Clinical Fellowship: A Surgeon's Odyssey

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Abstract

The efficacy of clinical fellowships to produce experts in any focused surgical sub-speciality is undeniable. To substantiate and emphasize the importance of clinical fellowships, we conducted a survey among twenty specialist surgeons who completed their clinical fellowships in various surgical sub-specialities. We analysed the correlation between training related parameters with that of their performance after the fellowship. When surgeons strongly agreed that their fellowship training was comprehensive, their post-fellowship confidence as an expert increased. When they were satisfied that they developed the desired diagnostic and surgical skills during their fellowship, they became confident as an expert, were competent in practice, and able to do more sub-speciality related procedures after the fellowship; in addition, they became able clinical researchers. Therefore, it is with no doubt that clinical fellowships can be deemed as an integral part of sub-speciality training.

Keywords: MEDICAL EDUCATION, GRADUATE TRAINING, LEARNING CURVE, CLINICAL FELLOWSHIP, CLINICAL COMPETENCY

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Introduction

The medical field is constantly evolving and there are many sub-specialties for every major specialty (1). Currently, doctors, especially surgeons, are focusing more towards a particular sub-specialty after completing their specialty training (2). To be sub-specialty trained and also be up-to-date requires constant learning and expertise. To achieve this, surgeons undergo various forms of training including attending workshops, conferences, cadaveric courses, observerships, clinical fellowships, etc. However, a comprehensive training can only be achieved by completing a clinical fellowship programme.

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These clinical fellowships have now become a vital part of sub-specialty training. Surgeons choose these training opportunities offered by hospitals where the desired sub-specialty work is being done in abundance. This can have a positive impact in a surgeon's career and builds confidence as an expert sub-specialty trained surgeon. We believe that pursuing a clinical fellowship is a furthest milestone in a surgeon's training career and it significantly improves the performance of a surgeon after completion of the fellowship. To substantiate this, we conducted a survey among fellowship trained surgeons to analyze the strength of correlation between training related parameters with that of their performance after the fellowship.

Methods

A cross-sectional descriptive survey was formulated to assess the importance of clinical fellowships in a surgeon's career.

We selected twenty surgeons belonging to different specialities who have completed their clinical fellowships in a specific sub-speciality of interest one year prior to the start of this survey. The sub-specialities included reconstructive microsurgery, hepatobiliary-pancreatic surgery, orthopaedic spine surgery, arthroplasty and sports surgery, urogynaecology, laproscopic gynaecology, interventional neuro-radiology and craniofacial surgery. The duration of fellowship was a minimum of 6 months and a maximum of 2 years. The fellowships were non-structured non-module based and were tailored to meet individual goals.

They were provided with a Likert scale questionnaire containing statements about their training and their present state of work (Table 1). In the questionnaire there were two general statements dealing with the mentality of surgeons about clinical fellowships and whether it will boost their confidence. There are four statements dealing with aspects of their training period to assess if the training was adequate, whether they developed the desired clinical and surgical skills from the training and if they took part in research. There were five statements dealing with their present state of work to assess their confidence and competency, whether they perform new procedures and increased number of surgeries, and if they could complete a full-fledged research.

Surgeons had to give their level of agreement to each statement on a 5-point Likert scale where 0=strongly disagree, 1=disagree, 2=neutral, 3=agree and 4=strongly agree. We did a correlation analysis by calculating the Spearman's rank correlation coefficient (r_s) to assess the strength of correlation between their responses to statements dealing with aspects of their training period and statements dealing with their present state of work. Statistical analyses were performed using Graph Pad Prism 5.0 (GraphPad Software, Inc., San Diego, CA). We interpreted the Spearman's correlation coefficient (r_s) as follows; "r_s" value of -1 to 0 indicates negative correlation, "r_s" value of 0 indicates no correlation and "r_s" value of 0 to1 indicates positive correlation. The strength of correlation was considered stronger when the r_s value was close to 1.

Table 1: Questionnaire with Respondent's Level of agreement to each statement

Q. No	Statement	Mean Likert's scale score
General		
1	Clinical Fellowships are an integral part of sub-speciality training in my field	3.7±0.5
2	Completing a clinical fellowship will boost my confidence to perform selective procedures	3.9±0.3
During the Fellowship		
3	The fellowship training was adequate to gain comprehensive knowledge in my sub-speciality	3.3±0.8
4	I developed the desired clinical skills to diagnose and manage various conditions	3.3±0.8
5	I developed the desired surgical skills to perform selective procedures	3.3±0.8
6	I actively participated in research activities of the department	3.1±1.0
After the Fellowship		
7	I am confident as an expert in my sub-speciality	3.4±0.7
8	My competency to individually perform various procedures has increased	3.7±0.5
9	I can now perform certain procedures which i was not doing prior to my fellowship	3.7±0.6
10	There is a significant increase in the number of surgeries i perform after my fellowship	3.5±0.7
11	I am competent to commence/complete a full-fledged research in my sub-speciality	2.9±0.9

Results

The 20 selected surgeons belonged to different nationalities. They were specialists in their respective fields holding a master degree. They had visited a renowned training centre of their choice to pursue clinical fellowships in various surgical sub-specialities and were at the centre during 2016-2017. Ten of the selected surgeons underwent a six-month fellowship, six of them underwent a one-year fellowship and 4 of them underwent a two-year fellowship.

All selected surgeons strongly agreed that clinical fellowships were an integral part of sub-speciality training in their field. They also strongly agreed, completing a clinical fellowship will boost their confidence to perform selective procedures for which they were trained. The mean Likert scale score for each statement was noted (Table 1). The strength of correlation between responses to statements dealing with aspects of their training period and statements dealing with their present state of work was assessed by calculating the Spearman's correlation coefficient (r_s) and a correlation matrix was generated (Table 2)

Our vital findings from the correlation matrix were,

1) When surgeons strongly agreed that their fellowship training was adequate to gain comprehensive knowledge, their post-fellowship confidence as an expert increased (r_s=0.533);

2) When surgeons were satisfied that they developed the desired clinical skills during their fellowship to diagnose and manage various conditions, their post fellowship confidence increased (r_s=0.401), they were able to do new procedures which they were not doing prior to the fellowship (r_s=0.437) and they were doing more procedures than before (r_s=0.450);

3) When surgeons were satisfied that they developed the desired surgical skills during their fellowship, they became confident (r_s=0.575), competent (r_s=0.418), and were able to do new (r_s=0.552) and more procedures than before (r_s=0.737);

4) Active participation of the surgeon in research activities during the fellowship did not correlate well with clinical performance after the fellowship; however, they became competent to commence or complete a full-fledged research in their sub-speciality after the fellowship (r_s=0.746).

Discussion

The goal of fellowship training is to produce an expert in a focused surgical sub-speciality (3). It is becoming increasingly popular among young surgeons. As believed by all surgeons who participated in this survey, clinical fellowships have become an integral part of sub-speciality training. In most countries, fellowships are accredited by a regulatory body to make sure that the fellow receives adequate and appropriate training (4); however, there are customized fellowships which are often 6 months to 2 years of clinical experience gained from a specific surgeon or a renowned centre. Both ways of fellowship training positively impact a surgeon's career.

Recent advances have a lot of implications in modern medicine. A trained resident or even a specialist may not be adequately trained to adapt to evolving technology as it always comes with a steep learning curve; a good example of which is minimally invasive

Table 2: Correlation matrix

	Statement 7	Statement 8	Statement 9	Statement 10	Statement 11
Statement 3	0.533	0.206	0.351	0.392	0.405
Statement 4	0.401	0.179	0.437	0.450	0.403
Statement 5	0.575	0.418	0.552	0.737	0.115
Statement 6	0.150	0.234	0.144	-0.008	0.746

The strength of correlation was considered stronger when the r_s value was close to 1

surgery. It definitely needs additional practice more in the form of a fellowship to overcome the learning curve (5). Such is the case with many current sub-specialities which is why fellowships have become the need of the day and it makes logical sense that fellowship trainings can reduce the learning curve for complex procedures.

In most clinical fellowships, the fellows are allotted time to actively participate in research (6, 7). As inferred from our survey, this increases the research productivity of the fellows in their post fellowship period (8). However, in our survey we also noticed that there were surgeons who did not participate in research activities during their fellowships and felt that their time should be spent more on patient care as their fellowships were short (six months). Such practice oriented clinical fellowships tailored to individual requirements are also being taken.

Whatever be the structure of fellowship, fellowships have a significantly positive impact on clinical decision making (9). It will definitely improve the surgeon's competency if appropriate surgical skills were obtained during the fellowships; this is evident from our survey. However, complex skill acquisition demands appropriate utilization of the fellowship program by active participation and effective learning by the fellow (10), especially if it is a non-structured non-module based fellowship. This may also be affected by the duration of the fellowship, number of fellows in the sub-speciality at a given point of time, and the specialist surgeon (mentor) under whom the fellowship is being done.

Conclusion

We analysed the importance of clinical fellowships for surgeons by conducting a survey to assess confidence and competency during the post-fellowship period and correlating it with aspects of fellowship training. Our interpretation of the survey is that, fellowships are vital for enhancing the surgical and research skills of a specialist surgeon. It increases the confidence to do new sub-speciality related procedures after the fellowship. We also noticed that, there was an increase in the number of surgeries performed by the fellowship trained surgeon when compared to pre-fellowship status. This is undeniable and signifies the importance of clinical fellowships as an integral part of sub-speciality training for today's surgeons.

Conflict of Interest: None Declared.

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