



**BRITISH ACADEMY
OF MANAGEMENT**

BAM
CONFERENCE

3RD-5TH SEPTEMBER

ASTON UNIVERSITY BIRMINGHAM UNITED KINGDOM

This paper is from the BAM2019 Conference Proceedings

About BAM

The British Academy of Management (BAM) is the leading authority on the academic field of management in the UK, supporting and representing the community of scholars and engaging with international peers.

<http://www.bam.ac.uk/>

Assessment of readiness and sustainability factors of improvement initiatives: an empirical study within the Saudi healthcare context.

Salem Alasmari, PhD student, College of Human & Health Sciences, Swansea University, Swansea, UK. E: 842879@swansea.ac.uk

Dr Sharon Williams, Senior Lecturer, Swansea Centre for Improvement & Innovation, College of Human & Health Sciences, Swansea University, Swansea, UK. E: Sharon.j.williams@swansea.ac.uk

Professor Nicholas Rich, Professor in Operations Management, School of Management, Swansea University, Swansea, UK. E: n.l.rich@swansea.ac.uk

Dr David Rea, Associate Professor and Head of the Department of Public Health, Policy, and Social Sciences, College of Human & Health Sciences, Swansea University, Swansea, UK. E: d.m.rea@swansea.ac.uk

Abstract

This study aims to assess the improvement capabilities of MOH hospitals by determining the adoption level of readiness and sustainability factors of improvement initiatives. For this purpose, a conceptual framework has been developed from an extensive literature review followed by iterative rounds of Delphi study with a group of international improvement experts. The framework has been operationalised using a self-administered questionnaire that was disseminated to first-line clinical managers working at ten MOH hospitals located in four regions of Saudi Arabia. The cognitive retrospective and present assessment revealed significant low adoption of readiness and sustainability factors within both quality accredited and nonaccredited hospitals. This indicates a low level of improvement capabilities within these hospitals that may lead to failure in implementing their improvement initiatives. At the same time, the results also show positive emotions of clinical managers towards the improvement capabilities of their hospitals. The variation between the emotional and cognitive perceptions warrants attention to the potential psychometric implications that need to be considered when assessing the improvement capabilities.

Keywords: improvement capabilities, healthcare, sustainability, readiness

Background:

Improvement capacity and capability are the two key dimensions that are used interchangeably to describe different characteristics of improvement capabilities. Improvement capability represents an organisation's potentials that include the human resource ability to acquire and retain knowledge and skills as well as the organisational ability to adopt an improvement and sustain its results (NHS Improvement, 2017; Kaminski et al., 2014). Improvement capacity includes the resources that may enable organisations to implement and sustain improvement initiatives. (Kaminski, 2014). Capacity is the repertoire that supports the effective implementation of improvement initiatives. It is described as *“the active application and use of improvement approaches and practices that determine whether improved results will be realised”* (NHS Improvement, 2017). This description assumes that the two concepts are interdependent, where soft and hard aspects of improvement consolidate each other. The integrative view of the two concepts contributes in developing the dynamic capability required to deal with the complexity and dynamicity of both healthcare organisations and improvement initiatives.

Grounding their study in the dynamic capability view, (Furnival, Boaden, & Walshe, 2017, 2018) conducted a comprehensive review of the improvement literature to examine how improvement capability is being conceptualised. They concluded that there is no clear and unified conceptualisation of this concept across different sectors. According to Furnival et al. (2017), the concept “improvement capability” was perceived in different ways, such as an organisation's capability to sustain improvement, human resource skills and knowledge (soft aspects), or physical resources (hard aspects). Consequently, the authors suggested a more comprehensive definition, describing improvement capability as “the organisational ability to intentionally and systematically use improvement approaches, methods and practices, to change processes and products/services to generate improved performance”. This definition corresponds with Helfat's (2009) view of dynamic capabilities that implies focusing on the development of an organisation's resource base.

Such a comprehensive conceptualisation invites further investigation as to how improvement capability is translated in more practical sense to serve the successful implementation of different improvement initiatives such as TQM, Lean and Six Sigma. These improvement approaches are viewed as supportive of improvement capability as they involve *“bundles of practice”* to improve the operational process (Anand, Ward, Tatikonda, & Schilling, 2009). They are also considered to be continuous improvement approaches (Anand et al., 2009) therefore they may have a mediating role in improvement capability. Furthermore, continuous improvement approaches have their own success factors as well. These factors are critical to the successful implementation of these approaches. Interestingly, the suggested dimensions for improvement capability represent most of the critical success factors mentioned in the seminal improvement framework (see Table 7). Furnival et al (2017) synthesised eight dimensions that affect the improvement capabilities, including *“organizational*

culture, data and performance, employee commitment, leadership commitment, service-user focus, process improvement and learning, stakeholder and supplier focus, strategy and governance". Given their similarity to readiness and sustainability factors, we assume that the combination of these dimensions builds the organisational capability required for implementing improvement initiatives.

Table 1 CSFs of different improvement approaches compared with improvement capability dimensions

Author	Approach	CSFs/dimensions
Black and Porter (1996)	TQM	People and customer management, supplier partnerships, communication, customer satisfaction, external interface management, strategic quality management, teamwork structures, operational quality planning, quality improvement measurement, quality culture.
Soderquist and Motwani (1999)	Lean	Top management support, customer relationships, product design process, process flow management, continuous improvement and market outcomes.
Kumar , Antony, & Tiwari (2011)	Six Sigma	Management commitment, staff training, organisational culture, customer focus, precise monitoring of goals
Furnival et al (2017)	Improvement capability	Organisational culture, data and performance, employee commitment, leadership commitment, service-user focus, process improvement and learning, stakeholder and supplier focus, strategy and governance.

The work of Furnivall et al. (2017, 2018) has mapped the essential organisational characteristics that must be considered to consolidate the improvement capability within healthcare organisations. However, the practicality of these characteristics is not yet clear. In their empirical assessment, Furnivall et al. (2018) concluded that it was difficult to operationalise these dimensions because of reasons related to knowledge, measurement and practice within organisations. Therefore, further assessment and successive adoption for organisational improvement was required to explain how improvement capabilities emerge or dissipate among organisations. This may require conceptualising the improvement capabilities within the wider change context that considers improvement adoption mechanisms and the complexity of organisational environments. Many researchers have emphasised the complexity of all healthcare organisations (Cinaroglu, 2016; Larkin, Swanson, Fuller, & Cortese, 2016; Lipsitz, 2012; Plsek & Greenhalgh, 2001). However, it has been argued that public healthcare organisations are more complex given their interdependent networks, political influence and bureaucratic structure (Rojas, Seghieri, & Nuti, 2014). Such a complex nature may affect the way by which improvement is achieved (Granville, 2006), and lead to improvement failure if not considered.

Moreover, the implementation of improvement initiatives requires a contingent view that considers the contextual variables that may impact the level of implementation. These variables include organisational and environmental contexts related to national culture and context, organisation size and strategic goals, in addition to other organisational factors (Sousa & Voss, 2008). However, most of the current literature deals with the implementation process as a prescriptive approach that requires static prescriptions of generic factors for each approach. Furthermore, the existing literature has not provided an integrative view of the common success factors between TQM, lean, six sigma and lean six sigma. Despite the similarity between factors, improvement studies tend to focus on identifying their specific influence on a certain improvement approach.

Similar to the manufacturing and service sectors, the limited view of improvement implementation and its success factors has blurred the improvement complexity within the healthcare sector under the broad heading of “successful implementation”, with universally successful sets of practices (c.f. Motwani , 2001; Rungtusanatham , 2005). Such a reductionist view pays less attention to the multifaceted and interrelated aspects that may affect the real success of improvement initiatives. This view is based on a narrow conceptualisation that does not give much attention to the time cycles of improvement and the relevant contextual conditions surrounding the organisations. Therefore, a more holistic approach is required given the complexity of healthcare settings and the contingent application of improvement initiatives. This assumes that the improvement capability needs to be thoroughly viewed as an interrelated and sequential processes of pre- and post-improvement efforts. This view is being adopted in this study using an integrative perspective that considers the principles of systems thinking when dealing with the multidimensional and multifaceted improvements within public healthcare organisations.

Based on systems thinking approach, improvement capability has been viewed in this study as a multifaceted aspect that contains two consecutive stages. The first stage represents the readiness that includes structural and behavioural preparedness that determines the receptivity of healthcare settings to embrace improvement initiatives (Weiner , 2009; Bloom et al.2000). The second stage is concerned with the post-implementation efforts that focus on how to sustain the achieved improvement. This stage ensures the stabilisation and continuation of the implemented improvement (Fleischer et al. 2015). The distinction between readiness and sustainability does not necessarily propose that they are separable. According to systems theory, the readiness factors in this study are perceived as an input for the implementation process that would impact the sustainability level of the improvement initiatives at later stages. Accordingly, both stages are practically interrelated, given their proposed combined impact on the level of improvement capability.

This study views readiness and sustainability as chronologically distinct yet practically interrelated stages that require much focus on their underpinning success factors. Interestingly, different authors have identified similar success factors for the readiness and sustainability of different improvement approaches (Radnor , 2010; Terziovski et al., 1996; Antony , 2006; Sandholm & Sorqvist,

2002; Soderquist & Motwani, 1999; Al-Balushi et al. 2014; Talib and Rahman 2010; Porter & Parker, 1993). The similarity between readiness and sustainability factors suggests the existence of an interdependent relation between them in a practical sense.

The readiness factors are perceived as an input for the implementation process that would impact the sustainability level of the improvement initiatives at later stages. Therefore, exploring aspects of the readiness and sustainability of any improvement would contribute to determining the extent to which successful implementation could be achieved. This study views improvement capability as a multifaceted concept that contains two interrelated constructs, i.e. readiness and sustainability. Therefore, it aims at assessing the level of adoption of readiness and sustainability factors within public hospitals. The adoption level of these factors is expected to provide an initial assessment of the extent to which MOH hospitals are capable of implementing and maintaining their improvement initiatives.

Research questions

1. To what extent were the readiness and sustainability factors adopted within public hospitals?
2. Does the adoption level of readiness and sustainability factors change according to the accreditation status of hospitals?
3. Is there any significant relationship between the adoption levels of readiness and sustainability factors?
4. Is there any difference between the affective and cognitive perceptions of clinical managers about the improvement capabilities of their hospitals?

Methodology

This study is guided by a conceptual framework that has been developed from an extensive literature review followed by iterative rounds of Delphi study with a group of international improvement experts. Accordingly, a self-administered questionnaire was structured containing three constructs that represent demographic data, perceived collective capabilities and a structured assessment of readiness and sustainability factors. An online questionnaire was disseminated to first-line clinical managers. The clinical managers represented are heads of clinical departments, duty supervisors and improvement coordinators in the hospitals under study. The questionnaire was limited to the first-line clinical managers based on the following reasons; (i) the strategic nature of the readiness and sustainability factors of improvement initiatives, (ii) equal distribution of the sample to all clinical departments to obtain a wider variety of perceptions and avoid any possible concentration of responses, (iii) first line clinical managers are perceived as intermediate between top managers and front-line staff.

The clinical managers have been purposely selected to represent the sample of this study. Based on Saunder et al.'s (2016) classification, the sample was selected from a target population of ten hospitals located in four regions of Saudi Arabia. Consequently, the target population was selected from a wider research population that includes MOH hospitals throughout the south of the country. To ensure

its homogeneity (Saunders et al., 2016), the research sample was limited to ten MOH hospitals with bed capacity ranging from 100 to 200 beds. These hospitals were selected because of their similar characteristics in terms of scope of service, geographical location (Southern regions), organisational structure and quality accreditation status.

Assessment dimensions

The questionnaire was composed of two key dimensions (Table 1). The first dimension focuses on the clinical managers' personal emotions about improvement capabilities. It includes fourteen items that aim at assessing how clinical managers perceive the improvement capabilities of their hospitals from their own perspective. The second dimension obtains a structured assessment of improvement capabilities. In a practical sense, assessing the improvement capabilities is dependent on the extent to which the fourteen factors are adopted within hospitals. Thus, concurrent cognitive assessments i.e. retrospective and present perceptions have been set to measure the adoption level of both readiness and sustainability factors.

Table 1: The main questionnaire constructs.

Personal emotions about improvement capabilities					
1.	I feel that my hospital was fairly prepared before engaging in the implemented improvement initiatives.				
2.	I am willing to participate in any improvement initiative in the future.				
3.	I think that the implemented improvement initiatives are being sustained in my hospital.				
4.	I feel that I have the skills I need to get involved in any improvement initiative in the future.				
5.	I feel that my hospital requires continuous initiatives to improve service quality.				
6.	I have a clear understanding of my hospital's objectives for improvement initiatives.				
7.	I feel that my hospital is prepared to implement further improvement initiatives.				
8.	I feel that I receive sufficient training opportunities to support me to get involved in improvement initiatives.				
9.	I feel that my hospital can sustain any further improvement initiative.				
10.	I am easily able to collaborate with people in other departments/teams on improvement issues.				
11.	I feel that my hospital has sufficient financial resources to dedicate to improvement initiatives.				
12.	I feel that I am supported by hospital top management to undertake improvement initiatives.				
13.	I feel that my hospital has sufficient human resources to dedicate to improvement initiatives				
14.	I feel that I have sufficient time to participate in improvement initiatives.				
Concurrent cognitive assessments of improvement capabilities (Readiness and sustainability factors)					
Factors		Factors			
No. of items		No. of items			
1.	Top management support	7	2.	Organisational culture	4
3.	Strategic planning	5	4.	Organisational structure	4
5.	Communication activities	4	6.	Teamworking activities	4
7.	Information management practices	3	8.	Financial capabilities	2
9.	Training & education activities	5	10.	Patient focus activities	4
11.	Process management practices	7	12.	Relations with external stakeholders	4
13.	Human resource practices	4	14.	Partnership with suppliers	3

The concurrent cognitive assessments elicit both past and present perceptions on the adoption of each factor. Therefore, the past perceptions rely on retrospective assessment to determine the extent to which the fourteen factors were adopted before the implementation of improvement initiatives (readiness assessment). The present perceptions use the post-implementation assessment to measure the adoption level of the same factors after the implementation of improvement initiatives (sustainability assessment). Studying the adoption level of these factors over consecutive windows of time, pre- and

post-implementation, is expected to offer a good sense of the trajectory of improvement capabilities, providing further understanding of how capable the MOH hospitals are of adopting the contextual conditions required for introducing and sustaining any improvement initiative. The following example illustrates how the concurrent cognitive assessments have been conducted.

Table 2 Example of the concurrent cognitive assessments

Retrospective assessment:							
<i>1st factor: Level of hospital top management practices BEFORE the implementation of improvement initiatives</i>							
•	<i>The extent to which the hospital's top management is committed to implement the improvement initiatives.</i>	Excellent	Good	Acceptable	Poor	Very poor	NA
Simultaneous assessment:							
<i>1st factor: Level of hospital top management support AFTER the implementation of improvement initiatives</i>							
•	<i>The extent to which the hospital's top management is committed to implement the improvement initiatives.</i>	Excellent	Good	Acceptable	Poor	Very poor	NA

Validity and reliability of the conceptual framework

Aiming to obtain further details about the findings of the Delphi study, various measures have been obtained to improve the validity of the findings and report them in more illustrative visual form. These measures include content validity, calculated based on the responses of experts during the Delphi study. The content validity rate CVR is calculated according to Lawshe's (1975) formula, i.e. $CVR = \frac{ne - (N/2)}{N/2}$ where "ne" is the number of experts who rated the item as essential (important and very important) and "N" indicates the total number of experts (Ayre & Scally, 2014; Lawshe, 1975). Lawshe suggested a list of proportionate values based on the number of experts. He suggested that the minimum value of CVR (expert agreements) needs to be more 51% if the expert panel is made up of fourteen members. The content validity index (CVI) is then utilised as an indicator for the proportion agreement among experts (Wynd, Schmidt, & Schaefer, 2003). The CVI represents the level of content validity of all descriptors contained in the factors, and thus the content validity of the overall framework (Polit & Beck, 2006). Accordingly, the average CVI values of the included factors are within the acceptable range (Table 2).

Table 3 Total agreement values (content validity index) for factors and their descriptors

Factor	Content validity index (CVI)
Top management support	0.771
Strategic planning	0.914
Communication	0.643
Information management	0.793
Effective training & education	0.828
Process management	0.914
Supportive human resource practices	0.857
Supportive organisational culture	0.821
Supportive organisational structure	0.571
Active teamworking	0.857
Financial capabilities	0.693
Patient focus	0.786
Effective stakeholder's relation	0.836
Effective supplier's partnership	0.602
Average value of CVI	0.777

Pilot study and pre-tests:

In order to assess face validity, four senior healthcare professionals working in public hospitals in Saudi Arabia were requested to provide their comments on the general structure of the measurement items. The participants were requested to assess the questionnaire items in terms of relevance, clarity terminologies, logical sequence and grammatical structure. The participants provided their subjective views and comments using a link to an online questionnaire that was structured in open-ended format. The received comments revolved around the logical sequence of questions, terminologies and organisation of constructs. These comments were addressed, and a modified copy of the questionnaire was established and prepared to be piloted for reliability testing. The reliability test was obtained from a convenience sample of 26 clinical managers working in different public hospitals in Saudi Arabia. The returned responses were statistically analysed to assess the reliability level of questionnaire items using Cronbach's alpha test. The reliability test revealed significant levels of internal consistency, with Cronbach's alpha value greater than 0.79 for the questionnaire's dimensions.

Analysis approach and assessment categories

Data screening measures were conducted to check the normality of data, including Kolmogorov-Smirnov and Shapiro-Wilk tests. Both tests were significant for all variables contained in the questionnaire dimensions. This indicated that the data under analysis is not normally distributed and thus the nonparametric tests were used to run the rest of data analysis. Moreover, five assessment categories were developed to provide accurate parameters for the adoption level of readiness and sustainability and managers' personal emotions about their hospitals' capabilities. The range value for

both readiness and sustainability was identified by calculating the difference between the minimum and the maximum values of Likert score for all items in each dimension. The length of ordinal classes was calculated by dividing the range value by the number of ranks in a Likert scale (five ranks). The cut point of (≤ 205) was set to represent the acceptable class limits for assessing readiness and sustainability factors, while the cut point value of (≤ 36) was set to specify the acceptable class limit for the perceived capabilities (Table 3).

Table 4: Assessment categories:

Assessment categories for the structured concurrent assessments of improvement capabilities			
Likert score	Values	Classes	Categorical limits of classes
Excellent	1	First class	61 to 109
Good	2	Second class	109 to 157
Acceptable	3	Third class	157 to 205
Poor	4	Fourth class	205 to 253
Very poor	5	Fifth class	253 to 301
Assessment categories for the personal emotions about improvement capabilities			
Likert score	Values	Classes	Categorical limits of classes
Strongly agree	1	First class	14 to 25
Agree	2	Second class	25 to 36
Neutral	3	Third class	36 to 47
Disagree	4	Fourth class	47 to 58
Strongly disagree	5	Fifth class	58 to 69

Findings

The Wilcoxon Signed ranks test was used to assess the levels of perceived capabilities, readiness and sustainability according to the predetermined cut point values. This test was selected as it provides a detailed view on the observed median for each dimension, which reflects the actual ratings about the assessment of each dimension. Accordingly, the test has been used to check whether the sample median is statistically different from the cut point or not (205 for the readiness and sustainability, 36 for perceived capabilities). The assessment findings are as follows:

1. Adoption level of readiness and sustainability factors

For the accredited hospitals, the resulting median for readiness was 296.00, which was significantly ($Z=4.259$, $p\text{-value}<.001$) higher than the cut point (205), indicating very poor adoption of readiness factors. For the sustainability, the resulting median was 283.50, which was significantly ($Z=3.793$, $p\text{-value}<.001$) higher than the cut point (205), suggesting very poor adoption of sustainability factors. With respect to non-accredited hospitals, the resulting median for readiness was 276.50, which

was significantly different ($Z=4.782$, $p\text{-value}<.001$) from the cut point (205), meaning that the readiness was very poor. The resulting median for sustainability was 283.50, which was also significantly ($Z=4.017$, $p\text{-value}<.001$) higher than the cut point (205), and thus the sustainability was considered very poor. From the above results, it was found that both quality accredited and non-accredited hospitals had very poor adoption of both readiness and sustainability factors.

Table 5: Wilcoxon Signed Ranks Test for testing three dimensions

	Accredited hospitals		Cut point	Wilcoxon Signed Ranks Test	
	Mean	Median		z	p-value
Adoption level of readiness factors	293.88	296.00	205	4.259	.000
Adoption level of sustainability factors	285.26	283.50	205	3.798	.000
	Non-accredited hospitals		Cut point	Wilcoxon Signed Ranks Test	
	Mean	Median		z	p-value
Adoption level of readiness factors	284.45	276.50	205	4.782	.000
Adoption level of sustainability factors	275.73	268.50	205	4.017	.000

2. Personal emotions about improvement capabilities

For the accredited hospitals, the resulting median was 28.21, which was significantly ($Z=6.150$, $p\text{-value}<.001$) lower than the cut point (36), indicating positive assessment of the perceived capabilities. With respect to non-accredited hospital, the sample median was 29.92, which was significantly different ($Z=5.356$, $p\text{-value}<.001$) from the cut point (36), indicating positive emotions about hospitals capabilities.

Table 6: Wilcoxon Signed Ranks Test for testing three dimensions

	Accredited hospitals		Cut point	Wilcoxon Signed Ranks Test	
	Mean	Median		z	p-value
Personal emotions	28.21	27.00	36	6.150	.000
	Non-accredited hospitals		Cut point	Wilcoxon Signed Ranks Test	
	Mean	Median		z	p-value
Personal emotions	29.92	28.00	36	5.356	.000

3. Relationship between the adoption levels of readiness and sustainability factors

The direction and strength of relationship between two variables are measured using simple correlation. Cohen (1989) suggested that .10 represents a small association; a correlation coefficient of .30 represents a moderate correlation; and a correlation coefficient of .50 represents a strong correlation. Based on the resulting correlation given in Table A, which ranges from 0.494 to 0.847, there is strong positive association between the two dimensions. The resulting correlation between readiness and

sustainability factors ranges from 0.494 to 0.847, which indicates a strong positive association between the adoption level of the two dimensions.

Table 7: Correlation between readiness and sustainability factors

Sustainability factors	Readiness factors													
	Top management	Strategic planning	Communication activities	Information management	Training and education	Process management	Human resource	Organisational culture	Organisational structure	Teamworking activities	Financial capabilities	Patient focus activities	Stakeholders relation	Suppliers partnership
Top Management	.847**	.606**	.545**	.434**	.430**	.453**	.442**	.314**	.452**	.404**	.328**	.271**	.403**	.306**
Strategic planning	.597**	.751**	.746**	.563**	.531**	.578**	.584**	.476**	.558**	.457**	.373**	.396**	.476**	.390**
Communication	.527**	.603**	.802**	.566**	.467**	.577**	.576**	.435**	.564**	.341**	.283**	.364**	.481**	.462**
Information management	.466**	.496**	.595**	.718**	.490**	.488**	.396**	.288**	.448**	.377**	.245**	.325**	.363**	.335**
Training and education	.410**	.499**	.613**	.519**	.776**	.554**	.562**	.508**	.424**	.456**	.570**	.443**	.460**	.388**
Process management	.414**	.461**	.572**	.493**	.515**	.640**	.469**	.306**	.564**	.368**	.321**	.389**	.394**	.493**
Human resource	.389**	.535**	.614**	.482**	.607**	.552**	.761**	.510**	.659**	.508**	.524**	.524**	.593**	.530**
Organisational culture	.368**	.408**	.591**	.532**	.427**	.561**	.555**	.494**	.583**	.451**	.359**	.465**	.455**	.499**
Organisational structure	.390**	.480**	.529**	.491**	.519**	.607**	.544**	.312**	.774**	.587**	.410**	.445**	.474**	.523**
Teamworking activities	.351**	.379**	.460**	.496**	.441**	.544**	.454**	.245**	.651**	.598**	.404**	.498**	.466**	.526**
Financial capabilities	.365**	.451**	.465**	.454**	.642**	.464**	.584**	.528**	.534**	.570**	.814**	.552**	.564**	.446**
Patient focus activities	.386**	.337**	.462**	.484**	.401**	.554**	.491**	.291**	.595**	.524**	.387**	.618**	.491**	.493**
Stakeholders relation	.396**	.345**	.477**	.365**	.474**	.497**	.551**	.350**	.629**	.440**	.442**	.460**	.590**	.674**
Suppliers partnership	.302**	.303**	.383**	.285**	.386**	.407**	.437**	.180**	.525**	.372**	.331**	.398**	.529**	.780**

- * significant at .05, ** significant at .01

Discussion and conclusion

The comprehensive conceptualisation of improvement capability implies an organisation’s ability to “intentionally and systematically” use different improvement approaches and practices to improve its performance (Furnivall, 2017). This capability is determined by considering a number of enabling factors that support the implementation of different improvement initiatives, as suggested by a number of authors (Black and Porter, 1996; Soderquist and Motwani, 1999; Kumar, Antony, & Tiwari, 2011; Furnivall et al 2017). The existence of these factors contributes in building the improvement capability of hospitals by supporting the levels of readiness and sustainability of the implemented improvement initiatives. For the purpose of this study, fourteen factors were perceived as shared enablers that support both the readiness and sustainability of the improvement initiatives. Accordingly, the adoption level of these factors was determined using both affective and cognitive assessments as follows:

1. Affective perceptions

With regards to the affective perceptions, the researcher did not intend for the personal emotions to ascertain the improvement capabilities. Rather they were included to establish a baseline for further discussion about the potential psychometric variation between the emotional and cognitive components

contained within the assessment of improvement capabilities. Accordingly, the results show that there is variation in estimating the improvement capabilities between the personal feelings and the factor-based cognitive assessment. The clinical managers expressed positive emotions about general aspects of improvement capabilities while their cognitive perceptions show low adoption of their hospital's capabilities. These results suggest variation in the psychometrics of the two dimensions i.e. emotions and cognition given their contrasting attitudinal characteristics.

The emotional component reflects the feelings whereas the cognitive component focuses on the beliefs about the attitude object (Eagly & Chaiken, 1993). Despite being abstractions of two mental aspects (Storbeck & Clore, 2007) the cognition and emotion are still viewed as “independent sources of effect” (Zajonc, 1980, p. 151). This distinction is very important to be considered within the improvement context given that some studies adopt instruments that combine both affective and cognitive perceptions to assess different aspects of improvement capabilities (Weiner, 2009; Holt et al., 2007). Hence, these measurement tools are exposed to the so called attitudinal ambivalence (Thompson, Zanna, & Griffin, 1995) where participants might demonstrate positive and negative attitudes (emotional and cognitive) simultaneously (Armitage & Conner, 2000).

Within the improvement context, the ambivalence exists when cognitive perceptions of participants contradict with their emotional valence towards improvement proposals (Piderit, 2000). This warrants attention as the ambivalent responses may negatively affect the assessment validity. Therefore, the potential variation between the emotional and cognitive attitudes needs to be identified properly when assessing the improvement capabilities to optimise the psychometric validity of the assessment tools and eliminate the confounding effect that may amplify the responses. Moreover, individual emotions may not provide real presentation for organisational level of capability (Akgün et al., 2007) given the complexity of organisational dynamics that can influence these emotions (c.f. Huy, 1999). These dynamics are related to organisational culture and collective values and behaviour of organisational members. In this study the use of affective perceptions was limited to comparative purposes given the cognitive nature of the factor-based conceptual framework that has been developed to elicit cognitive perceptions. However, the variation between the affective and cognitive perceptions in this study calls for revisiting the methodological approaches used for the assessment of improvement capabilities.

2. Cognitive perceptions

The retrospective assessment revealed that the fourteen factors were not properly adopted prior to the implementation of improvement initiatives in all hospitals. Likewise, the post-implementation assessment revealed the low adoption of these factors after the implementation of improvement initiatives. This indicates low levels of readiness and sustainability, as these factors are expected to improve hospital capabilities to implement and sustain the improvement initiatives. Thus, the low adoption of readiness and sustainability factors is therefore one of the potential causes that leads to the failure in implementing these initiatives.

Moreover, the correlation analysis showed a strong association between the adoption level of these factors in the pre- and post-implementation assessments. This confirms the assumption of Radnor (2010), who suggested the similarity between readiness and sustainability factors. It also corresponds with the basic view of this study that conceptualises readiness and sustainability as chronologically distinct and practically interrelated stages that require much focus on their common success factors. This view was based on Pettigrew's conceptualisation (1985,1990) about the importance of using varying time cycles to analyse improvement efforts. Therefore, the low readiness and sustainability levels found in the present study represent an interrelated impact that lessens the improvement capabilities of MOH hospitals.

The comparative assessment revealed that the adoption level of readiness and sustainability factors was low in both the accredited and non-accredited hospitals. This finding corresponds with recent studies that criticise the accreditation projects for not making significant improvements in hospital performance (Alasmari, 2019; Almasabi & Thomas, 2017). Within a healthcare context, the accreditation is based on the idea that compliance with evidence-based standards will lead to high levels of service quality within a safe work environment (Almasabi & Thomas, 2017). Accordingly, the accreditation programmes have been introduced as a leverage for quality improvement within the MOH hospitals. However, the low adoption of readiness and sustainability in accredited hospitals questions the effectiveness of the current accreditation projects.

These findings refer to a general state within MOH hospitals, where a number of improvement initiatives end in failure shortly after their implementation. It has been reported that one third of the hospitals that implemented clinical improvement initiatives adopting lean methodology have failed to achieve the expected performance (Hassanain et al. 2017). In another study, Hassanain, (2017) reported the failure to establish performance improvement units (PIUs) for applying six sigma and change management methodologies across 13 provinces. It was found that the performance of the PIUs was dropped back to the baseline level 9 months after their establishment. This failure was attributed to the low level of sustainability, as these initiatives required further commitment, empowerment and training of the team members to sustain success. By and large, the current low adoption levels of readiness and sustainability factors is indicative to poor improvement capabilities under which the MOH hospitals would not be able to ensure successful implementation of improvement initiatives.

References:

- Al-Balushi, S., Sohal, A. S., Singh, P. J., Al Hajri, A., Al Farsi, Y. M., & Al Abri, R. (2014). Readiness factors for lean implementation in healthcare settings--a literature review. *J Health Organ Manag*, 28(2), 135-153. doi:10.1108/JHOM-04-2013-0083
- Alasmari, A. (2019). *Measurement of healthcare quality : a mixed-methods comparative study of accredited and non-accredited hospitals in Saudi Arabia*. (PhD), University of Salford, Retrieved from <http://usir.salford.ac.uk/id/eprint/50286/>
- Almasabi, M., & Thomas, S. (2017). The impact of Saudi hospital accreditation on quality of care: a mixed methods study. *The International journal of health planning and management*, 32(4), e261-e278.
- Anand, G., Ward, P. T., Tatikonda, M. V., & Schilling, D. A. (2009). Dynamic capabilities through continuous improvement infrastructure. *Journal of Operations Management*, 27(6), 444-461.
- Antony, J. (2006). Six sigma for service processes. *Business Process Management Journal*, 12(2), 234-248. doi:10.1108/14637150610657558
- Armitage, C. J., & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin*, 26(11), 1421-1432.
- Ayre, C., & Scally, A. J. (2014). Critical values for Lawshe's content validity ratio: revisiting the original methods of calculation. *Measurement and Evaluation in Counseling and Development*, 47(1), 79-86.
- Black, S. A., & Porter, L. J. (1996). Identification of the critical factors of TQM. *Decision Sciences*, 27(1), 1.
- Bloom, J. R., Devers, K., Wallace, N. T., & Wilson, N. (2000). Implementing capitation of medicaid mental health services in Colorado: Is "readiness" a necessary condition? *The Journal of Behavioral Health Services and Research*, 27(4), 437-445.
- Cinaroglu, S. (2016). Complexity in healthcare management: Why does Drucker describe healthcare organizations as a double-headed monster? *International Journal of Healthcare Management*, 9(1), 11-17.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*: Harcourt Brace Jovanovich College Publishers.
- Fleiszer, A. R., Semenic, S. E., Ritchie, J. A., Richer, M. C., & Denis, J. L. (2015). The sustainability of healthcare innovations: a concept analysis. *Journal of advanced nursing*, 71(7), 1484-1498.
- Furnival, J., Boaden, R., & Walshe, K. (2017). Conceptualizing and assessing improvement capability: a review. *International Journal for Quality in Health Care*, 29(5), 604-611.
- Furnival, J., Boaden, R., & Walshe, K. (2018). Assessing improvement capability in healthcare organisations: a qualitative study of healthcare regulatory agencies in the UK. *International Journal for Quality in Health Care*.
- Granville, G. (2006). What does the service improvement literature tell us and how can it make a difference to implementation. *Gilliangranville Associates on-line report*, 615-620.
- Hassanain, M. (2017). An Overview of the Performance Improvement Initiatives by the Ministry of Health in the Kingdom of Saudi Arabia. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 54, 0046958017707872.
- Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., & Winter, S. G. (2009). *Dynamic capabilities: Understanding strategic change in organizations*: John Wiley & Sons.
- Huy, Q. N. (1999). Emotional capability, emotional intelligence, and radical change. *Academy of management Review*, 24(2), 325-345.
- Kaminski, G. M., Schoettker, P. J., Alessandrini, E. A., Luzader, C., & Kotagal, U. (2014). A comprehensive model to build improvement capability in a pediatric academic medical center. *Academic pediatrics*, 14(1), 29-39.
- Kumar, R., Garg, D., & Garg, T. K. (2011). TQM success factors in North Indian manufacturing and service industries. *TQM Journal*, 23(1), 36-46. doi:10.1108/17542731111097470

- Larkin, D. J., Swanson, R. C., Fuller, S., & Cortese, D. A. (2016). The Affordable Care Act: a case study for understanding and applying complexity concepts to health care reform. *Journal of evaluation in clinical practice*, 22(1), 133-140.
- Lawshe, C. H. (1975). A quantitative approach to content validity 1. *Personnel psychology*, 28(4), 563-575.
- Lipsitz, L. A. (2012). Understanding health care as a complex system: the foundation for unintended consequences. *Jama*, 308(3), 243-244.
- Motwani, J. (2001). Critical factors and performance measures of TQM. *The TQM Magazine*, 13(4), 292-300.
- Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. *Academy of management Review*, 25(4), 783-794.
- Plsek, P. E., & Greenhalgh, T. (2001). Complexity science: The challenge of complexity in health care. *BMJ: British Medical Journal*, 323(7313), 625.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in nursing & health*, 29(5), 489-497.
- Radnor, Z. J. (2010). *Review of business process improvement methodologies in public services*: AIM Research.
- Rojas, D., Seghieri, C., & Nuti, S. (2014). Organizational climate: Comparing private and public hospitals within professional roles. *Suma de Negocios*, 5(11), 10-14.
doi:[https://doi.org/10.1016/S2215-910X\(14\)70015-1](https://doi.org/10.1016/S2215-910X(14)70015-1)
- Rungtusanatham, M., Forza, C., Koka, B., Salvador, F., & Nie, W. (2005). TQM across multiple countries: convergence hypothesis versus national specificity arguments. *Journal of Operations Management*, 23(1), 43-63.
- Sandholm, L., & Sorqvist, L. (2002). 12 requirements for Six Sigma success. *ASQ Six Sigma Forum Magazine*, 2(1), 17-22.
- Soderquist, K., & Motwani, J. (1999). Quality issues in lean production implementation: a case study of a French automotive supplier. *Total Quality Management*, 10(8), 1107-1122.
- Sousa, R., & Voss, C. A. (2008). Contingency research in operations management practices. *Journal of Operations Management*, 26(6), 697-713. doi:<https://doi.org/10.1016/j.jom.2008.06.001>
- Storbeck, J., & Clore, G. L. (2007). On the interdependence of cognition and emotion. *Cognition and Emotion*, 21(6), 1212-1237.
- Talib, F., & Rahman, Z. (2010). Critical Success Factors of TQM in Service Organizations: A Proposed Model. *Services Marketing Quarterly*, 31(3), 363-380. doi:10.1080/15332969.2010.486700
- Terziowski, M., Sohal, A., & Samson, D. (1996). Best practice implementation of total quality management: Multiple cross-case analysis of manufacturing and service organizations. *Total Quality Management*, 7(5), 459-481.
- Thompson, M. M., Zanna, M. P., & Griffin, D. W. (1995). Let's not be indifferent about (attitudinal) ambivalence. *Attitude strength: Antecedents and consequences*, 4, 361-386.
- Weiner, B. J. (2009). A theory of organizational readiness for change. *Implement Sci*, 4, 67.
doi:10.1186/1748-5908-4-67
- Wynd, C. A., Schmidt, B., & Schaefer, M. A. (2003). Two quantitative approaches for estimating content validity. *Western Journal of Nursing Research*, 25(5), 508-518.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American psychologist*, 35(2), 151.