

When A Surgeon Should Retire?

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ABSTRACT

The question that when a surgeon should retire has been the subject under discussion since long. In the present era, medical education, knowledge, training, and technology are evolving at a rapid pace. At the other end, age causes decline in physical and cognitive performance. So the older a surgeon is, the more likely that he is remote from his initial education and training in his specialty. Research also proves that the senior surgeons are hesitant to plan for their retirement. So far there is no definitive study matching surgical outcomes to surgeons' age. The author believes that work done in related domains can provide a better understanding of physician aging and cognition issues, and thus can suggest more effective strategies towards continuous professional development and lifelong learning in medicine.

Key Words: *Aging. Surgeons. Cognitive functions. Clinical experience. Retirement.*

INTRODUCTION

It is usually considered that wisdom increases with advancing age, but in due course even mentation becomes vain with advancing age. Observations of daily living reveal that our physical ability and skills decline gradually with age, while experience and knowledge persists for a long-time. With advancing age, physical strength is the first to deteriorate, followed by vision, then dexterity and finally cognition.¹ Mostly the knowledge, experience, and reputation compensate the decline of physical strength and skills for a long-time. The decline of physical skills commences, near the end of third decade of life (around the age of 28 years), whereas, the cognitive skills diminish later.^{2,3}

In 1905, Sir William Osler, when he was 55-year-old, openly spoke of the "comparative uselessness" of men more than 40 years of age. He asserted that men should retire when they are 60 years old. His remarks provoked an outburst of controversy, but he kept his stance that men of intellect should stop working at the age of 60 years.⁴

About 40 years later, one of the greatest surgeons, Ferdinand Sauerbruch, who was in his late 60s, developed mood changes and periods of forgetfulness. His attitude became harsh towards assistants, he performed surgeries with clumsiness and started having more complication per and postoperatively. Due to his fame and glorious past, it was difficult for the institution to send him on retirement. He had little insight about this change and in spite of personal individual efforts from his friends suggesting retirement, he refused flatly. After

continuous effort from authorities and public pressure, he finally relented at the age of 74 years but continued to perform surgeries at his home with devastating results.⁵

Although, Sir Osler's opinion might have been biased by social and cultural aspect of the time, but the debate of age-related compulsory retirement continues in many professions, especially in medical profession. The reason for this compulsory retirement in medical profession is public safety, particularly about surgeons where demonstration of skill is more important.⁴

Aging and surgeons: In addition to knowledge, the surgeon's profession is mainly based on manual skills and competence. During the career, most surgeons usually attain their peak of overall performance during the second half of fifth decade (45 - 50 years of age). The decline of merely physical skills, which had begun near the end of the third decade, becomes compensated with the growing experience and cognitive skills, during the fourth and fifth decade of life.⁶ The extensive experience alone can be an alternative for a lot of mechanical skills, but is not adequate to alleviate the unavoidable change in cognition. With the advancing age, there is a decrease in cognitive processing efficiency and skills relating to reaction time, attention span, and visual learning.⁷ At this age, habitual memory is conserved better as compared to controlled analytic or recall memory, but for a good surgeon both are required.^{6,7}

For a surgeon in his/her sixth or seventh decade of life, it is more likely to be distant from the initial education in his specialty. Almost all over the world, usually a medical student starts medical school at 18 - 20 years of age. This undergraduate education usually lasts 4 - 5 years and then he starts his specialty training and education around the age of 26 to 28 years. In general, specialty or sub-specialty training lasts for 5 - 6 years. As a result, the initial specialty education ends approximately when a surgeon turns 31 - 35 years old. Predictably, the

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remoteness of a surgeon's initial education can be calculated by his age minus 31 years. Therefore, this issue of remoteness of education is needed to preserve formerly acquired skills, learn new skills, techniques, and grow through the experience.^{8,9}

Nowadays, changes in medical education, training, and technology are rapidly evolving all over the world. It is more likely that an older surgeon may not be keeping pace with such changes and be distant from his or her initial education in his or her specialty. This is usually because in majority of cases every treatment or procedure, practised about 25 years ago, has been discarded or changed. To give examples, the management of almost all traumatic fractures has changed significantly. Similarly, there is a remarkable change in the surgical treatment of all degenerative joint diseases.¹⁰ Literature review shows only a few research projects which have evaluated the correlation between age of surgeon or education's remoteness and the outcome of his surgeries performed. The less quantity of education and more remoteness of education are not always considered to be related to age. The chronologic time, when knowledge was attained, differs and the curriculum of training also varies from present curriculum contents. This can be improved by continual medical education and professional development.^{8,11}

It is observed that the aging doctors or surgeons make more precise preliminary diagnoses in complex scenarios due to non-analytic diagnostic approach. On the contrary, younger surgeons depend more on analytic interpretation to make diagnoses. Statistically, up to 40% of their initial diagnoses prove inaccurate. At the other end, reluctance of some senior doctors to search or adopt alternative plan for diagnosis and management can lead to problems.⁹ This does not mean that the critical reasoning is better than non-analytic logic. Realistically, if one takes too long to analyse a clinical scenario, it can affect performance; and similarly, if one goes too much with the gut feelings, again it may harm the performance.⁶

Life of a senior surgeon: Older surgeons are mostly well respected by their peers as teachers and mentors. They are appreciated and loved by their long-time patients. In reality, a senior surgeon has treated a large number of patients with different diseases. So, when a patient reports with a complex medical problem or disease, the senior surgeon, having experience of handling these complex scenarios many a times before, recognises more accurately and without difficulty and manages that problem than a novice. Similarly, in case of some rare or complex disease, the experienced surgeon, having experience of such scenarios before, will have a greater probability of identifying the condition than a young surgeon.⁵ The beginner may be taught in theory how a patient responds to treatment, while a

senior surgeon will have experienced that in reality, how the patients have responded to management or surgeries performed on them. The theory and the experience may not correspond in each scenario.¹²

Another important observation regarding patients' attitude in choosing a surgeon for their treatment is that, they are reluctant to undergo a procedure performed by a junior surgeon. A study concluded that this attitude is strongly related to age, awareness, and level of education attained by the patient.¹³

On the contrary, both anecdotal evidence and objective evaluation of surgeons suggest that the age causes decline in their physical and cognitive performance. These subtle cognitive and physical changes lead to varying decline in visual-spatial capability, verbal memory, inductive interpretation, and other domain of cognition. These changes may affect their skills, clinical judgement and performance which may lead to maltreatment of the patients undergoing surgery. The surgeon and his contemporaries may not notice such problems until the deficits start to become critical.¹⁴

Moreover, the medical education, internship, post-graduate training, and technology are evolving rapidly. So it is more likely that for an older surgeon, all these developments in his specialty are either inaccessible or distant.¹⁵

Literature search strategy: Literature search and data were collected from original research papers, cross-sectional studies, survey reports, review articles, open-label studies from 1993 to 2014. The research terms include aging surgeons, cognitive functions, skills and retirement. Data was extracted from websites and other online resources of American College of Surgeons, Medline, PubMed, NCBI, Medscape, Google Scholar, Scopus and Web of Knowledge resource centres through internet. Some of the data was searched manually through library resources.

When a surgeon should retire? The question that 'when a surgeon should stop working', has been an area under discussion for years. For more than a decade, various surgical societies in USA have been trying to grasp this issue, but there has been no effective development towards a way out.¹⁶ Different studies conclude that the surgeon's age is a relatively weaker predictor of operative morbidity and mortality in aggregate and can be used for discriminating performance among individual surgeons.¹⁷ Studies show that one-fifth of surgeons older than 70 years continue to operate.^{18,19} In Pakistan, 70-year age limit is set for final retirement of doctors by Pakistan Medical and Dental Council (PMDC). After attaining this age limit, either doctor should retire altogether or alternatively he can continue work in same institution on contract in a different capacity like teacher, researcher or educational supervisor, but should not be allowed to undertake clinical practice.²⁰

On the other hand, the demand for experienced surgeons is growing and some specialties are facing critical shortage of them. Data shows that a significant percentage of physicians are aging. At the other end, a lot of hospitals have apprehensions about their reliance on aging medical professionals. Researchers from Canada and Australia have taken the lead in investigating that how the greying of the medical profession is affecting the healthcare. At present, about 24% of health workers in Australia is at least 55-year old. In Canada, the proportion of doctors older than 65 years is expected to reach 20% by the year 2026.⁹

In a study, Bieliauskas and his colleagues observed that although retirement decision is affected by cognitive changes perceived by the surgeons, but they are not associated with objective assessment of cognitive change. So they are not always consistent in the decision to retire. The development of voluntarily accessible assessment of cognitive changes in relation to aging may be helpful in reaching a decision either to retire or to continue surgical practice.^{1,11}

A survey done by Miscall and his colleagues, regarding retirement plans of surgeons, has observed that only less than 50% surgeons have any retirement plan, and among those the majority had planned their post-retirement activities in medical profession. Majority of the surgeons are of the opinion that they will retire with the onset of physical disability rather than age.²¹

Although there is no consensus on the retirement age for surgeons, and at present there is no well-known procedure to tackle with this matter until adverse outcomes occur; but the surgeons have to understand that their skills will decline. So an appropriately intended retirement can be more pleasing and satisfying.⁴

Why surgeons resist retirement? Literature review shows that majority of surgeons are hesitant to plan for their retirement.^{4,19,21-24} This attitude has multiple reasons. To become a surgeon is conceivably the most honoured and privileged profession of all professions. The ill, anxious, terrified, and pained patients and their relatives by trusting, handover their precious issues of life and death, life and limb, vitality and sickness, to the surgeon. To be so burdened and at the same time so honoured is a privilege that no other profession bestows. This is one of the main reasons that a surgeon continues his craft even after his skills are deteriorated, because there is no other activity nearly as satisfying and rewarding as surgery.¹²

Secondly, opposition to change is a hindrance to the choice of retirement. It would be very difficult to compromise on the situations totally different than that of a busy surgeon as compared with that of a retired surgeon. It must be very terrifying to embark on such a huge and abrupt change. It is very difficult to presume that if one can bear the new circumstances, and

moreover for all practical purposes, the decision to retire is irrevocable.⁵

Rovit is of the opinion that the lack of self-esteem, resistance to change and fear of death are the main reasons due to which surgeons resist retiring.² It is hard to understand by a layperson that how lack of self-esteem can probably be a factor in a surgeon's logic not to retire. The external *persona* demonstrated by a typical surgeon is one of extreme confidence; but most of the time this is a deception, because a good surgeon is usually only one or two bad operations away from a good career and complete loss of self-respect.

Finally, mostly surgeons feel their own importance and value in performing surgery. They think that if they stop performing surgery, then they run a threat that they might lose their worth. At the other end, only a few surgeons show insight to the decline in their skills with the passage of time.^{1,25}

At the other end, it is also observed that a certain percentage of surgeons, even in the old age, are active in adopting new innovations and in dealing with difficult cases.²⁴ During a survey, most of the senior surgeons reported no deterioration in apparent cognitive abilities; and maintenance of these skills, was the main reason behind their decision to continue practicing surgery.²⁶ A study done by Greenfield's group established that majority of senior surgeons found no change in perceived cognitive skill with advancing age.²¹ At the other end, Davis *et al.* reported in their survey that physicians have an inadequate capability to assess themselves accurately. Some surgeons are unable to identify the effects of aging, which may place their patients and themselves at risk.²³

An interesting observation by Virshup *et al.*, after a survey over retired physicians to assess their life quality, reported that health, relationships with spouses and children are improved with minimal or considerably reduced emotional difficulties after retirement. Majority are enjoying comfortable or better standard of living and are engaged in a wide range of interests and activities.²¹

Skills and aging surgeon: Many studies observed that surgeons or physicians with increasing age have demonstrated decrease in their practice performance. Plausible explanations for these observations include that majority of older surgeons are not keen or less enthusiastic to adopt new techniques, therapies, diagnostic modalities, and new standards of care. Ineffective or inadequate continuing medical education programs may be one of the reasons regarding decreased performance among aging surgeons.²⁷ Generally, the aging surgeons have had a lesser amount of education, at a more remote time, which is less relevant to current technology. There is feeble evidence from clinical studies that links senior surgeon's age with more complications and less acceptance of recent technology.^{25,27}

Anecdotes propose that most of the surgeons, not having insight, are not willing to accept the steady deterioration of their own competence and skills. Different studies have continually reported that age causes decline in cognitive and physical performance of surgeons. Although the CCRAS (Greenfield's group) study concludes that surgeons perform better than general population in psychomotor areas and visual-spatial organization abilities.¹ Lee and Weston describe the aging surgeon as a double-edged weapon of increasingly competent diagnostic skill involving pattern recognition, countered by age-related deterioration in analytic reasoning skills.¹²

Different studies reveal that a good proportion of surgeons, with competency and skill concerns, have moderate to severe cognitive deficits.^{25,28} This neuro-cognitive deficit to doctors' aptitude is difficult to relate with surgeons' capabilities because the exact level of cognitive impairment that affects safe practice are not determined so far.¹⁸ In addition, literature also shows that an individual has an inadequate capacity to self-assess competency and he might be ignorant of decline in his cognitive skills.^{1,23} Hence, it is more likely that surgeons might not aware by themselves that when they are too old to practise competently.

Literature review reveals that increasing surgeon's age makes a complex surgery more risky or difficult to perform. There is sufficient evidence that patients usually have better outcomes when managed by younger physicians.^{9,29-31} For example, Collers reported that when someone undergoing a complex operation, such as pancreatic or cardiac surgery, is more likely to die postoperatively within thirty days if the surgeon is older than 60 years.⁹ Similarly, after reviewing studies regarding association of physicians' age to quality of care, the Harvard Medical School researchers also discovered that older surgeons perform worse as compared to younger doctors in many domains, including malignancy screening and diagnosing different diseases.²⁷ Similarly, Waljee *et al.* also observed after reviewing 46100 patients' files that older surgeons have high operative mortality for pancreatectomy, carotid endarterectomy and coronary bypass graft surgery as compared to younger surgeons.¹⁷ The same observation was also made by O'Neill and his colleagues after reviewing the results of endarterectomise.³⁰

Literature analysis, connecting quality care with clinical experience, observed that clinical experience and chronologic age have close relation with each other. Green *et al.* analyzed 62 publications on this topic and concluded that there is definitely a decline in performance with increased age. Among them, 21% showed a decline in some domains and only 3% showed first rise and then decline in outcomes with growing experience.¹⁰

A self-reported survey, done on senior surgeons, shows that increasing age is linked with diminished in caseload and case complexity.²⁶ This has been supported by Waljee, where she observed that high operative mortality rate in older surgeon is limited to surgeons with low procedure volume.¹⁷

Drag and his colleagues observed in their study that majority of senior or near retiring surgeons perform almost same or close to the level of their junior colleagues in all cognitive tasks. This concludes that older age does not predictably exclude cognitive proficiency. As a result, the inconsistency in performing cognitive skills at a senior level or at any age group proposes the need for proper assessment of objective cognitive performance. This will help the surgeons to perceive changes in their cognitive performance and help in their decision to retire.²⁴

Should older surgeons be forced to retire? So far the literature review has proved that the age should not be the only criteria for retirement. Some countries like United Kingdom have statutorily mandated retirement age for surgeons, but in the United States there is no plan to enforce a retirement age for surgeons.^{23,32} Researchers have agreed that to determine precisely how aging have an effect on surgeon's performance is not simple. Moreover, it is not simple to make a decision that at what point of age, surgeon should be forced to hang up rather than be encouraged to improve their clinical skills.⁹ Still it is an uphill task for medical regulatory bodies to establish the appropriate factors which in combination can be applied effectively to assess an individual surgeon's ability to practise safely.

Stopping to practice or refusing to employ capable doctors just because they are old is, unrealistic and unfair. At the same time, allowing a surgeon to operate long after their skills have deteriorated, may be dangerous for the patients. But still most experts are of the opinion that older physicians make valuable contributions to healthcare and medical profession.⁹ After evaluation of 108 senior surgeons, Drag and his colleagues are of the opinion that age only is not a satisfactory predictor of cognitive performance of a surgeon.²⁴ Currently, in developed countries, a variety of physician assessment and skill improvement programs are implemented, especially for older practising surgeons or physicians. Unfortunately, a standard and productive, practically feasible assessment system that balances rights of physicians and patients' safety is still lacking.³²

What is the alternate? The medical regulatory authorities have concern that both institutional and personal problems can happen when surgeons keep on practising in spite of age limitations. In this regard more positive attitudes and approaches toward retirement are needed. In addition, there is a need to devise realistic system for evaluation of performance which reflects a

surgeon's response to aging.²¹ At the other end, the experts on aging are very careful about jumping to conclusions in this matter. They are of the opinion that surgeons nearing retirement, as well as those who have exceeded their retirement age, vary widely in their skills and abilities.¹⁰

Problem regarding deteriorating or remote skills and education can be tackled amicably by educating the surgeons through CPD or CME programmes. With this, the problems related to the fading of surgeons' skill, their planning in making satisfying retirement and loss of all self-worth and self-esteem can be overcome in agreeable way and it may bring about changes that will persuade retirement at suitable time.⁷

The Aging Surgeon Programme is an unbiased, comprehensive, objective, multidisciplinary, and unbiased assessment of physical and cognitive skills for older surgeons. It was designed to recognize impending treatable or reversible disorders that, if treated properly, could restore or enhance functional competence. Results of the programme would protect surgeons from arbitrary decisions based on their chronologic age, and protect patients from risky or unsafe surgeons. Another indirect advantage of this programme is that it will ameliorate hospitals from legal responsibility and accountability risk.⁵

Kirk proposes a suitable and acceptable alternative for surgery would be full time teaching and training of undergraduates and postgraduates. He is of the opinion that aging surgeons can contribute in different areas comprising of preclinical teaching, e.g. anatomy, clinical teaching to medical students, training in basic and advanced surgical skills to registrars and junior surgeons. The common thread connecting these areas is that they all require a lot of time, significant supervision and place the senior surgeon in a position where his actions cannot cause harm to the patients.¹⁶ Perhaps, if the elder surgeons apprehend that there are ways to keep on making valuable contributions after retirement, other than performing surgery, then they might be more inclined to retire before their skills are gone.^{16,22}

Another alternative and workable option is that the senior surgeon should switch over their role as a mentor or as an associate consultant instead of working as a consultant on frontline. They can offer and utilize their expertise and skills as a subject specialist, including integrating a team, acquiring novel skills and methods. They can look after selective patients, or treat the patients with one common specific ailment and be responsible for administrative matters, teaching and supervision of medical students, junior doctors, and consultants.^{21,22,24}

Borkenhagen in his paper suggested a role for a semi-retired surgeon to play in rural hospitals, which is a

responsibility perhaps not full-on but varied enough, with involvement in some emergency work as well as to keep things operational. For an aging physician, the challenge is to sense the tipping point of one's flexibility and competence.²²

Neumayer and American College of Surgeons are of the opinion that older surgeons are not intrinsically unsafe or having less competence, but the learning process predominantly for complex new techniques warrants further investigation among them. In addition, the methods of teaching or training of new techniques to senior surgeon may need to be tailored. Keeping in view the ultimate consideration is the optimum outcomes for patients, structured courses to credentialing the new technology should be developed for senior surgeons.^{15,31}

CONCLUSION

It is recommended that regulatory authorities should explore the ways to take advantage of the cumulative expertise of the senior fellows by allowing them to continue if appropriate, performing less complex procedures without impinging on the satisfaction and productivity of younger colleagues. It is paramount to recognize and address the challenges, especially cognitive issues faced by the aging to improve the healthcare. By considering the fact that individual health also contributes to the decline in technical and cognitive skills, periodic medical assessment is essential. Where the senior colleague may fail to recognise or deny his diminishing skills, peer evaluation by direct observation is also important in assessment. We believe that work done in related domains can provide a better understanding of physicians' aging and cognition issues, and thus can suggest more effective strategies towards continuous professional development and lifelong learning in medicine. We conclude with implications for the healthcare system and areas of future research.

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