

STUDY PROTOCOL

Training and Development in Healthcare Institutions: Study Protocol of a Sequential Explanatory Mixed Methods Research Exploring Healthcare Professionals Perceptions

Alaa Alshraa¹, Aidalina Mahmud¹, Anita Abd Rahman¹, Anusuiya Subramaniam², Main Alolayyan³

¹ Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia.

² School of Business and Economics, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia.

³ Department of Health Management and Policy, Faculty of Medicine, Jordan University of Science and Technology, 22110 Irbid, Jordan.

ABSTRACT

Introduction: The training and development (T&D) process is critical for enhancing healthcare professionals' (HCPs') competencies and performance. However, its effectiveness largely depends on how HCPs perceive it, as these perceptions shape their attitudes, behaviors, and workplace outcomes. This research aims to investigate and explain HCPs' perceptions of the T&D process and identify key factors influencing these perceptions in Jordanian public hospitals. **Methods:** An explanatory sequential mixed-methods design will be employed, integrating quantitative and qualitative methods in two distinct phases. In the quantitative phase, a cross-sectional survey will be administered to a stratified random sample of 402 HCPs from six public hospitals across three major geographic regions. The quantitative data will be analyzed using descriptive statistics, correlation, and multiple regression. In the qualitative phase, semi-structured interviews will be conducted with a purposive subsample of the survey participants to explore the contextual and experiential dimensions underlying observed perception patterns. Thematic analysis will guide qualitative interpretation. Findings will be integrated during interpretation to draw meta-inferences that connect statistical trends with lived experiences. **Discussion:** This research will offer evidence-based insights on how the T&D process is perceived by HCPs, filling a critical gap in T&D literature. Findings are expected to inform policymakers and healthcare administrators about critical areas for improvement, potentially enhancing the health workforce and hospitals' outcomes.

Malaysian Journal of Medicine and Health Sciences (2026) 22(3): 1-10.doi:10.47836/mjmh.v22i3.1599

Keywords: Healthcare Professionals, Training and Development, Perception, Mixed Methods, Jordan

Corresponding Author:

Alaa Alshraa

Email: aalshraah@uas.com.sa

Tel: 00966567752458

INTRODUCTION

The availability of qualified healthcare professionals (HCPs) is critical and strategic in a rapidly changing healthcare environment. Developing and maintaining their competencies depends on adequate training and development (T&D), which is a strategic human resource management (HRM) function in healthcare institutions (1, 2). T&D refers to the organizational responsibility for equipping employees with the knowledge, skills, and abilities required for current roles and ongoing professional growth (3).

According to the World Health Organization (WHO), healthcare systems globally face challenges in the

availability, acceptability, accessibility, and quality of the HCPs (4). Evidence from the Middle East highlights a growing mismatch between their competencies and the evolving demands of healthcare delivery (5). These issues underscore the ongoing challenge of establishing a structured and impactful T&D process, even as its role becomes increasingly critical. In this context, the T&D process is a deliberate and methodical approach involving a series of interconnected stages that ensure systematic development and continuous improvement of T&D programs (3, 6). Research has shown that the effectiveness of the T&D process is shaped by how employees experience and interpret it (7). Accordingly, even a well-intentioned or well-structured process may fall short if the HCPs do not perceive it as systematic, coherent, and effectively implemented.

This gap is particularly evident in Jordan, where public hospitals face structural limitations and rising demands. Studies have shown that while the T&D process exists

in Jordan's public hospitals, little is known about how HCPs interpret it in practice. This lack of insight into their perspectives may partly explain why T&D efforts often fail to address the specific requirements of varied healthcare roles or to integrate current clinical knowledge and practices (8). Such deficiencies hinder HCPs' ability to deliver patient-centered, evidence-based care and may ultimately compromise service outcomes (9).

In this research, T&D process perceptions refer to HCPs' subjective experiences and opinions regarding the various practices under each stage (10). These perceptions influence HCPs' attitudes toward T&D, shape their engagement with the programs, and affect how consistently they translate acquired knowledge and skills into workplace behaviors (7, 10). Therefore, this research shifts the focus from how the T&D process is intended or structured to how it is perceived and experienced by HCPs. This approach offers practical implications for a more responsive, contextually grounded T&D process that aligns with workforce expectations and needs.

Research Questions

1. What are the HCPs' perceptions of the T&D process in Jordanian public hospitals, and which factors influence these perceptions?
2. How do HCPs explain their perceptions of the T&D process and the factors that influence these perceptions?
3. To what extent do the qualitative results (themes) confirm and explain in-depth the quantitative results (perceptions and factors)?

Conceptual Framework

The study's conceptual framework integrates two theoretical models to guide the formulation of research questions, the operationalization of variables, and the integration of quantitative and qualitative findings. The dependent variable, HCPs' perceptions of the T&D process, is examined through the lens of the ADDIE model (11).

The ADDIE model is adopted here to structure how the T&D process perception is measured from the end-users' perspective. The model includes five stages:

Analysis, Design, Development, Implementation, and Evaluation, each representing a structured step in managing and executing T&D programs (11). The analysis stage involves identifying learning needs and setting clear objectives. In the design stage, instructional strategies, content, and assessments are planned. The development stage focuses on creating and assembling the learning materials. During implementation, the T&D program is delivered to the intended audience. Finally, the evaluation stage assesses the effectiveness of the T&D program and guides necessary improvements. The process is comprehensive and aims to enhance HCPs' performance, boost productivity, and support achieving institutional goals (3).

Each stage is operationalized through observable indicators that reflect how HCPs experience and interpret the stage's presence and coherence in practice. While helpful in providing structure, we acknowledge that the ADDIE model is a top-down, linear framework and may not fully capture the dynamic, experiential, and context-specific ways HCPs interact with the T&D process.

Given this limitation, the research integrates the Factors Influencing Perception Model (FIPM), which offers a bottom-up perspective that accounts for individual and contextual variation (12). The research draws on the FIPM to inform the selection and grouping of independent variables influencing these perceptions. The model proposes that the interaction between three key domains shapes perception (12). First, the characteristics of the perceiver, the HCPs, refer to the individual attributes influencing how they interpret the T&D process. Further, the characteristics of the target pertain to the perceived properties, particularly the T&D programs themselves. Lastly, the situational characteristics relate to the hospital's environmental conditions, which provide the context in which perception occurs.

The conceptual framework illustrates that these factors can shape how HCPs interpret, evaluate, and respond to the T&D process (Fig. 1). Importantly, the selected variables are grounded in prior research and represent visible, actionable factors within healthcare settings, enhancing the research's relevance and potential to inform practical improvements.

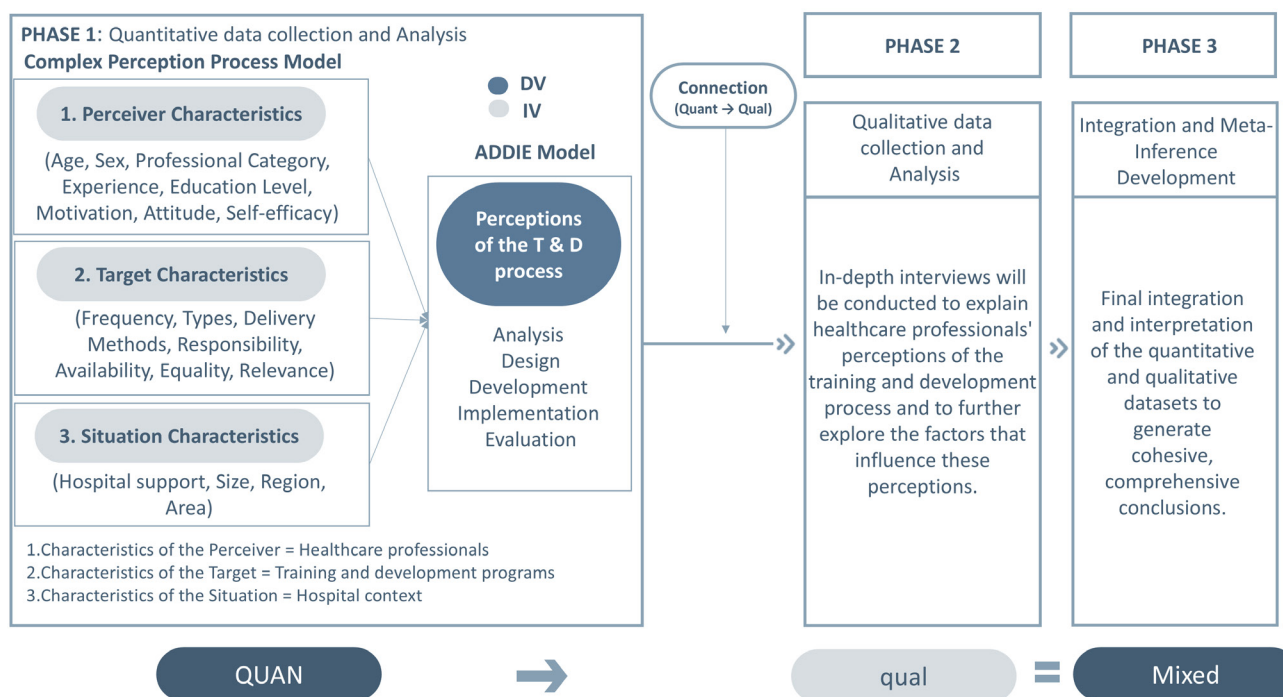


Figure 1: The Research Conceptual Framework. This figure illustrates the conceptual framework, outlining the key variables and their hypothesized relationships. The dependent variable in this research is HCPs' perceptions of the T&D process. The model proposes that perception is a complex process influenced by various factors, including the perceiver's characteristics (HCPs), the situation's characteristics (Hospitals), and the target's characteristics (T&D programs). Additionally, the framework visually represents the research's phases.

Methods

This research will adopt a mixed-methods approach combining quantitative and qualitative methods to comprehensively understand general trends and deeper contextual insights (13). Based on the nature of the research problem and questions, an explanatory sequential design will be selected to guide the research. In this design, the research will begin with a quantitative phase to assess patterns and relationships among key variables, followed by a qualitative phase that will help to interpret and contextualize the quantitative findings (13).

In the first phase, a cross-sectional survey will measure HCPs' perceptions of the T&D process and identify HCPs, hospitals, and program-related factors associated with these perceptions. While the quantitative data will reveal statistical trends and significant associations, they cannot fully capture the underlying reasons or contextual influences that shape these perceptions (14, 15).

Therefore, the second (qualitative) phase will be essential for exploring participants' interpretations and experiences in greater depth. Through semi-structured interviews, the qualitative phase will provide insight into how HCPs interpret each stage of the T&D process. It will also explore the factors influencing these perceptions based on their lived experiences. This qualitative phase will serve as a flexible, context-sensitive complement to the structured logic of the ADDIE model.

The explanatory sequential design is well-suited for this research. It will integrate numerical findings with narrative explanations, resulting in a more complete and detailed understanding of the research questions. This design will provide the logic and structure for implementing the research phases sequentially and will link the findings in a coherent and theory-driven manner, as illustrated in Fig. 2.

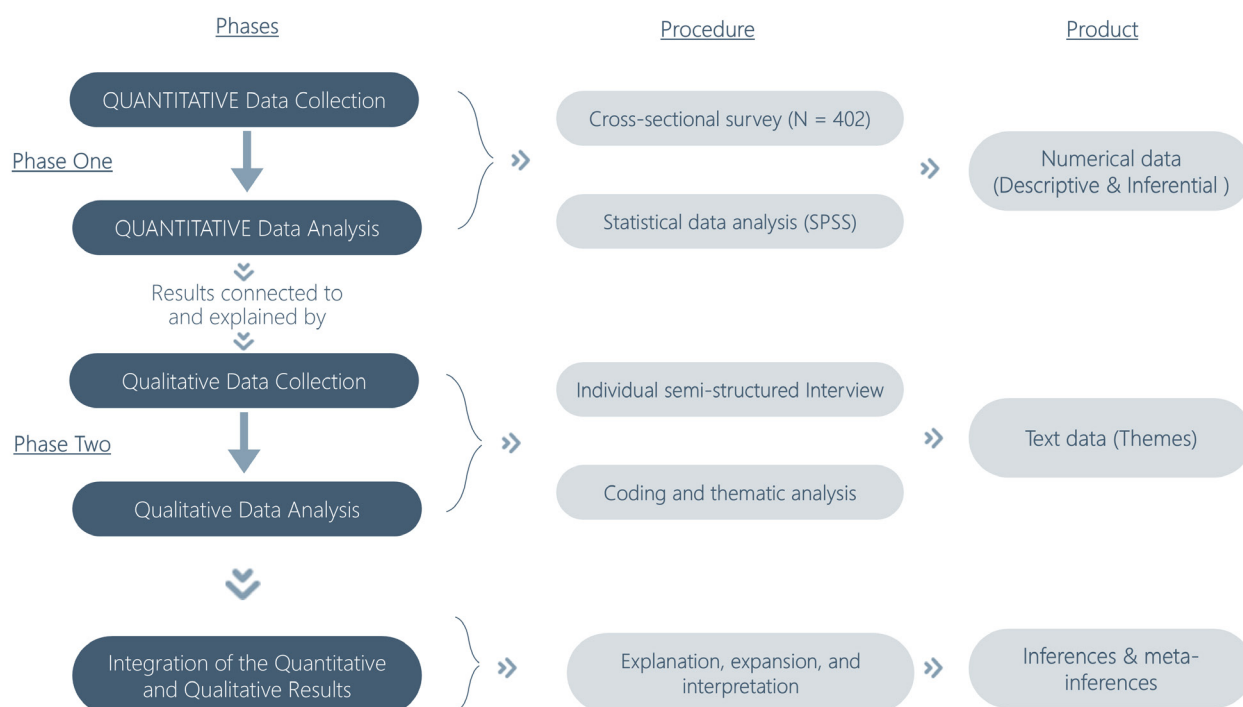


Figure 2: Methodological Framework: Explanatory Sequential Design. This figure exhibits the research methodological framework, emphasizing the explanatory sequential design. The framework consists of quantitative data collection and analysis in the first phase and qualitative data collection and analysis in the second phase. The design highlights integrating findings from both phases to understand the research problem comprehensively.

Phase One (Quantitative)

The quantitative phase will initially collect and analyze numerical data utilizing a cross-sectional survey of HCPs at the selected Jordanian public hospitals. The intent is to investigate HCPs' perceptions of the T&D process and determine factors that influence these perceptions.

Sampling and Population

The study population includes HCPs actively involved in care delivery, including physicians, nurses, midwives, pharmacists, and allied health professionals. Participants must have at least one year of professional experience, hold a bachelor's degree or higher, and have participated in T&D programs. Those in managerial roles or with less than one year of experience will be excluded.

The required sample size was calculated using G*Power 3.1 software for a regression analysis, applying Cohen's power analysis approach (16, 17). A medium effect size of $f^2=0.15$ was assumed, reflecting the average size of observed effects (16). Given the model complexity and the importance of reliably detecting meaningful relationships between variables, the calculation was conducted with a significance level (α) of 0.05 and a power ($1 - \beta$) of 0.95. The final model will include 35 predictors, comprising continuous variables and dummy-coded categorical variables. For each categorical variable, $k - 1$ dummy variables were created to avoid multicollinearity (18).

The output indicated that a minimum sample size of 277 participants is required to achieve the desired statistical power. However, this figure assumes simple random sampling and fully independent observations, which do not reflect this study's complex design. Accordingly, the design effect (Deff) was calculated by adjusting the base sample size to account for intraclass correlation coefficients (ICCs), resulting in a required sample size of 402 (19).

A multistage stratified random sampling technique will be employed to ensure a representative sample of Jordan's 31 public hospitals and enhance precision by minimizing sampling error (20). In the first stage, one governorate will be selected from each of the three regions (North, Central, and South) to ensure geographic diversity. In the second stage, hospitals in each selected governorate will be stratified into rural and urban categories, and one hospital from each type will be chosen randomly. In Stage 3, HCPs will be randomly sampled from professional strata within each hospital, with sampling proportions determined by the size of the hospital and the stratum.

During the pilot study, the feasibility of the proposed sampling strategy will be assessed, focusing on: (a) access to current and complete HCP lists in the selected hospitals; (b) availability of professional data for stratification by profession; and (c) the practicality of proportional sampling within strata. It will also

evaluate institutional cooperation, logistical constraints, and hospital support for sampling procedures. Based on pilot findings, adjustments will be made to ensure methodological rigor and practical applicability across public hospitals, including simplifying stratification, modifying proportions, and refining selection methods.

Data collection

A self-administered questionnaire tailored to the study's objectives will be used. The survey items, including dependent and independent variables, will be adopted from previously validated instruments identified in the literature review. These items reflect the constructs outlined in the research's conceptual framework.

The dependent variable, perceptions of the T&D process, will be measured using an observation-based evaluative approach, based on a five-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree" (7). Each stage of the ADDIE model provides a dimension for measuring the dependent variable; for example, the "Analysis" stage explores whether HCPs perceive that T&D needs are systematically assessed, and "Evaluation" reflects whether feedback and follow-ups are evident in practice. This approach assesses how the stages of the T&D process are perceived as being implemented and experienced. The independent variables influencing HCPs' perceptions of the T&D process were adopted from prior studies that examined perceptions of HRM practices in healthcare and related contexts.

1. Perceiver (HCPs) characteristics: age, sex, professional category, years of experience, education level, T&D motivation, attitude, self-efficacy.
2. Target (T&D programs) characteristics: frequency, type of program, delivery method, responsibility, relevance, availability, equality.
3. Situational (Hospitals) characteristics: hospital support for T&D, region, area, size.

Additionally, Approval from participating hospitals will be obtained prior to distributing the survey. Researchers will collect data on-site and request lists of affiliated HCPs. From these lists, 402 eligible participants will be selected, informed about the study, and asked for consent. Upon consent, questionnaires will be distributed and later collected after completion. To reduce response bias, confidentiality will be ensured, surveys will be self-administered on paper, and neutral and clear language will be used (20). Participation will be voluntary, with no pressure on non-respondents (13, 20).

During the consent process, participants will be informed that the study will consist of two phases: a survey (Phase One) and optional follow-up interviews (Phase Two). They will be clearly told that participation

in the second phase will be entirely voluntary and limited to a subset of survey respondents. Those willing to be contacted for a potential interview will be asked to provide their contact information at the end of the survey. Only participants who give explicit permission will be considered for Phase Two.

Nevertheless, ensuring the privacy and confidentiality of the participants is critical. To safeguard sensitive information, the researchers will implement various protective measures. While the survey is designed to be confidential rather than anonymous, particularly for participants who agree to provide contact information for potential follow-up, no personal identification information (e.g., name, job title) will be requested. Contact details will be stored separately from survey responses and linked only through coded identifiers. Confidentiality statements will be clearly included in the survey instrument. All collected data will be securely stored on password-protected and encrypted devices, with access restricted to authorized research team members only.

Further, several measures will be taken to ensure the validity and reliability of the survey instrument (20). The survey will be administered in both English and Arabic, allowing respondents to choose their preferred language version. The Arabic version will be developed using a forward-backward translation process. Initially, a bilingual expert will translate the original English instrument into Arabic, followed by a back-translation into English by a second independent bilingual translator. Any discrepancies will be resolved through consensus by the research team to ensure conceptual equivalence and linguistic accuracy.

Content validity and cultural appropriateness will be ensured through a comprehensive review by a panel of subject matter experts, including HCPs, academic researchers, and specialists in HR development and survey design. The panel will evaluate each item for relevance, clarity, and representativeness using a 4-point scale, and the Content Validity Index (CVI) will be calculated at both the item and instrument levels. The cultural and contextual alignment of the translated instrument within Jordanian public hospitals will also be assessed, with any necessary adjustments made to reflect local terminology and norms. Construct validity will be examined through exploratory and confirmatory factor analyses to verify the alignment of items with the study's theoretical constructs.

Reliability will be assessed through internal consistency, measured by Cronbach's alpha, ensuring that the items within each construct produce consistent results. Before the main study, a pilot study with a sample size of approximately 30 participants will be considered adequate for evaluating instrument clarity and feasibility, following recommendations from

methodological literature (21). Feedback will be used to revise ambiguous items, and preliminary statistical analysis will be conducted to assess item performance. These measures will collectively ensure that the survey produces valid and reliable data for analysis.

Data Analysis

The analysis will involve organizing, examining, and interpreting the data to effectively address the research questions. First, the data will be analyzed using IBM SPSS Statistics Campus Edition V29.0. Data will be cleaned and checked for quality before analysis, including screening for missing values, outliers, and inconsistent responses (20). Logic checks will be performed to ensure internal consistency across questionnaire items. Any cases with substantial missing data (e.g., more than 20% of items unanswered) will be excluded. In contrast, cases with limited missing responses will be addressed using appropriate imputation methods or listwise deletion, depending on the extent and pattern of missingness (20).

Scoring procedures will be applied to multi-item scales in the questionnaire to generate composite scores (such as perception scores). Descriptive statistics, including frequencies, percentages, means, and standard deviations, will summarize and present the characteristics of the HCPs, hospitals, and T&D program. Likewise, inferential statistical techniques will be applied to examine the relationships between variables (22). Although the perception scores are derived from Likert-scale items, we will treat the aggregated scores as approximating interval-level data, which is a widely accepted practice in social and health research when using multi-item scales (23). This approach is justified given that the perception construct is measured using several items combined into composite scores, improving reliability and supporting the use of parametric methods. To ensure the validity of this approach, we will conduct assumption checks, such as assessments of normality (e.g., skewness and kurtosis).

Given the multistage stratified sampling design and the clustering of participants within hospitals, the hierarchical data structure will be explicitly accounted for in the analysis. Model-based adjustments will be applied to account for intraclass correlation and potential clustering effects. For mean differences across groups (such as sex and professional categories), we will use linear mixed-effects models (LMM) with random intercepts for hospitals (18). This approach enables accurate estimation of group-level effects while accounting for hospital-level clustering. Where applicable, estimated marginal means and pairwise contrasts will be used to test differences between subgroups, with adjustments for multiple comparisons.

Likewise, to examine associations between continuous

variables, we will first assess the degree of clustering by calculating ICCs. If clustering is non-negligible, we will use multilevel correlation models or bootstrapped standard errors to ensure valid inference. Additionally, if parametric assumptions are not met, non-parametric alternatives (e.g., Spearman's rank correlation) will be employed for exploratory purposes, and findings will be interpreted with consideration for potential clustering effects (22).

Furthermore, for multivariable analysis, we will employ LMM with HCPs nested within hospitals (18). These models will estimate fixed effects (e.g., individual-, program-, and context-level predictors) and random effects (e.g., hospital-level variation), making them well-suited for hierarchical data. Before model estimation, we will assess all key assumptions, including linearity, homoscedasticity, and multicollinearity (20). If assumptions such as normality or homoscedasticity are violated, appropriate data transformations will be applied. Where transformation is unsuitable or ineffective, robust estimation methods (e.g., Huber-White standard errors, bootstrapping, or Generalized Estimating Equations with robust variance estimators) will be used to ensure the validity of statistical inference.

Intermediate Integration Point

Establishing connections between the quantitative and qualitative phases will occur at this stage (13). The researchers will identify specific quantitative results that necessitate further explanation and use these findings to guide the qualitative phase (such as significant and non-significant findings). Specifically, participants with negative perceptions and significant predictors will be purposively selected for interviews. The aim is to obtain qualitative explanations that provide deeper insight into the quantitative findings (13). Therefore, the second phase instruments and procedures will be refined at this integration point to be directly informed by the quantitative findings.

Phase Two (Qualitative)

The second qualitative phase will be designed to collect and analyze qualitative data that deepens and explains the findings from Phase One (13). A case study design will be employed in the second phase to collect and analyze qualitative data through semi-structured interviews (24). This approach will be chosen because it allows for an in-depth, context-specific exploration of HCPs' perceptions within real-world institutional environments. The case study design is particularly appropriate when the phenomenon under investigation (perceptions of T&D) is closely tied to its organizational setting (24). It aligns well with the explanatory goal of this phase, allowing researchers to explain patterns

observed in the quantitative phase by deeply examining selected cases.

Sample and Population

The qualitative phase will involve HCPs in Jordanian public hospitals who participated in the first phase. This approach ensures that the data produced in both studies can be easily compared, supporting the intention to follow up on the quantitative results and explore them in more depth (13). A deviant case sampling strategy will be used, focusing on participants with exceptionally high or low perception scores to explore a range of experiences (13). These contrasting cases aim to highlight unique contextual or experiential factors that influence perceptions of the T&D process. Selection will follow a systematic approach, identifying individuals in the top and bottom 25% of the distribution curve.

Only those who consent during Phase One will be contacted for a follow-up interview and will be considered for this phase. As described earlier, these participants will provide limited contact details, which will be stored separately from their survey responses and linked via unique codes to ensure confidentiality. All selected participants will be reminded that their inclusion in the qualitative phase is based solely on research relevance, not personal judgment or evaluation.

Based on Creswell and Plano Clark's recommendations (13), data collection in the qualitative phase will involve a substantially smaller sample than the first phase. Therefore, the sample size for this phase is relatively small and will be determined by data saturation, defined as the point at which no new codes, themes, or insights emerge from additional interviews (25). Based on prior research, a sample size of approximately 9-17 participants will be sufficient to reach data saturation (26). To systematically assess saturation, the research team will employ an iterative, concurrent data collection and analysis process. After each set of interviews, transcripts will be coded and reviewed for emerging patterns. The team will document when themes begin to recur and when no new codes are identified in the subsequent data (26).

Data Collection

The research will employ semi-structured in-depth interviews to uncover detailed insights into participants' perspectives and experiences. A structured interview protocol will be developed to ensure consistency across interviews while allowing flexibility for follow-up questions and probing based on participant responses (13, 22). The protocol will include several components:

1. Introductory questions to build rapport and understand the participant's background.
2. Core questions focused on exploring perceptions of each stage of the T&D process.
3. Exploratory questions to identify factors influencing those perceptions.
4. Probing questions to encourage elaboration (e.g., "Can you give an example?")
5. Closing questions to invite additional comments and reflections

The protocol will also include interviewer instructions, transition statements, and prompts to ensure a smooth conversational flow. Pre-testing of the protocol will be conducted with a small group of HCPs (not included in the main sample) to evaluate clarity, sequencing, and appropriateness of the questions. Feedback from the pre-test will guide refinement of the wording and structure before formal data collection begins (24).

A separate informed consent form will be provided for Phase Two. Confidentiality and anonymity will be maintained throughout the second phase, and no identifying information will be shared with hospital administration or third parties. The interviews will follow the developed protocol, including specific open-ended questions, instructions, transition messages, and settings for data recording (13, 24). They will be audio-recorded and transcribed verbatim to accurately capture participants' responses, while field notes and memos will be taken to document important observations and reflections.

Several steps will be taken to improve credibility, transferability, dependability, confirmability, and trustworthiness of the findings (20, 24). Credibility will be enhanced through the use of standardized data collection procedures and detailed field notes. Member checking, which involves inviting participants to review and verify the accuracy of transcripts and key interpretations, will ensure that their experiences are authentically represented (13, 20). Additionally, peer debriefing will be used to reduce researcher bias by engaging external colleagues to review emerging themes and analytical decisions (27). An audit trail will document all methodological decisions, coding steps, and analytical memos, supporting dependability and confirmability by providing a transparent record of the research process (27).

Rich and thick descriptions of the study context, participant characteristics, and findings will be provided

to enhance transferability, enabling readers to assess the applicability of results to other settings. These procedures collectively reflect a commitment to maintaining the highest standards of rigor in qualitative inquiry.

Data Analysis

The data will be prepared, checked, and analyzed using qualitative methods. This procedure will identify patterns, themes, and meanings within the data relevant to the research questions. Following Braun & Clarke's approach (28), thematic analysis will be employed to identify, analyze, and report patterns (themes) within the qualitative data. The process consists of six key stages: familiarization, where the researcher becomes immersed in the data; coding, which involves generating initial codes for meaningful features; theme development, where related codes are clustered into broader themes; reviewing themes to ensure they accurately reflect the data; defining and naming themes, where each theme is clearly articulated; and finally, writing up the analysis, integrating data excerpts with analytic narrative.

This structured yet reflexive process supports a rich, contextualized understanding of participant perspectives. Thematic analysis will be guided in part by key quantitative findings, with “threads” such as low-scoring T&D stages used to inform targeted exploration during coding and theme development. The data will be systematically reviewed and coded using ATLAS.ti software to identify initial patterns, which will then be organized into meaningful themes for analysis and interpretation (28). Participants' quotes and perspectives will support the thematic findings, with descriptive summaries and emergent themes presented in tables. Results will be reported following APA style, ensuring alignment with the research questions, relevant evidence, and theoretical frameworks.

Integration Phase

The final integration will occur after both quantitative and qualitative analyses are completed, allowing for cohesive, meta-level inferences that address the overarching mixed-methods research question. This research will employ a comparison and explanation approach to integration (13), in which qualitative findings are used to help interpret and explain patterns observed in the quantitative data. Two core strategies will guide this process:

(a) Following a thread: This strategy involves tracing key statistical results into the qualitative dataset to uncover

deeper contextual or experiential insights. For example, if the quantitative analysis indicates that perception scores are considerably low for the “Evaluation” stage of the T&D process, the corresponding interview questions and coding will explore possible underlying causes, such as a lack of evaluation criteria. This targeted approach ensures that survey-based patterns are meaningfully expanded upon and interpreted through the lens of participants' lived experiences (13, 20).

(b) Joint display techniques: Findings from both phases will be visually integrated using joint displays (in comparative tables) to examine areas of convergence, divergence, and expansion. For instance, a joint display may reveal that while 70% of HCPs rated the “Analysis” stage positively in the survey (quantitative), interview narratives indicated that assessment processes were often informal or inconsistently implemented (qualitative), providing a more nuanced interpretation of the scores (13).

The integration process will be guided by a pragmatic interpretive lens (29), emphasizing the practical significance and contextual relevance of the findings. This approach supports the generation of actionable insights tailored to the realities of Jordanian public hospitals. Throughout the interpretation, cultural and institutional factors will also be considered to ensure that the conclusions are grounded in the local context.

Ethical Consideration

The Ethics Committee for Research Involving Human Subjects at Universiti Putra Malaysia (JKEUPM) and the Jordanian Ministry of Health have granted ethical approval for the research.

Discussion

The literature has extensively examined employee perceptions of HRM practices and their impact on institutional outcomes such as performance and efficiency (10, 30). Within this body of work, T&D is often examined as a component of HRM; however, its conceptualization remains inconsistent across studies, limiting the operational clarity of the construct (7). This research will adopt the ADDIE model as a structured framework for assessing HCPs' perceptions of the T&D process (11). It will also integrate the FIPM, which captures the contextual and experiential dimensions of perception often overlooked in traditional evaluations (12).

Research indicates that the effectiveness of the T&D process is not solely determined by its formal practices or content, but rather critically depends on how it is interpreted and experienced by employees (7). Employees' perceptions shape their engagement, motivation, and the extent to which they apply the knowledge and skills they have acquired in their work (7, 10). This insight is particularly relevant in Jordan's public hospitals, where limited resources and rising service demands hinder the consistent implementation of a responsive T&D process (8). Despite national mandates promoting continuous professional development, little empirical work explores how frontline HCPs perceive the process.

This study will address this gap by examining perceived shortcomings in current T&D processes and identifying the individual, T&D program, and contextual factors that shape these perceptions. By centering participants' voices, the research will provide grounded and nuanced insights into the alignment or disconnect between policy intentions and lived experiences. Findings from this research will advance the understanding of the T&D process within healthcare institutions and provide practical recommendations for improving program design, implementation, and responsiveness to frontline needs. This research will support efforts to strengthen professional development, workforce engagement, and organizational performance in resource-limited settings.

REFERENCES

- Otoo F. The mediating role of organizational learning culture in the nexus of human resource development practices and employee competencies. *Afr J Econ Manag Stud.* 2024;15(4):720-763. doi:10.1108/AJEMS-10-2023-0387.
- Alolayyan M, Alyahya M, Omari L. Strategic human resource management practices and human capital development: The role of employee commitment. *Probl Perspect Manag.* 2021;19(2):157-169. doi:10.21511/ppm.19(2).2021.13.
- Noe RA. Employee training and development. 9th ed. Boston: McGraw-Hill Education; 2023.
- World Health Organization. Global strategy on human resources for health: workforce 2030. Geneva: World Health Organization; 2016 [cited 2024 Dec 15]. Available from: <https://www.who.int/publications-detail-redirect/9789241511131>
- World Health Organization, Regional Office for the Eastern Mediterranean. Health workforce in the Eastern Mediterranean Region: from COVID-19 lessons to action. Cairo: World Health Organization; 2023 [cited 2024 Dec 20]. Available from: <https://applications.emro.who.int/docs/Health-workforce-EMR-COVID19-eng.pdf?ua=1>
- Amoah-Mensah A, Darkwa P. Training and development process and employees' performance in the "chop bar" industry. *J Res Dev.* 2016;3(1):34-57.
- Wang Y, Kim S, Rafferty A, Sanders K. Employee perceptions of HR practices: A critical review and future directions. *Int J Hum Resour Manag.* 2020;31(1):128-173. doi:10.1080/09585192.2019.1674360.
- Abu-Al Rub R, Al-Shraideh H. Factors influencing CPD effectiveness and practices in the healthcare sector in Jordan. *HRH2030: Human Resources for Health in 2030;* 2018 [cited 2024 Dec 22]. Available from: <https://jordankmportal.com/resources/factors-influencing-cpd-effectiveness-and-practices-in-the-healthcare-sector-in-jordan>
- Alkhaibari RA, Smith-Merry J, Forsyth R, Raymundo GM. Patient-centered care in the Middle East and North African region: a systematic literature review. *BMC Health Serv Res.* 2023;23(1):135. doi:10.1186/s12913-023-09132-0.
- Van Beurden J, Van De Voorde K, Van Veldhoven M. The employee perspective on HR practices: A systematic literature review, integration and outlook. *Int J Hum Resour Manag.* 2021;32(2):359-393. doi:10.1080/09585192.2020.1759671.
- Armstrong M, Taylor S. Armstrong's handbook of human resource management practice. 15th ed. London: Kogan Page Publishers; 2020.
- Robbins S, Judge T. Organizational behavior. 19th ed. Harlow, England: Pearson Education Limited; 2024.
- Creswell J, Plano Clark V. Designing and conducting mixed methods research. 3rd ed. Thousand Oaks, CA: SAGE Publications; 2018.
- Giancaspro ML, De Simone S, Manuti A. Employees' perception of HRM practices and organizational citizenship behaviour: the mediating role of the work-family interface. *Behav Sci (Basel).* 2022;12(9):301. doi:10.3390/bs12090301.

15. Negt P, Haunschild A. Exploring the gap between research and practice in human resource management (HRM): a scoping review and agenda for future research. *Manag Rev Q.* 2025;75:837-879. doi:10.1007/s11301-023-00397-7.
16. Chuan CL, Penyelidikan J. Sample size estimation using Krejcie and Morgan and Cohen statistical power analysis: a comparison. *J Penyelidikan IPBL.* 2006;7:78–86.
17. Kang H. Sample size determination and power analysis using the G*Power software. *J Educ Eval Health Prof.* 2021;18:17. doi:10.3352/jeehp.2021.18.17.
18. Nahhas RW. Introduction to regression methods for public health using R. Boca Raton (FL): Chapman & Hall/CRC; 2025.
19. Alimohamadi Y, Sepandi M. Considering the design effect in cluster sampling. *J Cardiovasc Thorac Res.* 2019;11(1):78.
20. Cohen L, Manion L, Morrison K. Research methods in education. 8th ed. London: Routledge; 2018. doi: 10.4324/9781315456539.
21. Bujang MA, Omar ED, Foo DHP, Hon YK. Sample size determination for conducting a pilot study to assess reliability of a questionnaire. *Restor Dent Endod.* 2024;49(1):e3. doi:10.5395/rde.2024.49.e3.
22. Jackson SL. Research methods and statistics: a critical thinking approach. 5th ed. Boston: Cengage Learning; 2020.
23. Murray JA. Likert data: what to use, parametric or non-parametric?. *Int J Bus Soc Sci.* 2013;4(11):258-264.
24. Schoch K. Case study research. In: Roberts CM, editor. *Research design and methods: an applied guide for the scholar-practitioner.* 1st ed. Thousand Oaks (CA): SAGE Publications; 2020. p. 245-258.
25. Sharma K, Mudgal S, Gaur R, Chaturvedi J, Rulaniya S, Sharma P. Navigating Sample Size Estimation for Qualitative Research. *J Med Evid.* 2024;5(2):133-139. doi: 10.4103/jme.jme_59_24.
26. Hennink M, Kaiser B. Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Soc Sci Med.* 2022;292:114523. doi: 10.1016/j.socscimed.2021.114523.
27. Nah V. Understanding validity and reliability from qualitative and quantitative research traditions. *VNU Journal of Foreign Studies.* 2021;37(3):1-10. doi:10.25073/2525-2445/vnufs.4672.
28. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77–101. doi:10.1191/1478088706qp063oa.
29. Ramanadhan S, Revette AC, Lee RM, Aveling EL. Pragmatic approaches to analyzing qualitative data for implementation science: an introduction. *Implement Sci Commun.* 2021;2(1):35. doi:10.1186/s43058-021-00174-1.
30. Udokwu S, Oshioste E, Okoye C, Nwankwo T, Azubuike N, Uzougbo N. Impact of human resources management on organizational performance: a case study. *Corp Sustain Manag J.* 2023;1(2):91-102. doi:10.26480/csmj.02.2023.91.102.