

# **The Perceptions of Undertaking a Higher Degree Alongside Orthodontic Specialty Training: A Cross-Sectional Survey of British Orthodontic Society Members**

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## **Abstract**

**Introduction:** In the UK, orthodontic specialty training takes place over three years full-time. In addition to the clinical training, there is an expectation that trainees undertake a higher degree. Currently, there is little evidence regarding the impact of undertaking a higher degree on specialist orthodontists.

**Aims:** Investigate UK orthodontists' perceptions of undertaking a higher degree alongside specialty training.

**Materials and Methods:** A cross-sectional research study involving the distribution of an anonymous, descriptive, online, questionnaire-based survey between May and June 2021 via the British Orthodontic Society. Data were obtained in relation to the impact of undertaking a higher degree on the completion of specialty training, research skills, delivery of patient care and career opportunities.

**Results:** In total 166 questionnaires were completed (approximately 13.3% response rate). Most respondents 'agreed' or 'strongly agreed' that undertaking a higher degree had improved their scientific (77.1%) and critical appraisal skills (80.7%), job prospects (60.2%) and career opportunities (63.9%). Most respondents felt the benefits of the higher degree outweighed the associated costs (65.1%) and was a worthwhile component of training (69.3%).

**Conclusions:** Specialist orthodontists place a high value on undertaking a higher degree. The results of this questionnaire should be of importance to stakeholders involved in the development of the orthodontic curriculum.

## **Key points**

- Reports the findings of a cross-sectional questionnaire-based survey on UK orthodontists' perceptions of undertaking a higher degree alongside orthodontic specialty training.
- Highlights the value specialist orthodontists place on undertaking a higher degree as part of their specialty training.
- The results of this survey will help to inform stakeholders involved in the planning of postgraduate orthodontic education on specialist orthodontists' opinions on undertaking a higher degree alongside specialty training.

## Introduction

In the United Kingdom (UK) approximately 10% of dentists will undertake postgraduate training to pursue a career as a specialist in one of the 13 dental specialities recognised by the General Dental Council (GDC).<sup>1</sup> For UK dentists, entry onto a GDC specialist list usually occurs following the award of a specialist membership diploma with one of the surgical Royal Colleges, completion of a GDC-approved specialty training programme, and the award of a Certificate of Completion of Specialist Training (CCST).<sup>2</sup>

Gaining a specialty training post is highly competitive, with several essential requirements for candidates to attain prior to application.<sup>3</sup> In the UK, recruitment to specialty training occurs through a competitive national recruitment process, with posts advertised through Oriel, the portal for postgraduate specialty medical, dental, and public health training.<sup>4</sup> In the specialty of orthodontics, approximately 35 training posts are advertised annually.<sup>5</sup>

Following successful recruitment at an orthodontic national recruitment interview, applicants are appointed as orthodontic Specialty Trainees (STs), are allocated a national training number, and receive a salary fully funded by the National Health Service (NHS) through Health Education England (HEE) or the equivalent devolved bodies in Wales, Scotland and Northern Ireland.<sup>6</sup> In the first instance orthodontic specialty training takes three years (ST1-3) full-time, or part-time equivalent, and is based in secondary care, usually in teaching and district general hospitals.<sup>7</sup> The orthodontic specialty training programme comprises both clinical, academic and research components, with the latter usually being fulfilled by undertaking a postgraduate degree at Masters (MSc, MClinDent, MPhil) or Doctorate level (DDS, DClinDent). Therefore, as well as being NHS employees, orthodontic STs (ST1-3) also register as students at a university linked to their training programme, which incurs the payment of tuition fees by the individual to that university.<sup>8,9</sup> Tuition fees vary between different university institutions, with average fees being charged at £11,095 per year (£2325 - £23,000). Alternatively, STs may choose not to undertake a higher degree but instead submit two papers to appropriately peer reviewed journals on academic work completed during specialty training. The requirement for

STs to gain personal research training and experience is outlined as one of the objectives in the orthodontic curriculum. The current curriculum, last published in 2010, was produced by the Specialty Advisory Committee (SAC) in orthodontics, which is an intercollegiate body that specifies the essential skills, knowledge, attitudes, and requirements to become a specialist in orthodontics.<sup>9</sup> However, the GDC have ultimate responsibility in approving, regulating and quality-assuring the individual specialty curricula.<sup>10</sup> The expectation to undertake a higher degree alongside dental specialty training currently only applies to the clinical specialty of orthodontics. However, it is a mandatory requirement in Dental Public Health.

After 30 months of full, or part-time equivalent orthodontic specialty training on an approved programme, ST3s are eligible and expected to sit the Membership in Orthodontics (MOrth) specialty diploma with one of the surgical Royal Colleges. The MOrth examination aims to demonstrate the core knowledge and competencies within the specialty area of orthodontics at the level of a specialist orthodontist.<sup>8,11,12</sup> Once an ST has gained the MOrth diploma, completed three years of full or part-time equivalent specialty training, obtained a higher degree or submitted two research papers, and have been issued with a recommendation form from HEE (or the equivalent devolved body), they are awarded a CCST, which enables registration as a specialist with the GDC.<sup>2</sup> Following registration, orthodontic specialists may decide to work within primary care as a specialist or undertake further training to become an NHS Consultant or clinical academic.

The orthodontic curriculum is currently being reviewed by the GDC to ensure specialty training continues to meet the required standards to protect patients. There is currently no evidence regarding the impact that undertaking a higher degree alongside specialty training has on specialist orthodontists or their orthodontic careers.

The aim of this study was to investigate UK specialist orthodontists' perceptions of undertaking a higher degree as part of their orthodontic specialty training using an online survey of British Orthodontic Society (BOS) members. The results of this survey may be used to inform stakeholders who are responsible for reviewing the orthodontic curriculum

about the opinions of the UK orthodontic workforce on undertaking a higher degree during training.

## **Materials and Methods**

This was a cross-sectional study involving the distribution of an anonymous, descriptive, online, questionnaire-based survey to UK specialist orthodontists via the BOS mailing list. The questionnaire was designed and developed by the authors of this paper. Questions were aimed at collecting data relating to demographics, history of postgraduate orthodontic education and main area of current employment. Further questions were asked to gain an insight into the perceptions of undertaking a higher degree alongside orthodontic specialty training, and the impact the higher degree has on completion of speciality training, research skills, the delivery of patient care and career opportunities. Ethical approval was granted by the Faculty of Health Science Research Ethics Committee at the University of Bristol (reference number 114664) with secondary approval from the BOS Clinical Governance Committee. The questionnaire was piloted with six specialist orthodontists in the South West of England to help determine validity and assess readability. The initial questionnaire included a combination of positively and negatively worded statements to prevent straight-lining, which is when respondents provide the same response to a series of questions. However, the respondents in the pilot reported that this led to confusion and difficulty completing the questionnaire. Therefore, the statements were simplified to improve readability and included only positively worded statements. Responses to statements were provided with a five-point Likert scale, which ranged from strongly disagree to strongly agree. A copy of the questionnaire-based survey is available for reference via the following link: [https://www.ole.bris.ac.uk/bbcswebdav/xid-21062448\\_1](https://www.ole.bris.ac.uk/bbcswebdav/xid-21062448_1).

The questionnaire was distributed via email by the BOS to 1247 specialist orthodontist members of the Consultant Orthodontist Group, Orthodontic Specialists Group, University Teachers Group, Community Group, and specialists in the Training Grades Group. The email invitation contained a brief description of the study and a participant information sheet,

which provided further information and a link to the online questionnaire. The email link was active for eight weeks between 04 May-30 June 2021. Having followed the online link, respondents were required to read a consenting statement and confirm this had been read prior to continuing with the questionnaire. Consent was implied by respondents completing the questionnaire. A reminder email was sent out three weeks after the initial invitation email. The questionnaire was created and data collected using Online Surveys.<sup>13</sup> Data were collated using Microsoft Excel and descriptive statistics were calculated to describe the data. Responses to free text comments were independently read and coded by two authors of this paper (JJ and JAH) and were then reviewed by a third author (AJI).

## **Results**

A total of 166 respondents completed the online questionnaire-based survey, which represents approximately a 13.3% response rate. Most of the questionnaires were completed by females (n=95; 57.2%), with a smaller proportion being completed by males (n=70; 42.2%). Demographic characteristics of the sample are provided in Table 1.

Most respondents had obtained their orthodontic speciality training qualification in the UK (n=164; 98.8%) and of those, 42.8% (n=71) within the last 10 years (n=71; 42.8%). Within the sample, the higher degree qualification most frequently obtained during orthodontic specialty training by respondents was a Masters degree (n=132; 79.5%), with smaller proportions completing taught Doctoral Degrees (n=27; 16.3%), research Doctoral Degrees (n=4; 2.4%) and Certificates (n=3; 1.8%). When questioned about the main area of employment, the highest proportion of respondents were NHS Consultants (n=79; 47.6%), followed by specialists in primary care (n=51; 30.7%). See Table 2 for data relating to history of postgraduate orthodontic education and main area of employment.

### ***Completion of orthodontic specialty training***

Just over 90% (n=150; 90.4%) of respondents knew there was a requirement to undertake a higher degree as part of orthodontic specialty training prior to applying for specialty training

(Figure 1). The majority of respondents 'agreed' or 'strongly agreed' that undertaking a higher degree had helped them prepare for sitting the MOrth examination (n=94; 56.6%) and to meet the learning objectives defined in the orthodontic curriculum (n=110; 66.3%) (Figure 1). Within the questionnaire there was the opportunity for respondents to provide free text responses. Some respondents reported on the benefits of undertaking a higher degree and the impact on the MOrth examination.

*“Orthodontics is very different from general dental training and doing a degree also comes with the added benefit of a course of tutorials across the three years which helps greatly in preparing for the membership exams.”*

In addition, respondents reported on the advantages of having a formal academic component provided by the higher degree:

*“The quality of teaching from many academic units in the UK is most likely exceptional. Thus, training in an NHS environment alone would probably not provide enough academic support for trainees to develop a deep level of understanding of some of the key components of the curriculum.”*

Some respondents reported dissatisfaction with paying university tuition fees when some of the teaching on the higher degree programme was delivered by NHS staff:

*“The cost is too high, considering the educational programme is primarily delivered by NHS consultants [...]”*

Other respondents acknowledged the role that NHS staff have in providing teaching on taught university programmes but the potential issues that could arise if teaching was provided solely by the NHS.

*“The organization and structure of the training is through the university, if we were just part of the NHS we would quickly find teaching time was lost to service [provision] and waiting*



*times would be used as a justification for no time for seminars or research it would become an apprenticeship and it would have no international credibility.”*

*“It is impossible to see how the Training Programme Directors will be able to provide as complete an academic programme without University support. [...] I appreciate that ortho is the only ST programme with a degree attached, but it is also the only specialty where undergraduates graduate with very little prior knowledge, so there is a very steep learning curve.”*

### **Research skills and experience**

Over 75% (n=128; 77.1%) of respondents ‘agreed’ or ‘strongly agreed’ that the higher degree had helped them improve their scientific writing and presentation skills (Figure 2). With the use of free text comments, respondents expanded on the impact the higher degree had on the development of research and critical appraisal skills:

*“The MSc was the steepest learning curve that I have ever been on. It also made me think for the first time in my career.”*

*“Undertaking a higher degree meant that I learnt all the stages of undertaking a research project, developed my critical appraisal skills and learnt how to write academically about orthodontic matters with support from an expert in the field.”*

When respondents were questioned on their preference over submitting two papers to peer-reviewed journals during junior specialty training or undertaking a research degree, 73.5% (n=122) of respondents stated a preference for undertaking a higher degree. Several respondents commented on the perceived benefits of undertaking a higher degree over the submission of two papers in peer reviewed journals:

*“The two papers route would have been much more difficult, less structured and overall, of less value since I would have missed out on the synergistic learning opportunities offered by the university and NHS.”*

In contrast, just two respondents reported the perceived benefits of submitting two papers during orthodontic specialty training:

*“Publishing two papers would be more relevant to my training and less exhausting.”*

Two thirds (n=110; 66.3%) of respondents reported publishing the findings of their higher degree research project. However, less than half (n=53; 48.2%) published their research during specialty training. Some respondents expressed their concerns regarding the feasibility of successfully submitting two papers instead of undertaking a higher degree within the specialty training time frame, particularly if there was limited academic support available:

*“Submitting 2 papers would have been more difficult and time consuming, especially without direct academic support.”*

*“Given the requirements of peer reviewed journals it might not be possible to get 2 [papers] submitted in the time frame.”*

In comparison, some respondents highlighted the challenges they had experienced when trying to complete a research project during speciality training:

*“We had to find our own research project and it was very difficult to find one, submit ethics and complete it in time to graduate.”*

### ***Delivery of patient care***

The majority of respondents (n=134; 80.7%) ‘agreed’ or ‘strongly agreed’ that the higher degree in orthodontics had helped them to gain skills in critical appraisal and how best to provide evidence based clinical care to patients (Figure 2). Several of the respondents commented on the benefits of undertaking a higher degree on the provision of patient care:

*“The masters process is essential in turning out critical thinkers to the benefit of patients and the specialty.”*

*“The training was outstanding and has more than equipped me for clinical life post training.”*

However, some of the respondents reported on the negative impacts on undertaking a degree on clinical time:

*“Reduced the time I had for clinical learning”*

*“It [not doing a higher degree] may have left more time to do more clinical work.”*

### ***Career intentions and opportunities***

When respondents were asked about the impact of the higher degree on career opportunities, the majority of respondents (n=100; 60.2%) ‘agreed’ or ‘strongly agreed’ the higher degree had helped to improve their portfolio and job prospects. Over 60% (n=106; 63.9%) of respondents ‘agreed’ or ‘strongly agreed’ that by undertaking a higher degree it had provided them with additional career opportunities, such as teaching, guest lecturing and submitting papers for peer review (Figure 3). Some of the respondents provided further details on the impact of the higher degree on their career opportunities:

*“I am proud of my Doctorate on my CV and it has also opened doors for teaching and lecturing opportunities.”*

*“For me a high degree opened new and rewarding pathways.”*

*“Controlling the running of a scientific investigation helps with the supervising and guidance of your future trainees.”*

In contrast, some respondents felt the higher degree had had little impact on their clinical careers as orthodontists:

*“Not relevant to my career.”*

*“It is totally inappropriate to have it as a requirement of specialising. Were the same thing to be implemented in medicine there would be strikes in my view.”*

One respondent raised the point that when on embarking on an orthodontic career, STs may not be aware of their intended career ambitions and by undertaking the higher degree it equalises candidates and keeps career options open:

*“Not everyone knows they just want to be a specialist in primary care or in hospital therefore equal starting points is required.”*

Most respondents (n=128; 77.1%) ‘agreed’ or ‘strongly agreed’ that the higher degree had provided them with an insight into a clinical academic career (Figure 3). Some of the respondents provided further insight into the benefits of undertaking a higher degree on clinical academia:

*“I am proud of doing the MSc despite finding it frustrating at times. I think it a useful insight into academia.”*

*“I found the research degree process interesting and subsequently confirmed that an academic career was not for me.”*

### **Other factors**

Almost two-thirds (n=108; 65.1%) of respondents felt the benefits of the higher degree outweighed the associated costs, financial or otherwise. The most frequently reported free text comments provided by respondents were in relation to finances. Some respondents reported on the financial sacrifices of undertaking a higher degree which provided financial remuneration as a specialist orthodontist:

*“The costs of doing a masters was insignificant compared with my life-time earnings.”*

*“The short-term financial impact is overwhelmingly offset over a lifetime career with insight, objective evidence base and appreciation of academic/scientific value in orthodontics.”*

Other respondents highlighted inequalities regarding the differing cost of higher degree across different institutions:

*“Expensive degree, no financial support available, varies depending on academic institution so seems fundamentally unfair.”*

*“There should perhaps be a limit on the cost of the degree or more uniform costs across the country or costs of degree covered by trainees Trust/Health board.”*

Some respondents reported the financial implications of undertaking a higher degree on personal circumstances:

*“I do not think it should be compulsory as the financial impact and time implications are huge. Especially when it is at time when many are perhaps trying to buy a house, get married, children etc.”*

*“If there is no option to opt out the cost of the university degree should be covered as this creates barriers orthodontics speciality training. My university monthly fees were more than my mortgage, this is very significant when compared to other dental specialities e.g. dental public health MSc is required but the cost is waived for the ST.”*

Overall, 69.3% (n=115) of respondents felt that undertaking a higher degree as part of specialty training was worthwhile. Amongst those that felt the higher degree was worthwhile, the highest proportions were respondents working within secondary care as specialists (n=3; 100%), NHS Consultants (n=65; 82.3%), in training grade appointments (n=15; 65.2%) or as academics (n=5; 62.5%). Whereas smaller proportions of specialists in primary care felt the higher degree was worthwhile (n=25; 49%). Significant concern was raised by some of the respondents with respect to the notion of removing the requirement to undertake a higher degree from the orthodontic curriculum (Table 3).

## **Discussion**

In this study high levels of agreement were reported amongst respondents with respect to the positive impacts of undertaking a higher degree alongside orthodontic specialty training. Benefits were reported in relation to the impact the higher degree had on preparing for the

MOrth examination and meeting the orthodontic curriculum learning objectives. Respondents acknowledged the added benefit of the higher degree and the provision of formal didactic teaching. These findings are comparable to another cross-sectional study investigating the opinions of UK orthodontists on the perceived value of orthodontic training. High levels of satisfaction were reported in relation to orthodontic specialty training and the teaching of theoretical concepts in orthodontics.<sup>14</sup>

In this current study, some respondents did express dissatisfaction with paying university tuition fees when much of their teaching was provided by NHS staff. It is perhaps unsurprising that some teaching will inevitably be delivered by NHS staff, considering the overlap in training delivery and current national shortages of academics.<sup>15</sup> Although the contributions of NHS staff in teaching should not go unnoticed, they are ultimately not responsible for organising or delivering academic programmes and may not have gained the skills required to curriculum map and assessment blueprint.<sup>16</sup> Some respondents highlighted potential issues if the NHS were solely responsible for providing teaching, including the loss of teaching to service provision. This is particularly pertinent at present as the NHS continues to face considerable pressures with increasing numbers of patients waiting to start treatment as a result of the COVID-19 pandemic.<sup>17</sup> With the universities providing the formal academic component of orthodontic specialty training, it not only ensures that didactic teaching is provided under all circumstances, but that STs have protected time within the clinical week to attend teaching.

The majority of respondents reported the positive impact the higher degree had on the development of their scientific, research and critical appraisal skills. These findings are consistent with the study on orthodontists' opinions on the perceived value of training. In this study 68% of respondents felt they had learnt the correct amount in relation to research and critical appraisal, with only 10% of respondents reporting the research component to be excessive.<sup>14</sup> These findings demonstrate the positive impact undertaking a higher degree has on clinicians adopting an evidence-based approach to providing orthodontic care.

Evidence-based dentistry is an approach to providing care that encompasses clinical experience, patient preferences and appraisal of the best available evidence.<sup>18</sup>

Currently, to fulfil the research component the orthodontic curriculum states that it is possible to submit two papers to peer-reviewed journals based on work undertaken during specialty training, rather than undertake a higher degree. However, the majority of respondents in the questionnaire stated a preference of undertaking a higher degree due to the rewards in terms of skills gained and the difficulties with submitting two papers within the specialty training time frame. In addition, other respondents recognised that without undertaking a higher degree, there would be no or limited access to academic support, which could prove challenging considering submission to a peer-reviewed journal is likely to involve research at some level. One could argue that at present, any orthodontic specialist could adequately and solely support such a project. The majority of orthodontic specialists who are currently working will have gained sufficient research skills from undertaking a higher degree during their specialty training and may feel prepared to do this. However, with time, if fewer orthodontic specialists choose to complete higher degrees, they may feel less able to supervisor junior colleagues with their research, which will present difficulties for future trainees.

Generally, undertaking a higher degree was deemed to have a positive impact on career opportunities and job prospects. A high proportion of respondents reported the higher degree had provided them with an insight into a clinical academic career. Despite the higher degree providing an insight into clinical academic careers, it has not addressed the issues facing recruitment and retention of academics. A qualitative study investigating the factors influencing an academic career reported several barriers to an academic career; previous negative research experiences, lack of undergraduate research experience, length of the clinical academic training pathway and negative effect on clinical time and work life balance. The study highlighted that STs enter an orthodontic career with the primary aim of becoming an orthodontist, not a clinical academic.<sup>19</sup> Therefore, those involved in workforce planning

should not rely on the recruitment of orthodontic clinical academics from STs, with more being done at an earlier stage of training to increase awareness of academic careers.

The most frequently reported free text comments provided by respondents were in relation to finances. Undertaking a higher degree alongside specialty training incurs a financial burden which may impact on people's ability to buy houses, get married and have children. In a cross-sectional survey of UK orthodontists that had recently completed ST1-3 training, finances played a role in the recruitment of ST3 trainees into consultant training posts (ST4-5).<sup>20</sup> This is of concern, considering there is currently a national shortage of NHS Orthodontic Consultants.<sup>21</sup> Some respondents were able to put the cost of the higher degree into perspective within the total lifetime earning potential post specialisation. During specialty training STs are able to claim tax relief on professional fees, which does reduce the total cost of the fees.<sup>22</sup> Whether respondents had applied for this tax relief during their training was not asked in the questionnaire. Despite this, there are inequalities between the institutions regarding university tuition fees. As the SAC and GDC have no influence over the fees academic institutions can charge, one approach to provide equity for STs may be to consider removal of the option to undertake a higher degree from the orthodontic curriculum. However, considering the findings of the study and the positive impact the higher degree has on the completion of specialty training, research skills, patient care and career opportunities, this would not appear to be the preferred approach. Instead, stakeholders responsible for supporting the delivery of excellent healthcare might consider other ways to address the potential financial inequities.

A limitation of this study was the relatively low response rate of approximately 13.3%.

Interestingly, the response rate is comparable to those found in similar cross-sectional surveys with response rates of 13.6 to 20.1%.<sup>14,23,24,25</sup> As the respondents in this study were recruited via the BOS, it is possible that there is a risk of selection bias. However, it would appear that most UK orthodontists are members of the BOS as the numbers of orthodontists who were emailed in the study (n=1247), is similar to the number of orthodontists registered



with the GDC (n=1397).<sup>1</sup> Therefore, the sample included in the study was representative of UK orthodontists. However, considering the low response rate, a degree of caution should be exercised when generalising the findings to all UK orthodontists. A second limitation was that orthodontists were invited to participate in the study irrespective of when they gained their orthodontic qualification. It is possible that dependent on the year of qualifying, orthodontists will have different perceptions of the value of undertaking a higher degree as part of their specialty training, particularly considering the increasing costs of university fees. However, on the other hand, it is likely that orthodontists who qualified several years ago may have a better perception of the impact that undertaking a higher degree has on an orthodontic career over the longer term. Finally, higher proportions of respondents were working within secondary care. It could be argued that undertaking a higher degree alongside orthodontic specialty training has additional advantages to those wishing to continue in formal training. This was reflected by higher proportions of respondents working within secondary care reporting that undertaking a higher degree was worthwhile. However, just over 30% (n=51; 30.7%) of respondents were working as specialist orthodontists in primary care and almost half (n=25; 49%) of these respondents reported that undertaking a higher degree was worthwhile.

## **Conclusions**

This paper reports the findings of a cross-sectional study investigating perceptions of specialist orthodontists undertaking a higher degree alongside clinical specialty training. Overall, most orthodontists placed great value on undertaking a higher degree as part of their specialty training, with reported benefits including: improved scientific and critical appraisal skills, better job prospects, and improved career opportunities. The high financial cost of undertaking a higher degree was deemed unfair by some respondents, although most orthodontists felt the benefits of undertaking a higher degree outweighed any associated costs. Significant concern was raised with respect to the possible removal of the requirement to undertake a higher degree from the orthodontic curriculum in the current

review of the GDC curriculum. The results of this questionnaire are likely to be of importance to stakeholders who are involved in the planning of postgraduate orthodontic education and reviewing of the orthodontic curriculum.

Due to the lack of research in this area, future research includes a plan to survey STs from other dental specialties who are not currently required to undertake a higher degree as part of their specialty training, to see if there are any similarities or differences regarding the perceptions and experiences of training, and whether a higher degree taken as part of training in other dental specialties would be worthwhile.

### **Declaration of interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. However, some authors work across both the NHS and University settings.

### **Author contributions**

All authors contributed to the development of the questionnaire-based survey. JJ, JAH and AJI were responsible for data collection and analysis. JJ drafted the manuscript. All authors read, revised, and approved the final manuscript.

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