

# Assessment of Healthcare Change in Kakamega County using the Theory of Planned Behavior

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## Abstract

*Evidence reveals that transformation efforts in healthcare centers often fail approximately in more than half of the applications. Therefore, it is significant to comprehend how implementation efforts affect human behavior. The objective of this study was to improve the efforts of adopting modern healthcare practices and technology. The nutritionist author was embedded in a nutrition out-patient department for eight months providing training on most modern methodology to staff. Direct observations, informal interviews and journal notes were utilized to capture event outcomes, change in behaviors, and staff comments following the events. The behaviors were assessed using the Theory of Planned Behavior concepts of attitude, subjective norm, perceived behavioral control and intention as variables for understanding human actions. Approximately 80% of staff expressed satisfaction with the new technology since it significantly reduced patients' waiting time by 30% "lost" patients in the waiting room queue were lowered by 90%. However the very staffs have failed at committing to thinking and taking responsibility for implemented improvements. Through an understanding of subjective norms, perceived behavioral control and attitudes, the author has offered insights into successes and failures of efforts at behavioral change in healthcare.*

**Key Words:** Modern healthcare, Theory of Planned Behavior, Health centers

## Introduction

Adoption of modern methodology by healthcare institutions has been spreading throughout the Public and Private Health Service. The zeal for its assurance of reduced costs and improved quality have emerged from reports of remarkable, initial successes, but reports of long term results are more scarce (Vest & Gamm, 2009). Estimates of unsuccessful achievements in implementation are more than half (Bhasin & Burcher, 2006). Health care centers including hospitals, dispensaries and clinics revert to old habits and management styles without successfully making the transformation to modern health care. Comprehending determinants of behavior provides justification for regression to old health care practices and points to strategies for improving conformity with change. The Theory of Planned Behavior (TPB) described by (Ajzen, 1991) provides a framework for discussion of the components necessary for behavioral change in the adoption of modern healthcare practices and technology. This study offered statistically significant insights and strategies for improving the efforts of adopting

modern healthcare practices and technology.

## Research Hypothesis

This study hypothesized that modern technology would improve health care services at the health centers.

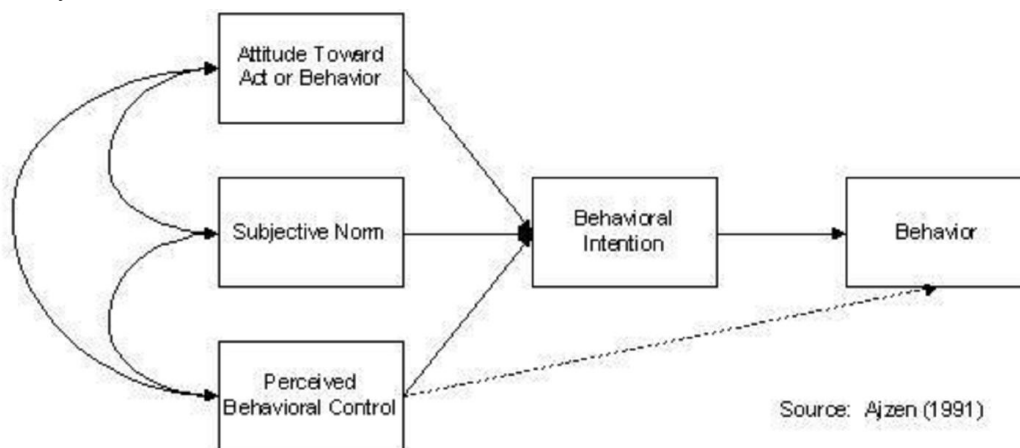
## The Study Framework

Individuals should be able to deliberately anticipate the outcomes of their behavior and to act with self-control as opposed to unreceptively reacting to environmental stimuli (Bandura, 1991). The agency to act by individuals signifies the authority, the conscious intention, the liberty to decide, and the capability to be reflective about the consequences of their actions (Dietz & Burns, 1992). According to Ajzen's TPB (See Figure 1) people behave contrarily to the intentions that they develop from the interplay of their "perceived behavioral control", their "attitudes toward the behavior" and "subjective norms". Perceived behavioral control pertains not only to one's internal beliefs that the goal can be achieved and that one has the requisite skills and knowledge to complete the task but also includes external beliefs regarding such factors as time, cooperation of others, and tools to accomplish the goal. Favorable or unfavorable attitudes towards a behavior

develop from conscious self-reflection about the consequences from the behavior. Subjective norms are the product of normative beliefs about the likely approval or disapproval of referent groups such as co-workers, friends, superiors, or other social groups [3]. Ajzen's theory has been utilized by researchers to rationalize the basis of people and healthcare professionals specifically adopting or failing to implement new behaviors. In health care, this theory has been used mainly to predict the acceptance and adoption of new behaviors such as clinical guidelines and healthy lifestyle changes (Walingo & Mutuli, 2014; Grimshaw *et al.*, 2008) TPB has been used to

investigate the intentions of anesthesiologists to infringe medical principles for pre-surgical and intra-operative procedures (Beatty & Beatty, 2004; Beatty *et al.*, 2008). Subjective norms were the most dominant factors (the opinions and beliefs of their peers), attitudes (is the medical principles significant?), and perceived behavioral control (I have no confidence of carrying out the practice). The validity of Ajzen's theory in predicting behavior has been confirmed by meta-analyses of its use in multiple environments in which perceived behavioral control and attitudes toward the behavior were highly predictive of behaviour (Armitage & Conner, 2001; Beyer *et al.*, 2006).

Figure 1 Theory of Planned Behaviour



### Research Method

In evaluating behaviors of participants in an improvement initiative such as adoption of modern health care practices, it is important to use both quantitative and qualitative methods. The quantitative portion for this research comes from a survey of employees' satisfaction about modern health care practices and assessment of health care processes improvements. Qualitative data was collected using direct observation and interviews with employees. This study hypothesized that modern technology would improve health care services at the health centers. For one year, the core author of this paper, a skilled nutritionist engaged in continuous quality improvement work in the healthcare industry, was embedded in an outpatient section of an academic medical center with the charge to improve patient flow and staff satisfaction using modern health care practices and technology. To identify problems with patient flow, over three days a number of interviews and observations with physicians,

nurses, nutritionists and patients were conducted. The investigator then spent three additional observation days with the employees to learn about scheduling procedures and current issues with delays. The researcher also asked questions of the doctors, clinical officers, nutritionists, nurses, laboratory technicians, physician assistants, and several physicians about their impressions of why patients were delayed, what they found frustrating about their jobs, what they wanted changed, and how hopeful they were that it could be different. Mandatory introductory classes about gradual adoption of modern health care practices and technology were held for all departments, residents and staff.

During the implementation phase, several one or two days trainings were held to address communication failure and patient flow, to examine nursing roles and work delays, and to improve follow-up scheduling of tests and clinic appointments. "Stop the line" methods were instituted that brought the clinical officer in charge to the front desk to investigate any patient found to have been "lost" in the new tracking

system. A large central white board supported by a flag system was installed for flow coordination and communication throughout the department. Also, a new unit coordinator was appointed to manage patient tracking. The training team created new intake forms to replace free form interviews. A single lab and imaging requisition replaced folders of forms. Finally, a more reliable and comprehensive daily nutritionist schedule was created and placed into templates without override. This enabled four new nutritionists to be employed into the clinic and new policies were established for annual leaves, off duty days and on-call schedules.

During the implementation, notes were recorded into the researcher's personal journals and discussed by the research team for accuracy and sound judgment. Through the training events and other interactions with hospital employees, approximately 400 hours of direct observations and interviews were conducted. The data collected was analyzed using abductive inference to understand an observed phenomenon (Pierce, 1934; Van de Ven, 2007). In general, abductive inference starts with a set of facts derived from a review of the literature. It then attempts to make sense of a situation by providing the most likely explanation of what was observed, in this case, using Theory of Planned Behavior as filter for analysis. This analysis is suitable for this research because the observed events and behaviors create an opportunity to make an attempt to find possible guidelines for effective and efficient adoption of modern health care practices and technology in healthcare centers and hospitals.

## Results

Patients frequently needed to wait over 2 hours prior to receiving services. Most patients often became discouraged and went home with rescheduled appointments for another day. "Emergencies" appeared to be the normal activities. Physicians functioned with a schedule that lacked 5-25 known and expected patients per physician that needed to be "worked in" to the schedule daily. Department meetings overlapped with clinical hours. One physician came to the clinic hours after the first patient had arrived. The new electronic medical record and office management package had eliminated the visual cue of the paper chart previously used to track patients. Nurses, functioning without standard work procedures were blamed for long patient delays; however the nurses complained about overwork. Nutritionists lamented about being ignored by nurses and clinical officers making them quite unhappy and discouraged to work. Receptionists were angry at having to make excuses to waiting patients while they also blamed patients for not arriving on time. Almost generally, staff believed nothing could be done to make

their work easier. They had come to accept their work as hopelessly complicated, emergent, and filled with uncertainties that required their flexibility, tolerance and forbearance. They had developed a perverse pride in surviving their days but their demeanor was depressed. Modern healthcare practices and technology rapidly reduced patient waiting time by 30%. Nursing time to prepare new patients declined from 40 to 10 minutes, and, "lost" patients in the waiting room queue were lowered by 90%. Use of the white board was assured by the departmental in charge. The "stop the line" effort that required any staff member to report a "lost" patient fell off after a receptionist was terminated for unrelated reasons but was assumed to have been fired because of reported mistakes. Though the staff had agreed in the trainings to standard work for communications and documentation using the modern healthcare practices and technology, they rapidly reverted to previous habits.

In response to a survey, 80% of staff expressed satisfaction with the results but wanted to focus attention on multiple other areas that they felt were broken. The staff and some providers actually became more agitated, frustrated and intolerant of clinic delays, mistakes and waste. Early success with these modern healthcare practices and technology project led unexpectedly to the opening of a deep reservoir of stress, low morale, and previously unspoken complaints and frustrations. It was as if, by introducing the possibility of improvement and highlighting the wastes, the early modern healthcare practices and technology had reconfirmed their beliefs that nothing works, delays were expected and there was no reliability. They challenged modern healthcare practices and technology efforts by saying "Yes, but what about this problem!"

Examining the behaviors throughout the project using Theory of Planned Behavior it's learned that the highest compliance came from modern healthcare practices and technology changes that required the least development of intention from the interplay of their perceived behavioral control, their attitudes toward the behavior and subjective norms. Deviance and non-compliance with proposed modern healthcare practices and technology improvements increased where development of intention was required. For example, the exam room flag system was dependent on training and convincing all hospital staffs that it was meaningful and an expected routine in the clinic. Low perceived behavioral control on the part of nursing staff and receptionists lowered their compliance with new procedures for documentation and communication. They commented, "I don't know if I can use that function in the electronic medical record." Thus they resisted the agreed upon modern healthcare practices and technology improvement until sufficient training, practice,

and confidence had been provided. Negative attitudes toward the behaviors created resistance and were often expressed in comments like: “This stop the line could get a person fired,” “I don’t trust the nurses and nutritionists to read the comments,” “Talking by phone is more personal” and “These flags are impractical.” Conflicting subjective norms in the department reduced compliance with work standards developed by modern healthcare practices and technology efforts demonstrated by comments such as, “Attending departmental

conferences is more important than being on time for patient visits,” “No one uses these flags,” “I don’t want to be the only one calling stop the line.” Successful adoption of the modern healthcare practices and technology behaviors appeared to negatively correlate with the degree to which the behavior was dependent on Ajzen’s three determinants of intention. Table 1 demonstrates the compliance with modern healthcare practices and technology changes.

**Table 1** Compliance with lean changes seems correlated with its reliance on behavioral determinants

Modern healthcare practices and technology improvement (MHCPTI)	Perceived Behavior Control	Attitudes toward the Behavior	Subjective Norms	General Compliance
White board	low	low	low	high
Intake forms	low	medium	low	high
Lab Requisitions	low	low	low	high
Appointment template	low	medium	low	high
Communication MHCPTI	high	high	high	low
Stop the line for lost patients	low	high	high	low
Exam room flag system	medium	high	high	low

This research demonstrates that, unfortunately, many modern healthcare practices and technology improvements did not achieve the desired behavior change. The next section provides discussion and recommendation for leadership teams to avoid such pitfalls during lean implementation efforts.

**Discussion and Recommendations**

The implications for successful modern healthcare practices and technology implementation in healthcare are those countermeasures that reduce reliance on behavioral intention which will be most easily adopted. Behaviors that require the development of intention, however, will require a deeper exploration of individuals’ perceived behavioral control, attitudes and the subjective norms of the healthcare environment within which change is expected.

Healthcare centers in general are plagued by attitudes, social norms, and cultural beliefs of low-expectations (Chassin & Becher, 2002). Modern healthcare practices and technology is an effective means to create change when there is a thorough and comprehensive use of philosophy, methods, tools, managerial monitoring and audits, and disciplined application of consequences for non-compliance. Failure to achieve expected results from modern healthcare practices and technology efforts may be linked to insufficient attention to the underlying factors that create intentions for behavior.

In healthcare organizations, if perceived behavioral control is low, health staff must be allowed to express their reservations and be given every opportunity for training, practice, review, and building of confidence in their ability to perform the new functions without fear of appearing slow or incompetent. If after trying new procedures, they run into external barriers of time, equipment, or team cooperation, they need to know management is eager and ready to explore the issues and remove those barriers.

Negative attitudes towards the changes imply that hospital staffs do not believe the changes will work. Their skepticism can be disarmed by enthusiastic approaches to incremental improvement based on Plan-Do-Check-Act (PDCA) cycles that use testing and determination of the actual positive and negative consequences of the proposed changes. Hospital staff can be assured that what doesn’t work gets modified. Trust and positive attitudes develop with subsequent iterations. Staff members who become experimenters and problem solvers strive for long-term resolutions instead of short-term work-rounds and are reinforced by their successes (Spear, 2005).

If there are cultural norms of low expectations such as late nutritionist arrival times, unreliable communications or poor adherence to standards, more intentional and repetitive efforts are needed to expose those lax cultural norms, build the case for change by demonstrating the harm, enlist all stakeholders and hold

everyone accountable with appropriate consequences for non-compliance. If there are no consequences of non-compliance, individuals are unlikely to develop the desired intentions and behaviors. This requires extensive monitoring and measuring of compliance, consistent application of rules and standards and the courage of leadership to discipline when necessary. This has been discussed by (Furman and Caplan, 2007) in their description of patient safety alert system that in 5 years led to the identification, counseling and eventual suspension of over 50 staff and physicians for unsafe behavior. Administrative leadership must demonstrate its willingness to apply the rules equally, fairly and consistently to be taken seriously and change the subjective norms that drive the desired behaviours (DeHart-Davis, 2009).

#### Limitations

The following limitations are identified. First, this study was conducted only in one general hospital setting. Second, data collection by researcher presented several difficulties: 1) direct observations can alter responses and behavior (also known as Hawthorne effect); and 2) the unknown bias of the researchers, which could influence what was recorded, coded and

analyzed, could be present in this research. Due to the limitations this research provides only a set of recommendations and not explicit solutions to identified problems. Future research using longitudinal design could be used to further investigate the possibility of applying concepts of Theory of Planned Behavior for measuring modern healthcare practices and technology in implementation projects. Therefore, based on the limitations of this study, generalization of the findings to the entire population of healthcare professionals cannot be ascertained.

#### Conclusions

The Theory of Planned Behavior has been applied to explain the successes and failures of behavioral change in the setting of an outpatient clinic attempting to use modern healthcare practices and technology methods. While the conclusion is drawn that if intention towards the behavior is required, attention must be given to individuals' underlying perceived behavioral control, attitudes toward the behavior and subjective norms, further research is necessary for validation. It is hoped that this will lead to the fulfillment of the potential for modern healthcare practices and technology applications in healthcare improvement.

#### Authors' Note

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

#### Acknowledgments

The authors sincerely thank the staff of Kakamega Provincial General Hospital who shared their experiences and contributed needed information to the study. These respondents are highly appreciated for their warm welcome and support. We express our gratitude to those who contributed to the success of this study in one way or another.

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