Healthcare Professionals’ Reactions to Health Enterprise System Implementations: A Theory of Cynicism Perspective

Omar A. Alnuaimi
United Arab Emirates University
omara@uaeu.ac.ae

Timothy Paul Cronan
University of Arkansas
pcronan@walton.uark.edu

David E. Douglas
University of Arkansas
ddouglas@walton.uark.edu

Moez Limayem
University of Arkansas
mlimayem@walton.uark.edu

Abstract
Health enterprise systems (HES) are becoming increasingly popular in healthcare organizations. The purpose of the current study is to develop and test a model of healthcare professionals’ reactions to HES implementations. This is done by drawing on prior research on cynicism and resistance to technology. The model links healthcare professionals’ cynicism toward HES with their resistance to the technology, job satisfaction, and job stress. The study hypotheses were tested using a field study in a hospital that recently implemented an HES. Results suggest support for the proposed model. Important implications for research and practice are offered.

1. Introduction
Healthcare organizations are increasingly implementing health enterprise systems (HES), i.e. large health information systems that integrate and streamline healthcare processes across different functional areas. Examples of such systems include Cerner Millennium, Microsoft Amalga, Oracle Healthcare, and SAP for Healthcare solutions, among others. Compound Annual growth rate (CAGR) for HESs is 7%. This compares to about 2% CAGR for enterprise systems in other sectors [1]. Healthcare organizations are making significant investments in these systems, seeking to improve productivity by integrating healthcare processes and reducing medical information fragmentation [2].

It is well documented in the healthcare and IS literatures that IT can deliver favorable outcomes to the implementing healthcare organization. These include reduced medical errors, improved healthcare quality, and positive financial returns on investments see for example [3]). However, the literature also notes that a considerable proportion of enterprise system implementations fail [4]. For example, it is reported that approximately 50% of enterprise system implementations fail to meet the implementing organization’s expectations [5]. In another study, Chew [6] suggested that 80% of implemented enterprise systems are not effective or only somewhat effective, i.e. underutilized [6]. The literature documents that health enterprise systems (HES) faces similar outcomes (e.g. [7]). Therefore, it is critical for healthcare executives and managers to understand and manage HES implementation issues in order to realize the benefits of investing in such systems.

The current research objective is to examine individual-level reactions to HES implementations. Researchers have devoted considerable attention to factors that influence the success of HES implementations (e.g. [8],[2],[9]). While this stream of research contributed substantially to our understanding of organizational-level factors that affect HES success, individual-level research in the context of HES is limited. Healthcare enterprise systems are often adopted at the organizational level, i.e. the decision to adopt the system is made by top healthcare administration. Thus in most cases, physicians and healthcare professionals are mandated to use the system. However, in such situations, a user still retains substantial discretion in whether to use the system to its maximum potential. Therefore, research on individual-level factors in the context of HES should be fruitful.

A rich stream of research exists on healthcare professionals’ reactions to, and use of, less complex information systems such as medical records systems, telecare applications, word processors, etc. However, only recently have employee reactions to and use of enterprise systems begun to appear in the scholarly literature. Healthcare enterprise systems are different than previous IT systems studied (e.g. email, www, medical records systems, etc.); they are more complex, and their implementation often generates radical
changes in user environments. Such complexity and radical changes increase the burden on end-users to use them in an effective way [11].

Several researchers have observed that following an HES implementation, healthcare professionals became cynical toward and “disillusioned” with the new system. For example, in a case study of a newly implemented medical information system in New Zealand, Doolin [12] observed that “hospital staff tended to view the casemix information system with cynicism…became disillusioned with the casemix information system, perceiving it as just another management tool” [12]. In another case study, Timmons [13] found that “a great deal of” cynicism toward the implemented information system was “expressed by the nurses interviewed” [13]. The purpose of the current research is to systematically and empirically investigate cynicism toward the technology as an important reaction healthcare professionals develop following an HES implementation.

Cynicism toward HES is defined in this study as a specific attitude characterized by frustration and disillusionment, negative feelings toward the health enterprise system as well as pessimistic outlook for future success of the system. We believe that it is important to theorize and understand the concept of cynicism toward HES. Healthcare enterprise system implementation is considered a major organizational change [14]. It triggers massive alterations in healthcare professionals work-life experiences, as it introduces radical changes in healthcare processes, practices, roles, and structures see [15] for a review on enterprise systems. The literature on change management suggests that successful implementation change requires employees to have faith in that change. When employees lose faith in change, that is, feel cynical toward organizational change, they become less likely to support change efforts [16]. Cynicism is not a passive or harmless attitude, but one that has negative consequences for the organization and the employee [17]. Examples of such negative outcomes include decreased organizational commitment [18], decreased citizenship behaviors [19], and increased resistance to change [20].

The current research extends the concept of cynicism to the context of HES implementation. In this study, cynicism toward HES is proposed as a construct that influences how healthcare professionals react to HES implementations. Given that HES implementations are considered as enablers and vehicles of major organizational change, and given that cynicism has been shown to play an important role during organizational changes (e.g. [18]), it is proposed that the concept of cynicism will help researchers as well as practitioners understand why healthcare professionals react differently to HES implementations.

This study investigates the role of cynicism toward HES in an expanded nomological network of relationships. Prominent IS researchers have identified the need to study broader organizational phenomena where technology plays a role (e.g. [21]). They called for research to fully explicate the impact of technology-related constructs on organizational-related outcomes, such as job satisfaction and employee psychological well-being. Little attention has been paid to the impact of technology-related variables (e.g. cynicism toward HES) on these important job outcomes. To address this issue, this study investigates how cynicism toward HES affects users’ satisfaction and psychological well-being.

The rest of the paper proceeds as follows. The next section presents an overview of the relevant theoretical background for the study. The third section defines the main constructs of the study and presents the study model and hypotheses. Section 4 outlines the methodology that was used to test the study model. It details the study design, context, sample, and other design issues. The fifth section presents the results of the statistical analysis used to test the study hypotheses. Section 6 concludes by discussing the results of the study along with its limitations, implications for practice, and contributions to research.

2. Theoretical Background

This section presents a review of the relatively scarce research on cynicism and its variations, with the goal of informing our understanding of this construct and its role in shaping people’s behaviors.

2.1. Conceptualizations of Cynicism

Research on organizational cynicism is comparatively new [22]. It depicts the characteristics of new constructs in which there are many conceptualizations, but none have been widely accepted. Currently, four approaches to cynicism seem to characterize the literature. They are (1) the personality/trait-focus, (2) profession/occupation-focus; (3) organizational focus; and (4) organizational change focus. The following discussion of those conceptualizations aims to develop a definition for the focal construct of this study: cynicism toward health enterprise systems.

The personality-focus approach. Researchers using personality-based approach view cynicism as a trait or a pre-disposition. They view a cynic as an individual who questions the motives of others, sees others as selfish and uncaring, and is untrusting in relationships...
The profession/occupation-focus. In his seminal work on cynicism, Niederhoffer [24] examined police officers’ cynicism toward their profession. He described cynicism as “a byproduct of anomie in the social structure” (p. 95) of policing, arising due to role ambiguities and conflicting pressures regarding the profession. Recently, O’Leary-Kelly et al. [25] investigated information technology workers’ cynicism toward their chosen profession. They described it as an attitude characterized by frustration and disillusionment as well as negative feelings toward the IT profession.

Organizational-focus cynicism. Organizational behavior researchers have focused on cynicism in the workplace, which they often refer to as organizational cynicism. Organizational cynicism is “a negative attitude toward one’s employing organization in general, and towards its procedures, processes, and management, that is based on a conviction that these elements generally work against the employee’s best interests” ([26], p. 533).

Organizational change cynicism. Some researchers suggest that the appropriate target for cynicism in organizations is the change efforts (e.g. [16]). Cynicism toward organizational change is defined as the employees’ “belief that improvements in the organization will not be made and problems will not be solved because of various failures inherent in the organization” ([27], p. 283).

In summary, researchers have offered several conceptualizations of cynicism depending on its source (e.g. trait vs. situational drivers) and on the target of cynicism (e.g. society, profession, organization, and organizational change efforts). Anderson and Bateman [19] offered a definition of cynicism that summarizes the different conceptualizations: “…both a general and specific attitude, characterized by frustration and disillusionment as well as negative feelings toward and distrust of a person, group, ideology, social convention, or institution” ([19], p. 450).

2.2. Outcomes of Cynicism

There is limited empirical systematic research regarding the effect of cynicism [28]. Some researchers have found that cynicism affects attitudes [16],[29] and intentions to behave in negative ways, i.e. negative intention to perform OCBs or to comply with organizational requests [19]. Cynicism was found to be negatively related to desired attitudes such as organizational commitment [16],[29] and job satisfaction [16]. An employee’s cynicism toward an organization was also found to increase his or her badmouthing behavior [30].

3. Theoretical Development

3.1. Cynicism toward HES

As discussed in the previous section, researchers have offered several conceptualizations and definitions of cynicism. This study adopts Anderson and Bateman’s [19] conceptualization of cynicism, because it integrates most of the other conceptualizations of this construct. Their definition is integrated here with Wanous et al.’s [29] definition, which adds a “pessimistic outlook for future success” as an essential part of cynicism. Therefore, cynicism toward HES is defined as a specific attitude characterized by frustration and disillusionment, negative feelings toward the health enterprise system as well as pessimistic outlook for future success of the system. This definition has two important implications. First, it implies that a system can be a target for an attitude. There exists substantial evidence in the IS literature that attitude plays an important role in a user’s reactions to systems see [31]. However, cynicism is different from the general attitude construct usually used in IS models. The target of the “attitude” variable in most technology adoption models has been the behavior of using the system. Hence, it was called “attitude toward using technology” (e.g. [31]). Cynicism, on the other hand, is targeted toward the system itself. Komiak and Benbasat [32] provided a conceptual difference between the attitude toward a behavior and the attitude toward the recipient of the behavior. In their discussion on emotional trust—which they conceptualized as an attitude—they gave an example of a person who might hold a negative attitude about an object, yet also at the same time holds a positive attitude about using that object. Such a person likes to use a recommendation agent (RA) because he or she believes in its integrity and competence. However, he or she does not like the same (RA) because it has a bad interface.

The second implication of the definition is that cynicism toward HES is a state, not a trait. This implies that people develop system-specific cynicism based on an experience related to the system, and that their level of system cynicism changes over time as their experience changes.

Extending cynicism to the context of HES is supported by the theory of social response [33]. According to the theory of social response, users tend to respond to computers as social entities. This response, according to the theory, is directed toward the computer itself as a social entity, and not to the programmer. Moon [33] argued that “many of the same
3.2. Technology-Centric Outcomes

3.2.1. Resistance to the system. User resistance is “an adverse reaction to a proposed change which may manifest itself in a visible, overt fashion or may be less obvious and covert” [34], p. 398. It is regularly noted as a prevalent issue in Healthcare IT implementations (e.g. [35],[12],[36],[13]). Recently, enterprise systems researchers have observed that an important method of user’s adaptation to new enterprise system implementations is avoidance. Avoidance is defined as the extent to which the user tries to keep away from using the systems and can be considered as one manifestation of resistance (e.g. [37],[38],[14]).

There are many factors that likely contribute to resistance to change, but one that is receiving increased attention from organizational change researchers is cynicism (e.g. [18],[16]). Similarly, it is argued here that cynicism toward HES will predict healthcare professionals’ resistance toward HES. When a user is disillusioned and frustrated with the system, that user will be more likely to try to resist its implementation. Physicians and nurses who are cynical about the system yet are required to use it might experience some sort of cognitive dissonance [25]. They will try to resolve this dissonance through resisting the system or avoiding it. Therefore, the following hypothesis is offered:

_H1: Cynicism toward HES will be positively related with user’s resistance to HES._

3.3. Psychological Well-Being Outcomes

Implementations of HES usually introduce radical changes in Healthcare processes, roles, structures, and job characteristics [14]. That can lead to substantial alterations to healthcare professionals work life. Evidence exists that these changes introduced by IT systems impact different psychological-well being outcomes [10]. This study investigates two important outcomes: job satisfaction and job stress.

3.3.1. Job Satisfaction. Job satisfaction is defined as the extent of positive emotional response to the job, resulting from an appraisal of the job as fulfilling or congruent with the individual’s values [39]. Job satisfaction is an important outcome in its own right, and is also linked to other important outcomes such as job performance, organizational citizenship behaviors, turnover intentions, and organizational commitment (e.g. [40]). Given that enterprise systems have the potential to drastically change jobs, such changes were found to influence employees’ satisfaction following implementation [10].

It is argued here that cynicism toward HES is one of the technology-related attitudes that affect satisfaction. Cynical physicians, nurses and healthcare professionals who feel frustrated with the system—believing it is not going to help them do their jobs—will likely to be dissatisfied with that system. This dissatisfaction is expected to impact their job satisfaction in general because using the HES constitutes a major part of their job. This argument is supported by the empirical study of Riechers et al. [16] who found that employees who were cynical about organizational change exhibited lower satisfaction and less motivation to work hard. Therefore, the following hypothesis is offered:

_H2: A healthcare professional’s cynicism toward HES will be negatively related with his/her job satisfaction._

3.3.2. Job Stress. Job stress is one of the most critical organizational behavior outcomes. It is estimated that organizations spend as much as 10% of their profits on stress-related claims (Roberts et al 1997). Prior research has also suggested cynicism as a job stressor [41]. Likewise, it is argued here that cynicism toward HES will lead to increased job stress. Cynicism is associated with frustration, aggravation, anxiety, and tension [25]. Cynical users of HES characteristically feel hopelessness about the success of the system and are fed up with it. These characteristics are expected to contribute to job stress. Therefore, the following hypothesis is offered:

_H3: A healthcare professional’s cynicism toward_
HES will be positively related with his/her job stress.

To summarize, the research model posits that higher cynicism toward HES will be related to higher resistance to the system, higher job stress, and lower job satisfaction. The research constructs and hypotheses are depicted in Figure 1 below.

![Figure 1. Research model](image)

4. Methodology

4.1. Study Design and Organizational Settings

The theoretical model was tested using a cross-sectional field study in a hospital that recently implemented HES. Questionnaire items were used to operationalize the study variables and collect data from end-users of the health enterprise system.

The organization selected was a public large hospital in Ajman, United Arab Emirates (UAE). Built in 1997, the hospital has about 183 beds and almost 500 medical and non-medical staff. It was chosen by the Ministry of Health in UAE as the first to implement a health care enterprise system in 2009. That was the first step toward building an integrated platform that links about 14 government-run hospitals and 68 clinics across the UAE. The goal of the project is to automate all healthcare processes and allow doctors, nurses, hospital staff, and administrators to have real-time access to all health care records. It is expected that at the end of the project, more than 6,000 medical professionals will use the system.

A stratified sampling method was used to invite half of the hospital staff to participate in the study. A stratified method was chosen to make sure that the sample represents different departments and job titles.

4.2. Technology

The hospital has recently implemented a health enterprise system known as Millennium 2007, developed by Cerner. Cerner (www.cerner.com) claims to be the largest supplier of healthcare information technology worldwide, with more than 6000 clients. Cerner Millennium is a large-scale system that integrates the various functions of a hospital. These include: revenue cycle; supply chain; workforce management; biosurveillance; cardiovascular; clinical imaging; community health; critical care; document imaging; emergency department; health information management; healthcare devices; laboratory; patient accounting; patient care; pharmacy; physician practice; radiology; etc.

4.3. Measures

The study has adapted scales that were validated in prior research. The items, however, were slightly reworded to fit the new context of HES implementation. Cynicism toward HES was measured using 12 items adapted from Johnson and O'Leary-Kelly [28], Luczywek [42], and O'Leary-Kelly et al. [25]. Sample items include “When (...) system promises it is going to deliver value, I wonder if it will really happen”; “I've suspected that (...) system’s promised value reflect more spin than reality”; and “When I think about the future of (...) system, I am pessimistic”. Resistance to the system was measured using 4 items adapted from Adapted from Bhattacherjee and Hikmet [35]. Job satisfaction was measured using 3 items adapted from Morris and Venkatesh [10]. Job Stress was measured using 4 items adapted from Keller [43].

4.4. Common Method Variance

The use of a cross-sectional survey-based design might raise concerns about common method variance. As suggested by Podsakoff et al. [44], we used procedural remedies and statistical tests to minimize concerns common method variance. In terms of procedural remedies, a psychological separation was inserted in the survey to make it appear that the dependent variables were not connected or related with the predictor variables. Another remedy consisted of assuring anonymity to respondents and also emphasizing that there were no wrong or right answers. This remedy was designed to reduce evaluation apprehension or social desirability effects, and thus minimize common method variance. A third procedural remedy was to use carefully constructed items. That is, the model of the proposed study was measured by items that have been validated many times in prior research.

Several statistical tests for common method variance were run. First, Harmon’s single factor test indicated that there is no single factor that explains most of the variance in the data set. The first factor explains 21% of the variance. Second, the correlations between all model variables were analyzed with a
construct, i.e. organization tenure, which is not theoretically linked to the current model variables. No large correlations were found. Finally, there were no significantly high correlations between the study variables. The highest correlation was (0.49) between cynicism toward HES and Job Stress. These statistical tests collectively indicate that common method variance is not a problem for the current data set.

4.5. Non-Response Bias

The study survey had a response rate of 63%. Ideally, all potential participants would respond, but this is an almost impossible target—particularly when participation is voluntary. However, a less than 100% percent response rate might raise concern that the data will have a non-response bias. Armstrong and Overton [45] noted several ways to deal with non-response bias. First, one can attempt to keep non-response rate under 30%. The non-response rate is 37% in the current study. Second, one can compare demographics of survey participants. In this study, only job position statistics were available from the studied hospital. Study participants included healthcare professionals from different hospital departments and job titles, including doctors (9.2%), nurses (53.4%), lab technicians (23.6%), and administrative staff (13.2%). This distribution of participants’ job titles is very comparable to that of the whole hospital staff. Therefore, it is concluded here that the sample is representative of the sampling frame and that non-response bias should not be a main concern.

5. Data Analysis and Results

One hundred and seventy five employees participated in the study. After excluding 11 incomplete responses and 6 outliers, 158 surveys were used for the analysis. Participants had a mean age of 37.4 years (SD=10.25 years), organizational tenure of 9.16 years (SD=7.66 years), computer experience of 8.34 years (SD=5.46 years), and experience with the new HES of 3.25 months (SD=0.92 months).

5.1. Measurement Model

Partial least squares (PLS), a structural equation modeling (SEM) technique, was used to test the relationships between variables in the research model. PLS assumes that “all the measured variance is useful variance to be explained” and it “estimates the latent variables as exact linear combinations of the observed measures” [46], p. 5. Unlike other SEM approaches (e.g. LISREL, AMOS, and SEPATH), PLS uses a component-based approach. Because of this component-based approach, PLS places minimal requirements on sample size, measurement scales, and residual distributions [47]. PLS analysis involves establishing a measurement model before testing the structural model. A measurement model examines the relationships between the latent variables, i.e. study constructs, and their indicators, i.e. items. This process involves testing for the reliability and validity of the scales.

Reliability of the measurement model is determined using internal consistency measures such as Cronbach’s Alpha and composite reliability. As illustrated in Table 2, all scales have a reliability that is above the accepted threshold of 0.70, as suggested by Chin et al. [46].

<table>
<thead>
<tr>
<th>Variables</th>
<th>Composite Reliability</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cynicism toward HES</td>
<td>0.94</td>
<td>0.93</td>
</tr>
<tr>
<td>2. User Resistance</td>
<td>0.96</td>
<td>0.95</td>
</tr>
<tr>
<td>3. Job Stress</td>
<td>0.91</td>
<td>0.87</td>
</tr>
<tr>
<td>4. Job satisfaction</td>
<td>0.82</td>
<td>0.71</td>
</tr>
</tbody>
</table>

To establish scale validity, we assessed convergent and discriminant validities. Convergent validity is the extent to which different items converge to measure the same underlying construct. Convergent validity is assessed by investigating factor loadings and cross loadings. Researchers differ on the lowest acceptable level of factor loadings. While many of them recommend .70 as a minimum loading e.g. [46], others consider loadings to be acceptable as long as they are above 0.55 (e.g. [48]). Table 3 shows the factor loading obtained from the PLS analysis. As shown, most items have loadings above .70, while very few have loadings lower than that. Those items with loadings lower than .70 are retained for the analysis for several reasons. First, they are above the .55 threshold recommended by Falk and Miller [48]. Second, their loadings are significant. Finally, loadings are higher than cross loadings.

Discriminant validity is the extent to which items differentiate between different constructs. Discriminant validity is assessed by comparing the square roots of average variance extracted (AVE) to the bi-variate correlations between constructs. According to Fornell and Larcker [49], the square roots of AVEs need to be higher that the correlations in order to satisfy discriminant validity requirement. As shown in Table
4, all square roots of AVEs (shaded diagonal cells) are higher that the correlations between constructs, suggesting adequate discriminant validity.

**Table 3. PLS factor analysis**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cynicism</td>
<td>CNCSM1</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>CNCSM2</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>CNCSM3</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>CNCSM4</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>CNCSM5</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>CNCSM6</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>CNCSM7</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>CNCSM8</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>CNCSM9</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>CNCSM10</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>CNCSM11</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>CNCSM12</td>
<td>0.62</td>
</tr>
<tr>
<td>2. Resistance</td>
<td>RSTNC1</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>RSTNC2</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>RSTNC3</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>RSTNC4</td>
<td>0.94</td>
</tr>
<tr>
<td>3. Job Stress</td>
<td>JSTRS1</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>JSTRS2</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>JSTRS3</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>JSTRS4</td>
<td>0.86</td>
</tr>
<tr>
<td>4. Job Satisfaction</td>
<td>JSTSF1</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>JSTSF2</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>JSTSF3</td>
<td>0.78</td>
</tr>
</tbody>
</table>

**Table 4. Correlations matrix and square roots of AVEs**

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cynicism</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. User Resistance</td>
<td>0.43</td>
<td>0.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Job Stress</td>
<td>0.49</td>
<td>0.26</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>4. Job satisfaction</td>
<td>-0.34</td>
<td>-0.11</td>
<td>-0.18</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Diagonals represents the square root of the average variance extracted (AVE).

**5.2. Structural Model**

Establishment of the adequacy of the measurement model is followed by testing of the structural model. The model was run in SmartPLS v2.03 [50] using a bootstrap technique with 500 iterations. As shown in Figure 2, significant relationships were found between cynicism toward HES and the three outcomes. Specifically, a significant positive relationship was found between healthcare professional’s cynicism toward HES and their resistance to the system (= .383, p-value < .001), lending support to Hypothesis 1. Hypothesis 2 was also supported. Higher levels of cynicism toward HES were found to be significantly related to lower levels of job satisfaction (= -.218, p-value < .05). Finally, support for Hypothesis 10 was found as the data revealed that there was a significant positive relationship between cynicism toward HES and job stress.

Cynicism toward HES accounted for 15% of variance in health professionals’ resistance to the system, 5% of variance in their job satisfaction, and 16% of variance in their job stress.

![Figure 2. PLS structural model](image)

**Path Significance:** * p < .05, ***p < .001

**6. Discussion and Conclusions**

This study examined cynicism toward health enterprise systems (HES) as an important reaction formed by healthcare professionals after the implementation of such systems. Based on the literature of IS in healthcare and change management, cynicism was proposed as a reaction that has negative consequences for the newly implemented HES and its users. Specifically, the theoretical model of this study proposed that cynicism toward HES is a construct that is related to greater resistance to the system, more critical badmouthing, more stress for the end-user, and less job satisfaction.
6.1. Key Findings

The current research revealed that health enterprise systems can be a target of cynicism. Healthcare professionals who are cynical about HES are: frustrated and disillusioned by the system, have negative feelings toward the HES and have a pessimistic outlook about future success of the system. Cynicism in the current context is targeted toward the HES itself, not the behavior of using the system.

The theoretical model proposed two categories of variables as outcomes of cynicism toward the ES. The first category represents technology-related outcomes. It includes resistance to the HES. The finding supported the relationship between cynicism and this outcome, suggesting that those healthcare professional who are cynical about the HES are more likely to resist it.

The second category of outcomes of cynicism included non-technology variables that represent psychological well-being of healthcare professionals. The two outcomes under this category are job satisfaction and job stress. The empirical results suggested significant relationships between cynicism and these two psychological well-being outcomes. It was found that those healthcare professionals who were cynical about the new system were also more stressed and less satisfied in their jobs.

6.2. Limitations and Future Research

As with most empirical research, this study is not without limitations. First, the study sample is limited to end users in a hospital in the United Arab Emirates. Conclusions drawn here are based on this single sample. This might raise the issue of generalizability, and suggests future research opportunity. Future researchers might want to test the study model in other cultures to see if healthcare professionals’ reactions differ across different contexts.

Second, the current study was conducted four months after the implementation of the new HES. It is possible that healthcare professionals’ reactions may change after some time as they become more familiar with the system. While prior research has shown that negative reactions developed through the shakedown phase are seldom changed (e.g. [36],[15]), future researchers are encouraged to test whether there is an interaction between time and study variables.

A fruitful direction for future research is to investigate the aspects of technology that induce cynicism. Perhaps, there are some technology characteristics that, when they exist in an HES, makes the users more cynical toward that HES. Some implementation characteristics also might influence cynicism. For example, when a user is not involved in the implementation process, or when s/he feels that his opinion about the system was not taken seriously, s/he might be more cynical toward the implemented HES.

6.3. Theoretical Contribution

The current study has potential contributions to multiple streams of research. IS in healthcare researchers have long been interested in understanding healthcare professionals’ acceptance of and resistance to technology (e.g. [35],[12],[36],[51]). This study incorporates the concept of cynicism as an inhibitor to HES implementation success. Cynicism has been shown in this study to cause healthcare professionals to resist the new system. This finding suggests that IS in healthcare researchers might want to consider the role of cynicism in their investigations of why healthcare professionals resist new information technologies.

Also, the current research contributes to IS in healthcare literature by moving beyond technology-centric variables to investigate the impact of technology on psychological well-being of healthcare professionals. It has been shown here that a user’s perceptions of, and reactions to, a new HES implementation influence his levels of job satisfaction and job stress. When healthcare professionals were cynical toward the new HES, they were also less satisfied and more stressed in their jobs.

This study also contributes to change management research. Change management literature has offered several conceptualizations of cynicism, depending on the source of cynicism (e.g. trait vs. situational drivers) and on the target of cynicism (e.g. society, profession, organization, and organizational change efforts). The current study extended these conceptualizations by theorizing and empirically testing another target of cynicism—the health enterprise system. This study has shown that healthcare professionals can become cynical toward an HES after its implementation. By being cynical, those healthcare professionals believed that the health enterprise system promised them something it did not deliver. They were pessimistic about the future of the system and believed that it would do more harm than good.

6.4. Practical Implications

This research has interesting implications for practice. First, it identified cynicism toward HES as a significant antecedent of healthcare professionals’ resistance to new HES implementations. Resistance to technology is a key implementation issue for healthcare organizations [36]. Management of
healthcare organizations are interested in reducing resistance to new implementations and, as such, are well advised to pay attention to cynicism as an important cause of resistance. Reducing cynicism would not only reduce resistance, but it also would reduce job stress and increase job satisfaction. These two variables are instrumental in achieving high job performance. Therefore, managers should try to identify the cynical attitudes during the implementation of HES. The measures of cynicism toward HES used in this study can be utilized in a real-life setting. Change managers are encouraged to talk to healthcare professionals about their cynical beliefs and address their concerns about the HES and its future. They should emphasize that the implementation of the HES is for the benefit of the end users and that the management would do whatever it takes to ensure a successful future for the system.

6.5 Conclusions

The current study has extended the concept of cynicism as a change inhibitor phenomenon to the context of HES implementations. Cynicism has been conceptualized and tested in this study as an attitudinal reaction the healthcare professionals form toward the HES. The findings of the study suggest that cynicism is bad for HES implementations because it increases user resistance and job stress while decreasing job satisfaction. These findings have important implications for IS research in general and IS in healthcare research specifically. It is hoped here that this study will motivate future researchers to examine in depth cynicism toward HES and try to understand how and why it arises.

7. References

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