Cost-Quality Tradeoff in Healthcare: Does it Affect Patient Experience?

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This study empirically investigates the effect of cost and average length of stay on experiential quality in healthcare. The author uses aggregate level data from 245 acute care hospitals operating in the state of California and performs ordinary least squares regression to test his hypotheses. Supporting the classic theory on cost-quality tradeoff, results show that hospitals do have a tradeoff between cost efficiency and experiential quality. Further, the author finds that hospitals with a higher average length of stay rate have, on average, lower experiential quality. In light of the recent move by Medicare to performance-based reimbursement, the author's results provide key insights to hospital administrators regarding cost-quality tradeoff and the tradeoff between achieving clinical quality and experiential quality outcomes.

Key words: cost, experiential quality, healthcare, length of stay, tradeoff

INTRODUCTION

Healthcare costs in the United States are about $2.6 trillion annually, which is approximately 18 percent of gross domestic product (GDP), and are expected to reach $4.8 trillion, around 20 percent of GDP (Aetna 2014). Despite these high costs, the United States ranks poorly among Organization for Economic Co-Operation and Development (OECD) countries in terms of outcomes achieved per dollar spent (Porter and Teisberg 2006). Recently, Medicare has moved to outcome-based reimbursement (Stone and Hoffman 2010) from a prospective payment system (PPS) in which a fixed amount was reimbursed based on the diagnosis-related group (DRG) of the patient. Thus, hospitals are facing additional pressure to achieve better outcome measures and cut costs simultaneously.

Two types of tradeoffs may exist in the healthcare industry. First, there may be a tradeoff between cost and quality. Specifically, it has been shown in the prior healthcare quality literature that proprietary hospitals, which have a profit maximization objective, make improvements in the facility environment and nonprofit hospitals make improvements in clinical outcomes to trade off cost and quality (Ding 2014). On the other hand, from the manufacturing literature, it is well known that better quality and lower cost can be achieved at the same time. For example, Toyota has been known to achieve low cost and high quality objectives through continuous improvement and waste elimination (Liker 2004). Similar results have been found in healthcare at the Cleveland Clinic, which has been known to perform better on multiple dimensions simultaneously (Raman and Tucker 2013). Second, a tradeoff may exist between achieving clinical quality

outcomes and experiential quality outcomes simultaneously. There are two different types of quality in healthcare: clinical quality, which relates to outcome measures such as readmission rate and mortality rate, and experiential quality, which relates to how patients perceive the care they receive. Experiential quality is measured using Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient satisfaction surveys. It has been shown that it is very difficult for hospitals to perform well on both clinical quality and experiential quality dimensions due to strategic tradeoffs existing in hospitals (Chandrasekaran, Senot, and Boyer 2012). The processes and organization are framed to achieve better outcomes in one dimension, making it difficult to perform well in the other dimension.

This study investigates two critical research questions. First, do hospitals trade off between experiential quality and cost? Experiential quality is a different dimension of quality than clinical quality (Garvin 1987; Shwartz et al. 2011). Second, do patients penalize or reward hospitals for retaining them longer in the hospital? That is, does length of stay have a negative or a positive impact on experiential quality? Although it has been shown that a shorter length of stay negatively impacts clinical quality outcomes (KC and Terwiesch 2012), the effect of length of stay on experiential quality is largely unknown. This study seeks to fill these two gaps in the literature.

Hospitals are under increasing pressure to improve experiential quality since roughly 41 percent of respondents to a McKinsey survey chose "patient experience" as the most influential factor in selecting a hospital (Grote, Newman, and Sutana 2007). In fact, healthcare administrators rated patient experience as the second highest priority after cost reduction in a survey conducted by Health Leaders Media Council in 2011 (Betbeze 2011). Several hospitals, such as Cleveland Clinic and Mayo Clinic, have recently begun to focus on improving experiential quality. Further, there has been an increase in the proportion of Medicare and Medicaid patients (Raman and Tucker 2013) in many hospitals. It is also well known that Medicare and Medicaid reimburse the lowest among all payers and hence it is less profitable for hospitals to treat Medicare and Medicaid patients. To compensate for the loss incurred by treating Medicare and Medicaid patients, hospitals need to work to improve experiential quality to attract patients from different countries with different payers; Cleveland Clinic is a stellar example of a healthcare organization that achieves this without compromising on clinical quality outcomes (Raman and Tucker 2013).

LITERATURE REVIEW AND HYPOTHESES

Garvin (1987) notes that quality has multiple dimensions: performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. In a healthcare setting, the process of care measures that determine the level of adherence to clinical care guidelines will be synonymous with the conformance quality dimension. Similarly, other clinical quality outcome measures, such as risk-adjusted readmissions and mortality rate, will measure performance, reliability, durability, and serviceability dimensions (Curkovic, Vickery, and Droge 2000). Patient satisfaction or patient experience results from HCAHPS surveys will measure the experiential quality dimension (Marley, Collier, and Goldstein 2004). Patient experience is as important as clinical quality since patients who have a bad experience will be less likely to return to the same hospital, thereby affecting the hospital's reputation and contribution margin. This will in turn affect the reimbursement from Medicare, which has recently implemented a pay-for-performance reimbursement policy, further reducing the contribution margin.

Recently, there have been many papers studying experiential quality, length of stay, and cost in healthcare operations and quality literature. KC and Terwiesch (2011) study the effect of focus in healthcare (emphasizing one type of care) on length of stay and mortality and find that hospitals that are focused at the hospital level have lower length of stay and mortality rates. Ding (2014) finds that focus has a positive effect on cost efficiency. The author also finds that nonprofit and proprietary hospitals treat the cost and clinical quality outcome tradeoffs differently. James (2013)

finds that at least 210,000 preventable adverse events occur per year that may lead to the death of patients. This can be reduced by engaging patients in a better manner, thereby improving experiential quality. Tokunaga and Imanaka (2002) classify patients into three categories based on their length of stay and find that the category of patients that had the longest length of stay gave the lowest scores on many items used to measure patient satisfaction in Japan.

The author's first hypothesis studies the effect of cost efficiency on experiential quality. Hospitals may experience cost and quality tradeoffs, which have been studied previously in the healthcare literature (for example, Ding 2014; Jha et al. 2009). In terms of patient spending, Fisher et al. (2003) find that the highest-spending Medicare enrollees have worse access to care than other Medicare enrollees, which further translates into worse quality of care outcomes for the highest-spending Medicare enrollees. On the other hand, hospitals may achieve higher experiential quality and increase their demand due to improved quality outcome measures (Pope 2009) and thereby lower their cost of providing care to patients, similar to manufacturing, where companies like Toyota have improved quality first and then reduced costs (Black and Miller 2008). Although there have been some countervailing findings like that of Stukel, Fisher, and Alter (2012) who find that patients in hospitals who have higher costs have lower readmissions rates and lower mortality rates due to better quality of care delivered in these hospitals compared to hospitals that spend less, the author follows the cost-quality tradeoff perspective and formally hypothesizes that:

- *Hypothesis 1: Hospitals that have higher cost efficiency will have lower experiential quality, ceteris paribus (all other things being equal).*

Hospitals may experience tradeoffs in achieving better clinical quality and better experiential quality outcomes due to the inherent difference in process management required for these two goals (Chandrasekaran, Senot, and Boyer 2012). Chandrasekaran, Senot, and Boyer (2012) study the impact of process management in hospitals on clinical and experiential quality outcomes. They find a tradeoff between clinical and experiential quality outcomes; that is, they find that process management improves clinical quality outcomes but negatively affects experiential quality outcomes. The next hypothesis deals with the effect of length of stay on experiential quality. If a patient's length of stay is shorter, then proper care may not have been given, and it is highly likely that the patient may return to the hospital for same (or different) treatment (KC and Terwiesch 2012). This may negatively impact the patient experience as well and the patient is less likely to recommend the hospital to his or her friends or family members. On the other hand, if a patient's length of stay is longer, the patient may feel less satisfied with the hospital's service (Tokunaga and Imanaka 2002). Since the effect of length of stay on experiential quality is largely unknown and there is support for both positive and negative effects of length of stay on quality in the prior literature, the author hypothesizes:

- *Hypothesis 2a: Hospitals that have a higher average length of stay will have higher experiential quality, ceteris paribus.*
- *Hypothesis 2b: Hospitals that have a higher average length of stay will have lower experiential quality, ceteris paribus.*

DATA AND METHODOLOGY

The author uses data on all acute care hospitals in the state of California for the year 2010. He acquired data on ownership type and experiential quality measures (patient experience HCAHPS scores) from the Center for Medicare and Medicaid Services (CMS) Hospital Compare website. Data on control variables such as resident-to-patients ratio, operating disproportionate share hospital (DSH) adjustment, estimated operating outlier payments as a percentage of the provider's federal operating PPS payments, case mix index (CMI), and location (rural, large urban, or other urban) come from the CMS impact files. "A hospital's CMI represents the average DRG relative weight for that hospital. It is calculated by summing the DRG weights for all Medicare discharges and dividing by the number of discharges. CMIs are calculated using both transfer-adjusted cases and unadjusted cases." Finally, data on hospital characteristics such as average number

of staffed beds, productive hours of registered nurses for hospital services, total discharges, total patient days, and total operating expenses come from the State of California Office of Statewide Health Planning and Development (OSHPD). The author uses a Medicare provider number (a unique identifier) to merge the three datasets. After merging the three datasets, he has data on all variables for 245 hospitals.

Table 1 Descriptive statistics of continuous variables (*N*=245)

Variable	Mean	Std. deviation	Min	Max
Experiential quality (%)	63.80	6.08	41.90	81.40
Cost ($)	15,331.04	19,481.94	3,331.85	270,006.00
CMI-adjusted length of stay (days)	5.22	15.34	1.27	222.60
Nurse ratio (hours per patient)	40.89	25.81	5.68	346.53
Average staffed beds	207.64	154.29	17	909
Resident-to-beds ratio	0.05	0.15	0	0.90
Operating disproportionate share	0.23	0.19	0	0.86
Adjustment				
Operating outlier payments	0.07	0.06	0	0.39
Number of competitors	20.06	22.81	0	59

Table 2 Frequency table of categorical variables (*N*=245)

Variable	Categories	Count	Percentage
Ownership	Government (hospital district)	24	9.80
	Government (local)	19	7.76
	Proprietary	58	23.67
	Voluntary (nonprofit – church)	39	15.92
	Voluntary (nonprofit – other)	48	19.59
	Voluntary (nonprofit – private)	51	20.82
	Government (federal)	3	1.22
	Government (state)	3	1.22
Location	Large urban	169	68.98
	Other urban	67	27.35
	Rural	9	3.67

The author uses patient experience from HCAHPS surveys of CMS to measure experiential quality, which is the main dependent variable. The computational details of experiential quality are presented in the Appendix. Cost is computed as the ratio of total operating expenses to the product of CMI and total discharges (Ding 2014), so that hospitals treating a higher proportion of complicated DRG patients are not unfairly penalized for having higher operating expenses. CMI-adjusted average length of stay is computed as the ratio of total patient days to the product of CMI and total discharges to account for variance in the patient composition of hospitals. Nurse ratio is computed as the ratio of productive hours of registered nurses for hospital services to total discharges. Descriptive statistics of all continuous variables are given in Table 1 and frequency of all categorical variables are given in Table 2. The author uses ordinary least squares (OLS) regression to test both hypotheses. The equation for the OLS regression is given in the Appendix. The author controls for teaching intensity of the hospital using the resident-to-beds ratio, size of the hospital using natural logarithm of average staffed beds (Chandrasekaran, Senot, and Boyer 2012), and nursing resources of the hospital using nurse ratio. DSH adjustment is used as a control for the hospital's likelihood of treating uninsured or Medicaid patients, and estimated operating outlier payments as a percentage of the provider's federal operating PPS payments is used to control for the hospital's likelihood of treating costly patients (Jha et al. 2009). The author controls for number of other hospitals in the area to account for any competition effect. Further, the author controls for hospital ownership (Ding 2014) and location of the hospital (Jha et al. 2009).

RESULTS AND DISCUSSION

Table 3 gives the OLS estimates. As can be gleaned, cost has a positive ($\beta = 6.10 \times 10^{-5}$) and highly

Table 3 OLS regression estimates (DV: Experiential quality)

Variable	Coefficient	(Std. Error)
Cost	6.10×10^{-5}**	(2.63×10^{-5})
CMI-adjusted length of stay	–0.095**	(0.047)
Hospital size	0.543	(0.554)
Nurse ratio	0.004	(0.024)
Number of competitors	0.010	(0.019)
Government (local[a])	1.509	(1.831)
Proprietary[a]	2.331*	(1.363)
Voluntary (nonprofit – church[a])	3.464**	(1.413)
Voluntary (nonprofit – other[a])	4.844***	(1.375)
Voluntary (nonprofit – private[a])	2.917**	(1.355)
Government (federal[a])	1.176	(3.241)
Government (state[a])	3.243	(3.390)
Resident-to-beds ratio	2.524	(2.960)
Other urban[b]	0.701	(0.899)
Rural[b]	1.292	1.974
Operating disproportionate share adjustment	–12.167***	(2.117)
Operating outlier payments	9.029	(6.534)
Constant	59.205***	(2.832)

[a] Holdout group: Government (hospital district)
[b] Holdout group: Large urban
***$p < 0.01$, **$p < 0.05$, *$p < 0.10$

significant ($p < 0.05$) effect on experiential quality, while CMI-adjusted length of stay has a negative ($\beta = -0.095$) and highly significant ($p < 0.05$) effect. Since higher cost implies lower cost efficiency, the interpretation of positive coefficient is that hospitals that are highly cost efficient have lower experiential quality. The coefficient of cost seems to be small because the average cost is very high ($15,331.04). This result implies a tradeoff between cost efficiency and patient experience for hospitals. Thus, hypothesis *H1* is supported. Further, the interpretation of a negative coefficient of CMI-adjusted length of stay is that hospitals in which patients are retained longer tend to have lower experiential quality. This finding supports hypothesis *H2a*. Based on past results that imply a negative effect of length of stay on clinical quality outcomes (KC and Terwiesch 2012), there seems to be a tradeoff for hospitals in terms of achieving better clinical quality outcomes as well as experiential quality outcomes (Chandrasekaran, Senot, and Boyer 2012). In terms of ownership effect, the author finds that nonprofit hospitals have the highest experiential quality followed by proprietary and then government-owned hospitals at local and hospital district levels. Finally, he finds hospitals that treat a higher proportion of uninsured or Medicaid patients have lower experiential quality.

The results of this study have several implications for hospital administrators. First, hospital administrators need to improve experiential quality significantly, and it may be by investing in resources, especially nurses, so patients are satisfied. Patient experience is increasingly important in light of the outcome-based reimbursement of Medicare and to attract patients from different countries and/or domestic patients insured by private payers to offset the loss incurred by treating a higher proportion of Medicare patients. Cleveland Clinic is a leading example (Raman and Tucker 2013), which can be followed by other hospital administrators to improve experiential quality. Although there is currently a tradeoff between cost efficiency and experiential quality, hospitals may be able to lower costs by having higher experiential quality over the long run. Better patient experience may lead to higher demand since insurance companies are increasingly sending their patients to low-cost, high-quality hospitals (Bordonaro 2014) by creating "preferred networks." Further, based on the author's results, hospital administrators need to focus on developing an optimal length of stay for patients based on their DRG so that both clinical quality outcomes and experiential quality outcomes are better. Lower length of stay rates will lead to a higher likelihood of readmission (KC and Terwiesch 2012), while hospitals with higher length of stay rates have lower experiential quality (see Table 3). Finally, based on the author's findings relating to control variables, hospital administrators of government and proprietary hospitals need to study the processes and quality management techniques in place at nonprofit hospitals in order to improve patient experience.

CONCLUSIONS AND LIMITATIONS

The author studies the effects of cost efficiency and length of stay on experiential quality in healthcare to assess if there is any tradeoff between cost and quality in healthcare (Jha et al. 2009) and if there is any tradeoff between achieving better experiential quality and clinical quality outcomes (Chandrasekaran, Senot, and Boyer 2012). While there has been some evidence of a cost-quality tradeoff in hospitals (Jha et al. 2009), the effect of cost efficiency on experiential quality is still unknown. Analysis of these data brings to mind two tradeoffs that hospital administrators should consider. First, the author finds that hospitals trade off cost and experiential quality. Although it is a tradeoff for hospitals to choose between cost and quality, hospitals may be able to achieve lower cost in the long run by investing in resources to achieve higher experiential quality, as in manufacturing (Black and Miller 2008). Second, the author finds that length of stay negatively affects experiential quality, while previous research (KC and Terwiesch 2012) found that a shorter length of stay increases the likelihood of patient readmission. This creates an experiential quality-clinical quality tradeoff. Similarly, past research has identified that the implementation of some of the process management techniques creates a tradeoff between simultaneously improving clinical quality and experiential quality outcomes (Chandrasekaran, Senot, and Boyer 2012). Hospital administrators need to manage length of stay better so both clinical quality outcomes and experiential quality are higher. These findings demonstrate the need for additional research regarding how to improve experiential quality in hospitals.

Although the data to understand how experiential quality was created did not allow the author to research this question, hospital administrators can learn how to balance cost and quality tradeoffs from leading hospitals like Cleveland Clinic (Raman and Tucker 2013), which is vital for their existence given the move toward value-based purchasing in healthcare. Healthcare administrators may benefit from analyzing the experiential quality they provide using Garvin's (1987) dimensions of quality. By looking at the individual dimensions, they may gain insight into how to improve experiential quality. To overcome the cost-experiential quality tradeoff, hospitals can invest to become more focused in terms of treating a higher proportion of patients of a particular DRG. Previous research has shown that focus improves quality outcomes as well as lowers costs (KC and Terwiesch 2011; McDermott and Stock 2011). Although results regarding the effect of health information technology (HIT) on cost and quality outcomes have been mixed in the healthcare literature, it will be better for hospitals to invest in electronic medical records and other HIT bundles to improve both clinical quality and experiential quality outcome measures and lower the cost.

As with other empirical studies, this study has certain limitations. First, the author uses cross-sectional data from 2010. A longitudinal study measuring the time-series effect will be beneficial. It will be interesting to see the long-term impact of investments to improve experiential quality on cost in healthcare. Second, this study uses data on California hospitals alone. A study generalizing this result to the entire U.S. acute care hospitals or finding different statewide effects will be helpful to enrich the healthcare operations and quality management literature. It will be interesting to study the long-term effect of organizational learning on experiential quality as well since organizational learning by treating a higher volume of patients has been shown to lower the total cost (Ding 2014).

REFERENCES

Aetna. 2014. The facts about rising health care costs. Available at: http://www.aetna.com/health-reform-connection/aetnas-vision/facts-about-costs.html.

Betbeze, P. 2011. HealthLeaders Media Council, industry survey. Available at: http://www.healthleadersmedia.com/pdf/survey_project/2011/Overall_Cross_Sector_press.pdf.

Black, J., and D. Miller. 2008. *The Toyota way to healthcare excellence: Increase efficiency and improve quality with lean,* first edition. Chicago: Health Administration Press.

Bordonaro, G. 2014. Insurers push tiered-network plans to CT employers. Available at: http://www.hartfordbusiness.com/article/20141201/PRINTEDITION/311269982/insurers-push-tiered-network-plans-to-ct-employers.

Chandrasekaran, A., C. Senot, and K. K. Boyer. 2012. Process management impact on clinical and experiential quality: Managing tensions between safe and patient-centered healthcare. *Manufacturing & Service Operations Management* 14, no. 4:548–566.

Curkovic, S., S. Vickery, and C. Droge. 2000. Quality-related action programs: Their impact on quality performance and firm performance. *Decision Sciences* 31, no. 4:885–902.

Ding, D. X. 2014. The effect of experience, ownership and focus on productive efficiency: A longitudinal study of U.S. hospitals. *Journal of Operations Management* 32, no. 1-2:1–14.

Fisher, E. S., D. E. Wennberg, T. A. Stukel, D. J. Gottlieb, F. L. Lucas, and E. L. Pinder. 2003. The implications of regional variations in medicare spending: The content, quality, and accessibility of care. *Annual Internal Medicine* 138, no. 4:273–287.

Garvin, D. A. 1987. Competing on the eight dimensions of quality. *Harvard Business Review* 65, no. 6:101–109.

Grote, K. D., J. R. S. Newman, and S. S. Sutaria. 2007. A better hospital experience. Available at: http://workplaceelements.com/wp-content/uploads/2011/11/2007_A-Better-Hospital-Experience.pdf.

James, J. T. 2013. A new, evidence-based estimate of patient harms associated with hospital care. *Journal of Patient Safety* 9, no. 3:122–128.

Jha, A. K., E. J. Orav, A. Dobson, R. A. Book, and A. M. Epstein. 2009. Measuring efficiency: The association of hospital costs and quality of care. *Health Affairs* 28, no. 3:897–906.

KC, D. S., and C. Terwiesch. 2011. The effects of focus on performance: Evidence from California hospitals. *Management Science* 57, no. 11:1897–1912.

KC, D. S., and C. Terwiesch. 2012. An econometric analysis of patient flows in the cardiac intensive care unit. *Manufacturing & Service Operations Management* 14, no. 1:50–65.

Liker, J. K. 2004. *The Toyota way: 14 management principles from the world's greatest manufacturer*, first edition. New York, NY: McGraw-Hill.

Marley, K. A., D. A. Collier, and S. Goldstein. 2004. The role of clinical and process quality in achieving patient satisfaction in hospitals. *Decision Sciences* 35, no. 3:349-369.

McDermott, C. M., and G. N. Stock. 2011. Focus as emphasis: Conceptual and performance implications for hospitals. *Journal of Operations Management* 29, no. 6:616-626.

Pope, D. G. 2009. Reacting to rankings: Evidence from "America's best hospitals." *Journal of Health Economics* 28, no. 6:1154–1165.

Porter, M. E., and E. O. Teisberg. 2006. *Redefining health care: Creating value-based competition on results*, first edition. Boston, MA: Harvard Business School Publishing.

Raman, A., and A. L. Tucker. 2013. *Cleveland Clinic: Improving the patient experience.* Boston, MA: Harvard Business School.

Shwartz, M., A. B. Cohen, J. D. Restuccia, Z. J. Ren, A. Labonte, C. Theokary, R. Kang, and J. Horwitt. 2011. How well can we identify the high-performing hospital? *Medical Care Research and Review* 68, no. 3:290–310.

Stone, J., and G. J. Hoffman. 2010. Medicare hospital readmissions: Issues, policy options and PPACA. Available at: http://www.ncsl.org/documents/health/Medicare_Hospital_Readmissions_and_PPACA.pdf.

Stukel, T. A., E. S. Fisher, and D. A. Alter. 2012. Association of hospital spending intensity with mortality and readmission rates in Ontario hospitals. *Journal of American Medical Association* 307, no. 10:1037–1045.

Tokunaga, J., and Y. Imanaka. 2002. Influence of length of stay on patient satisfaction with hospital care in Japan. *International Journal for Quality in Health Care* 14, no. 6:493–502.

BIOGRAPHY

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APPENDIX

The OLS regression equation is:

$$EQ_j = \beta \mathbf{x}_j + \gamma \mathbf{z}_j + \varepsilon_j,$$

where *EQ* is the experiential quality, x is the vector of independent variables (cost and CMI-adjusted length of stay), z is the vector of control variables (hospital size, nurse ratio, number of competitors, ownership type, location, operating disproportionate share adjustment, and operating outlier payments), β and γ are the respective vectors of coefficients to be estimated, ε is the error term, and *j* indexes the hospital.

HCAHPS surveys measure patient experience using the following 10 questions:

1. How often did nurses communicate well with patients?
2. How often did doctors communicate well with patients?
3. How often did staff explain about medicines before giving them to patients?
4. How often were the patients' rooms and bathrooms cleaned?
5. How often was the area around the patients' rooms quiet at night?
6. How often did patients receive help quickly from hospital staff?
7. How often was patients' pain well controlled?
8. Were patients given information about what to do during their recovery at home?
9. How do patients rate the hospital overall?
10. Would patients recommend the hospital to friends and family?

Responses to the first seven questions could be "Always," "Usually," or "Sometimes/Never"; responses to the eighth question could be "Yes" or "No"; responses to the ninth question could be "0 to 10" (however, data are available on an aggregate basis only for percent respondents for 0 to 6, percent respondents for 7 to 8, and percent respondents for 9 to 10), and response to the 10th question could be "Definitely Yes," "Probably Yes," or "Definitely No." The author computes experiential quality by averaging the percent respondents of "Always" for the first seven questions, percent respondents of "Yes" for the eighth question, percent respondents of "9 to 10" rating for the ninth question, and percent respondents of "Definitely Yes" for the 10th question.