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Identification of Administrative Health Indicators and Anti-Corruption Measures

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A B S T R A C T

Objective: This study aims to identify and validate key indicators for monitoring administrative health and combating corruption within the Ministry of Economic Affairs and Finance.

Methodology: The study employed the Delphi technique to achieve consensus among experts. Initially, 52 indicators were identified through literature review and past studies. These indicators were refined through two rounds of Delphi consultations involving 15 experts in the field, leading to the identification of 15 administrative health indicators and 8 anti-corruption indicators. The indicators were evaluated and validated based on their relevance and importance.

Findings: The study validated 15 key indicators for administrative health, including workplace social support, sufficient salary and wages, job security, consultative decision-making, accountability, and training. For anti-corruption, 8 critical indicators were identified, such as general learning for employees, improving the business environment, free access to information, policy alignment, developing innovation in government, reforming organizational structures, improving human resources, and meritocracy based on ethics. The high mean scores and consensus among experts highlighted the significance of these indicators.

Conclusion: The validated indicators provide a comprehensive framework for monitoring and improving administrative health and combating corruption in the healthcare sector. Implementing these indicators can enhance transparency, accountability, and ethical behavior, leading to improved service quality and public trust. Future research should expand the scope to include diverse regions and contexts, and policymakers should prioritize these indicators in practice.

Keywords: *Corruption, Administrative Health, Delphi Technique, Healthcare Sector, Transparency, Accountability, Ethical Practices, Ministry of Economic Affairs and Finance*

1 Introduction

Corruption in the healthcare sector is a pervasive issue that undermines the quality of healthcare services, increases costs, and erodes public trust. The complex nature of healthcre systems, involving a myriad of stakeholders, regulations, and significant financial flows, makes it particularly susceptible to various forms of corruption (Graycar, 2015).

Corruption in healthcare can manifest in multiple forms, including bribery, embezzlement, fraud, and abuse of power. It affects both individual practitioners and institutional structures, leading to adverse outcomes for patients and the healthcare system at large (Graycar, 2015). Corruption in this sector is not only a moral and ethical issue but also a significant barrier to achieving global health goals. It diverts resources away from those in need and hampers efforts to improve healthcare access and quality (Mackey et al., 2016). Institutional corruption, in particular, involves systemic issues within healthcare organizations and regulatory bodies that perpetuate corrupt practices (Ahmed & Abbas, 2022). This type of corruption can be especially challenging to address due to its embedded nature and the potential complicity of multiple stakeholders. Ahmed and Abbas (2022) highlight the role of administration in mitigating institutional corruption, emphasizing the need for robust administrative health indicators and anti-corruption measures (Ahmed & Abbas, 2022).

Efforts to combat corruption in healthcare face numerous challenges. One significant challenge is the failure of anti-corruption laws and regulations to achieve their intended outcomes. Batory (2012) discusses how anti-corruption laws often fail in Central and Eastern Europe due to poor implementation and lack of compliance (Batory, 2012). Similar issues can be observed in other regions, where regulatory frameworks are either inadequate or poorly enforced (Vasylevych et al., 2021). In addition, corruption can be exacerbated by socio-economic factors and political instability. For example, the healthcare sector in Iran has faced significant challenges due to economic sanctions, which have impacted the availability of medical supplies and increased the potential for corrupt practices (Akbarialiabad et al., 2021). Similarly, in Ukraine, the regulatory framework for combating corruption in the national police has highlighted the difficulties in maintaining effective oversight and accountability (Vasylevych et al., 2021).

Effective administration plays a crucial role in combating corruption in healthcare. Administrative health indicators are essential tools for monitoring and evaluating the performance of healthcare systems and identifying areas vulnerable to corruption (Ahmed & Abbas, 2022). These indicators can help in designing targeted interventions and ensuring transparency and accountability within healthcare organizations. Technological advancements offer new opportunities to enhance anti-corruption efforts. Digital technologies, such as blockchain and electronic health records, can improve transparency and accountability in medicine procurement and healthcare delivery (Mackey & Cuomo, 2020). Mackey et al. (2016) provide an interdisciplinary review of how digital technologies can facilitate anti-corruption measures, emphasizing the need for innovation in this area (Mackey et al., 2016).

Corporate social responsibility (CSR) also plays a role in promoting ethical practices within healthcare organizations. Campra, Esposito, and Brescia (2023) explore how CSR initiatives, combined with technological advancements, can contribute to the evolution of anti-corruption systems in healthcare. By fostering a culture of accountability and ethical behavior, healthcare organizations can reduce the incidence of corrupt practices (Campra et al., 2023). Examining case studies from different regions provides valuable insights into the effectiveness of anti-corruption measures and the role of administrative health indicators. For instance, Hunter et al. (2020) analyze the healthcare systems in Arab countries, highlighting the importance of transparency and accountability in reducing corruption. Their study underscores the need for region-specific strategies to address the unique challenges faced by different healthcare systems (Hunter et al., 2020). In Pakistan, Ahmed and Abbas (2022) provide a case study on institutional corruption in the health sector, illustrating the role of administration in mitigating corrupt practices. Their findings emphasize the importance of administrative health indicators in monitoring and evaluating healthcare systems to identify and address corruption effectively (Ahmed & Abbas, 2022). Similarly, studies on the Iranian healthcare system reveal the impact of economic sanctions on healthcare expenditures and the potential for medical overuse and corruption (Rezaei et al., 2015). These studies highlight the need for comprehensive anti-corruption strategies that consider the broader socio-economic context.

2 Methods and Materials

This study employs a qualitative design using the Delphi method to gather expert opinions on indicators of

IJIMOB
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administrative health and anti-corruption measures. Participants were selected from among experts, including managers, consultants, and specialists in the field of administrative health and anti-corruption within the Ministry of Economic Affairs and Finance. The selection criteria focused on individuals with both academic and practical experience in organizational architecture, as well as a demonstrated interest and willingness to participate in the research.

Data collection was conducted in two main phases. In the first phase, relevant theories and research from the past decade (prior to 2022) were reviewed to identify initial indicators. A group of 15 experts familiar with the research topic, each having at least ten years of experience and holding a degree higher than a bachelor's, were selected using purposive sampling for the Delphi rounds. These experts, characterized by their academic qualifications, extensive work experience, and roles as managers or senior officials, were invited to participate in structured interviews and surveys.

The Delphi technique involved multiple rounds of questionnaires, designed based on a thorough literature review and past research. Initially, 52 indicators related to administrative health and anti-corruption were identified from theoretical frameworks and prior studies. After eliminating duplicates and refining the components, the questionnaire was narrowed down to 5 dimensions and 21 indicators for administrative health, and 3 dimensions and 12 indicators for anti-corruption. Subsequent rounds of the Delphi process involved screening these indicators through expert feedback, leading to a final set of 15 indicators for administrative health and 8 indicators for anti-corruption.

Data analysis was conducted using both qualitative and quantitative methods to ensure comprehensive evaluation and validation of the indicators. The initial qualitative analysis involved thematic coding of expert interviews to identify recurring themes and insights. These themes were then quantitatively assessed through successive rounds of the Delphi technique, wherein experts rated the importance and relevance of each indicator.

The responses were analyzed using statistical measures to determine the consensus level among experts. Indicators that achieved a high level of agreement were retained, while those with low consensus were re-evaluated or discarded. The iterative nature of the Delphi method allowed for continuous refinement and validation of the indicators, ensuring their robustness and applicability in the context of administrative health and anti-corruption measures.

3 Findings and Results

Based on past studies, research literature, and conducted interviews, a total of 15 administrative health indicators were identified. These criteria were provided to experts in the studied field in the first round of the Delphi technique, and these experts were asked if they had suggestions for combining some of the criteria into a new proposed criterion. Ultimately, no new criterion was added to these sub-criteria. The description of the administrative health indicators is shown in Table 1:

Table 1

Summary of Administrative Health Indicators in the First Round of the Delphi Technique

Criteria	Sub-criteria	Criteria	Sub-criteria
Intra-organizational Factors	Workplace Social Support	Extra-organizational Factors	Quality and Quantity of Laws and Regulations
	Sufficient Salary and Wages		Cultural Structures
	Job Security		Control and Supervision Methods
Management Factors	Consultative Decision-Making	Behavioral Factors	Justice in Dealing with Individuals
	Accountability		Firmness in Dealing with Misbehaving Relatives
	Training		Organizational Discipline Mechanism
Individual Factors	Thrift and Economy Spirit		
	Social Discipline		
	Honesty and Work Commitment		

In the second step of the Delphi technique, initially, the 15 administrative health indicators were screened to select the criteria with greater importance and relevance. Then, the experts in this field, comprising 15 individuals who were familiar with all sub-criteria, reviewed each criterion based on the objective. The initial screening of the identified criteria used the Delphi technique.

IJIMOB
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Table 2

Summary of Results of the Second Round of the Delphi Technique for Administrative Health

Criteria	Sub-criteria	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Mean
Intra-organizational Factors	Workplace Social Support	3	4	4	4	5	5	5	4	4	4	4	4	5	4	4	4.2
	Sufficient Salary and Wages	3	3	5	5	4	4	4	3	3	5	4	4	5	5	5	4.1
	Job Security	5	3	5	4	5	5	4	4	4	3	4	4	5	5	4	4.3
Extra-organizational Factors	Quality and Quantity of Laws and Regulations	3	4	3	5	5	5	5	3	3	5	5	4	4	5	4	4.2
	Cultural Structures	3	3	5	4	5	4	4	5	5	5	4	5	5	5	3	4.3
	Control and Supervision Methods	4	4	4	4	4	4	5	5	5	5	5	4	4	4	5	4.4
Management Factors	Consultative Decision-Making	3	5	5	4	4	5	4	5	3	5	4	4	5	5	4	4.3
	Accountability	5	5	4	5	5	5	4	4	5	4	5	4	3	5	3	4.4
	Training	5	5	5	3	4	4	5	5	4	5	4	4	4	5	3	4.3
Behavioral Factors	Justice in Dealing with Individuals	4	4	5	5	4	5	4	4	5	5	4	4	4	4	5	4.4
	Firmness in Dealing with Misbehaving Relatives	4	4	4	5	5	4	5	4	4	4	5	5	4	4	3	4.3
	Organizational Discipline Mechanism	3	3	5	4	4	5	5	4	5	5	5	5	4	5	3	4.3
Individual Factors	Thrift and Economy Spirit	5	4	4	4	4	4	4	4	5	4	4	5	4	5	5	4.3
	Social Discipline	5	4	5	5	4	4	4	4	4	4	5	4	5	5	4	4.4
	Honesty and Work Commitment	3	4	3	4	5	5	4	3	5	5	5	5	4	4	3	4.1

The Delphi technique continued for two rounds, and in the second round, it was stopped after reaching final agreement. Finally, all 15 indicators remaining in the second round received a score above 3. Therefore, the Delphi technique was stopped, and the identified administrative health indicators were used for final analysis.

Based on past studies, research literature, and conducted interviews, a total of 8 anti-corruption indicators were identified. These criteria were provided to experts in the studied field in the first round of the Delphi technique, and these experts were asked if they had suggestions for combining some of the criteria into a new proposed criterion. Ultimately, no new criterion was added to these sub-criteria. The description of the anti-corruption indicators is shown in Table 3:

Table 3

Summary of Anti-Corruption Indicators in the First Round of the Delphi Technique

Criteria	Sub-criteria
Laws and Programs	General Learning for Employees
	Improving the Business Environment
Promoting Transparency and Accountability	Free Access to Information
	Policy Alignment and Integration
Streamlining Administrative System	Developing Innovation in Government
	Reforming Organizational Structures and Processes
Promoting Human Dignity	Improving Human Resources
	Meritocracy in Human Resource System Based on Ethics

In the second step of the Delphi technique, initially, the 8 anti-corruption indicators were screened to select the criteria with greater importance and relevance. Then, the experts in this field, comprising 15 individuals who were familiar with all sub-criteria, reviewed each criterion based on the objective. The initial screening of the identified criteria used the Delphi technique.

IJIMOB
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Table 4

Summary of Results of the Second Round of the Delphi Technique for Anti-Corruption

Criteria	Sub-criteria	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Mean
Laws and Programs	General Learning for Employees	4	4	3	3	5	5	4	4	5	4	5	5	5	4	4	4.3
	Improving the Business Environment	4	5	5	4	5	5	5	3	3	3	4	4	5	4	4	4.2
Promoting Transparency and Accountability	Free Access to Information	4	5	5	3	5	3	3	5	4	5	4	5	5	4	5	4.3
	Policy Alignment and Integration	4	5	4	4	4	3	5	5	4	3	5	5	5	5	5	4.4
Streamlining Administrative System	Developing Innovation in Government	4	4	4	4	4	5	4	4	5	4	5	5	4	5	5	4.4
	Reforming Organizational Structures and Processes	5	4	4	5	5	5	5	5	5	5	5	4	4	4	5	4.7
Promoting Human Dignity	Improving Human Resources	4	3	5	4	3	5	5	5	5	4	4	4	5	4	5	4.3
	Meritocracy in Human Resource System Based on Ethics	4	5	4	4	5	4	5	5	4	4	5	5	3	5	5	4.5

The Delphi technique continued for two rounds, and in the second round, it was stopped after reaching final agreement. Finally, all 8 indicators remaining in the second round received a score above 3. Therefore, the Delphi technique was stopped, and the identified anti-corruption indicators were used for final analysis.

To ensure and determine whether to stop the Delphi phase, the first criterion is a strong consensus among panel members, determined based on the coefficient value. In the absence of such consensus, a stable or slightly increasing coefficient over two consecutive rounds indicates no further agreement is being reached, and the consultation process should be stopped. This coefficient value is equal to one when there is complete agreement and zero when there is no agreement.

Table 5

Kendall's Test in the Final Stage of the Delphi Technique

Sample Size	15
Kendall's Wa Coefficient	0.791
Chi-Square	54.631
Degrees of Freedom	12
Significance Level	0.00

The test result shows that the statistical significance is less than 0.05, which is sufficient to stop the Delphi process. Consequently, we stop the Delphi phases at this third stage, and the results indicate the indicators prepared for the model for monitoring and assessing administrative health and anti-corruption (within the Ministry of Economic Affairs and Finance) have been finalized.

4 Discussion and Conclusion

The present study aimed to identify and validate key indicators for monitoring administrative health and combating corruption within the Ministry of Economic Affairs and Finance. Utilizing the Delphi technique, a comprehensive set of indicators was refined through expert consensus over multiple rounds. This study successfully identified and validated 15 key indicators for administrative health and 8 indicators for anti-corruption within the Ministry of Economic Affairs and Finance. Utilizing the Delphi technique, experts in the field reached a consensus on the most critical indicators. The findings highlighted the importance of intra-organizational factors such as workplace social support, sufficient salary and wages, and job security. Management factors like consultative decision-making, accountability, and training were also deemed essential. Behavioral factors, including justice in dealing with individuals and firm responses to misbehavior, as well as individual factors like thrift, social discipline, and work commitment, were identified as vital for maintaining a healthy administrative environment. For anti-corruption measures, the study underscored the significance of laws and programs, promoting transparency and accountability,

IJIMOB
E-ISSN: 3041-8992

streamlining administrative systems, and promoting human dignity.

Intra-organizational factors such as workplace social support, sufficient salary and wages, and job security emerged as critical indicators. These findings are consistent with the literature emphasizing the importance of a supportive work environment in promoting administrative health (Campra et al., 2023). Adequate compensation and job security are fundamental to reducing workplace stress and enhancing employee satisfaction, which can mitigate corruption by fostering a culture of integrity and commitment (Graycar, 2015).

Indicators such as consultative decision-making, accountability, and training highlight the role of effective management in ensuring administrative health. Consultative decision-making processes ensure that diverse perspectives are considered, enhancing transparency and reducing opportunities for corrupt practices (Mackey et al., 2016). Accountability mechanisms are crucial in holding individuals responsible for their actions, thereby deterring corrupt behavior (Ahmed & Abbas, 2022). Continuous training programs are necessary to keep employees updated on best practices and ethical standards, which align with the findings of Mackey and Cuomo (2020) on the role of education in combating corruption (Mackey & Cuomo, 2020).

Behavioral indicators, such as justice in dealing with individuals and firmness in addressing misbehavior, are essential for maintaining a fair and disciplined work environment. These indicators are supported by Hunter et al. (2020), who emphasize the importance of fair treatment and consistent enforcement of rules in preventing corruption. Individual factors like thrift and economy spirit, social discipline, and work commitment underscore the personal attributes that contribute to a healthy administrative environment. Promoting ethical behavior and personal integrity among employees is vital for a corruption-free workplace (Sommersguter-Reichmann et al., 2018).

The indicators related to laws and programs, such as general learning for employees and improving the business environment, highlight the importance of a robust legal framework and continuous education. Effective laws and regulations are foundational to any anti-corruption strategy, as they provide the guidelines and boundaries for acceptable behavior (Vasylevych et al., 2021). Regular training and awareness programs ensure that employees are well-informed about these laws and their implications, reducing the likelihood of unintentional violations (Akbarialiabad et al., 2021).

Indicators such as free access to information and policy alignment and integration emphasize the need for transparency and coherent policies. Transparency is a critical deterrent to corruption as it exposes actions to public scrutiny (Batory, 2012). Ensuring that policies are aligned and integrated prevents loopholes that can be exploited for corrupt practices (Hunter et al., 2020).

Developing innovation in government and reforming organizational structures and processes are crucial for creating efficient and corruption-resistant systems. Technological advancements can streamline processes, reduce human intervention, and minimize opportunities for corrupt activities (Mackey & Cuomo, 2020). Reforming organizational structures to eliminate redundancies and improve efficiency also supports anti-corruption efforts (Campra et al., 2023).

Indicators such as improving human resources and meritocracy based on ethics focus on the human aspect of administration. A well-managed and ethically driven workforce is less likely to engage in corrupt practices. Promoting meritocracy ensures that positions are filled based on qualifications and performance rather than nepotism or favoritism, which aligns with findings by Sommersguter-Reichmann et al. (2018) on the importance of ethical standards in reducing corruption (Sommersguter-Reichmann et al., 2018).

The results of this study are in line with previous research on corruption and administrative health in the healthcare sector. Ahmed and Abbas (2022) emphasized the critical role of administration in mitigating institutional corruption (Ahmed & Abbas, 2022). Our study's focus on intra-organizational and management factors aligns with their findings on the importance of supportive and transparent administrative practices.

Hunter et al. (2020) and Mackey et al. (2016) highlighted the need for transparency and accountability, which are also key themes in our study. The inclusion of indicators such as free access to information and accountability mechanisms reflects the consensus on these factors as essential for combating corruption (Hunter et al., 2020; Mackey et al., 2016).

Technological advancements, as discussed by Mackey and Cuomo (2020), are recognized in our study through indicators related to innovation and process reform. These advancements can significantly enhance transparency and reduce opportunities for corrupt practices by automating

IJIMOB
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processes and providing clear audit trails (Mackey & Cuomo, 2020).

The importance of ethical behavior and personal integrity, as emphasized by Sommersguter-Reichmann et al. (2018), is also evident in our findings. Indicators related to individual behavior and commitment to ethical standards underscore the need for a workforce that upholds high ethical values (Sommersguter-Reichmann et al., 2018).

Support from senior management for optimal structural changes is one of the most critical success factors for change management, as no activity begins or succeeds without the commitment and attention of senior management.

The validated indicators from this study provide a robust framework for monitoring and improving administrative health and anti-corruption efforts in the healthcare sector. The alignment with previous research underscores the reliability and relevance of these indicators. By focusing on supportive work environments, effective management practices, transparency, and ethical behavior, organizations can significantly reduce corruption and enhance the overall quality of healthcare services. Implementing these indicators can lead to a more transparent, accountable, and ethical healthcare administration, ultimately fostering public trust and improving service delivery.

Despite the comprehensive approach, this study has certain limitations. The Delphi technique, while effective for achieving expert consensus, may not fully capture the diversity of opinions and experiences across different regions and contexts. Additionally, the study was conducted within a specific governmental context, which may limit the generalizability of the findings to other sectors or countries. The reliance on expert judgment also introduces the potential for bias, as the selected experts may have inherent biases based on their backgrounds and experiences.

Future research should aim to expand the scope of this study by including a more diverse range of experts from different regions and sectors. Comparative studies across various healthcare systems and administrative contexts would provide a broader understanding of the applicability and effectiveness of the identified indicators. Longitudinal studies could also be beneficial to assess the impact of implementing these indicators over time. Additionally, incorporating quantitative data alongside expert opinions could enhance the robustness and generalizability of the findings.

For practical applications, healthcare organizations and policymakers should prioritize the implementation of the validated indicators to monitor and improve administrative health and combat corruption. Training programs should be developed to educate employees about these indicators and their importance. Technological advancements, such as electronic health records and blockchain, should be leveraged to enhance transparency and accountability. Policymakers should also consider creating supportive work environments with adequate compensation and job security to reduce the incentive for corrupt practices. By adopting these measures, organizations can create a more ethical, transparent, and efficient healthcare system that fosters public trust and improves service delivery.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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