solely during crises but depended on accumulated institutional performance over time. Coastal communities with stronger relationships with local authorities, maritime institutions, and credible information networks were described as better positioned to interpret uncertainty without immediately accepting sensational or unverified narratives.

Structural equation modeling showed that perceived hybrid maritime threats significantly predicted information and perception vulnerability ($\beta = .47, p < .001$). Information vulnerability negatively predicted public trust ($\beta = -.34, p < .001$) and societal cohesion ($\beta = -.29, p < .001$). Strategic communication effectiveness positively predicted institutional credibility ($\beta = .56, p < .001$), while institutional credibility strongly predicted public trust ($\beta = .61, p < .001$). Public trust and societal cohesion both demonstrated significant positive relationships with national resilience, with standardized coefficients of $\beta = .42 (p < .001)$ and $\beta = .35 (p < .001)$, respectively.

Mediation analysis demonstrated that institutional credibility and public trust partially mediated the relationship between strategic communication effectiveness and national resilience. The indirect pathway from strategic communication through institutional credibility and public trust to national resilience was statistically significant. Moderation analysis also showed that information literacy weakened the relationship between exposure to contested information and information vulnerability ($\beta = -.17, p = .006$), while community preparedness reduced the negative association between information vulnerability and societal cohesion ($\beta = -.15, p = .012$). These findings indicate that national resilience was supported by interconnected institutional and societal protective mechanisms rather than communication activities alone.

Correlation analysis identified a strong positive relationship between institutional credibility and public trust ($r = .64, p < .001$), while public trust was positively associated with national resilience ($r = .58, p < .001$). Strategic communication effectiveness was positively correlated with institutional credibility ($r = .59, p < .001$) and information literacy and preparedness ($r = .41, p < .001$). Information and perception vulnerability showed negative relationships with public trust ($r = -.39, p < .001$), societal cohesion ($r = -.36, p < .001$), and national resilience ($r = -.31, p < .001$).

The relationships among the variables suggest that psychological resilience in maritime security operates through a network of mutually reinforcing capacities. Credible communication strengthened institutional trust, while information literacy increased the capacity of individuals to assess competing claims critically. Community preparedness supported collective responses under uncertainty, and societal cohesion reduced the disruptive potential of divisive narratives. No single variable independently explained national resilience, indicating that resilience emerged from interactions among institutional credibility, informed public judgment, social relationships, and adaptive capacity.

A representative maritime incident examined through documentary and interview evidence involved rapidly circulating claims concerning an ambiguous encounter in a strategically sensitive maritime area. In the early phase of the incident, fragmented visual material and competing interpretations circulated through social and digital media before comprehensive official information became available. Public discussion quickly expanded beyond the verified facts, producing speculation about sovereignty, institutional competence, and possible escalation. The information environment became more complex because factual uncertainty was combined with emotionally charged interpretations.

Institutional communication improved during the subsequent phase when relevant authorities issued coordinated factual updates, clarified what had and had not been independently verified, provided supporting contextual information, and corrected inaccurate interpretations without amplifying unverified claims. Interview participants reported that communication became more credible when institutions acknowledged uncertainty rather than presenting premature certainty. Community intermediaries, journalists, and subject-matter experts also contributed to contextualizing the incident, demonstrating that resilience depended on a broader information ecosystem rather than official communication alone.



Figure 1. The Information Vacuum a Psychological Threat

The case illustrates how an information vacuum can transform a limited or ambiguous maritime incident into a wider psychological and social challenge. Uncertainty created space for competing interpretations, while emotionally salient narratives circulated faster than verified information. The principal vulnerability did not arise simply because misleading claims existed; it emerged because audiences lacked timely, credible, and sufficiently contextualized information with which to evaluate those claims.

The later stabilization of public understanding demonstrates the importance of credibility-centered strategic communication. Coordinated clarification reduced uncertainty without requiring manipulative persuasion or attempts to control public opinion. Communication was most effective when it provided evidence, distinguished confirmed facts from unresolved questions, and allowed independent actors to evaluate institutional claims. The case therefore supports a resilience model based on informed judgment and institutional trust rather than passive acceptance of official narratives.

The overall findings support the proposed Maritime Psychological Resilience Strategy Framework: Hybrid Maritime Threats - Information and Perception Vulnerabilities - Strategic Communication and Resilience Measures - Public Trust and Societal Cohesion - National Resilience. Hybrid maritime pressures became more consequential when information uncertainty increased psychological vulnerability, weakened trust, or created opportunities for social fragmentation. Credible strategic communication, institutional transparency, information

literacy, community preparedness, and coordinated responses functioned as protective mechanisms that reduced these effects.

The findings suggest that an effective maritime psychological operations strategy should not be evaluated primarily by its capacity to influence or control public perceptions. Its strategic value lies more fundamentally in strengthening society's capacity to maintain informed judgment, resist manipulation, preserve legitimate trust, and adapt collectively under conditions of uncertainty. Institutional credibility emerged as a strategic asset that cannot be manufactured during a crisis but must be accumulated through consistent performance, transparency, and evidence-based communication over time. Maritime psychological resilience therefore represents an important bridge between operational maritime security and broader national resilience in an era characterized by globalization, contested information environments, and increasingly complex hybrid threats.

The findings demonstrate that contemporary maritime security is increasingly shaped by interactions between physical security challenges and contested information environments. Perceived hybrid maritime threats were associated with greater information and perception vulnerability, particularly when maritime incidents were characterized by uncertainty, fragmented evidence, conflicting narratives, or delayed institutional communication. These patterns indicate that the consequences of maritime threats extend beyond territorial, operational, and economic dimensions into the cognitive and social domains in which citizens interpret events, evaluate institutions, and form judgments about national security.



Figure 2. Information and Perception Vulnerability Mechanism

Information and perception vulnerability emerged as an important mechanism connecting hybrid maritime threats with broader societal outcomes. Higher vulnerability was associated with lower public trust, weaker societal cohesion, and reduced perceptions of national resilience. The findings do not suggest that exposure to contested information automatically produces social instability. Vulnerability became more consequential when individuals lacked reliable information, sufficient contextual knowledge, or confidence in the institutions responsible for communicating during uncertain situations.

Strategic communication effectiveness and institutional credibility emerged as central protective factors. Timely, consistent, evidence-based, and transparent communication strengthened perceptions of institutional credibility, which subsequently supported public trust and national resilience. Communication was particularly effective when institutions distinguished verified facts from unresolved questions and corrected inaccurate claims without presenting uncertainty as certainty. Institutional credibility therefore operated as more than a

communication outcome; it functioned as a strategic resource that influenced how subsequent information was interpreted.

Information literacy, community preparedness, and societal cohesion also reduced the disruptive effects associated with contested maritime information. Individuals and communities with stronger capacities to assess sources, verify claims, tolerate uncertainty, and access credible information were less vulnerable to misleading narratives. The findings support the proposed Maritime Psychological Resilience Strategy Framework by showing that national resilience emerges through interactions among institutional capability, information integrity, public trust, informed judgment, and collective adaptive capacity.

The findings are consistent with hybrid-threat scholarship emphasizing that contemporary strategic competition frequently combines conventional and non-conventional instruments. Cyber activities, economic pressure, disinformation, diplomatic signaling, information manipulation, and ambiguous actions may operate simultaneously with conventional security measures. The present study extends this perspective into the maritime domain by demonstrating that information effects should not be treated as secondary consequences of physical incidents. Perceptions and narratives can become integral components of the strategic environment in which maritime events acquire political and societal meaning.

The results also correspond with strategic-communication research emphasizing credibility, coherence, transparency, and institutional coordination. Previous approaches have often evaluated strategic communication according to message effectiveness or persuasive impact. The present findings suggest that communication effectiveness in resilience-oriented maritime security depends less on controlling interpretations than on creating conditions in which citizens can make informed judgments. Credibility therefore becomes more sustainable when communication supports verification and critical assessment rather than demanding passive acceptance.

The findings differ from narrow interpretations of psychological operations that emphasize one-directional persuasion or behavioral influence. Such approaches may have relevance within specific military contexts, but they are insufficient as a general framework for strengthening national resilience in democratic societies. Domestic resilience depends on maintaining institutional legitimacy, public agency, and access to reliable information. Communication strategies that rely excessively on manipulation may generate short-term compliance while weakening the trust required for long-term resilience.

The results also qualify the assumption that disinformation can be countered primarily through fact-checking or message correction. Corrective information remains important, but the findings indicate that resilience depends on a wider ecosystem involving institutional credibility, information literacy, community preparedness, social cohesion, and interagency coordination. A technically accurate correction may have limited impact when the institution delivering it lacks public credibility. Information integrity therefore cannot be separated from the broader quality of governance and institutional relationships.

The findings signify that maritime security has acquired an increasingly important cognitive dimension. Sovereignty, territorial integrity, maritime resources, and freedom of navigation remain material realities, yet public understanding of maritime events is mediated through information systems that can accelerate, simplify, distort, or politicize complex developments. National security institutions must therefore protect not only physical maritime spaces but also the conditions under which society forms informed judgments about those spaces.

The results signify that uncertainty itself can become a strategic vulnerability. Maritime incidents often unfold in environments where evidence is incomplete, verification requires time, and different actors provide competing interpretations. Public expectations for immediate information can conflict with the institutional need for accurate verification. This temporal gap

creates an information vacuum in which speculation may become more influential than evidence, particularly when emotionally charged narratives circulate rapidly through digital platforms.

The central role of institutional credibility signifies that trust should be understood as a form of resilience infrastructure. Trust cannot be produced instantly through persuasive messaging during a crisis. It develops through repeated experiences of institutional competence, honesty, transparency, responsiveness, and accountability. Institutions that acknowledge uncertainty and correct their own errors may ultimately build stronger credibility than institutions that attempt to project absolute certainty in ambiguous situations.

The protective role of information literacy signifies that resilient societies require citizens capable of exercising critical judgment rather than merely receiving official information. National resilience should not be equated with uniformity of opinion or unquestioning confidence in government institutions. A psychologically resilient society can tolerate disagreement while maintaining shared commitments to evidence, verification, lawful institutions, and constructive public reasoning. Critical citizenship and national resilience are therefore complementary rather than contradictory.

The primary strategic implication is that maritime psychological operations should be integrated into broader national-resilience architecture through a clearly defined resilience-oriented framework. Psychological dimensions of maritime security should encompass strategic communication, counter-disinformation, public information, crisis communication, information literacy, and community preparedness. Clear conceptual boundaries are necessary to prevent defensive resilience activities from being conflated with covert manipulation or unrestricted influence operations.

Maritime institutions should establish coordinated communication mechanisms before crises occur. Roles for verification, public communication, interagency coordination, correction of inaccurate information, and communication with affected communities should be clearly defined. Institutional coordination becomes particularly important when maritime incidents involve multiple authorities whose responsibilities overlap. Contradictory official statements can create uncertainty that hostile or misleading narratives may exploit.

Policymakers should treat institutional credibility as a measurable component of national-security preparedness. Assessments of maritime resilience should therefore include indicators of public trust, communication credibility, information accessibility, community preparedness, and confidence in institutional response. Operational readiness alone provides an incomplete picture when hybrid threats seek to exploit social and informational vulnerabilities rather than achieve immediate physical objectives.

Coastal communities should be recognized as active resilience actors rather than passive recipients of security information. Local knowledge, trusted community networks, educational institutions, journalists, civil society, and maritime stakeholders can contribute to early clarification, contextual understanding, and resistance to misleading narratives. Community engagement is most effective when it is continuous and reciprocal rather than activated only when institutions need public support during crises.

The relationship between hybrid maritime threats and information vulnerability can be explained by the ambiguity inherent in many contemporary security situations. Hybrid activities are often designed or interpreted in ways that make intention, attribution, and escalation difficult to determine. Maritime environments add further complexity because incidents may occur in remote locations, involve limited independent observation, and intersect with contested legal or geopolitical claims. These conditions create fertile environments for competing narratives.

Strategic communication strengthened resilience because credible information reduces uncertainty and increases perceived institutional competence. Individuals are better able to interpret complex events when institutions provide timely evidence, explain what is known,

identify what remains uncertain, and communicate how verification is being conducted. Such practices reduce the cognitive space in which speculation can acquire unwarranted authority.

Institutional credibility predicted public trust because audiences evaluate messages partly through prior judgments about the source. Accurate information may be rejected when delivered by institutions perceived as unreliable, while misleading claims may gain traction when promoted by socially trusted actors. Communication effectiveness therefore depends not only on message content but also on accumulated relationships between institutions and the communities they serve.

Information literacy and community preparedness reduced vulnerability because they increased the capacity to manage uncertainty without immediately accepting simplified explanations. Individuals with stronger verification habits can compare sources, distinguish evidence from interpretation, and recognize emotionally manipulative content. Prepared communities also possess social networks through which information can be contextualized and challenged. These capacities transform resilience from a purely institutional function into a shared societal capability.

Future research should develop longitudinal measures of maritime psychological resilience to determine how public trust, information vulnerability, and institutional credibility change before, during, and after maritime crises. Cross-sectional evidence can identify relationships but cannot fully explain how resilience develops over time. Longitudinal studies could reveal whether repeated exposure to contested information produces greater skepticism, stronger verification practices, declining trust, or different combinations of these outcomes.

Future studies should conduct comparative analyses across coastal and archipelagic states facing different maritime challenges. Geographic conditions, political systems, media environments, digital connectivity, institutional arrangements, and levels of geopolitical competition may shape psychological resilience differently. Comparative research could distinguish broadly applicable resilience principles from strategies that require adaptation to national and local contexts.

Future research should experimentally evaluate communication strategies without assuming that more communication is always better. Studies could compare the effects of rapid preliminary statements, evidence-based updates, uncertainty disclosure, visual verification materials, correction strategies, and community-based communication (Momeni & Gorji, 2025). Outcome measures should include not only immediate trust but also information retention, resistance to misinformation, willingness to revise inaccurate beliefs, and long-term institutional credibility.

Future scholarship should ultimately move beyond asking how can maritime psychological operations influence public perception toward the more defensible question of “How can maritime institutions and societies build the capacity to withstand manipulation, preserve informed judgment, maintain legitimate trust, and adapt collectively under conditions of strategic uncertainty. This shift redefines psychological strategy from an instrument of perception control into an architecture of resilience (Darwita, 2025). Effective maritime psychological strategy should therefore be judged not by whether governments can make citizens believe a preferred narrative, but by whether societies remain capable of distinguishing evidence from manipulation, questioning claims without descending into generalized distrust, maintaining cohesion without suppressing legitimate disagreement, and responding collectively to genuine threats. Such an approach positions information integrity, institutional credibility, critical citizenship, and adaptive societal capacity as strategic foundations of national resilience in the era of globalization and hybrid threats.

CONCLUSION

The most important finding of this study is that the effectiveness of maritime psychological operations in strengthening national resilience depends less on the capacity to control public perceptions than on the ability to protect information integrity, sustain institutional credibility, and strengthen society's capacity for informed judgment under uncertainty. Hybrid maritime threats became more consequential when ambiguous incidents, fragmented information, misleading narratives, and delayed institutional communication increased information and perception vulnerability, which subsequently weakened public trust and societal cohesion. Credible strategic communication, information literacy, community preparedness, and coordinated institutional responses reduced these vulnerabilities and strengthened resilience. Institutional credibility emerged as a particularly important strategic asset because public responses to contested information were shaped not only by message content but also by accumulated judgments regarding the competence, integrity, and reliability of the institutions providing that information. Maritime psychological resilience should therefore be understood as a collective capacity to withstand manipulation, manage uncertainty, preserve legitimate trust, and maintain adaptive social cohesion rather than as the passive acceptance of strategically constructed narratives.

The principal contribution of this research is both conceptual and methodological. Conceptually, the study advances a Maritime Psychological Resilience Strategy Framework represented by the pathway Hybrid Maritime Threats - Information and Perception Vulnerabilities - Strategic Communication and Resilience Measures - Public Trust and Societal Cohesion - National Resilience. This framework reframes maritime psychological operations from a predominantly influence-centered approach toward a resilience-centered model grounded in information integrity, credible communication, critical public judgment, institutional legitimacy, and societal adaptability. Methodologically, the integration of quantitative analysis, expert interviews, policy and document analysis, and methodological triangulation provides a multidimensional approach for examining the relationship between information threats and national resilience. This contribution bridges maritime-security studies, hybrid-threat theory, strategic communication, information resilience, and national-resilience scholarship while providing an analytical foundation for distinguishing legitimate defensive communication and counter-disinformation activities from manipulative influence practices that may ultimately undermine the public trust they seek to protect.

The study is limited by its cross-sectional design, reliance on perceptual measures, selected maritime and coastal contexts, and dependence on publicly accessible documents that may not fully represent the complexity of institutional responses to hybrid threats. These limitations restrict causal interpretation and the generalizability of the findings across different geopolitical, cultural, and maritime-security environments. Future research should employ longitudinal, comparative, experimental, and crisis-based designs to examine how information vulnerability, institutional credibility, public trust, and societal cohesion change before, during, and after actual maritime incidents. Comparative studies across coastal and archipelagic states should investigate how political systems, media environments, digital infrastructures, geopolitical pressures, and community characteristics influence psychological resilience. Future scholarship should also develop measurable indicators of maritime psychological resilience and evaluate the effectiveness of evidence-based communication, uncertainty disclosure, information-literacy interventions, interagency coordination, and community preparedness. Such research can support a more ethically defensible and strategically sustainable maritime-security architecture in which national resilience is strengthened through informed citizens, credible institutions, resilient communities, and the capacity to withstand hybrid influence without sacrificing openness, critical judgment, or democratic legitimacy.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the author(s) used Grammarly to assist in improving grammar, language quality, and overall readability of the text. After using this tool, the author(s) carefully reviewed and edited the content as necessary and take full responsibility for the content of the publication

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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