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Gaps in Alcohol Screening and Intervention Practices in Surgical Healthcare: A Qualitative Study

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Abstract

Objectives.—Risky alcohol use prior to surgery is associated with an increased risk of postoperative complications and longer hospital stays. Preoperative alcohol interventions can improve surgical outcomes but are not commonly integrated into routine care. This study sought to better understand patient’s and provider’s perceptions of alcohol-related surgical health and healthcare practices and illuminate gaps in care and how they could be improved.

Methods.—This study used a descriptive qualitative research design. Data were collected between July 2017 and March 2018. One-on-one interviews assessed domains related to knowledge, gaps in alcohol-related screening and intervention, and interest in enhancing alcohol-related care. Key themes emerged from a process of iterative coding and thematic analysis.

Results.—Participants included elective surgical patients who met alcohol screening criteria (n=20) and surgical healthcare providers (n=9). Participants had modest or low awareness of alcohol-related surgical health risks. Basic alcohol screening was a routine part of care, but results were often discounted or overlooked. Providers did not routinely initiate preoperative alcohol education or intervention. Providers viewed improving alcohol-related clinical practices as a low priority. Patients were interested in receiving alcohol interventions prior to surgery if they were delivered in a non-judgement style and focused on surgical health optimization.

Conclusions.—This study highlights potential gaps in alcohol-related knowledge and care, and found providers place a low priority on alcohol interventions in the perioperative context. Given the high complication rate associated with preoperative alcohol use, these topics are worthy of future research. To be successful strategies to overcome specific barriers to alcohol screening and intervention must address the needs of patients and providers.

Keywords

Alcohol Use; Postoperative Complications; Qualitative Research; Elective Surgery; Alcohol Screening

INTRODUCTION

Risky alcohol use prior to surgery, defined as consuming >2 drinks per day, is one of the most common surgical risk factors.¹ It's associated with a nearly 2-fold increase in likelihood of postoperative infections, pulmonary complications, prolonged hospital stay, and admission to the intensive care unit.^{2,3} Consuming more than 4 drinks per day is linked to a nearly 3-fold increase in postoperative mortality.² These alcohol-associated surgical complications aren't specific to certain operations or subpopulations, but are evident across a range of operations even after controlling for relevant covariates.²⁻⁵ The likelihood of complications increases as a function of alcohol consumption, even when other symptoms of alcohol use disorders are absent.⁴⁻⁶ Alcohol use also has similar risks of poor postoperative outcomes when compared to smoking, a more well-known surgical risk factor,^{2,7} Additionally, heavy alcohol increases the likelihood of mortality.² The causal relationship between alcohol consumption and surgical complications is further evidenced by studies linking short-term preoperative abstinence to lower likelihood of surgical complications.⁸ Identifying patients increased risk for surgical complications due to alcohol use could save lives and reduce perioperative healthcare costs.⁹⁻¹²

Preoperative alcohol screening and intervention is an important yet frequently overlooked area of surgical health optimization.^{8,13,14} Key surgical and anesthesia groups recommend alcohol screening prior to surgery,¹⁵ yet research suggests this practice is overlooked or sub-optimal.^{14,16,17} Furthermore, empirically-supported alcohol interventions decrease the likelihood of surgical complications when delivered at appropriate time points,⁸ but are not common in practice. In fact, only a few studies exist in the literature on this topic as a whole.^{8,13} Changing attitudes, screening, and interventions practices would require engagement of patients, healthcare providers, and broader institutional leadership. The existing gaps in care, attitudes and motivations of patients and key stakeholders are as of yet unknown.

Understanding the views of such individuals is a critical first step in designing future research to enhance alcohol-related surgical healthcare.

This study sought to explore patients' and surgical healthcare providers' perceptions of alcohol-related surgical health and healthcare practices, as well as identify key gaps in identification and management of patients with alcohol problems. Given the formative nature of this line of research, we chose a method of qualitative inquiry. Qualitative methods are necessary when little is known about a topic area and researchers seek to understand the experiences of key stakeholders to generate directions for future research. We sought to (a) characterize patients' and providers' knowledge and risk perceptions regarding alcohol use and surgical health, (b) better understand patients' and providers' perceptions of alcohol screening practices in surgical settings, and (c) better understand how providers and patients perceive alcohol interventions and their relative importance to surgical care. The qualitative research design allowed us to explore participants' perceptions on perioperative alcohol use to help guide future development and implementation of preoperative alcohol use interventions.

METHODS

Using a qualitative descriptive approach, we conducted a single-center, cross-sectional study of surgical patients (n=20) and healthcare providers (n=9) in a large Midwestern academic/medical center. Institutional Review Board approved this study. Informed consent was obtained from all participants. Data collection occurred July 2017 to March 2018.

Design and Procedure

Interviews.—A detailed protocol guided each interview (see Appendix A). All interviews took place in private office spaces or over the phone. Phone interviews were offered to reduce barriers to participation. Each audio-recorded interview lasted approximately 75 minutes. A HIPAA compliant company transcribed each interview verbatim and removed personal identifiers. Self-report surveys and health records provided demographic data.

Participants and Recruitment

Surgical Patients.—We used a convenience sampling strategy to recruit patients in person or by phone. Patients from the preoperative anesthesia clinic completed a screening questionnaire to determine study eligibility. Participants were paid \$40 as an incentive to take part in the interview. We assessed inclusion and exclusion criteria from electronic health record review and patient screening questionnaires. We excluded patients scheduled for procedures with local anesthesia or surgeries that had strict alcohol exclusion criteria (bariatric and transplant surgery). Patient inclusion criteria included: (1) scheduled for an elective or semi-elective surgical procedure in the next 90 days, (2) score of $\geq 4/5$ (women/men) on the Alcohol Use Disorders Identification Test, Consumption (AUDIT-C) questions¹⁸, (3) aged 18 to 75 years-old, (4) fluent in English, and (5) able to sign their own consent form. Scores on the AUDIT-C range from 0 – 12.¹⁸ A cutoff of 5 was chosen for men based on research indicating a score of ≥ 5 on the AUDIT-C is linked to an increased incidence of postoperative complications.⁴ A cutoff of 4 was chosen for women to adjust for

gender differences in alcohol-related metabolism and health problems.^{19,20} These cut-offs are slightly higher than the standard alcohol risk cut-offs for the AUDIT-C.²¹ After reaching data saturation²² for patients with less severe alcohol use, we sampled patients with higher alcohol problem severity (AUDIT-C score ≥ 7).

Provider Participants: Provider participants included licensed medical/surgical providers currently providing care of patients within the designated health system. We recruited providers via e-mail using purposive and snowball sampling methods, targeting those in leadership positions. Recruitment continued until interviews yielded information redundant with pre-existing themes and no new themes or codes emerged.²² Participants were paid \$40 as an incentive to take part in the interview.

Analysis

We used Applied Thematic Analysis²³ to identify themes in qualitative data. Three researchers coded initial transcripts independently and met to establish consensus and codebook definitions for themes derived from the data. Coding used NVivo qualitative data analysis software (QSR International Pty Ltd. v11, 2015). Triangulation with two or three researchers reviewing all transcripts and codes resolved discrepancies through discussion. Data reduction processes included creating data matrices and thematic summaries with exemplar quotes. At key stages, researchers with expertise in surgery, health services research, and qualitative and mixed methods research reviewed and provided feedback on (a) coding, (b) themes/codebooks, and (c) data reduction.

Several validation techniques were used throughout data collection and analysis, including (a) expert review of interview agendas, themes, and findings, (b) content coding to ensure all domains of interviews were included in transcripts, (c) triangulation to review codes and themes, (d) exploration and presentation of disconfirming findings, and (e) member checking of provider themes. For member checks, we sent a summary of our themes and findings to provider participants and elicited feedback.

RESULTS

Demographic Characteristics/Information

In total, N=369 patients agreed to take part in the eligibility screening and provided complete data. In total, N=20 patients consented and participated in the qualitative interview. The provider sample included N=9 participants including surgeons (N=5), advanced practice professions (N=2) and registered nurses (N=2). Patient and provider characteristics are described in Table 1 and 2, respectively.

Theme 1: Knowledge of Alcohol and Surgical Risk.

Patients.—Some patients had never considered a connection between alcohol and surgical outcomes, while others believed alcohol shouldn't be consumed a day before surgery because it's a blood thinner (see Table 3). Patients with heavier alcohol problem severity were concerned about their alcohol use and how it may impact surgery, and some reported loved ones had stated concerns. None of the patients indicated they learned about alcohol

and surgical risk from their surgical providers. They instead received information from other places, including: (a) looking up information online, (b) relying on ‘common sense’, (c) asking friends, or (d) receiving advice from family.

Providers.—Providers indicated they weren’t aware of research on alcohol and surgical health outcomes, nor had it been emphasized during training/education. They generally didn’t view alcohol use as a major risk factor in terms of surgical complications unless the patient had a severe alcohol use disorder and was at risk for postoperative withdrawal and/or pain management challenges. Providers mentioned a lack of personal, anecdotal evidence that alcohol was affecting surgical recovery among their patients, but recognized they didn’t always know which patients were drinking heavily enough to draw such connections. Providers viewed alcohol use as relatively ‘low risk’ from a surgical health perspective, ranking it below conditions like obesity, smoking, and diabetes.

Theme 2: Alcohol Screening Practices Prior to Surgery

Patients.—Patients indicated they were comfortable answering questions about alcohol use prior to surgery. They confirmed they’d been asked about alcohol sometime during their preoperative evaluation, either by paper form, verbally, or via healthcare provider. While some patients believed they’d reported alcohol use accurately, others indicated they under-reported due to stigma or to avoid being lectured.

Under-reporting alcohol use also seemed to arise inadvertently. For example, when patients reported average drinks per week, they didn’t factor in heavier drinking days. Motivators for honest reporting included believing alcohol use information is helpful for surgical care and having a spouse present.

When asked what would improve alcohol reporting accuracy, patients indicated they’d like to know why they’re being asked about alcohol use prior to surgery, and that the information is relevant to their care (‘not just someone checking a box’). Patients also preferred questions delivered in a straight-forward and non-judgmental style.

Providers.—Some providers assessed alcohol use using quantity and frequency questions (e.g. drinks per day; drinks per week), while others lacked awareness of alcohol screening practices. For example, providers reported they weren’t sure how alcohol was assessed or where to access the information. Some recognized this wasn’t ideal and needed to change.

Alcohol use screening information was typically not communicated among team members. The sole exception was the otolaryngology clinic, where a validated alcohol screening tool was utilized due to the link between alcohol use and head/neck cancers. Providers also believed patient-reported alcohol information was inaccurate. This belief emerged across all types of providers and appeared to originate during medical training when providers were taught to ‘take what a patient reports and double it’. As a result, providers discounted patient-reported data and typically only noticed alcohol use in a patient’s medical record when ‘red flags’ emerged (e.g. emergency department visit for alcohol withdrawal).

Theme 3: Alcohol Intervention Prior to Surgery

Patients.—Patients didn't recall receiving formal education or information about alcohol and surgical risk from preoperative providers, with the exception of instructions to avoid alcohol 24 to 48 hours before surgery. Several participants with heavier alcohol use reported consciously tapering alcohol use to achieve this goal. Some viewed surgery as an opportunity to stop drinking for a period of time.

Several patients interpreted the lack of alcohol-related surgical risk information from their providers to indicate that preoperative alcohol use was safe. In contrast, patients who used tobacco received specific education and interventions related to quitting before surgery. Many patients received education about exercise, diet, and warnings about the addictive potential of opioid-based pain relievers, but not about alcohol.

Providers.—Providers were unaware of a protocol for alcohol intervention or education within the health system except for those related to alcohol withdrawal prophylaxis. They indicated alcohol-related discussions with patients are rare. Other addictive behaviors, such as smoking and opioid use, were more commonly discussed with patients and systematically integrated into standard care through various modalities (e.g. education, discussion, communication between team members, and mandates for quitting/tapering prior to surgery). Some providers used a 'harm reduction' approach to manage patients with alcohol more severe alcohol use disorders. For example, life-threatening situations such as alcohol withdrawal were avoided by scheduling shorter postoperative hospital stays.

Theme 4: Interest in Improving Alcohol-Related Care

Patients.—Patients reported interest in learning more about alcohol and surgical health, including learning basic facts on the topic, as well as receiving clear instructions about safe drinking levels before and after surgery. Some patients indicated clear medical advice from their doctor would motivate them to abstain for a few weeks before surgery, while others felt their compliance would depend on the medical rationale and likelihood of the risks.

Patients vocalized several potential concerns. They didn't want to be labeled an "alcoholic" and preferred that interventions focus on alcohol use from a surgical health optimization standpoint, and not on addiction, per se. Some patients felt paperwork or a website with this information would be helpful, while others were interested in a more focused, one-on-one conversation with healthcare providers, even if that meant booking a separate appointment.

Providers.—Providers were open to improving alcohol screening and intervention practices, but viewed it as low priority. While supportive of enhancing these practices, providers felt they needed more information and guidance regarding medical rationale and recommendations before making changes. Providers also felt the surgical clinic may not be the appropriate venue for an alcohol intervention, and that an outside program was more feasible given time-constraints and resources of the busy surgical clinic. Providers felt they'd be more motivated to improve alcohol screening and interventions if they: (a) had more education on the topic, (b) had clear information and recommendations to provide to

patients, (c) knew an alcohol intervention or treatment program they could refer patients to, and (d) could make these referrals through the electronic health record system.

DISCUSSION

To our knowledge, this is the first qualitative study to characterize healthcare providers' and surgical patients' beliefs about alcohol-related surgical risks and healthcare practices. Our results suggest critical gaps in surgical care regarding identification and management of patients whose alcohol use may increase their surgical risks. This qualitative study also highlights several potential explanatory reasons as to why these gaps exist and how they can be assessed and addressed in future research. This research is timely and important given sub-optimal alcohol screening taking place prior to surgery^{17,24} coupled with recent increases in drinking and alcohol use disorders in the United States.²⁵

Alcohol-related surgical risk perception was low in our sample of patients and providers overall. Yet, in this sample providers frequently de-emphasized the surgical risks associated with alcohol use and emphasized smoking as a more serious surgical risk factor, and one that garners a higher level of attention and intervention. This view is inconsistent with the research literature. Extant research clearly documents the link between pre-operative alcohol use and postoperative complications, including death.^{2,3} Alcohol use is also central factor in ranking surgical risk per the American Society of Anesthesiologists (ASA) risk classification system.²⁶ Thus, there may exist a critical knowledge gap related to alcohol and surgical risks among surgical healthcare providers making critical decisions about patient care. They cited lack of knowledge and training on this topic; thus educating providers is a likely first step, and one that may lead providers to educate and intervene with patients. Additional research on alcohol-related surgical outcomes may also be warranted, given the body of research on alcohol (relative to smoking) appears to be much smaller^{2,7} and not as widely disseminated. Educating providers about alcohol-related surgical risk could lead to increased patient education. This is important because patients described clear knowledge and education gaps related to alcohol-related surgical risks. In fact, patients cited using 'common sense', friends, and family as sources when making decisions about preoperative alcohol use. None had discussed the topic with their surgical healthcare providers. Additionally, patient education may increase motivation to participate in alcohol interventions, as a previous study found a higher preference for alcohol intervention among surgical patients familiar with the link between high alcohol intake and poor postoperative outcome.²⁷

Provider-reported alcohol screening practices described in this study were characterized by the use of non-validated questions, lack of follow-up, and lack of attention to important details. Therefore, alcohol screening could be greatly improved by implementing validated alcohol screening tools and discussing positive results with patients.²⁸⁻³⁰ Validated alcohol screening measures typically outperform well-intentioned clinicians when assessing alcohol use, and the preoperative setting is no exception.^{14,16} Another barrier to alcohol screening, was provider's pervasive belief that patients under-report alcohol use. This wasn't always accurate from patient's perspective. Many patients reported motivation to report alcohol use honestly prior to surgery, citing a desire to provide their surgical care team with accurate

health information to ensure a safe surgery. Other patients acknowledged under-reporting to avoid stigma and ‘being lectured.’ These barriers could be reduced by standardizing alcohol screening practices and by implementing what one healthcare provider suggested as “screening with a reason,” or telling patients why they’re being asked about alcohol use before surgery. Our findings show patients don’t always intuitively see the link between alcohol use and surgical health; thus, providing a medical rationale may be compelling enough to evoke more honest conversations about alcohol use. In terms of patients concerns about stigma, this this is unfortunately a reality in some healthcare interactions³¹ and provider training on this topic is warranted.

The lack of alcohol intervention reported in this study represents a missed opportunity. Our data found that patients with heavier drinking patterns saw surgery as an opportunity to stop drinking, sometimes for the long-term. In addition, patients voiced readiness to hear, and potentially follow, alcohol-related advice from their surgical care team if it were offered, mirroring other research findings.²⁷ However, there were very few instances where providers could recall asking patients to stop or reduce alcohol use before surgery. In some cases, providers also avoided managing postoperative alcohol withdrawal by shortening surgical length of stay so patients could go home and drink. This is a risky practice that could be avoided by using pre-operative alcohol interventions or standard and safe withdrawal prophylaxis protocols.³²

Pre-operative Alcohol Intervention Recommendations

There is a movement to develop surgical health optimization programs to address various patient health behaviors and improve surgical outcomes, thereby reducing complications and cost on a broad scale. These programs appear feasible and scalable and address behaviors like smoking, physical inactivity and obesity,^{33–35} but *don’t* typically address alcohol use.¹³ Given the availability of perioperative alcohol intervention protocols,^{8,36–41} this is an addressable gap. However, barriers to implementation exist and include lack of interest, conflicting clinical priorities, limited time in busy surgical settings, and lack of training and resources. Providers expressed the opinion that a comprehensive alcohol intervention program could fit better outside the clinic setting. Research suggests that it is critical that surgical patients experience the alcohol intervention as an integrated part of their preparation for surgery.⁴² Therefore, future alcohol intervention implementation efforts could explore (1) methods of building patient and provider motivation through education, (2) addressing real-world barriers, and (3) disseminating alcohol interventions through various platforms and modalities to ease access inside and outside clinic settings.

Limitations

Study limitations include recruitment from a single site and over-representation of male and Caucasian participants. The lack of heterogeneity of our sample may limit applications to other groups and are only meant to provide a preliminary view of this topic area. Although snowball sampling is an accepted and useful strategy for recruiting qualitative research subjects, it does not permit assessment of those who declined to participate. In addition, the goal of qualitative sampling is not to recruit a representative sample. The goals of qualitative

research are to elicit heretofore unknown explanations or perspectives and not to represent a mean value or distribution in the population.

As is the case of all qualitative research, our results represent the perspectives of those interviewed and the interpretations represent new hypotheses and directions for future research. Results, therefore, cannot be generalized to other populations or contexts but provide a focal point for larger scale validation.

Conclusion

This study proposes the existence of key gaps in knowledge, identification and management of patients with risky alcohol use prior to elective surgery. Preoperative alcohol use is associated with postoperative complications to the same extent as tobacco, but providers are largely unaware of these alcohol-related surgical risks. Furthermore, alcohol screening and intervention were viewed as a low priority among clinic staff. Patients, however, express interest in learning about alcohol-related surgical risk and willingness to take part in alcohol intervention if it would improve their postoperative outcomes. They often sought out information on this topic on their own. Fortunately, effective screening and intervention practices that could help prevent alcohol-associated surgical complications exist, however, increases in education, knowledge, and motivation are necessary steps to precede in implementation.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Patient Characteristics

	N = 20
Age	Median = 56.5 Range (21 – 70)
Female	5
Race	
White	17
Black	2
Other	1
Hispanic Ethnicity	1
AUDIT-C score	Median = 6 Range (4 –11)
Current Tobacco Use (yes)	6
Current Illicit Drug use (yes)	3
Surgery Type	
Orthopedic	6
Urology	3
Head and neck	2
Stomach	2
Gynecological	1
Nephrology	1
Ophthalmology	1
Elective Plastic	1
Neurosurgery	1
Colorectal surgery	1
Inguinal hernia repair	1

Table 2.

Provider Characteristics

Category	N = 9
Age	Median = 42 Range (34 – 53)
Years as a licensed practitioner	Median = 16 Range (6 –22)
Female	4
Provider Type	
General/transplant Surgeon	1
Colorectal Surgeon	1
Plastic Surgeon	1
Hand Surgeon	1
Head and Neck Surgeon	1
Advanced Practice Professional	2
Registered Nurse	2

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Table 3.

Summary of Themes and Findings from Provider and Patient Qualitative Interviews

Themes and Findings	Surgical Healthcare Providers	Patients
<p>Knowledge of Alcohol and Surgical Risk</p>	<p>“You could probably tell the healing difference between the, you know, few cigarettes per day person and a non-smoker. But someone drinks six pack of beer per day, it may not actually affect much of anything except for maybe their postoperative pain control and how they come in and out of anesthesia. The anesthesia part doesn't really affect me per say... “I think if their hemoglobin A1c is over 8 or 9, some of the attendings would say no to an elective procedure until you get your diabetes under control. So that would be something else.... in terms of alcohol use, that's not been something that's stopped us from doing surgery.”</p>	<p>“I haven't really thought about how alcohol might change the way that the surgery will go. I didn't know if that was an actual thing that could happen, I guess.” “Everybody's telling me now that it's [alcohol] slowing the healing process of my knee, the surgery on my knee, the alcohol. The doctor didn't say it, but everybody I talk to, they say ‘You know, that's... that's slowing you up.’”</p>
<p>Alcohol Screening Prior to surgery</p>	<p>“...tobacco is brought to our attention because it is part of the intake questionnaire that the patients fill out. Whereas, I don't even know...I feel like maybe alcohol use is in there but it's sort of, not in a way that comes out as clearly. I always know if someone reports being a smoker. It's not even all that clear to me if I know whether they report their alcohol use.” “I've never asked anyone about if they've been addicted to something in my life, in my 20 years of practice. It's just not part of surgical sensibilities. So we're working on that.” “I'm not sure how well we always screen for alcohol... I think that the statistics show that whatever heavy drinkers say, maybe it's double what they [say]...Not for everybody, but there's a certain percentage of people. So I don't think that we go further into questioning them. And that doesn't concern us, necessarily. In terms of that's going to stop us from doing surgery.”</p>	<p>“I reported [alcohol use] a little bit lower, just a little bit, but it's only because they gonna bring that up. I'm already here. I'm already in pain. The last thing I wanna hear is what I'm doing wrong or whatever...” “I don't feel I'm sensitive. I actually I don't mind disclosing [alcohol use] to the doctor because if there's an emergency or something, I'd rather they know how my lifestyle is and my health and do something about it or have an idea or to solve an issue or situation, which hopefully doesn't happen, but that's why I don't mind disclosing that kind of information.”</p>
<p>Alcohol Intervention Prior to Surgery</p>	<p>“I don't think that we've ever not done surgery because of someone's drinking... as long as they're not smokers because like I said threshold is real low, they won't even get the surgery date if they're a smoker. But the alcohol thing we don't emphasize on. So they can put anything other than like a fifth of vodka and they'll probably get to surgery.” “So in that particular case this gentleman was not motivated to quit, so the two areas of intervention were to insure he wasn't driving himself especially while he was being prescribed narcotics and for us to adjust our narcotic prescriptions appropriately. And also in this particular case he needed a shorter procedure and we did it as an outpatient simply so he can get home and start drinking again rather than withdraw in the hospital.”</p>	<p>“I figured if...if there was something really dire that they would tell me ahead of time. You know, say, Oh, no. You gotta stop [alcohol use] for a week. You gotta stop. You have to get it all out of your system for a month or something like that. I would think... if it were really gonna be a dangerous situation that they would give you warnings about it...” “Cuz I know it [alcohol] thins your blood too and I don't wanna lose too much or I don't want that to be the cause of something going wrong. I don't want it to be on me.... let it be on the doctor so I can blame him.... Yeah, so use this time to get my body right a little bit.”</p>
<p>Interest in Improving Alcohol-Related Care</p>	<p>“So if.... you gave me some amount of money and it was to be used for preoperative health optimization, I would probably spend it on things like smoking, obesity, diabetes....And I would not spend it on alcohol.”</p>	<p>“...if they added something in there that was specific to say, we want you a week before or two weeks before just to stop all consumption of alcohol. Yeah, I don't see a problem with that. I would probably try to comply with that. I don't know if I would 100 percent, but I don't...I don't have any issues with that if that was laid out to me in this preop folder. I would try to work on that.”</p>